Scikit Data Access

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Contents

1 Namespace Index **1**

1.1 Packages 1

2 Hierarchical Index **5**

2.1 Class Hierarchy 5

3 Class Index **7**

3.1 Class List 7

4 File Index **11**

4.1 File List 11

5 Namespace Documentation **13**

5.1 skdaccess Namespace Reference 13

5.2 skdaccess.astro Namespace Reference 13

5.3 skdaccess.astro.kepler Namespace Reference 13

5.4 skdaccess.astro.kepler.data_fetcher Namespace Reference 13

5.5 skdaccess.astro.voyager Namespace Reference 14

5.6 skdaccess.astro.voyager.data_fetcher Namespace Reference 14

5.7 skdaccess.framework Namespace Reference 14

5.8 skdaccess.framework.data_class Namespace Reference 14

5.9 skdaccess.framework.param_class Namespace Reference 15

5.10 skdaccess.geo Namespace Reference 15

5.11 skdaccess.geo.era_interim Namespace Reference . . . 15
5.12 skdaccess.geo.era_interim.cache Namespace Reference . . . 16
5.13 skdaccess.geo.era_interim.cache.data_fetcher Namespace Reference . . . 16
5.14 skdaccess.geo.gldas Namespace Reference . . . 16
5.15 skdaccess.geo.gldas.data_fetcher Namespace Reference . . . 16
5.16 skdaccess.geo.grace Namespace Reference . . . 16
5.17 skdaccess.geo.grace.data_fetcher Namespace Reference . . . 16
5.18 skdaccess.geo.grace.mascon Namespace Reference . . . 17
5.19 skdaccess.geo.grace.mascon.cache Namespace Reference . . . 17
5.20 skdaccess.geo.grace.mascon.cache.data_fetcher Namespace Reference . . . 17
5.21 skdaccess.geo.groundwater Namespace Reference . . . 17
5.22 skdaccess.geo.groundwater.data_fetcher Namespace Reference . . . 17
5.23 skdaccess.geo.imsdnhs Namespace Reference . . . 17
5.24 skdaccess.geo.imsdnhs.data_fetcher Namespace Reference . . . 18
5.25 skdaccess.geo.magnetometer Namespace Reference . . . 18
5.26 skdaccess.geo.magnetometer.data_fetcher Namespace Reference . . . 18
5.27 skdaccess.geo.mahali Namespace Reference . . . 18
5.28 skdaccess.geo.mahali.rinex Namespace Reference . . . 18
5.29 skdaccess.geo.mahali.rinex.data_fetcher Namespace Reference . . . 19
5.30 skdaccess.geo.mahali.rinex.data_wrapper Namespace Reference . . . 19
5.31 skdaccess.geo.mahali.tec Namespace Reference . . . 19
5.32 skdaccess.geo.mahali.tec.data_fetcher Namespace Reference . . . 19
5.33 skdaccess.geo.mahali.temperature Namespace Reference . . . 19
5.34 skdaccess.geo.mahali.temperature.data_fetcher Namespace Reference . . . 19
5.35 skdaccess.geo.modis Namespace Reference . . . 20
5.36 skdaccess.geo.modis.cache Namespace Reference . . . 20
5.37 skdaccess.geo.modis.cache.cloud_mask Namespace Reference . . . 20
5.38 skdaccess.geo.modis.cache.cloud_mask.data_fetcher Namespace Reference . . . 20

5.39 skdaccess.geo.modis.cache.cloud_opacity Namespace Reference 20
5.40 skdaccess.geo.modis.cache.cloud_opacity.data_fetcher Namespace Reference 20
5.41 skdaccess.geo.modis.cache.data_fetcher Namespace Reference 21
5.42 skdaccess.geo.modis.cache.reflectance Namespace Reference 21
5.43 skdaccess.geo.modis.cache.reflectance.data_fetcher Namespace Reference 21
5.44 skdaccess.geo.modis.stream Namespace Reference 21
5.45 skdaccess.geo.modis.stream.cloud_mask Namespace Reference 21
5.46 skdaccess.geo.modis.stream.cloud_mask.data_fetcher Namespace Reference 21
5.47 skdaccess.geo.modis.stream.cloud_opacity Namespace Reference 22
5.48 skdaccess.geo.modis.stream.cloud_opacity.data_fetcher Namespace Reference 22
5.49 skdaccess.geo.modis.stream.data_fetcher Namespace Reference 22
5.50 skdaccess.geo.modis.stream.reflectance Namespace Reference 22
5.51 skdaccess.geo.modis.stream.reflectance.data_fetcher Namespace Reference 22
5.52 skdaccess.geo.ngl_gps Namespace Reference 22
5.53 skdaccess.geo.ngl_gps.data_fetcher Namespace Reference 23
5.54 skdaccess.geo.pbo Namespace Reference 23
5.55 skdaccess.geo.pbo.data_fetcher Namespace Reference 23
5.56 skdaccess.geo.sentinel_1 Namespace Reference 23
5.57 skdaccess.geo.sentinel_1.cache Namespace Reference 23
5.58 skdaccess.geo.sentinel_1.cache.data_fetcher Namespace Reference 23
5.59 skdaccess.geo.srtm Namespace Reference 24
5.60 skdaccess.geo.srtm.cache Namespace Reference 24
5.61 skdaccess.geo.srtm.cache.data_fetcher Namespace Reference 24
5.62 skdaccess.geo.uavsar Namespace Reference 24
5.63 skdaccess.geo.uavsar.cache Namespace Reference 24
5.64 skdaccess.geo.uavsar.cache.data_fetcher Namespace Reference 24
5.65 skdaccess.geo.wyoming_sounding Namespace Reference 25
5.66 skdaccess.geo.wyoming_sounding.cache Namespace Reference 25

5.67 skdaccess.geo.wyoming_sounding.cache.data_fetcher Namespace Reference . . . 25
5.68 skdaccess.geo.wyoming_sounding.stream Namespace Reference . . . 25
5.69 skdaccess.geo.wyoming_sounding.stream.data_fetcher Namespace Reference . . . 25
5.70 skdaccess.planetary Namespace Reference . . . 25
5.71 skdaccess.planetary.ode Namespace Reference . . . 26
5.72 skdaccess.planetary.ode.cache Namespace Reference . . . 26
5.73 skdaccess.planetary.ode.cache.data_fetcher Namespace Reference . . . 26
5.74 skdaccess.solar Namespace Reference . . . 26
5.75 skdaccess.solar.sdo Namespace Reference . . . 26
5.76 skdaccess.solar.sdo.data_fetcher Namespace Reference . . . 26
5.77 skdaccess.utilities Namespace Reference . . . 27
5.78 skdaccess.utilities.file_browser Namespace Reference . . . 27
5.79 skdaccess.utilities.grace_util Namespace Reference . . . 27
5.79.1 Function Documentation . . . 27
5.79.1.1 averageDates() . . . 28
5.79.1.2 computeEWD() . . . 28
5.79.1.3 dateMismatch() . . . 28
5.79.1.4 getStartEndDate() . . . 30
5.79.1.5 readTellusData() . . . 30
5.80 skdaccess.utilities.gw_util Namespace Reference . . . 31
5.80.1 Function Documentation . . . 31
5.80.1.1 combine_water_heights() . . . 31
5.81 skdaccess.utilities.image_util Namespace Reference . . . 31
5.81.1 Function Documentation . . . 32
5.81.1.1 convertBinCentersToEdges() . . . 32
5.81.1.2 getExtentsFromCentersPlateCarree() . . . 32
5.82 skdaccess.utilities.kepler_util Namespace Reference . . . 32
5.82.1 Function Documentation . . . 32

5.82.1.1 normalize() . . . 33
5.83 skdaccess.utilities.mahali_util Namespace Reference . . . 33
5.83.1 Function Documentation . . . 33
5.83.1.1 convert_date() . . . 33
5.83.1.2 parseIonoFile() . . . 33
5.84 skdaccess.utilities.modis_util Namespace Reference . . . 34
5.84.1 Function Documentation . . . 34
5.84.1.1 calibrateModis() . . . 34
5.84.1.2 checkBit() . . . 35
5.84.1.3 createGrid() . . . 35
5.84.1.4 getFileIDs() . . . 36
5.84.1.5 getFileURLs() . . . 37
5.84.1.6 getImageType() . . . 37
5.84.1.7 getModisData() . . . 37
5.84.1.8 readMODISData() . . . 38
5.84.1.9 rescale() . . . 38
5.85 skdaccess.utilities.ode_util Namespace Reference . . . 39
5.85.1 Function Documentation . . . 39
5.85.1.1 correct_CRISM_label() . . . 39
5.85.1.2 correct_file_name_case_in_label() . . . 40
5.85.1.3 correct_label_file() . . . 40
5.85.1.4 get_files_urls() . . . 40
5.85.1.5 get_query_url() . . . 40
5.85.1.6 get_raster_array() . . . 41
5.85.1.7 get_raster_extent() . . . 41
5.85.1.8 query_files_urls() . . . 42
5.85.1.9 query_yes_no() . . . 42
5.86 skdaccess.utilities.pbo_util Namespace Reference . . . 43

5.86.1 Function Documentation . . . 43
5.86.1.1 getLatLonRange() . . . 43
5.86.1.2 getROIstations() . . . 44
5.86.1.3 getStationCoords() . . . 44
5.86.1.4 nostab_sys() . . . 45
5.86.1.5 propagateErrors() . . . 45
5.86.1.6 removeAntennaOffset() . . . 46
5.86.1.7 stab_sys() . . . 46
5.87 skdaccess.utilities.sentinel_1_util Namespace Reference . . . 47
5.87.1 Function Documentation . . . 47
5.87.1.1 parseSatelliteData() . . . 47
5.88 skdaccess.utilities.sounding_util Namespace Reference . . . 47
5.88.1 Function Documentation . . . 48
5.88.1.1 generateQueries() . . . 48
5.89 skdaccess.utilities.srtm_util Namespace Reference . . . 48
5.89.1 Function Documentation . . . 48
5.89.1.1 getSRTMData() . . . 49
5.89.1.2 getSRTMLatLon() . . . 49
5.89.1.3 merge_srtm_tiles() . . . 50
5.90 skdaccess.utilities.support Namespace Reference . . . 50
5.90.1 Function Documentation . . . 50
5.90.1.1 convertToStr() . . . 50
5.90.1.2 progress_bar() . . . 50
5.90.1.3 retrieveCommonDatesHDF() . . . 51
5.91 skdaccess.utilities.uavsar_util Namespace Reference . . . 51
5.91.1 Function Documentation . . . 51
5.91.1.1 readUAVSARMetadata() . . . 51

6 Class Documentation **53**

6.1 skdaccess.framework.param_class.AutoList Class Reference 53

6.1.1 Detailed Description 54

6.1.2 Constructor & Destructor Documentation 54

6.1.2.1 __init__() 54

6.1.3 Member Function Documentation 54

6.1.3.1 __call__() 54

6.1.3.2 __getitem__() 55

6.1.3.3 __len__() 55

6.1.3.4 __setitem__() 55

6.1.3.5 __str__() 56

6.1.3.6 getAllOptions() 56

6.1.3.7 perturb() 56

6.1.3.8 reset() 56

6.1.3.9 val() 57

6.1.4 Member Data Documentation 57

6.1.4.1 val_init 57

6.1.4.2 val_list 57

6.2 skdaccess.framework.param_class.AutoListCycle Class Reference 57

6.2.1 Detailed Description 58

6.2.2 Constructor & Destructor Documentation 58

6.2.2.1 __init__() 58

6.2.3 Member Function Documentation 59

6.2.3.1 __call__() 59

6.2.3.2 __getitem__() 59

6.2.3.3 __len__() 59

6.2.3.4 __setitem__() 60

6.2.3.5 __str__() 60

6.2.3.6 getAllOptions() . . . 60
6.2.3.7 perturb() . . . 61
6.2.3.8 reset() . . . 61
6.2.3.9 val() . . . 61
6.2.4 Member Data Documentation . . . 61
6.2.4.1 index . . . 61
6.2.4.2 list_val_list . . . 61
6.2.4.3 val_init . . . 62
6.2.4.4 val_list . . . 62
6.3 skdaccess.framework.param_class.AutoListPermute Class Reference . . . 62
6.3.1 Detailed Description . . . 63
6.3.2 Member Function Documentation . . . 63
6.3.2.1 __call__() . . . 63
6.3.2.2 __getitem__() . . . 63
6.3.2.3 __len__() . . . 64
6.3.2.4 __setitem__() . . . 64
6.3.2.5 __str__() . . . 64
6.3.2.6 getAllOptions() . . . 65
6.3.2.7 perturb() . . . 65
6.3.2.8 reset() . . . 65
6.3.2.9 val() . . . 65
6.3.3 Member Data Documentation . . . 65
6.3.3.1 val_init . . . 66
6.3.3.2 val_list . . . 66
6.4 skdaccess.framework.param_class.AutoListRemove Class Reference . . . 66
6.4.1 Detailed Description . . . 67
6.4.2 Constructor & Destructor Documentation . . . 67
6.4.2.1 __init__() . . . 67

6.4.3 Member Function Documentation . . . 67
6.4.3.1 __call__() . . . 67
6.4.3.2 __getitem__() . . . 68
6.4.3.3 __len__() . . . 68
6.4.3.4 __setitem__() . . . 68
6.4.3.5 __str__() . . . 69
6.4.3.6 getAllOptions() . . . 69
6.4.3.7 perturb() . . . 69
6.4.3.8 reset() . . . 69
6.4.3.9 val() . . . 70
6.4.4 Member Data Documentation . . . 70
6.4.4.1 n . . . 70
6.4.4.2 val_init . . . 70
6.4.4.3 val_list . . . 70
6.5 skdaccess.framework.param_class.AutoListSubset Class Reference . . . 70
6.5.1 Detailed Description . . . 71
6.5.2 Member Function Documentation . . . 71
6.5.2.1 __call__() . . . 71
6.5.2.2 __getitem__() . . . 72
6.5.2.3 __len__() . . . 72
6.5.2.4 __setitem__() . . . 72
6.5.2.5 __str__() . . . 73
6.5.2.6 getAllOptions() . . . 73
6.5.2.7 perturb() . . . 73
6.5.2.8 reset() . . . 73
6.5.2.9 val() . . . 74
6.5.3 Member Data Documentation . . . 74
6.5.3.1 val_init . . . 74

6.5.3.2 val_list . . . 74
6.6 skdaccess.framework.param_class.AutoParam Class Reference . . . 74
6.6.1 Detailed Description . . . 75
6.6.2 Constructor & Destructor Documentation . . . 75
6.6.2.1 __init__() . . . 75
6.6.3 Member Function Documentation . . . 76
6.6.3.1 __call__() . . . 76
6.6.3.2 __str__() . . . 76
6.6.3.3 perturb() . . . 76
6.6.3.4 reset() . . . 76
6.6.4 Member Data Documentation . . . 77
6.6.4.1 val . . . 77
6.6.4.2 val_init . . . 77
6.7 skdaccess.framework.param_class.AutoParamList Class Reference . . . 77
6.7.1 Detailed Description . . . 78
6.7.2 Constructor & Destructor Documentation . . . 78
6.7.2.1 __init__() . . . 78
6.7.3 Member Function Documentation . . . 78
6.7.3.1 __call__() . . . 78
6.7.3.2 __str__() . . . 79
6.7.3.3 perturb() . . . 79
6.7.3.4 reset() . . . 79
6.7.4 Member Data Documentation . . . 79
6.7.4.1 val . . . 79
6.7.4.2 val_init . . . 79
6.7.4.3 val_list . . . 80
6.8 skdaccess.framework.param_class.AutoParamListCycle Class Reference . . . 80
6.8.1 Detailed Description . . . 80

6.8.2 Constructor & Destructor Documentation . . . 81
6.8.2.1 __init__() . . . 81
6.8.3 Member Function Documentation . . . 81
6.8.3.1 __call__() . . . 81
6.8.3.2 __str__() . . . 81
6.8.3.3 perturb() . . . 82
6.8.3.4 reset() . . . 82
6.8.4 Member Data Documentation . . . 82
6.8.4.1 current_index . . . 82
6.8.4.2 val . . . 82
6.8.4.3 val_init . . . 82
6.8.4.4 val_list . . . 82
6.9 skdaccess.framework.param_class.AutoParamMinMax Class Reference . . . 83
6.9.1 Detailed Description . . . 83
6.9.2 Constructor & Destructor Documentation . . . 83
6.9.2.1 __init__() . . . 84
6.9.3 Member Function Documentation . . . 84
6.9.3.1 __call__() . . . 84
6.9.3.2 __str__() . . . 84
6.9.3.3 perturb() . . . 85
6.9.3.4 reset() . . . 85
6.9.4 Member Data Documentation . . . 85
6.9.4.1 decimals . . . 85
6.9.4.2 n . . . 85
6.9.4.3 n_max . . . 85
6.9.4.4 val . . . 85
6.9.4.5 val_init . . . 86
6.9.4.6 val_max . . . 86

6.9.4.7 val_min . . . 86
6.10 skdaccess.geo.gldas.DataFetcher Class Reference . . . 86
6.10.1 Detailed Description . . . 87
6.10.2 Constructor & Destructor Documentation . . . 87
6.10.2.1 __init__() . . . 88
6.10.3 Member Function Documentation . . . 88
6.10.3.1 __str__() . . . 88
6.10.3.2 downloadFullDataset() . . . 88
6.10.3.3 getConfig() . . . 89
6.10.3.4 getDataLocation() . . . 89
6.10.3.5 getMetadata() . . . 89
6.10.3.6 multirun_enabled() . . . 90
6.10.3.7 output() . . . 90
6.10.3.8 perturb() . . . 90
6.10.3.9 reset() . . . 90
6.10.3.10 setDataLocation() . . . 90
6.10.3.11 verbose_print() . . . 91
6.10.3.12 writeConfig() . . . 91
6.10.4 Member Data Documentation . . . 91
6.10.4.1 ap_paramList . . . 91
6.10.4.2 end_date . . . 91
6.10.4.3 resample . . . 92
6.10.4.4 start_date . . . 92
6.10.4.5 verbose . . . 92
6.11 skdaccess.geo.sentinel_1.cache.DataFetcher Class Reference . . . 92
6.11.1 Detailed Description . . . 93
6.11.2 Constructor & Destructor Documentation . . . 94
6.11.2.1 __init__() . . . 94

6.11.3 Member Function Documentation . . . 94
6.11.3.1 __str__() . . . 94
6.11.3.2 cacheData() . . . 95
6.11.3.3 getConfig() . . . 95
6.11.3.4 getDataLocation() . . . 95
6.11.3.5 getHDFStorage() . . . 96
6.11.3.6 getMetadata() . . . 96
6.11.3.7 multirun_enabled() . . . 96
6.11.3.8 output() . . . 96
6.11.3.9 perturb() . . . 97
6.11.3.10 reset() . . . 97
6.11.3.11 setDataLocation() . . . 97
6.11.3.12 verbose_print() . . . 97
6.11.3.13 writeConfig() . . . 98
6.11.4 Member Data Documentation . . . 98
6.11.4.1 ap_paramList . . . 98
6.11.4.2 local_paths . . . 98
6.11.4.3 password . . . 98
6.11.4.4 polarization . . . 98
6.11.4.5 satellite_url_list . . . 98
6.11.4.6 swath . . . 99
6.11.4.7 url_list . . . 99
6.11.4.8 username . . . 99
6.11.4.9 verbose . . . 99
6.12 skdaccess.geo.groundwater.DataFetcher Class Reference . . . 99
6.12.1 Detailed Description . . . 100
6.12.2 Constructor & Destructor Documentation . . . 100
6.12.2.1 __init__() . . . 101

6.12.3 Member Function Documentation . . . 101
6.12.3.1 __str__() . . . 101
6.12.3.2 downloadFullDataset() . . . 101
6.12.3.3 getConfig() . . . 102
6.12.3.4 getDataLocation() . . . 102
6.12.3.5 getMetadata() . . . 102
6.12.3.6 getStationMetadata() . . . 103
6.12.3.7 multirun_enabled() . . . 103
6.12.3.8 output() . . . 103
6.12.3.9 perturb() . . . 104
6.12.3.10 reset() . . . 104
6.12.3.11 setDataLocation() . . . 104
6.12.3.12 verbose_print() . . . 104
6.12.3.13 writeConfig() . . . 105
6.12.4 Member Data Documentation . . . 105
6.12.4.1 ap_paramList . . . 105
6.12.4.2 cutoff . . . 105
6.12.4.3 end_date . . . 105
6.12.4.4 start_date . . . 105
6.12.4.5 verbose . . . 106
6.13 skdaccess.geo.srtm.cache.DataFetcher Class Reference . . . 106
6.13.1 Detailed Description . . . 107
6.13.2 Constructor & Destructor Documentation . . . 107
6.13.2.1 __init__() . . . 107
6.13.3 Member Function Documentation . . . 108
6.13.3.1 __str__() . . . 108
6.13.3.2 cacheData() . . . 108
6.13.3.3 getConfig() . . . 109

6.13.3.4 getDataLocation() . . . 109
6.13.3.5 getHDFStorage() . . . 109
6.13.3.6 getMetadata() . . . 110
6.13.3.7 multirun_enabled() . . . 110
6.13.3.8 output() . . . 110
6.13.3.9 perturb() . . . 110
6.13.3.10 reset() . . . 111
6.13.3.11 setDataLocation() . . . 111
6.13.3.12 verbose_print() . . . 111
6.13.3.13 writeConfig() . . . 111
6.13.4 Member Data Documentation . . . 112
6.13.4.1 ap_paramList . . . 112
6.13.4.2 arcsecond_sampling . . . 112
6.13.4.3 lat_tile_end . . . 112
6.13.4.4 lat_tile_start . . . 112
6.13.4.5 lon_tile_end . . . 112
6.13.4.6 lon_tile_start . . . 113
6.13.4.7 mask_water . . . 113
6.13.4.8 password . . . 113
6.13.4.9 username . . . 113
6.13.4.10 verbose . . . 113
6.14 skdaccess.geo.uavsar.cache.DataFetcher Class Reference . . . 113
6.14.1 Detailed Description . . . 114
6.14.2 Constructor & Destructor Documentation . . . 114
6.14.2.1 __init__() . . . 115
6.14.3 Member Function Documentation . . . 115
6.14.3.1 __str__() . . . 115
6.14.3.2 cacheData() . . . 115

6.14.3.3 getConfig() . . . 116
6.14.3.4 getDataLocation() . . . 116
6.14.3.5 getHDFStorage() . . . 116
6.14.3.6 getMetadata() . . . 117
6.14.3.7 multirun_enabled() . . . 117
6.14.3.8 output() . . . 117
6.14.3.9 perturb() . . . 117
6.14.3.10 reset() . . . 118
6.14.3.11 setDataLocation() . . . 118
6.14.3.12 verbose_print() . . . 118
6.14.3.13 writeConfig() . . . 118
6.14.4 Member Data Documentation . . . 119
6.14.4.1 ap_paramList . . . 119
6.14.4.2 llh_url . . . 119
6.14.4.3 memmap . . . 119
6.14.4.4 metadata_url_list . . . 119
6.14.4.5 slc_url_list . . . 119
6.14.4.6 verbose . . . 119
6.15 skdaccess.geo.magnetometer.DataFetcher Class Reference . . . 120
6.15.1 Detailed Description . . . 121
6.15.2 Constructor & Destructor Documentation . . . 121
6.15.2.1 __init__() . . . 121
6.15.3 Member Function Documentation . . . 121
6.15.3.1 __str__() . . . 121
6.15.3.2 getConfig() . . . 122
6.15.3.3 getDataMetadata() . . . 122
6.15.3.4 getMetadata() . . . 122
6.15.3.5 multirun_enabled() . . . 123

6.15.3.6 output() . . . 123
6.15.3.7 perturb() . . . 123
6.15.3.8 reset() . . . 123
6.15.3.9 retrieveOnlineData() . . . 123
6.15.3.10 verbose_print() . . . 124
6.15.3.11 writeConfig() . . . 124
6.15.4 Member Data Documentation . . . 124
6.15.4.1 ap_paramList . . . 124
6.15.4.2 channels . . . 125
6.15.4.3 data_type . . . 125
6.15.4.4 end_time . . . 125
6.15.4.5 interval . . . 125
6.15.4.6 start_time . . . 125
6.15.4.7 verbose . . . 125
6.16 skdaccess.geo.modis.stream.reflectance.DataFetcher Class Reference . . . 126
6.16.1 Detailed Description . . . 126
6.16.2 Constructor & Destructor Documentation . . . 126
6.16.2.1 __init__() . . . 126
6.17 skdaccess.geo.wyoming_sounding.cache.DataFetcher Class Reference . . . 127
6.17.1 Detailed Description . . . 128
6.17.2 Constructor & Destructor Documentation . . . 128
6.17.2.1 __init__() . . . 128
6.17.3 Member Function Documentation . . . 129
6.17.3.1 __str__() . . . 129
6.17.3.2 cacheData() . . . 129
6.17.3.3 getConfig() . . . 129
6.17.3.4 getDataLocation() . . . 130
6.17.3.5 getHDFStorage() . . . 130

6.17.3.6 getMetadata() . . . 130
6.17.3.7 multirun_enabled() . . . 130
6.17.3.8 output() . . . 131
6.17.3.9 perturb() . . . 131
6.17.3.10 reset() . . . 131
6.17.3.11 setDataLocation() . . . 131
6.17.3.12 verbose_print() . . . 132
6.17.3.13 writeConfig() . . . 132
6.17.4 Member Data Documentation . . . 132
6.17.4.1 ap_paramList . . . 132
6.17.4.2 day_end . . . 132
6.17.4.3 day_start . . . 132
6.17.4.4 end_hour . . . 133
6.17.4.5 month_list . . . 133
6.17.4.6 start_hour . . . 133
6.17.4.7 station_number . . . 133
6.17.4.8 verbose . . . 133
6.17.4.9 year_list . . . 133
6.18 skdaccess.geo.wyoming_sounding.stream.DataFetcher Class Reference . . . 134
6.18.1 Detailed Description . . . 135
6.18.2 Constructor & Destructor Documentation . . . 135
6.18.2.1 __init__() . . . 135
6.18.3 Member Function Documentation . . . 136
6.18.3.1 __str__() . . . 136
6.18.3.2 getConfig() . . . 136
6.18.3.3 getMetadata() . . . 136
6.18.3.4 multirun_enabled() . . . 136
6.18.3.5 output() [1/2] . . . 137

6.18.3.6 output() [2/2] . . . 137
6.18.3.7 perturb() . . . 137
6.18.3.8 reset() . . . 137
6.18.3.9 retrieveOnlineData() . . . 137
6.18.3.10 verbose_print() . . . 138
6.18.3.11 writeConfig() . . . 138
6.18.4 Member Data Documentation . . . 138
6.18.4.1 ap_paramList . . . 138
6.18.4.2 day_end . . . 139
6.18.4.3 day_start . . . 139
6.18.4.4 end_hour . . . 139
6.18.4.5 month_list . . . 139
6.18.4.6 start_hour . . . 139
6.18.4.7 station_number . . . 139
6.18.4.8 verbose . . . 139
6.18.4.9 year_list . . . 140
6.19 skdaccess.geo.modis.cache.cloud_opacity.DataFetcher Class Reference . . . 140
6.19.1 Detailed Description . . . 140
6.19.2 Constructor & Destructor Documentation . . . 140
6.19.2.1 __init__() . . . 140
6.20 skdaccess.astro.voyager.DataFetcher Class Reference . . . 141
6.20.1 Detailed Description . . . 142
6.20.2 Constructor & Destructor Documentation . . . 142
6.20.2.1 __init__() . . . 143
6.20.3 Member Function Documentation . . . 143
6.20.3.1 __str__() . . . 143
6.20.3.2 cacheData() . . . 143
6.20.3.3 generateURL() . . . 144

6.20.3.4 getConfig() . . . 144
6.20.3.5 getDataLocation() . . . 144
6.20.3.6 getHDFStorage() . . . 145
6.20.3.7 getMetadata() . . . 145
6.20.3.8 getMetadataFiles() . . . 145
6.20.3.9 multirun_enabled() . . . 146
6.20.3.10 output() . . . 146
6.20.3.11 parseVoyagerData() . . . 146
6.20.3.12 parseVoyagerMetadata() . . . 147
6.20.3.13 perturb() . . . 147
6.20.3.14 reset() . . . 147
6.20.3.15 setDataLocation() . . . 147
6.20.3.16 verbose_print() . . . 148
6.20.3.17 writeConfig() . . . 148
6.20.4 Member Data Documentation . . . 148
6.20.4.1 ap_paramList . . . 148
6.20.4.2 base_url . . . 148
6.20.4.3 field_names . . . 149
6.20.4.4 field_widths . . . 149
6.20.4.5 spacecraft_list . . . 149
6.20.4.6 verbose . . . 149
6.20.4.7 year_list . . . 149
6.21 skdaccess.geo.modis.cache.cloud_mask.DataFetcher Class Reference . . . 149
6.21.1 Detailed Description . . . 150
6.21.2 Constructor & Destructor Documentation . . . 150
6.21.2.1 __init__() . . . 150
6.22 skdaccess.geo.modis.cache.reflectance.DataFetcher Class Reference . . . 150
6.22.1 Detailed Description . . . 151

6.22.2 Constructor & Destructor Documentation . . . 151
6.22.2.1 __init__() . . . 151
6.23 skdaccess.geo.modis.cache.DataFetcher Class Reference . . . 152
6.23.1 Detailed Description . . . 153
6.23.2 Constructor & Destructor Documentation . . . 153
6.23.2.1 __init__() . . . 153
6.23.3 Member Function Documentation . . . 154
6.23.3.1 __str__() . . . 154
6.23.3.2 cacheData() [1/2] . . . 154
6.23.3.3 cacheData() [2/2] . . . 155
6.23.3.4 find_data() . . . 155
6.23.3.5 getConfig() . . . 155
6.23.3.6 getDataLocation() . . . 156
6.23.3.7 getHDFStorage() . . . 156
6.23.3.8 getMetadata() . . . 156
6.23.3.9 multirun_enabled() . . . 157
6.23.3.10 output() . . . 157
6.23.3.11 perturb() . . . 157
6.23.3.12 reset() . . . 157
6.23.3.13 setDataLocation() . . . 157
6.23.3.14 verbose_print() . . . 158
6.23.3.15 writeConfig() . . . 158
6.23.4 Member Data Documentation . . . 158
6.23.4.1 ap_paramList . . . 158
6.23.4.2 daynightboth . . . 158
6.23.4.3 end_date . . . 159
6.23.4.4 grid . . . 159
6.23.4.5 grid_fill . . . 159

6.23.4.6 modis_id . . . 159
6.23.4.7 modis_identifier . . . 159
6.23.4.8 modis_platform . . . 159
6.23.4.9 start_date . . . 159
6.23.4.10 use_long_name . . . 160
6.23.4.11 variable_list . . . 160
6.23.4.12 verbose . . . 160
6.24 skdaccess.geo.modis.stream.cloud_opacity.DataFetcher Class Reference . . . 160
6.24.1 Detailed Description . . . 160
6.24.2 Constructor & Destructor Documentation . . . 161
6.24.2.1 __init__() . . . 161
6.25 skdaccess.geo.modis.stream.cloud_mask.DataFetcher Class Reference . . . 161
6.25.1 Detailed Description . . . 162
6.25.2 Constructor & Destructor Documentation . . . 162
6.25.2.1 __init__() . . . 162
6.26 skdaccess.planetary.ode.cache.DataFetcher Class Reference . . . 162
6.26.1 Detailed Description . . . 164
6.26.2 Constructor & Destructor Documentation . . . 164
6.26.2.1 __init__() . . . 164
6.26.3 Member Function Documentation . . . 165
6.26.3.1 __str__() . . . 165
6.26.3.2 cacheData() . . . 165
6.26.3.3 getConfig() . . . 165
6.26.3.4 getDataLocation() . . . 166
6.26.3.5 getHDFStorage() . . . 166
6.26.3.6 getMetadata() . . . 166
6.26.3.7 multirun_enabled() . . . 166
6.26.3.8 output() . . . 167

6.26.3.9 perturb() . . . 167
6.26.3.10 reset() . . . 167
6.26.3.11 setDataLocation() . . . 167
6.26.3.12 verbose_print() . . . 168
6.26.3.13 writeConfig() . . . 168
6.26.4 Member Data Documentation . . . 168
6.26.4.1 ap_paramList . . . 168
6.26.4.2 eastern_lon . . . 168
6.26.4.3 file_name . . . 168
6.26.4.4 instrument . . . 169
6.26.4.5 max_lat . . . 169
6.26.4.6 max_ob_time . . . 169
6.26.4.7 min_lat . . . 169
6.26.4.8 min_ob_time . . . 169
6.26.4.9 mission . . . 169
6.26.4.10 number_product_limit . . . 169
6.26.4.11 product_id . . . 170
6.26.4.12 product_type . . . 170
6.26.4.13 remove_ndv . . . 170
6.26.4.14 result_offset_number . . . 170
6.26.4.15 target . . . 170
6.26.4.16 verbose . . . 170
6.26.4.17 western_lon . . . 170
6.27 skdaccess.geo.modis.stream.DataFetcher Class Reference . . . 171
6.27.1 Detailed Description . . . 172
6.27.2 Constructor & Destructor Documentation . . . 172
6.27.2.1 __init__() . . . 172
6.27.3 Member Function Documentation . . . 173

6.27.3.1 __str__() . . . 173
6.27.3.2 getConfig() . . . 173
6.27.3.3 getMetadata() . . . 173
6.27.3.4 multirun_enabled() . . . 174
6.27.3.5 output() . . . 174
6.27.3.6 perturb() . . . 174
6.27.3.7 reset() . . . 174
6.27.3.8 retrieveOnlineData() . . . 174
6.27.3.9 verbose_print() . . . 175
6.27.3.10 writeConfig() . . . 175
6.27.4 Member Data Documentation . . . 175
6.27.4.1 ap_paramList . . . 175
6.27.4.2 daynightboth . . . 176
6.27.4.3 end_date . . . 176
6.27.4.4 grid . . . 176
6.27.4.5 grid_fill . . . 176
6.27.4.6 modis_id . . . 176
6.27.4.7 modis_identifier . . . 176
6.27.4.8 modis_platform . . . 176
6.27.4.9 start_date . . . 177
6.27.4.10 use_long_name . . . 177
6.27.4.11 variable_list . . . 177
6.27.4.12 verbose . . . 177
6.28 skdaccess.geo.imsdnhs.DataFetcher Class Reference . . . 177
6.28.1 Detailed Description . . . 178
6.28.2 Constructor & Destructor Documentation . . . 178
6.28.2.1 __init__() . . . 179
6.28.3 Member Function Documentation . . . 179

6.28.3.1 __str__() . . . 179
6.28.3.2 downloadFullDataset() . . . 179
6.28.3.3 getConfig() . . . 180
6.28.3.4 getDataLocation() . . . 180
6.28.3.5 getMetadata() . . . 180
6.28.3.6 multirun_enabled() . . . 181
6.28.3.7 output() . . . 181
6.28.3.8 perturb() . . . 181
6.28.3.9 reset() . . . 181
6.28.3.10 setDataLocation() . . . 181
6.28.3.11 verbose_print() . . . 182
6.28.3.12 writeConfig() . . . 182
6.28.4 Member Data Documentation . . . 182
6.28.4.1 ap_paramList . . . 182
6.28.4.2 coordinate_dict . . . 182
6.28.4.3 end_date . . . 183
6.28.4.4 start_date . . . 183
6.28.4.5 verbose . . . 183
6.29 skdaccess.geo.era_interim.cache.DataFetcher Class Reference . . . 183
6.29.1 Detailed Description . . . 184
6.29.2 Constructor & Destructor Documentation . . . 184
6.29.2.1 __init__() . . . 185
6.29.3 Member Function Documentation . . . 185
6.29.3.1 __str__() . . . 185
6.29.3.2 cacheData() . . . 185
6.29.3.3 getConfig() . . . 186
6.29.3.4 getDataLocation() . . . 186
6.29.3.5 getHDFStorage() . . . 186

6.29.3.6 getMetadata() . . . 187
6.29.3.7 multirun_enabled() . . . 187
6.29.3.8 output() . . . 187
6.29.3.9 perturb() . . . 187
6.29.3.10 reset() . . . 188
6.29.3.11 setDataLocation() . . . 188
6.29.3.12 verbose_print() . . . 188
6.29.3.13 writeConfig() . . . 188
6.29.4 Member Data Documentation . . . 189
6.29.4.1 ap_paramList . . . 189
6.29.4.2 data_names . . . 189
6.29.4.3 date_list . . . 189
6.29.4.4 password . . . 189
6.29.4.5 username . . . 189
6.29.4.6 verbose . . . 189
6.30 skdaccess.geo.grace.mascon.cache.DataFetcher Class Reference . . . 190
6.30.1 Detailed Description . . . 191
6.30.2 Constructor & Destructor Documentation . . . 191
6.30.2.1 __init__() . . . 191
6.30.3 Member Function Documentation . . . 191
6.30.3.1 __str__() . . . 191
6.30.3.2 cacheData() . . . 192
6.30.3.3 getConfig() . . . 192
6.30.3.4 getDataLocation() . . . 192
6.30.3.5 getHDFStorage() . . . 193
6.30.3.6 getMasconPlacement() . . . 193
6.30.3.7 getMetadata() . . . 193
6.30.3.8 multirun_enabled() . . . 193

6.30.3.9 output() . . . 194
6.30.3.10 perturb() . . . 194
6.30.3.11 reset() . . . 194
6.30.3.12 setDataLocation() . . . 194
6.30.3.13 verbose_print() . . . 195
6.30.3.14 writeConfig() . . . 195
6.30.4 Member Data Documentation . . . 195
6.30.4.1 ap_paramList . . . 195
6.30.4.2 end_date . . . 195
6.30.4.3 mascon_placement_url . . . 195
6.30.4.4 mascon_url . . . 196
6.30.4.5 scale_factor_url . . . 196
6.30.4.6 start_date . . . 196
6.30.4.7 verbose . . . 196
6.31 skdaccess.geo.grace.DataFetcher Class Reference . . . 196
6.31.1 Detailed Description . . . 197
6.31.2 Constructor & Destructor Documentation . . . 197
6.31.2.1 __init__() . . . 198
6.31.3 Member Function Documentation . . . 198
6.31.3.1 __str__() . . . 198
6.31.3.2 downloadFullDataset() . . . 198
6.31.3.3 getConfig() . . . 199
6.31.3.4 getDataLocation() . . . 199
6.31.3.5 getMetadata() . . . 199
6.31.3.6 multirun_enabled() . . . 200
6.31.3.7 output() . . . 200
6.31.3.8 perturb() . . . 200
6.31.3.9 reset() . . . 200

6.31.3.10 setDataLocation() . . . 200
6.31.3.11 verbose_print() . . . 201
6.31.3.12 writeConfig() . . . 201
6.31.4 Member Data Documentation . . . 201
6.31.4.1 ap_paramList . . . 201
6.31.4.2 end_date . . . 201
6.31.4.3 start_date . . . 202
6.31.4.4 verbose . . . 202
6.32 skdaccess.astro.kepler.DataFetcher Class Reference . . . 202
6.32.1 Detailed Description . . . 203
6.32.2 Constructor & Destructor Documentation . . . 203
6.32.2.1 __init__() . . . 203
6.32.3 Member Function Documentation . . . 204
6.32.3.1 __str__() . . . 204
6.32.3.2 cacheData() [1/2] . . . 204
6.32.3.3 cacheData() [2/2] . . . 204
6.32.3.4 downloadKeplerData() . . . 206
6.32.3.5 getConfig() . . . 206
6.32.3.6 getDataLocation() . . . 206
6.32.3.7 getHDFStorage() . . . 207
6.32.3.8 getMetadata() . . . 207
6.32.3.9 multirun_enabled() . . . 207
6.32.3.10 output() . . . 208
6.32.3.11 perturb() . . . 208
6.32.3.12 reset() . . . 208
6.32.3.13 setDataLocation() . . . 208
6.32.3.14 verbose_print() . . . 209
6.32.3.15 writeConfig() . . . 209

6.32.4 Member Data Documentation . . . 209
6.32.4.1 ap_paramList . . . 209
6.32.4.2 quarter_list . . . 209
6.32.4.3 verbose . . . 209
6.33 skdaccess.geo.mahali.tec.DataFetcher Class Reference . . . 210
6.33.1 Detailed Description . . . 211
6.33.2 Constructor & Destructor Documentation . . . 211
6.33.2.1 __init__() . . . 211
6.33.3 Member Function Documentation . . . 211
6.33.3.1 __str__() . . . 211
6.33.3.2 cacheData() . . . 212
6.33.3.3 getConfig() . . . 212
6.33.3.4 getDataLocation() . . . 212
6.33.3.5 getHDFStorage() . . . 213
6.33.3.6 getMetadata() . . . 213
6.33.3.7 multirun_enabled() . . . 213
6.33.3.8 output() . . . 213
6.33.3.9 perturb() . . . 214
6.33.3.10 reset() . . . 214
6.33.3.11 setDataLocation() . . . 214
6.33.3.12 verbose_print() . . . 214
6.33.3.13 writeConfig() . . . 215
6.33.4 Member Data Documentation . . . 215
6.33.4.1 ap_paramList . . . 215
6.33.4.2 date_range . . . 215
6.33.4.3 end_date . . . 215
6.33.4.4 start_date . . . 215
6.33.4.5 verbose . . . 216

6.34 skdaccess.geo.pbo.DataFetcher Class Reference . . . 216
6.34.1 Detailed Description . . . 217
6.34.2 Constructor & Destructor Documentation . . . 217
6.34.2.1 __init__() . . . 218
6.34.3 Member Function Documentation . . . 218
6.34.3.1 __str__() . . . 218
6.34.3.2 downloadFullDataset() . . . 219
6.34.3.3 getAntennaLogs() . . . 219
6.34.3.4 getConfig() . . . 219
6.34.3.5 getDataLocation() . . . 219
6.34.3.6 getInfo() . . . 220
6.34.3.7 getMetadata() . . . 220
6.34.3.8 getStationMetadata() . . . 220
6.34.3.9 multirun_enabled() . . . 221
6.34.3.10 output() . . . 221
6.34.3.11 perturb() . . . 221
6.34.3.12 reset() . . . 221
6.34.3.13 setDataLocation() . . . 221
6.34.3.14 setStationList() . . . 222
6.34.3.15 verbose_print() . . . 222
6.34.3.16 writeConfig() . . . 222
6.34.4 Member Data Documentation . . . 223
6.34.4.1 antenna_info . . . 223
6.34.4.2 ap_paramList . . . 223
6.34.4.3 default_columns . . . 223
6.34.4.4 default_error_columns . . . 223
6.34.4.5 index_date_only . . . 223
6.34.4.6 meta_data . . . 223

6.34.4.7 station_list . . . 224
6.34.4.8 use_progress_bar . . . 224
6.34.4.9 verbose . . . 224
6.35 skdaccess.geo.mahali.rinex.DataFetcher Class Reference . . . 224
6.35.1 Detailed Description . . . 225
6.35.2 Constructor & Destructor Documentation . . . 226
6.35.2.1 __init__() . . . 226
6.35.3 Member Function Documentation . . . 226
6.35.3.1 __str__() . . . 226
6.35.3.2 cacheData() [1/2] . . . 226
6.35.3.3 cacheData() [2/2] . . . 227
6.35.3.4 getConfig() . . . 227
6.35.3.5 getDataLocation() . . . 227
6.35.3.6 getHDFStorage() . . . 228
6.35.3.7 getMetadata() . . . 228
6.35.3.8 multirun_enabled() . . . 228
6.35.3.9 output() . . . 228
6.35.3.10 perturb() . . . 229
6.35.3.11 reset() . . . 229
6.35.3.12 setDataLocation() . . . 229
6.35.3.13 verbose_print() . . . 229
6.35.3.14 writeConfig() . . . 230
6.35.4 Member Data Documentation . . . 230
6.35.4.1 ap_paramList . . . 230
6.35.4.2 date_range . . . 230
6.35.4.3 end_date . . . 230
6.35.4.4 generate_links . . . 230
6.35.4.5 start_date . . . 230

6.35.4.6 verbose . . . 231
6.36 skdaccess.geo.mahali.temperature.DataFetcher Class Reference . . . 231
6.36.1 Detailed Description . . . 232
6.36.2 Constructor & Destructor Documentation . . . 232
6.36.2.1 __init__() . . . 232
6.36.3 Member Function Documentation . . . 232
6.36.3.1 __str__() . . . 232
6.36.3.2 getConfig() . . . 233
6.36.3.3 getMetadata() . . . 233
6.36.3.4 multirun_enabled() . . . 233
6.36.3.5 output() . . . 233
6.36.3.6 perturb() . . . 234
6.36.3.7 reset() . . . 234
6.36.3.8 retrieveOnlineData() . . . 234
6.36.3.9 verbose_print() . . . 234
6.36.3.10 writeConfig() . . . 235
6.36.4 Member Data Documentation . . . 235
6.36.4.1 ap_paramList . . . 235
6.36.4.2 end_date . . . 235
6.36.4.3 start_date . . . 235
6.36.4.4 verbose . . . 235
6.37 skdaccess.geo.ngl_gps.DataFetcher Class Reference . . . 236
6.37.1 Detailed Description . . . 237
6.37.2 Constructor & Destructor Documentation . . . 237
6.37.2.1 __init__() . . . 237
6.37.3 Member Function Documentation . . . 237
6.37.3.1 __str__() . . . 238
6.37.3.2 downloadFullDataset() . . . 238

6.37.3.3 getAntennaLogs() . . . 238
6.37.3.4 getConfig() . . . 238
6.37.3.5 getDataLocation() . . . 239
6.37.3.6 getMetadata() . . . 239
6.37.3.7 getStationMetadata() . . . 239
6.37.3.8 multirun_enabled() . . . 240
6.37.3.9 output() . . . 240
6.37.3.10 perturb() . . . 240
6.37.3.11 reset() . . . 240
6.37.3.12 setDataLocation() . . . 240
6.37.3.13 verbose_print() . . . 241
6.37.3.14 writeConfig() . . . 241
6.37.4 Member Data Documentation . . . 241
6.37.4.1 ap_paramList . . . 241
6.37.4.2 data_type . . . 241
6.37.4.3 end_date . . . 242
6.37.4.4 lat_range . . . 242
6.37.4.5 lon_range . . . 242
6.37.4.6 mdyratio . . . 242
6.37.4.7 start_date . . . 242
6.37.4.8 verbose . . . 242
6.38 skdaccess.solar.sdo.DataFetcher Class Reference . . . 243
6.38.1 Detailed Description . . . 244
6.38.2 Constructor & Destructor Documentation . . . 244
6.38.2.1 __init__() . . . 244
6.38.3 Member Function Documentation . . . 244
6.38.3.1 __str__() . . . 244
6.38.3.2 getConfig() . . . 244

6.38.3.3 getMetadata() . . . 245
6.38.3.4 multirun_enabled() . . . 245
6.38.3.5 output() . . . 245
6.38.3.6 perturb() . . . 245
6.38.3.7 reset() . . . 246
6.38.3.8 retrieveOnlineData() . . . 246
6.38.3.9 verbose_print() . . . 246
6.38.3.10 writeConfig() . . . 246
6.38.4 Member Data Documentation . . . 247
6.38.4.1 ap_paramList . . . 247
6.38.4.2 verbose . . . 247
6.39 skdaccess.framework.data_class.DataFetcherBase Class Reference . . . 247
6.39.1 Detailed Description . . . 248
6.39.2 Constructor & Destructor Documentation . . . 248
6.39.2.1 __init__() . . . 248
6.39.3 Member Function Documentation . . . 248
6.39.3.1 __str__() . . . 249
6.39.3.2 getConfig() . . . 249
6.39.3.3 getMetadata() . . . 249
6.39.3.4 multirun_enabled() . . . 249
6.39.3.5 output() . . . 250
6.39.3.6 perturb() . . . 250
6.39.3.7 reset() . . . 250
6.39.3.8 verbose_print() . . . 250
6.39.3.9 writeConfig() . . . 250
6.39.4 Member Data Documentation . . . 251
6.39.4.1 ap_paramList . . . 251
6.39.4.2 verbose . . . 251

6.40 skdaccess.framework.data_class.DataFetcherCache Class Reference . . . 251
6.40.1 Detailed Description . . . 253
6.40.2 Member Function Documentation . . . 253
6.40.2.1 __str__() . . . 253
6.40.2.2 cacheData() . . . 253
6.40.2.3 getConfig() . . . 254
6.40.2.4 getDataLocation() . . . 254
6.40.2.5 getHDFStorage() . . . 254
6.40.2.6 getMetadata() . . . 255
6.40.2.7 multirun_enabled() . . . 255
6.40.2.8 output() . . . 255
6.40.2.9 perturb() . . . 255
6.40.2.10 reset() . . . 256
6.40.2.11 setDataLocation() . . . 256
6.40.2.12 verbose_print() . . . 256
6.40.2.13 writeConfig() . . . 256
6.40.3 Member Data Documentation . . . 257
6.40.3.1 ap_paramList . . . 257
6.40.3.2 verbose . . . 257
6.41 skdaccess.framework.data_class.DataFetcherLocal Class Reference . . . 257
6.41.1 Detailed Description . . . 258
6.41.2 Member Function Documentation . . . 258
6.41.2.1 __str__() . . . 258
6.41.2.2 getConfig() . . . 259
6.41.2.3 getDataLocation() . . . 259
6.41.2.4 getMetadata() . . . 259
6.41.2.5 multirun_enabled() . . . 260
6.41.2.6 output() . . . 260

6.41.2.7 perturb() . . . 260
6.41.2.8 reset() . . . 260
6.41.2.9 setDataLocation() . . . 260
6.41.2.10 verbose_print() . . . 261
6.41.2.11 writeConfig() . . . 261
6.41.3 Member Data Documentation . . . 261
6.41.3.1 ap_paramList . . . 261
6.41.3.2 verbose . . . 261
6.42 skdaccess.framework.data_class.DataFetcherStorage Class Reference . . . 262
6.42.1 Detailed Description . . . 262
6.42.2 Member Function Documentation . . . 263
6.42.2.1 __str__() . . . 263
6.42.2.2 downloadFullDataset() . . . 263
6.42.2.3 getConfig() . . . 263
6.42.2.4 getDataLocation() . . . 264
6.42.2.5 getMetadata() . . . 265
6.42.2.6 multirun_enabled() . . . 265
6.42.2.7 output() . . . 265
6.42.2.8 perturb() . . . 266
6.42.2.9 reset() . . . 266
6.42.2.10 setDataLocation() . . . 266
6.42.2.11 verbose_print() . . . 266
6.42.2.12 writeConfig() . . . 267
6.42.3 Member Data Documentation . . . 267
6.42.3.1 ap_paramList . . . 267
6.42.3.2 verbose . . . 267
6.43 skdaccess.framework.data_class.DataFetcherStream Class Reference . . . 267
6.43.1 Detailed Description . . . 268

6.43.2 Member Function Documentation . . . 268
6.43.2.1 __str__() . . . 268
6.43.2.2 getConfig() . . . 269
6.43.2.3 getMetadata() . . . 269
6.43.2.4 multirun_enabled() . . . 269
6.43.2.5 output() . . . 269
6.43.2.6 perturb() . . . 270
6.43.2.7 reset() . . . 270
6.43.2.8 retrieveOnlineData() . . . 270
6.43.2.9 verbose_print() . . . 270
6.43.2.10 writeConfig() . . . 271
6.43.3 Member Data Documentation . . . 271
6.43.3.1 ap_paramList . . . 271
6.43.3.2 verbose . . . 271
6.44 skdaccess.geo.mahali.rinex.data_wrapper.DataWrapper Class Reference . . . 271
6.44.1 Detailed Description . . . 272
6.44.2 Member Function Documentation . . . 272
6.44.2.1 __len__() . . . 272
6.44.2.2 addResult() . . . 273
6.44.2.3 get() . . . 273
6.44.2.4 getIterator() . . . 273
6.44.2.5 getResults() . . . 274
6.44.2.6 info() . . . 274
6.44.2.7 reset() . . . 274
6.44.2.8 update() . . . 274
6.44.3 Member Data Documentation . . . 275
6.44.3.1 constants . . . 275
6.44.3.2 data . . . 275

6.44.3.3 meta_data . . . 275
6.44.3.4 results . . . 275
6.44.3.5 run_id . . . 275
6.45 skdaccess.framework.data_class.DataWrapperBase Class Reference . . . 276
6.45.1 Detailed Description . . . 276
6.45.2 Constructor & Destructor Documentation . . . 277
6.45.2.1 __init__() . . . 277
6.45.3 Member Function Documentation . . . 277
6.45.3.1 __len__() . . . 277
6.45.3.2 addResult() . . . 277
6.45.3.3 get() . . . 278
6.45.3.4 getIterator() . . . 278
6.45.3.5 getResults() . . . 278
6.45.3.6 info() . . . 279
6.45.3.7 reset() . . . 279
6.45.3.8 update() . . . 279
6.45.4 Member Data Documentation . . . 279
6.45.4.1 constants . . . 279
6.45.4.2 data . . . 280
6.45.4.3 meta_data . . . 280
6.45.4.4 results . . . 280
6.45.4.5 run_id . . . 280
6.46 skdaccess.utilities.file_browser.FileBrowser Class Reference . . . 280
6.46.1 Constructor & Destructor Documentation . . . 281
6.46.1.1 __init__() . . . 281
6.46.2 Member Function Documentation . . . 281
6.46.2.1 widget() . . . 281
6.46.3 Member Data Documentation . . . 281

6.46.3.1 dirs . . . 281
6.46.3.2 files . . . 281
6.46.3.3 path . . . 282
6.47 skdaccess.framework.data_class.ImageWrapper Class Reference . . . 282
6.47.1 Detailed Description . . . 283
6.47.2 Member Function Documentation . . . 283
6.47.2.1 __len__() . . . 283
6.47.2.2 addResult() . . . 283
6.47.2.3 deleteData() . . . 284
6.47.2.4 get() . . . 284
6.47.2.5 getIterator() . . . 284
6.47.2.6 getResults() . . . 284
6.47.2.7 info() . . . 285
6.47.2.8 reset() . . . 285
6.47.2.9 update() . . . 285
6.47.2.10 updateData() . . . 285
6.47.3 Member Data Documentation . . . 286
6.47.3.1 constants . . . 286
6.47.3.2 data . . . 286
6.47.3.3 meta_data . . . 286
6.47.3.4 results . . . 286
6.47.3.5 run_id . . . 286
6.48 skdaccess.utilities.modis_util.LatLon Class Reference . . . 287
6.48.1 Detailed Description . . . 287
6.48.2 Constructor & Destructor Documentation . . . 287
6.48.2.1 __init__() . . . 287
6.48.3 Member Function Documentation . . . 288
6.48.3.1 __call__() . . . 288

6.48.4 Member Data Documentation . . . 288
6.48.4.1 alat . . . 288
6.48.4.2 alon . . . 288
6.48.4.3 lat_data . . . 289
6.48.4.4 lon_data . . . 289
6.48.4.5 x_offset . . . 289
6.48.4.6 y_offset . . . 289
6.49 skdaccess.utilities.image_util.LinearGeolocation Class Reference . . . 289
6.49.1 Detailed Description . . . 290
6.49.2 Constructor & Destructor Documentation . . . 290
6.49.2.1 __init__() . . . 290
6.49.3 Member Function Documentation . . . 291
6.49.3.1 getExtents() . . . 291
6.49.3.2 getLatLon() . . . 291
6.49.3.3 getYX() . . . 292
6.49.4 Member Data Documentation . . . 292
6.49.4.1 flip_y . . . 292
6.49.4.2 lat_extents . . . 292
6.49.4.3 lat_pixel_size . . . 292
6.49.4.4 len_x . . . 292
6.49.4.5 len_y . . . 293
6.49.4.6 lon_extents . . . 293
6.49.4.7 lon_pixel_size . . . 293
6.49.4.8 start_lat . . . 293
6.49.4.9 start_lon . . . 293
6.49.4.10 x_offset . . . 293
6.49.4.11 y_offset . . . 293
6.50 skdaccess.framework.data_class.SeriesDictionaryWrapper Class Reference . . . 294

6.50.1 Detailed Description . . . 295
6.50.2 Member Function Documentation . . . 295
6.50.2.1 __len__() . . . 295
6.50.2.2 addResult() . . . 295
6.50.2.3 get() . . . 295
6.50.2.4 getIndices() . . . 296
6.50.2.5 getIterator() . . . 296
6.50.2.6 getLength() . . . 296
6.50.2.7 getResults() . . . 297
6.50.2.8 info() . . . 297
6.50.2.9 reset() . . . 297
6.50.2.10 update() . . . 297
6.50.3 Member Data Documentation . . . 298
6.50.3.1 constants . . . 298
6.50.3.2 data . . . 298
6.50.3.3 data_names . . . 298
6.50.3.4 error_names . . . 298
6.50.3.5 meta_data . . . 298
6.50.3.6 results . . . 299
6.50.3.7 run_id . . . 299
6.51 skdaccess.framework.data_class.SeriesWrapper Class Reference . . . 299
6.51.1 Detailed Description . . . 300
6.51.2 Constructor & Destructor Documentation . . . 300
6.51.2.1 __init__() . . . 300
6.51.3 Member Function Documentation . . . 301
6.51.3.1 __len__() . . . 301
6.51.3.2 addResult() . . . 301
6.51.3.3 get() . . . 301

6.51.3.4 getIndices() . . . 302
6.51.3.5 getIterator() . . . 302
6.51.3.6 getLength() . . . 302
6.51.3.7 getResults() . . . 302
6.51.3.8 info() . . . 303
6.51.3.9 reset() . . . 303
6.51.3.10 update() . . . 303
6.51.4 Member Data Documentation . . . 303
6.51.4.1 constants . . . 303
6.51.4.2 data . . . 304
6.51.4.3 data_names . . . 304
6.51.4.4 error_names . . . 304
6.51.4.5 meta_data . . . 304
6.51.4.6 results . . . 304
6.51.4.7 run_id . . . 304
6.52 skdaccess.utilities.sounding_util.SoundingParser Class Reference . . . 305
6.52.1 Detailed Description . . . 305
6.52.2 Constructor & Destructor Documentation . . . 305
6.52.2.1 __init__() . . . 306
6.52.3 Member Function Documentation . . . 306
6.52.3.1 handle_data() . . . 306
6.52.3.2 handle_endtag() . . . 306
6.52.3.3 handle_starttag() . . . 306
6.52.4 Member Data Documentation . . . 307
6.52.4.1 data_dict . . . 307
6.52.4.2 in_header . . . 307
6.52.4.3 in_pre_tag . . . 307
6.52.4.4 label . . . 307

6.52.4.5 metadata_dict . . . 307
6.52.4.6 read_data . . . 308
6.52.4.7 tmp . . . 308
6.53 skdaccess.utilities.image_util.SplineLatLon Class Reference . . . 308
6.53.1 Detailed Description . . . 309
6.53.2 Constructor & Destructor Documentation . . . 309
6.53.2.1 __init__() . . . 309
6.53.3 Member Function Documentation . . . 309
6.53.3.1 __call__() . . . 309
6.53.4 Member Data Documentation . . . 311
6.53.4.1 lat_func . . . 311
6.53.4.2 lon_func . . . 311
6.53.4.3 x_offset . . . 311
6.53.4.4 y_offset . . . 311
6.54 skdaccess.framework.data_class.TableWrapper Class Reference . . . 312
6.54.1 Detailed Description . . . 313
6.54.2 Constructor & Destructor Documentation . . . 313
6.54.2.1 __init__() . . . 313
6.54.3 Member Function Documentation . . . 313
6.54.3.1 __len__() . . . 314
6.54.3.2 addColumn() . . . 314
6.54.3.3 addResult() . . . 314
6.54.3.4 get() . . . 315
6.54.3.5 getDefaultColumns() . . . 315
6.54.3.6 getDefaultErrorColumns() . . . 315
6.54.3.7 getIterator() . . . 315
6.54.3.8 getLength() . . . 316
6.54.3.9 getResults() . . . 316

6.54.3.10 info() . . . 316
6.54.3.11 removeFrames() . . . 316
6.54.3.12 reset() . . . 317
6.54.3.13 update() . . . 317
6.54.3.14 updateData() . . . 317
6.54.3.15 updateFrames() . . . 318
6.54.4 Member Data Documentation . . . 318
6.54.4.1 constants . . . 318
6.54.4.2 data . . . 318
6.54.4.3 default_columns . . . 318
6.54.4.4 default_error_columns . . . 318
6.54.4.5 meta_data . . . 319
6.54.4.6 results . . . 319
6.54.4.7 run_id . . . 319
6.55 skdaccess.framework.data_class.XArrayWrapper Class Reference . . . 319
6.55.1 Detailed Description . . . 320
6.55.2 Constructor & Destructor Documentation . . . 320
6.55.2.1 __init__() . . . 320
6.55.3 Member Function Documentation . . . 321
6.55.3.1 __len__() . . . 321
6.55.3.2 addResult() . . . 321
6.55.3.3 get() . . . 321
6.55.3.4 getIterator() . . . 322
6.55.3.5 getResults() . . . 322
6.55.3.6 info() . . . 322
6.55.3.7 reset() . . . 322
6.55.3.8 update() . . . 322
6.55.4 Member Data Documentation . . . 323
6.55.4.1 constants . . . 323
6.55.4.2 data . . . 323
6.55.4.3 index_list . . . 323
6.55.4.4 meta_data . . . 323
6.55.4.5 results . . . 323
6.55.4.6 run_id . . . 323

7 File Documentation 325

7.1 framework/data_class.py File Reference . . . 325

7.2 framework/param_class.py File Reference . . . 326

7.3 geo/mahali/rinex/data_wrapper.py File Reference . . . 326

7.4 solar/sdo/data_fetcher.py File Reference . . . 326

7.5 planetary/ode/cache/data_fetcher.py File Reference . . . 327

7.6 geo/grace/mascon/cache/data_fetcher.py File Reference . . . 327

7.7 geo/grace/data_fetcher.py File Reference . . . 327

7.8 geo/mahali/tec/data_fetcher.py File Reference . . . 328

7.9 geo/mahali/rinex/data_fetcher.py File Reference . . . 328

7.10 geo/mahali/temperature/data_fetcher.py File Reference . . . 328

7.11 geo/ngl_gps/data_fetcher.py File Reference . . . 328

7.12 geo/era_interim/cache/data_fetcher.py File Reference . . . 329

7.13 geo/imsdnhs/data_fetcher.py File Reference . . . 329

7.14 geo/gldas/data_fetcher.py File Reference . . . 329

7.15 geo/sentinel_1/cache/data_fetcher.py File Reference . . . 330

7.16 geo/magnetometer/data_fetcher.py File Reference . . . 330

7.17 geo/wyoming_sounding/cache/data_fetcher.py File Reference . . . 330

7.18 geo/wyoming_sounding/stream/data_fetcher.py File Reference . . . 330

7.19 geo/modis/cache/cloud_opacity/data_fetcher.py File Reference . . . 331

7.20 geo/modis/cache/cloud_mask/data_fetcher.py File Reference . . . 331

7.21 geo/modis/cache/reflectance/data_fetcher.py File Reference . . . 331

7.22 geo/modis/cache/data_fetcher.py File Reference . . . 332

7.23 geo/modis/stream/cloud_opacity/data_fetcher.py File Reference . . . 332

7.24 geo/modis/stream/cloud_mask/data_fetcher.py File Reference . . . 332

7.25 geo/modis/stream/reflectance/data_fetcher.py File Reference . . . 332

7.26 geo/modis/stream/data_fetcher.py File Reference . . . 333

7.27 geo/uavsar/cache/data_fetcher.py File Reference . . . 333

7.28 geo/srtm/cache/data_fetcher.py File Reference . . . 333
7.29 geo/groundwater/data_fetcher.py File Reference . . . 334
7.30 geo/pbo/data_fetcher.py File Reference . . . 334
7.31 astro/kepler/data_fetcher.py File Reference . . . 334
7.32 astro/voyager/data_fetcher.py File Reference . . . 334
7.33 utilities/file_browser.py File Reference . . . 335
7.34 utilities/grace_util.py File Reference . . . 335
7.35 utilities/gw_util.py File Reference . . . 335
7.36 utilities/image_util.py File Reference . . . 336
7.37 utilities/kepler_util.py File Reference . . . 336
7.38 utilities/mahali_util.py File Reference . . . 336
7.39 utilities/modis_util.py File Reference . . . 337
7.40 utilities/ode_util.py File Reference . . . 337
7.41 utilities/pbo_util.py File Reference . . . 338
7.42 utilities/sentinel_1_util.py File Reference . . . 339
7.43 utilities/sounding_util.py File Reference . . . 339
7.44 utilities/srtm_util.py File Reference . . . 339
7.45 utilities/support.py File Reference . . . 340
7.46 utilities/uavsar_util.py File Reference . . . 340

Index **341**

Chapter 1

Namespace Index

1.1 Packages

Here are the packages with brief descriptions (if available):

skdaccess . . . 13
skdaccess.astro . . . 13
skdaccess.astro.kepler . . . 13
skdaccess.astro.kepler.data_fetcher . . . 13
skdaccess.astro.voyager . . . 14
skdaccess.astro.voyager.data_fetcher . . . 14
skdaccess.framework . . . 14
skdaccess.framework.data_class . . . 14
skdaccess.framework.param_class . . . 15
skdaccess.geo . . . 15
skdaccess.geo.era_interim . . . 15
skdaccess.geo.era_interim.cache . . . 16
skdaccess.geo.era_interim.cache.data_fetcher . . . 16
skdaccess.geo.gldas . . . 16
skdaccess.geo.gldas.data_fetcher . . . 16
skdaccess.geo.grace . . . 16
skdaccess.geo.grace.data_fetcher . . . 16
skdaccess.geo.grace.mascon . . . 17
skdaccess.geo.grace.mascon.cache . . . 17
skdaccess.geo.grace.mascon.cache.data_fetcher . . . 17
skdaccess.geo.groundwater . . . 17
skdaccess.geo.groundwater.data_fetcher . . . 17
skdaccess.geo.imsdnhs . . . 17
skdaccess.geo.imsdnhs.data_fetcher . . . 18
skdaccess.geo.magnetometer . . . 18
skdaccess.geo.magnetometer.data_fetcher . . . 18
skdaccess.geo.mahali . . . 18
skdaccess.geo.mahali.rinex . . . 18
skdaccess.geo.mahali.rinex.data_fetcher . . . 19
skdaccess.geo.mahali.rinex.data_wrapper . . . 19
skdaccess.geo.mahali.tec . . . 19

skdaccess.geo.mahali.tec.data_fetcher . . . 19
skdaccess.geo.mahali.temperature . . . 19
skdaccess.geo.mahali.temperature.data_fetcher . . . 19
skdaccess.geo.modis . . . 20
skdaccess.geo.modis.cache . . . 20
skdaccess.geo.modis.cache.cloud_mask . . . 20
skdaccess.geo.modis.cache.cloud_mask.data_fetcher . . . 20
skdaccess.geo.modis.cache.cloud_opacity . . . 20
skdaccess.geo.modis.cache.cloud_opacity.data_fetcher . . . 20
skdaccess.geo.modis.cache.data_fetcher . . . 21
skdaccess.geo.modis.cache.reflectance . . . 21
skdaccess.geo.modis.cache.reflectance.data_fetcher . . . 21
skdaccess.geo.modis.stream . . . 21
skdaccess.geo.modis.stream.cloud_mask . . . 21
skdaccess.geo.modis.stream.cloud_mask.data_fetcher . . . 21
skdaccess.geo.modis.stream.cloud_opacity . . . 22
skdaccess.geo.modis.stream.cloud_opacity.data_fetcher . . . 22
skdaccess.geo.modis.stream.data_fetcher . . . 22
skdaccess.geo.modis.stream.reflectance . . . 22
skdaccess.geo.modis.stream.reflectance.data_fetcher . . . 22
skdaccess.geo.ngl_gps . . . 22
skdaccess.geo.ngl_gps.data_fetcher . . . 23
skdaccess.geo.pbo . . . 23
skdaccess.geo.pbo.data_fetcher . . . 23
skdaccess.geo.sentinel_1 . . . 23
skdaccess.geo.sentinel_1.cache . . . 23
skdaccess.geo.sentinel_1.cache.data_fetcher . . . 23
skdaccess.geo.srtm . . . 24
skdaccess.geo.srtm.cache . . . 24
skdaccess.geo.srtm.cache.data_fetcher . . . 24
skdaccess.geo.uavsar . . . 24
skdaccess.geo.uavsar.cache . . . 24
skdaccess.geo.uavsar.cache.data_fetcher . . . 24
skdaccess.geo.wyoming_sounding . . . 25
skdaccess.geo.wyoming_sounding.cache . . . 25
skdaccess.geo.wyoming_sounding.cache.data_fetcher . . . 25
skdaccess.geo.wyoming_sounding.stream . . . 25
skdaccess.geo.wyoming_sounding.stream.data_fetcher . . . 25
skdaccess.planetary . . . 25
skdaccess.planetary.ode . . . 26
skdaccess.planetary.ode.cache . . . 26
skdaccess.planetary.ode.cache.data_fetcher . . . 26
skdaccess.solar . . . 26
skdaccess.solar.sdo . . . 26
skdaccess.solar.sdo.data_fetcher . . . 26
skdaccess.utilities . . . 27
skdaccess.utilities.file_browser . . . 27
skdaccess.utilities.grace_util . . . 27
skdaccess.utilities.gw_util . . . 31
skdaccess.utilities.image_util . . . 31
skdaccess.utilities.kepler_util . . . 32
skdaccess.utilities.mahali_util . . . 33
skdaccess.utilities.modis_util . . . 34
skdaccess.utilities.ode_util . . . 39

skdaccess.utilities.pbo_util 43
skdaccess.utilities.sentinel_1_util 47
skdaccess.utilities.sounding_util 47
skdaccess.utilities.srtm_util 48
skdaccess.utilities.support 50
skdaccess.utilities.uavsar_util 51

Chapter 2

Hierarchical Index

2.1 Class Hierarchy

This inheritance list is sorted roughly, but not completely, alphabetically:

skdaccess.framework.param_class.AutoParam . . . 74
skdaccess.framework.param_class.AutoParamList . . . 77
skdaccess.framework.param_class.AutoParamListCycle . . . 80
skdaccess.framework.param_class.AutoParamMinMax . . . 83
MDF
skdaccess.geo.modis.cache.cloud_mask.DataFetcher . . . 149
skdaccess.geo.modis.cache.cloud_opacity.DataFetcher . . . 140
skdaccess.geo.modis.cache.reflectance.DataFetcher . . . 150
skdaccess.geo.modis.stream.cloud_mask.DataFetcher . . . 161
skdaccess.geo.modis.stream.cloud_opacity.DataFetcher . . . 160
skdaccess.geo.modis.stream.reflectance.DataFetcher . . . 126
object
skdaccess.framework.data_class.DataFetcherBase . . . 247
skdaccess.framework.data_class.DataFetcherLocal . . . 257
skdaccess.framework.data_class.DataFetcherCache . . . 251
skdaccess.astro.kepler.DataFetcher . . . 202
skdaccess.astro.voyager.DataFetcher . . . 141
skdaccess.geo.era_interim.cache.DataFetcher . . . 183
skdaccess.geo.grace.mascon.cache.DataFetcher . . . 190
skdaccess.geo.mahali.rinex.DataFetcher . . . 224
skdaccess.geo.mahali.tec.DataFetcher . . . 210
skdaccess.geo.modis.cache.DataFetcher . . . 152
skdaccess.geo.sentinel_1.cache.DataFetcher . . . 92
skdaccess.geo.srtm.cache.DataFetcher . . . 106
skdaccess.geo.uavsar.cache.DataFetcher . . . 113
skdaccess.geo.wyoming_sounding.cache.DataFetcher . . . 127
skdaccess.planetary.ode.cache.DataFetcher . . . 162
skdaccess.framework.data_class.DataFetcherStorage . . . 262
skdaccess.geo.gldas.DataFetcher . . . 86
skdaccess.geo.grace.DataFetcher . . . 196

skdaccess.geo.groundwater.DataFetcher . . . 99
skdaccess.geo.imsdnhs.DataFetcher . . . 177
skdaccess.geo.ngl_gps.DataFetcher . . . 236
skdaccess.geo.pbo.DataFetcher . . . 216
skdaccess.framework.data_class.DataFetcherStream . . . 267
skdaccess.geo.magnetometer.DataFetcher . . . 120
skdaccess.geo.mahali.temperature.DataFetcher . . . 231
skdaccess.geo.modis.stream.DataFetcher . . . 171
skdaccess.geo.wyoming_sounding.stream.DataFetcher . . . 134
skdaccess.solar.sdo.DataFetcher . . . 243
skdaccess.framework.data_class.DataWrapperBase . . . 276
skdaccess.framework.data_class.ImageWrapper . . . 282
skdaccess.framework.data_class.SeriesWrapper . . . 299
skdaccess.framework.data_class.SeriesDictionaryWrapper . . . 294
skdaccess.framework.data_class.TableWrapper . . . 312
skdaccess.framework.data_class.XArrayWrapper . . . 319
skdaccess.geo.mahali.rinex.data_wrapper.DataWrapper . . . 271
skdaccess.framework.param_class.AutoList . . . 53
skdaccess.framework.param_class.AutoListCycle . . . 57
skdaccess.framework.param_class.AutoListPermute . . . 62
skdaccess.framework.param_class.AutoListRemove . . . 66
skdaccess.framework.param_class.AutoListSubset . . . 70
skdaccess.utilities.file_browser.FileBrowser . . . 280
skdaccess.utilities.image_util.LinearGeolocation . . . 289
skdaccess.utilities.image_util.SplineLatLon . . . 308
skdaccess.utilities.modis_util.LatLon . . . 287
HTMLParser
skdaccess.utilities.sounding_util.SoundingParser . . . 305

Chapter 3

Class Index

3.1 Class List

Here are the classes, structs, unions and interfaces with brief descriptions:

skdaccess.framework.param_class.AutoList
: Specifies a list for returning selections of lists, as opposed to a single element . . . 53

skdaccess.framework.param_class.AutoListCycle
: An Autolist that cycles through different lists . . . 57

skdaccess.framework.param_class.AutoListPermute
: A perturber that permutes a list . . . 62

skdaccess.framework.param_class.AutoListRemove
: Removes a different single element from the initial list at each perturb call . . . 66

skdaccess.framework.param_class.AutoListSubset
: An AutoList perturber that creates random subsets of a list . . . 70

skdaccess.framework.param_class.AutoParam
: Defines a tunable parameter class inherited by specific subclasses . . . 74

skdaccess.framework.param_class.AutoParamList
: A tunable parameter with a specified list of choices that can be randomly selected via perturb . . . 77

skdaccess.framework.param_class.AutoParamListCycle
: Cycles through a list of paramters . . . 80

skdaccess.framework.param_class.AutoParamMinMax
: A tunable parameter with min and max ranges, perturbs to a random value in range . . . 83

skdaccess.geo.gldas.DataFetcher
: Data Fetcher for GLDAS data . . . 86

skdaccess.geo.sentinel_1.cache.DataFetcher
: DataFetcher for retrieving Sentinel SLC data . . . 92

skdaccess.geo.groundwater.DataFetcher
: Generates Data Wrappers of groundwater measurements taken in the US . . . 99

skdaccess.geo.srtm.cache.DataFetcher
: DataFetcher for retrieving data from the Shuttle Radar Topography Mission . . . 106

skdaccess.geo.uavsar.cache.DataFetcher
: Data Fetcher for UAVSAR data . . . 113

skdaccess.geo.magnetometer.DataFetcher
: Data fetcher for USGS geomagnetic observatories . . . 120

skdaccess.geo.modis.stream.reflectance.DataFetcher
: Data fetcher for the modis surface reflectance product ('09', 1 km resolution) . . . 126

skdaccess.geo.wyoming_sounding.cache.DataFetcher
DataFetcher for retrieving Wyoming Sounding data . . . 127
skdaccess.geo.wyoming_sounding.stream.DataFetcher
DataFetcher for retrieving Wyoming Sounding data . . . 134
skdaccess.geo.modis.cache.cloud_opacity.DataFetcher
Data Fetcher for MODIS Cloud Opacity . . . 140
skdaccess.astro.voyager.DataFetcher
Data Fetcher for Mahali temperature data . . . 141
skdaccess.geo.modis.cache.cloud_mask.DataFetcher
Data Fetcher for MODIS Cloud Mask . . . 149
skdaccess.geo.modis.cache.reflectance.DataFetcher
Data fetcher for the modis surface reflectance product ('09', 1 km resolution) . . . 150
skdaccess.geo.modis.cache.DataFetcher
Data Fetcher for MODIS data . . . 152
skdaccess.geo.modis.stream.cloud_opacity.DataFetcher
Data Fetcher for MODIS Cloud Opacity . . . 160
skdaccess.geo.modis.stream.cloud_mask.DataFetcher
Data Fetcher for MODIS Cloud Mask . . . 161
skdaccess.planetary.ode.cache.DataFetcher
Data Fetcher from the Orbital Data Explorer (ODE) . . . 162
skdaccess.geo.modis.stream.DataFetcher
Data Fetcher for MODIS data . . . 171
skdaccess.geo.imsdnhs.DataFetcher
Fetches data for the Interactive Multisensor Snow and Ice Mapping System Daily Northern Hemisphere Snow and Ice Analysis . . . 177
skdaccess.geo.era_interim.cache.DataFetcher
DataFetcher for retrieving ERA-I data . . . 183
skdaccess.geo.grace.mascon.cache.DataFetcher
Data Fetcher for GRACE mascon data . . . 190
skdaccess.geo.grace.DataFetcher
Data Fetcher for GRACE data . . . 196
skdaccess.astro.kepler.DataFetcher
Data Fetcher for Kepler light curve data . . . 202
skdaccess.geo.mahali.tec.DataFetcher
Data Fetcher for Mahali Data . . . 210
skdaccess.geo.pbo.DataFetcher
Data fetcher for PBO GPS data . . . 216
skdaccess.geo.mahali.rinex.DataFetcher
Data Fetcher for Mahali Data . . . 224
skdaccess.geo.mahali.temperature.DataFetcher
Data Fetcher for Mahali temperature data . . . 231
skdaccess.geo.ngl_gps.DataFetcher
Data fetcher for GPS data from Neveda Geodetic Laboratory . . . 236
skdaccess.solar.sdo.DataFetcher
Data Fetcher for Mahali temperature data . . . 243
skdaccess.framework.data_class.DataFetcherBase
Base class for all data fetchers . . . 247
skdaccess.framework.data_class.DataFetcherCache
Data fetcher base class for downloading data and caching results on hard disk . . . 251
skdaccess.framework.data_class.DataFetcherLocal
Data fetcher base class for use when storing data locally . . . 257
skdaccess.framework.data_class.DataFetcherStorage
Data fetcher base class for use when entire data set is downloaded . . . 262

skdaccess.framework.data_class.DataFetcherStream
Data fetcher base class for downloading data into memory . . . 267
skdaccess.geo.mahali.rinex.data_wrapper.DataWrapper
Data wrapper for Mahali data . . . 271
skdaccess.framework.data_class.DataWrapperBase
Base class for wrapping data for use in DiscoveryPipeline . . . 276
skdaccess.utilities.file_browser.FileBrowser . . . 280
skdaccess.framework.data_class.ImageWrapper
Wrapper for image data . . . 282
skdaccess.utilities.modis_util.LatLon
Calculates Lat/Lon position from y,x pixel coordinate . . . 287
skdaccess.utilities.image_util.LinearGeolocation
This class provides functions to convert between pixel and geodetic coordinates . . . 289
skdaccess.framework.data_class.SeriesDictionaryWrapper
Data wrapper for series data using a dictionary of data frames . . . 294
skdaccess.framework.data_class.SeriesWrapper
Data wrapper for series data using a data panel . . . 299
skdaccess.utilities.sounding_util.SoundingParser
This class parses Wyoming Sounding data . . . 305
skdaccess.utilities.image_util.SplineLatLon
Holds a 2d spline for interpolating lat/lon grid . . . 308
skdaccess.framework.data_class.TableWrapper
Data wrapper for table data using an ordered dictionary . . . 312
skdaccess.framework.data_class.XArrayWrapper
Wrapper for xarrays . . . 319

Chapter 4

File Index

4.1 File List

Here is a list of all files with brief descriptions:

astro/kepler/data_fetcher.py . . . 334
astro/voyager/data_fetcher.py . . . 334
framework/data_class.py . . . 325
framework/param_class.py . . . 326
geo/era_interim/cache/data_fetcher.py . . . 329
geo/gldas/data_fetcher.py . . . 329
geo/grace/data_fetcher.py . . . 327
geo/grace/mascon/cache/data_fetcher.py . . . 327
geo/groundwater/data_fetcher.py . . . 334
geo/imsdnhs/data_fetcher.py . . . 329
geo/magnetometer/data_fetcher.py . . . 330
geo/mahali/rinex/data_fetcher.py . . . 328
geo/mahali/rinex/data_wrapper.py . . . 326
geo/mahali/tec/data_fetcher.py . . . 328
geo/mahali/temperature/data_fetcher.py . . . 328
geo/modis/cache/data_fetcher.py . . . 332
geo/modis/cache/cloud_mask/data_fetcher.py . . . 331
geo/modis/cache/cloud_opacity/data_fetcher.py . . . 331
geo/modis/cache/reflectance/data_fetcher.py . . . 331
geo/modis/stream/data_fetcher.py . . . 333
geo/modis/stream/cloud_mask/data_fetcher.py . . . 332
geo/modis/stream/cloud_opacity/data_fetcher.py . . . 332
geo/modis/stream/reflectance/data_fetcher.py . . . 332
geo/ngl_gps/data_fetcher.py . . . 328
geo/pbo/data_fetcher.py . . . 334
geo/sentinel_1/cache/data_fetcher.py . . . 330
geo/srtm/cache/data_fetcher.py . . . 333
geo/uavsar/cache/data_fetcher.py . . . 333
geo/wyoming_sounding/cache/data_fetcher.py . . . 330
geo/wyoming_sounding/stream/data_fetcher.py . . . 330
planetary/ode/cache/data_fetcher.py . . . 327

solar/sdo/data_fetcher.py . . . 326
utilities/file_browser.py . . . 335
utilities/grace_util.py . . . 335
utilities/gw_util.py . . . 335
utilities/image_util.py . . . 336
utilities/kepler_util.py . . . 336
utilities/mahali_util.py . . . 336
utilities/modis_util.py . . . 337
utilities/ode_util.py . . . 337
utilities/pbo_util.py . . . 338
utilities/sentinel_1_util.py . . . 339
utilities/sounding_util.py . . . 339
utilities/srtm_util.py . . . 339
utilities/support.py . . . 340
utilities/uavsar_util.py . . . 340

Chapter 5

Namespace Documentation

5.1 skdaccess Namespace Reference

Namespaces

- astro
- framework
- geo
- planetary
- solar
- utilities

5.2 skdaccess.astro Namespace Reference

Namespaces

- kepler
- voyager

5.3 skdaccess.astro.kepler Namespace Reference

Namespaces

- data_fetcher

5.4 skdaccess.astro.kepler.data_fetcher Namespace Reference

Classes

- class DataFetcher

  Data Fetcher for Kepler light curve data.

5.5 skdaccess.astro.voyager Namespace Reference

Namespaces

- data_fetcher

5.6 skdaccess.astro.voyager.data_fetcher Namespace Reference

Classes

- class DataFetcher

  Data Fetcher for Mahali temperature data.

5.7 skdaccess.framework Namespace Reference

Namespaces

- data_class
- param_class

5.8 skdaccess.framework.data_class Namespace Reference

Classes

- class DataFetcherBase

  Base class for all data fetchers.
- class DataFetcherCache

  Data fetcher base class for downloading data and caching results on hard disk.
- class DataFetcherLocal

  Data fetcher base class for use when storing data locally.
- class DataFetcherStorage

  Data fetcher base class for use when entire data set is downloaded.
- class DataFetcherStream

  Data fetcher base class for downloading data into memory.
- class DataWrapperBase

  Base class for wrapping data for use in DiscoveryPipeline.
- class ImageWrapper

  Wrapper for image data.
- class SeriesDictionaryWrapper

  Data wrapper for series data using a dictionary of data frames.
- class SeriesWrapper

  Data wrapper for series data using a data panel.
- class TableWrapper

  Data wrapper for table data using an ordered dictionary.
- class XArrayWrapper

  Wrapper for xarrays.

5.9 skdaccess.framework.param_class Namespace Reference

Classes

- class AutoList

  Specifies a list for returning selections of lists, as opposed to a single element.
- class AutoListCycle

  An Autolist that cycles through different lists.
- class AutoListPermute

  A perturber that permutes a list.
- class AutoListRemove

  Removes a different single element from the initial list at each perturb call.
- class AutoListSubset

  An AutoList perturber that creates random subsets of a list.
- class AutoParam

  Defines a tunable parameter class inherited by specific subclasses.
- class AutoParamList

  A tunable parameter with a specified list of choices that can be randomly selected via perturb.
- class AutoParamListCycle

  Cycles through a list of paramters.
- class AutoParamMinMax

  A tunable parameter with min and max ranges, perturbs to a random value in range.

5.10 skdaccess.geo Namespace Reference

Namespaces

- era_interim
- gldas
- grace
- groundwater
- imsdnhs
- magnetometer
- mahali
- modis
- ngl_gps
- pbo
- sentinel_1
- srtm
- uavsar
- wyoming_sounding

5.11 skdaccess.geo.era_interim Namespace Reference

Namespaces

- cache

5.12 skdaccess.geo.era_interim.cache Namespace Reference

Namespaces

- data_fetcher

5.13 skdaccess.geo.era_interim.cache.data_fetcher Namespace Reference

Classes

- class DataFetcher

  DataFetcher for retrieving ERA-I data.

5.14 skdaccess.geo.gldas Namespace Reference

Namespaces

- data_fetcher

5.15 skdaccess.geo.gldas.data_fetcher Namespace Reference

Classes

- class DataFetcher

  Data Fetcher for GLDAS data.

5.16 skdaccess.geo.grace Namespace Reference

Namespaces

- data_fetcher
- mascon

5.17 skdaccess.geo.grace.data_fetcher Namespace Reference

Classes

- class DataFetcher

  Data Fetcher for GRACE data.

5.18 skdaccess.geo.grace.mascon Namespace Reference

Namespaces

- cache

5.19 skdaccess.geo.grace.mascon.cache Namespace Reference

Namespaces

- data_fetcher

5.20 skdaccess.geo.grace.mascon.cache.data_fetcher Namespace Reference

Classes

- class DataFetcher

  Data Fetcher for GRACE mascon data.

5.21 skdaccess.geo.groundwater Namespace Reference

Namespaces

- data_fetcher

5.22 skdaccess.geo.groundwater.data_fetcher Namespace Reference

Classes

- class DataFetcher

  Generates Data Wrappers of groundwater measurements taken in the US.

5.23 skdaccess.geo.imsdnhs Namespace Reference

Namespaces

- data_fetcher

5.24 skdaccess.geo.imsdnhs.data_fetcher Namespace Reference

Classes

- class DataFetcher

  Fetches data for the Interactive Multisensor Snow and Ice Mapping System Daily Northern Hemisphere Snow and Ice Analysis.

5.25 skdaccess.geo.magnetometer Namespace Reference

Namespaces

- data_fetcher

5.26 skdaccess.geo.magnetometer.data_fetcher Namespace Reference

Classes

- class DataFetcher

  Data fetcher for USGS geomagnetic observatories.

5.27 skdaccess.geo.mahali Namespace Reference

Namespaces

- rinex
- tec
- temperature

5.28 skdaccess.geo.mahali.rinex Namespace Reference

Namespaces

- data_fetcher
- data_wrapper

5.29 skdaccess.geo.mahali.rinex.data_fetcher Namespace Reference

Classes

- class DataFetcher

  Data Fetcher for Mahali Data.

5.30 skdaccess.geo.mahali.rinex.data_wrapper Namespace Reference

Classes

- class DataWrapper

  Data wrapper for Mahali data.

5.31 skdaccess.geo.mahali.tec Namespace Reference

Namespaces

- data_fetcher

5.32 skdaccess.geo.mahali.tec.data_fetcher Namespace Reference

Classes

- class DataFetcher

  Data Fetcher for Mahali Data.

5.33 skdaccess.geo.mahali.temperature Namespace Reference

Namespaces

- data_fetcher

5.34 skdaccess.geo.mahali.temperature.data_fetcher Namespace Reference

Classes

- class DataFetcher

  Data Fetcher for Mahali temperature data.

5.35 skdaccess.geo.modis Namespace Reference

Namespaces

- cache
- stream

5.36 skdaccess.geo.modis.cache Namespace Reference

Namespaces

- cloud_mask
- cloud_opacity
- data_fetcher
- reflectance

5.37 skdaccess.geo.modis.cache.cloud_mask Namespace Reference

Namespaces

- data_fetcher

5.38 skdaccess.geo.modis.cache.cloud_mask.data_fetcher Namespace Reference

Classes

- class DataFetcher

  Data Fetcher for MODIS Cloud Mask.

5.39 skdaccess.geo.modis.cache.cloud_opacity Namespace Reference

Namespaces

- data_fetcher

5.40 skdaccess.geo.modis.cache.cloud_opacity.data_fetcher Namespace Reference

Classes

- class DataFetcher

  Data Fetcher for MODIS Cloud Opacity.

5.41 skdaccess.geo.modis.cache.data_fetcher Namespace Reference

Classes

- class DataFetcher

  Data Fetcher for MODIS data.

5.42 skdaccess.geo.modis.cache.reflectance Namespace Reference

Namespaces

- data_fetcher

5.43 skdaccess.geo.modis.cache.reflectance.data_fetcher Namespace Reference

Classes

- class DataFetcher

  Data fetcher for the modis surface reflectance product ('09', 1 km resolution)

5.44 skdaccess.geo.modis.stream Namespace Reference

Namespaces

- cloud_mask
- cloud_opacity
- data_fetcher
- reflectance

5.45 skdaccess.geo.modis.stream.cloud_mask Namespace Reference

Namespaces

- data_fetcher

5.46 skdaccess.geo.modis.stream.cloud_mask.data_fetcher Namespace Reference

Classes

- class DataFetcher

  Data Fetcher for MODIS Cloud Mask.

5.47 skdaccess.geo.modis.stream.cloud_opacity Namespace Reference

Namespaces

- data_fetcher

5.48 skdaccess.geo.modis.stream.cloud_opacity.data_fetcher Namespace Reference

Classes

- class DataFetcher

  Data Fetcher for MODIS Cloud Opacity.

5.49 skdaccess.geo.modis.stream.data_fetcher Namespace Reference

Classes

- class DataFetcher

  Data Fetcher for MODIS data.

5.50 skdaccess.geo.modis.stream.reflectance Namespace Reference

Namespaces

- data_fetcher

5.51 skdaccess.geo.modis.stream.reflectance.data_fetcher Namespace Reference

Classes

- class DataFetcher

  Data fetcher for the modis surface reflectance product ('09', 1 km resolution)

5.52 skdaccess.geo.ngl_gps Namespace Reference

Namespaces

- data_fetcher

5.53 skdaccess.geo.ngl_gps.data_fetcher Namespace Reference

Classes

- class DataFetcher

  Data fetcher for GPS data from Neveda Geodetic Laboratory.

5.54 skdaccess.geo.pbo Namespace Reference

Namespaces

- data_fetcher

5.55 skdaccess.geo.pbo.data_fetcher Namespace Reference

Classes

- class DataFetcher

  Data fetcher for PBO GPS data.

5.56 skdaccess.geo.sentinel_1 Namespace Reference

Namespaces

- cache

5.57 skdaccess.geo.sentinel_1.cache Namespace Reference

Namespaces

- data_fetcher

5.58 skdaccess.geo.sentinel_1.cache.data_fetcher Namespace Reference

Classes

- class DataFetcher

  DataFetcher for retrieving Sentinel SLC data.

5.59 skdaccess.geo.srtm Namespace Reference

Namespaces

- cache

5.60 skdaccess.geo.srtm.cache Namespace Reference

Namespaces

- data_fetcher

5.61 skdaccess.geo.srtm.cache.data_fetcher Namespace Reference

Classes

- class DataFetcher

  DataFetcher for retrieving data from the Shuttle Radar Topography Mission.

5.62 skdaccess.geo.uavsar Namespace Reference

Namespaces

- cache

5.63 skdaccess.geo.uavsar.cache Namespace Reference

Namespaces

- data_fetcher

5.64 skdaccess.geo.uavsar.cache.data_fetcher Namespace Reference

Classes

- class DataFetcher

  Data Fetcher for UAVSAR data.

5.65 skdaccess.geo.wyoming_sounding Namespace Reference

Namespaces

- cache
- stream

5.66 skdaccess.geo.wyoming_sounding.cache Namespace Reference

Namespaces

- data_fetcher

5.67 skdaccess.geo.wyoming_sounding.cache.data_fetcher Namespace Reference

Classes

- class DataFetcher

  DataFetcher for retrieving Wyoming Sounding data.

5.68 skdaccess.geo.wyoming_sounding.stream Namespace Reference

Namespaces

- data_fetcher

5.69 skdaccess.geo.wyoming_sounding.stream.data_fetcher Namespace Reference

Classes

- class DataFetcher

  DataFetcher for retrieving Wyoming Sounding data.

5.70 skdaccess.planetary Namespace Reference

Namespaces

- ode

5.71 skdaccess.planetary.ode Namespace Reference

Namespaces

- cache

5.72 skdaccess.planetary.ode.cache Namespace Reference

Namespaces

- data_fetcher

5.73 skdaccess.planetary.ode.cache.data_fetcher Namespace Reference

Classes

- class DataFetcher

  Data Fetcher from the Orbital Data Explorer (ODE)

5.74 skdaccess.solar Namespace Reference

Namespaces

- sdo

5.75 skdaccess.solar.sdo Namespace Reference

Namespaces

- data_fetcher

5.76 skdaccess.solar.sdo.data_fetcher Namespace Reference

Classes

- class DataFetcher

  Data Fetcher for Mahali temperature data.

5.77 skdaccess.utilities Namespace Reference

Namespaces

- file_browser
- grace_util
- gw_util
- image_util
- kepler_util
- mahali_util
- modis_util
- ode_util
- pbo_util
- sentinel_1_util
- sounding_util
- srtm_util
- support
- uavsar_util

5.78 skdaccess.utilities.file_browser Namespace Reference

Classes

- class FileBrowser

5.79 skdaccess.utilities.grace_util Namespace Reference

Functions

- def averageDates (dates, round_nearest_day=False)

  Compute the average of a pandas series of timestamps.
- def dateMismatch (dates, days=10)

  Check if dates are not within a certain number of days of each other.
- def computeEWD (grace_data, scale_factor, round_nearest_day=False)

  Compute scale corrected equivalent water depth.
- def readTellusData (filename, lat_lon_list, lat_name, lon_name, data_name, data_label=None, time_↩ name=None, lat_bounds_name=None, lon_bounds_name=None, uncertainty_name=None, lat_bounds=None, lon_bounds=None)

  This function reads in netcdf data provided by GRACE Tellus.
- def getStartEndDate (in_data)

5.79.1 Function Documentation

5.79.1.1 averageDates()

```
def skdaccess.utilities.grace_util.averageDates (
              dates,
              round_nearest_day = False )
```

Compute the average of a pandas series of timestamps.

Parameters

dates	Pandas series of pandas datetime objects
round_nearest_day	Round to the nearest day

Returns

Average of dates

5.79.1.2 computeEWD()

```
def skdaccess.utilities.grace_util.computeEWD (
              grace_data,
              scale_factor,
              round_nearest_day = False )
```

Compute scale corrected equivalent water depth.

Equivalent water depth by averaging results from GFZ, CSR, and JPL, and then applying the scale factor

Parameters

grace_data	Data frame containing grace data
scale_factor	Scale factor to apply
round_nearest_day	Round dates to nearest day

Returns

Equivalent water depth determined by applying the scale factor to the average GFZ, JPL and CSR.

5.79.1.3 dateMismatch()

```
def skdaccess.utilities.grace_util.dateMismatch (
              dates,
              days = 10 )
```

Check if dates are not within a certain number of days of each other.

Parameters

dates	Iterable container of pandas timestamps
days	Number of days

Returns

true if they are not with 10 days, false otherwise

5.79.1.4 getStartEndDate()

```
def skdaccess.utilities.grace_util.getStartEndDate (
              in_data )
```

5.79.1.5 readTellusData()

```
def skdaccess.utilities.grace_util.readTellusData (
              filename,
              lat_lon_list,
              lat_name,
              lon_name,
              data_name,
              data_label = None,
              time_name = None,
              lat_bounds_name = None,
              lon_bounds_name = None,
              uncertainty_name = None,
              lat_bounds = None,
              lon_bounds = None )
```

This function reads in netcdf data provided by GRACE Tellus.

Parameters

filename	Name of file to read in
lat_name	Name of latitude data
lon_name	Name of longitude data
data_name	Name of data product
time_name	Name of time data
lat_bounds_name	Name of latitude boundaries
lon_bounds_name	Name of longitude boundaries
uncertainty_name	Name of uncertainty in data set
lat_bounds	Latitude bounds
lon_bounds	Longitude bounds

Returns

dictionary containing data and dictionary containing latitude and longitude

5.80 skdaccess.utilities.gw_util Namespace Reference

Functions

- def combine_water_heights (in_data)

  Combine median and average water heights.

5.80.1 Function Documentation

5.80.1.1 combine_water_heights()

```
def skdaccess.utilities.gw_util.combine_water_heights (
              in_data )
```

Combine median and average water heights.

Create a column of water heights in input data frame using Median Water Depth by default, but fills in missing data using average values

Parameters

in_data	Input water heights data

5.81 skdaccess.utilities.image_util Namespace Reference

Classes

- class LinearGeolocation

  This class provides functions to convert between pixel and geodetic coordinates.
- class SplineLatLon

  Holds a 2d spline for interpolating lat/lon grid.

Functions

- def getExtentsFromCentersPlateCarree (westmost_pixel_lon, eastmost_pixel_lon, southmost_pixel_lat, northmost_pixel_lat, lon_grid_spacing, lat_grid_spacing)
- def convertBinCentersToEdges (bin_centers)

  Calculate edges of a set of bins from their centers.

5.81.1 Function Documentation

5.81.1.1 convertBinCentersToEdges()

```
def skdaccess.utilities.image_util.convertBinCentersToEdges (
              bin_centers )
```

Calculate edges of a set of bins from their centers.

Parameters

bin_centers	Array of bin centers

Returns

bin_edges

5.81.1.2 getExtentsFromCentersPlateCarree()

```
def skdaccess.utilities.image_util.getExtentsFromCentersPlateCarree (
              westmost_pixel_lon,
              eastmost_pixel_lon,
              southmost_pixel_lat,
              northmost_pixel_lat,
              lon_grid_spacing,
              lat_grid_spacing )
```

5.82 skdaccess.utilities.kepler_util Namespace Reference

Functions

- def normalize (in_data, column='PDCSAP_FLUX', group_column='QUARTER')

  This function normalizes PDCSAP_FLUX data by quarter by dividing the flux by the median for the quarter.

5.82.1 Function Documentation

5.82.1.1 normalize()

```
def skdaccess.utilities.kepler_util.normalize (
              in_data,
              column = 'PDCSAP_FLUX',
              group_column = 'QUARTER' )
```

This function normalizes PDCSAP_FLUX data by quarter by dividing the flux by the median for the quarter.

Parameters

in_data	Data to be normalized
column	Name of column to be normalized
group_column	Name of column used to group data

5.83 skdaccess.utilities.mahali_util Namespace Reference

Functions

- def convert_date (in_date)

  Converts input string to pandas date time, ignores other types of objects.
- def parseIonoFile (in_file, compression='infer')

5.83.1 Function Documentation

5.83.1.1 convert_date()

```
def skdaccess.utilities.mahali_util.convert_date (
              in_date )
```

Converts input string to pandas date time, ignores other types of objects.

Parameters

in_date	Input date

return pandas data time object

5.83.1.2 parseIonoFile()

```
def skdaccess.utilities.mahali_util.parseIonoFile (
```

```
            in_file,
            compression = 'infer' )
```

5.84 skdaccess.utilities.modis_util Namespace Reference

Classes

- class LatLon

  Calculates Lat/Lon position from y,x pixel coordinate.

Functions

- def getImageType (in_data)

  Determine what type of modis data is being processed.
- def calibrateModis (data, metadata)

  This function calibrates input modis data.
- def rescale (in_array, max_val=0.9, min_val=-0.01)

  This function rescales an image to fall between 0 and 1.
- def checkBit (data, bit)

  Get the bit value from a bit flag.
- def createGrid (data, y_start, y_end, x_start, x_end, y_grid, x_grid, dtype, grid_fill=np.nan)

  Subsets image data into a smaller image.
- def getFileIDs (modis_identifier, start_date, end_date, lat, lon, daynightboth)

  Retrieve file IDs for images matching search parameters.
- def getFileURLs (file_ids)

  Retrieve the ftp location for a list of file IDs.
- def getModisData (dataset, variable_name)

  Loads modis data.
- def readMODISData (modis_list, variables, grid, grid_fill, use_long_name, platform, product_id)

  Retrieve a list of modis data.

5.84.1 Function Documentation

5.84.1.1 calibrateModis()

```
def skdaccess.utilities.modis_util.calibrateModis (
            data,
            metadata )
```

This function calibrates input modis data.

Parameters

data	Input modis data
metadata	Metadata associated with modis input data

Returns

calibrated modis data

5.84.1.2 checkBit()

```
def skdaccess.utilities.modis_util.checkBit (
              data,
              bit )
```

Get the bit value from a bit flag.

Parameters

data	Integer bit flag
bit	Which bit to select (start indexing at 0)

Returns

value of chosen bit in bit flag

5.84.1.3 createGrid()

```
def skdaccess.utilities.modis_util.createGrid (
              data,
              y_start,
              y_end,
              x_start,
              x_end,
              y_grid,
              x_grid,
              dtype,
              grid_fill = np.nan )
```

Subsets image data into a smaller image.

Takes care to make sure the resulting subsection has the expected size by filling in missing data

Parameters

data	Input data
y_start	Starting pixel for y
y_end	Ending pixel for y
x_start	Starting pixel x
x_end	Ending pixel for x
y_grid	Grid size for y
x_grid	Grid size for x
dtype	The dtype of the new grid data
grid_fill	Fill value to use when there is no data

Returns

image subsection, fraction of valid data

5.84.1.4 getFileIDs()

```
def skdaccess.utilities.modis_util.getFileIDs (
              modis_identifier,
              start_date,
              end_date,
              lat,
              lon,
              daynightboth )
```

Retrieve file IDs for images matching search parameters.

Parameters

modis_identifier	Product identifier (e.g. MOD09)
start_date	Starting date
end_date	Ending date
lat	Latitude
lon	Longitude
daynightboth	Get daytime images ('D'), nightime images ('N') or both ('B')

Returns

list of file IDs

5.84.1.5 getFileURLs()

```
def skdaccess.utilities.modis_util.getFileURLs (
              file_ids )
```

Retrieve the ftp location for a list of file IDs.

Parameters

file_ids	List of file IDs

Returns

List of ftp locations

5.84.1.6 getImageType()

```
def skdaccess.utilities.modis_util.getImageType (
              in_data )
```

Determine what type of modis data is being processed.

There are 3 array shapes we deal with:

```
mode 1 -> (y, x, z)
mode 2 -> (y, x)
mode 3 -> (z, y ,x)
```

where z axis represents different data products and y and x correspond to the y and x image coordinates from the modis instrument

Parameters

in_data	Input modis data

Returns

type of modis data

5.84.1.7 getModisData()

```
def skdaccess.utilities.modis_util.getModisData (
              dataset,
              variable_name )
```

Loads modis data.

Parameters

dataset	netCDF4 dataset
variable_name	Name of variable to extract from dataset

Returns

(modis_data, metadata)

5.84.1.8 readMODISData()

```
def skdaccess.utilities.modis_util.readMODISData (
              modis_list,
              variables,
              grid,
              grid_fill,
              use_long_name,
              platform,
              product_id )
```

Retrieve a list of modis data.

Parameters

modis_list	List of MODIS data to load
variables	List of variables in the MODIS data to load
grid	Further divide each image into a multiple grids of size (y,x)
grid_fill	Fill value to use when creating gridded data
use_long_name	Use long names for metadata instead of variable name
platform	Which satellite to use, either MOD or MYD.
product_id	Product string (e.g. '06_L2')

5.84.1.9 rescale()

```
def skdaccess.utilities.modis_util.rescale (
              in_array,
              max_val = 0.9,
              min_val = -0.01 )
```

This function rescales an image to fall between 0 and 1.

Parameters

in_array	Data to be rescaled
max_val	Values greater than or equal to max_val will become 1
min_val	Values less than or equal to min_val will become 0

Returns

scaled data

5.85 skdaccess.utilities.ode_util Namespace Reference

Functions

- def query_yes_no (question, default="yes")
- def get_query_url (target, mission, instrument, product_type, western_lon, eastern_lon, min_lat, max_lat, min_ob_time, max_ob_time, product_id, query_type, output, results, number_product_limit, result_offset_number)
- def get_files_urls (query_url, file_name='*', print_info=False)
- def query_files_urls (target, mission, instrument, product_type, western_lon, eastern_lon, min_lat, max_lat, min_ob_time, max_ob_time, product_id, file_name, number_product_limit, result_offset_number)

  Retrieve the URL locations based on a query using ODE REST interface.
- def correct_CRISM_label (label_file_location)
- def correct_file_name_case_in_label (label_file_location, other_file_locations)
- def correct_label_file (label_file_location, other_file_locations=[])

  Correct a label file if GDAL cannot open the corresponding data file.
- def get_raster_array (gdal_raster, remove_ndv=True)

  Get a NumPy array from a raster opened with GDAL.
- def get_raster_extent (gdal_raster)

  Get the extent of a raster opened with GDAL.

5.85.1 Function Documentation

5.85.1.1 correct_CRISM_label()

```
def skdaccess.utilities.ode_util.correct_CRISM_label (
              label_file_location )
```

5.85.1.2 correct_file_name_case_in_label()

```
def skdaccess.utilities.ode_util.correct_file_name_case_in_label (
              label_file_location,
              other_file_locations )
```

5.85.1.3 correct_label_file()

```
def skdaccess.utilities.ode_util.correct_label_file (
              label_file_location,
              other_file_locations = [] )
```

Correct a label file if GDAL cannot open the corresponding data file.

Parameters

label_file_location	Local address of the current label
other_file_locations	Other files that were downloaded with the label file

Returns

Local address of the new label

5.85.1.4 get_files_urls()

```
def skdaccess.utilities.ode_util.get_files_urls (
              query_url,
              file_name = '*',
              print_info = False )
```

5.85.1.5 get_query_url()

```
def skdaccess.utilities.ode_util.get_query_url (
              target,
              mission,
              instrument,
              product_type,
              western_lon,
              eastern_lon,
              min_lat,
```

```
                max_lat,
                min_ob_time,
                max_ob_time,
                product_id,
                query_type,
                output,
                results,
                number_product_limit,
                result_offset_number )
```

5.85.1.6 get_raster_array()

```
def skdaccess.utilities.ode_util.get_raster_array (
                gdal_raster,
                remove_ndv = True )
```

Get a NumPy array from a raster opened with GDAL.

Parameters

gdal_raster	A raster opened with GDAL
remove_ndv	Replace the no-data value as mentionned in the label by np.nan

Returns

The array

5.85.1.7 get_raster_extent()

```
def skdaccess.utilities.ode_util.get_raster_extent (
                gdal_raster )
```

Get the extent of a raster opened with GDAL.

Parameters

gdal_raster	A raster opened with GDAL

Returns

The raster extent

5.85.1.8 query_files_urls()

```
def skdaccess.utilities.ode_util.query_files_urls (
              target,
              mission,
              instrument,
              product_type,
              western_lon,
              eastern_lon,
              min_lat,
              max_lat,
              min_ob_time,
              max_ob_time,
              product_id,
              file_name,
              number_product_limit,
              result_offset_number )
```

Retrieve the URL locations based on a query using ODE REST interface.

Parameters

target	Aimed planetary body, i.e., Mars, Mercury, Moon, Phobos, or Venus
mission	Aimed mission, e.g., MGS or MRO
instrument	Aimed instrument from the mission, e.g., HIRISE or CRISM
product_type	Type of product to look for, e.g., DTM or RDRV11
western_lon	Western longitude to look for the data, from 0 to 360
eastern_lon	Eastern longitude to look for the data, from 0 to 360
min_lat	Minimal latitude to look for the data, from -90 to 90
max_lat	Maximal latitude to look for the data, from -90 to 90
min_ob_time	Minimal observation time in (even partial) UTC format, e.g., '2017-03-01'
max_ob_time	Maximal observation time in (even partial) UTC format, e.g., '2017-03-01'
product_id	PDS Product Id to look for, with wildcards (*) allowed
file_name	File name to look for, with wildcards (*) allowed
number_product_limit	Maximal number of products to return (100 at most)
result_offset_number	Offset the return products, to go beyond the limit of 100 returned products

Returns

List of URL locations

5.85.1.9 query_yes_no()

```
def skdaccess.utilities.ode_util.query_yes_no (
              question,
              default = "yes" )
```

5.86 skdaccess.utilities.pbo_util Namespace Reference

Functions

- def getStationCoords (pbo_info, station_list)

  Get the station coordinates for a list of stations.
- def getLatLonRange (pbo_info, station_list)

  Retrive the range of latitude and longitude occupied by a set of stations.
- def getROIstations (geo_point, radiusParam, data, header)

  This function returns the 4ID station codes for the stations in a region.
- def stab_sys (data_iterator, metadata, stab_min_NE=.0005, stab_min_U=.005, sigsc=2, errProp=1)

  Stabilize GPS data to a region.
- def propagateErrors (R, sc, stationCovs)

  Propagate GPS errors.
- def nostab_sys (allH, allD, timerng, indx=1, mdyratio=.7, use_progress_bar=True, index_date_only=False)

  Do not apply stabilization and simply returns stations after checking for sufficient amount of data.
- def removeAntennaOffset (antenna_offsets, data, window_start=pd.to_timedelta('4D'), window_end=pd.to_timedelta('4D'), min_diff=0.005, debug=False)

  Remove offsets caused by changes in antennas.

5.86.1 Function Documentation

5.86.1.1 getLatLonRange()

```
def skdaccess.utilities.pbo_util.getLatLonRange (
              pbo_info,
              station_list )
```

Retrive the range of latitude and longitude occupied by a set of stations.

Parameters

pbo_info	PBO Metadata
station_list	List of stations

Returns

list containg two tuples, lat_range and lon_range

5.86.1.2 getROIstations()

```
def skdaccess.utilities.pbo_util.getROIstations (
              geo_point,
              radiusParam,
              data,
              header )
```

This function returns the 4ID station codes for the stations in a region.

The region of interest is defined by the geographic coordinate and a window size

Parameters

geo_point	The geographic (lat,lon) coordinate of interest
radiusParam	An overloaded radius of interest [km] or latitude and longitude window [deg] around the geo_point
data	Stabilized (or unstabilized) data generated from the data fetcher or out of stab_sys
header	Header dictionary with stations metadata keyed by their 4ID code. This is output with the data.

Returns

station_list, list of site 4ID codes in the specified geographic region

5.86.1.3 getStationCoords()

```
def skdaccess.utilities.pbo_util.getStationCoords (
              pbo_info,
              station_list )
```

Get the station coordinates for a list of stations.

Parameters

pbo_info	PBO Metadata
station_list	List of stations

Returns

list of tuples containing lat, lon coordinates of stations

5.86.1.4 nostab_sys()

```
def skdaccess.utilities.pbo_util.nostab_sys (
              allH,
              allD,
              timerng,
              indx = 1,
              mdyratio = .7,
              use_progress_bar = True,
              index_date_only = False )
```

Do not apply stabilization and simply returns stations after checking for sufficient amount of data.

Parameters

allH	a dictionary of all of the headers of all sites loaded from the data directory
allD	a dictionary of all of the panda format data of all of the corresponding sites
timerng	an array with two string elements, describing the starting and ending dates
indx	a list of site 4ID's indicating stations in the relevant geographic location, or 1 for all sites
mdyratio	optional parameter for the minimum required ratio of data to determine if a sitef is kept for further analysis

Returns

smSet, a reduced size dictionary of the data (in meters) for the sites in the specified geographic region and smHdr, a reduced size dictionary of the headers for the sites in the region

5.86.1.5 propagateErrors()

```
def skdaccess.utilities.pbo_util.propagateErrors (
              R,
              sc,
              stationCovs )
```

Propagate GPS errors.

By writing out the R∗E∗R.T equations... to calculate the new covariance matrix without needing to form the matrix first as an intermediate step. Modifies covariance matrix in place

Parameters

R	Rotation matrix
sc	Scaling value
stationCovs	Station Covariances

5.86.1.6 removeAntennaOffset()

```
def skdaccess.utilities.pbo_util.removeAntennaOffset (
               antenna_offsets,
               data,
               window_start = pd.to_timedelta('4D'),
               window_end = pd.to_timedelta('4D'),
               min_diff = 0.005,
               debug = False )
```

Remove offsets caused by changes in antennas.

Parameters

antenna_offsets	Pandas series of dates describing when the antenna changes were made
data	Input GPS data
window_start	Starting time before and after event to use for calculating offset
window_end	Ending time before and after event to use before calculating offset
min_diff	Minimum difference before and after offset to for applying correction
debug	Enable debug output

Returns

GPS data with the offsets removed

5.86.1.7 stab_sys()

```
def skdaccess.utilities.pbo_util.stab_sys (
               data_iterator,
               metadata,
               stab_min_NE = .0005,
               stab_min_U = .005,
               sigsc = 2,
               errProp = 1 )
```

Stabilize GPS data to a region.

The stab_sys function is a Python implemention of the Helmhert 7-parameter transformation, used to correct for common mode error. This builds on Prof Herring's stab_sys function in his tscon Fortran code. It uses a SVD approach to estimating the rotation matrix gathered from 'Computing Helmert Transformations' by G.A. Watson as well as its references. Note that units should be in meters, that is in the format from the level 2 processed UNAVCO pos files

Parameters

data_iterator	Expects an iterator that returns label, pandas dataframe
metadata	Metadata that contains 'refXYZ' and 'refNEU'
stab_min_NE	Optional minimum horizontal covariance parameter
stab_min_U	Optional minimum vertical covariance parameter
sigsc	Optional scaling factor for determining cutoff bounds for non stable sites
errProp	Propagate errors through the transformation

Returns

smSet, a reduced size dictionary of the data (in mm) for the sites in the specified geographic region, smHdr, a reduced size dictionary of the headers for the sites in the region

5.87 skdaccess.utilities.sentinel_1_util Namespace Reference

Functions

- def parseSatelliteData (in_satellite_file)

  Parse Sentinel satelllite data.

5.87.1 Function Documentation

5.87.1.1 parseSatelliteData()

```
def skdaccess.utilities.sentinel_1_util.parseSatelliteData (
              in_satellite_file )
```

Parse Sentinel satelllite data.

Parameters

in_sentinel_file	Satellite orbit filename

Returns

DataFrame of orbit information

5.88 skdaccess.utilities.sounding_util Namespace Reference

Classes

- class SoundingParser

  This class parses Wyoming Sounding data.

Functions

- def generateQueries (station_number, year_list, month_list, day_start, day_end, start_hour, end_hour)

  Generate url queries for sounding data.

5.88.1 Function Documentation

5.88.1.1 generateQueries()

```
def skdaccess.utilities.sounding_util.generateQueries (
              station_number,
              year_list,
              month_list,
              day_start,
              day_end,
              start_hour,
              end_hour )
```

Generate url queries for sounding data.

Parameters

station_number	Input station number
year_list	Input years as a list
month_list	Input month as a list
day_start	Starting day
day_end	Ending day
start_hour	Starting hour
end_hour	Ending hour

Returns

list of urls containing requested data

5.89 skdaccess.utilities.srtm_util Namespace Reference

Functions

- def merge_srtm_tiles (srtm_tiles, lon_min, lon_max, lat_min, lat_max)
- def getSRTMLatLon (lat_min, lat_max, lon_min, lon_max)

  Retrieve parameters that encompass area when creating SRTM data fetcher.
- def getSRTMData (srtmdw, lat_start, lat_end, lon_start, lon_end)

  Select SRTM data in a latitude/longitude box.

5.89.1 Function Documentation

5.89.1.1 getSRTMData()

```
def skdaccess.utilities.srtm_util.getSRTMData (
              srtmdw,
              lat_start,
              lat_end,
              lon_start,
              lon_end )
```

Select SRTM data in a latitude/longitude box.

This method flips the y axis so that increasing y pixels are increasing in latitude

Parameters

srtmdw	SRTM data wrapper
lat_start	Starting latiude
lat_start	Ending latiude
lat_start	Starting longitude
lat_start	Ending longitude

Returns

tuple containing the cut data and a geolocation object

5.89.1.2 getSRTMLatLon()

```
def skdaccess.utilities.srtm_util.getSRTMLatLon (
              lat_min,
              lat_max,
              lon_min,
              lon_max )
```

Retrieve parameters that encompass area when creating SRTM data fetcher.

Parameters

lat_min	Minimum latitude
lat_max	Maximum latitude
lon_min	Minimum longitude
lon_max	Maximum longitude

Returns

(starting_latitude, ending_latitude, starting_longitude, ending_longitude)

5.89.1.3 merge_srtm_tiles()

```
def skdaccess.utilities.srtm_util.merge_srtm_tiles (
              srtm_tiles,
              lon_min,
              lon_max,
              lat_min,
              lat_max )
```

5.90 skdaccess.utilities.support Namespace Reference

Functions

- def retrieveCommonDatesHDF (support_data_filename, key_list, in_date_list)

  Get a list of all dates that have data available.
- def progress_bar (in_iterable, total=None, enabled=True)

  Progess bar using tqdm.
- def convertToStr (in_value, zfill=0)

5.90.1 Function Documentation

5.90.1.1 convertToStr()

```
def skdaccess.utilities.support.convertToStr (
              in_value,
              zfill = 0 )
```

5.90.1.2 progress_bar()

```
def skdaccess.utilities.support.progress_bar (
              in_iterable,
              total = None,
              enabled = True )
```

Progess bar using tqdm.

Parameters

in_iterable	Input iterable
total	Total number of elements
enabled	Enable progress bar

5.90.1.3 retrieveCommonDatesHDF()

```
def skdaccess.utilities.support.retrieveCommonDatesHDF (
              support_data_filename,
              key_list,
              in_date_list )
```

Get a list of all dates that have data available.

: Filename of support data : Input date list to check

Returns

dictionary of dates with data

5.91 skdaccess.utilities.uavsar_util Namespace Reference

Functions

- def readUAVSARMetadata (in_file)

  Parse UAVSAR metadata.

5.91.1 Function Documentation

5.91.1.1 readUAVSARMetadata()

```
def skdaccess.utilities.uavsar_util.readUAVSARMetadata (
              in_file )
```

Parse UAVSAR metadata.

Parameters

in_file	String of Metadata filename or file object (file should end in .ann)

Returns

OrderedDict of metadata

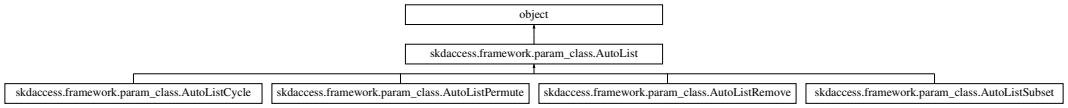
Chapter 6

Class Documentation

6.1 skdaccess.framework.param_class.AutoList Class Reference

Specifies a list for returning selections of lists, as opposed to a single element.

Inheritance diagram for skdaccess.framework.param_class.AutoList:



Public Member Functions

- def __init__ (self, val_list)

  Construct a AutoList object.
- def val (self)

  Retrieves current list of parameters.
- def perturb (self)

  This class doesn't change the list when being perturbed.
- def reset (self)

  Reset current list to initial list.
- def getAllOptions (self)

  Get all possible options.
- def __str__ (self)

  String representation of class.
- def __len__ (self)

  Retrieves the length of parameters contained in the list.
- def __getitem__ (self, ii)

  Retrieves item from list.
- def __setitem__ (self, ii, val)

  Set a value in the list.
- def __call__ (self)

  Retrieve current list.

Public Attributes

- val_init
- val_list

6.1.1 Detailed Description

Specifies a list for returning selections of lists, as opposed to a single element.

6.1.2 Constructor & Destructor Documentation

6.1.2.1 __init__()

```
def skdaccess.framework.param_class.AutoList.__init__ (
              self,
              val_list )
```

Construct a AutoList object.

Parameters

val_list	List of parameters

6.1.3 Member Function Documentation

6.1.3.1 __call__()

```
def skdaccess.framework.param_class.AutoList.__call__ (
              self )
```

Retrieve current list.

Returns

Current list

6.1.3.2 __getitem__()

```
def skdaccess.framework.param_class.AutoList.__getitem__ (
              self,
              ii )
```

Retrieves item from list.

Parameters

ii	Index of item to be retrieved

Returns

Item at index ii

6.1.3.3 __len__()

```
def skdaccess.framework.param_class.AutoList.__len__ (
              self )
```

Retrieves the length of parameters contained in the list.

Returns

Number of elements in the list

6.1.3.4 __setitem__()

```
def skdaccess.framework.param_class.AutoList.__setitem__ (
              self,
              ii,
              val )
```

Set a value in the list.

Parameters

ii	Index of list to be set
val	Input value

6.1.3.5 __str__()

```
def skdaccess.framework.param_class.AutoList.__str__ (
              self )
```

String representation of class.

Returns

String containing all parmaters in list

6.1.3.6 getAllOptions()

```
def skdaccess.framework.param_class.AutoList.getAllOptions (
              self )
```

Get all possible options.

Returns

List that contains every option that could possibly be selected

6.1.3.7 perturb()

```
def skdaccess.framework.param_class.AutoList.perturb (
              self )
```

This class doesn't change the list when being perturbed.

6.1.3.8 reset()

```
def skdaccess.framework.param_class.AutoList.reset (
              self )
```

Reset current list to initial list.

6.1.3.9 val()

```
def skdaccess.framework.param_class.AutoList.val (
              self )
```

Retrieves current list of parameters.

Returns

List of current parameters

6.1.4 Member Data Documentation

6.1.4.1 val_init

```
skdaccess.framework.param_class.AutoList.val_init
```

6.1.4.2 val_list

```
skdaccess.framework.param_class.AutoList.val_list
```

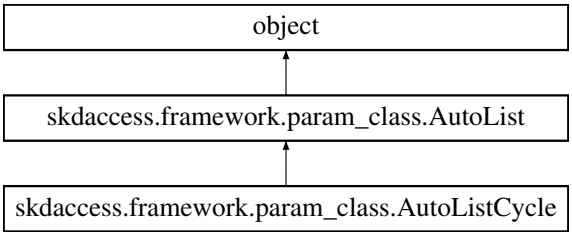
The documentation for this class was generated from the following file:

- framework/param_class.py

6.2 skdaccess.framework.param_class.AutoListCycle Class Reference

An Autolist that cycles through different lists.

Inheritance diagram for skdaccess.framework.param_class.AutoListCycle:



Public Member Functions

- def __init__ (self, list_val_list)

  Construct a AutoList_Cycle object.
- def perturb (self)

  Select next list from list of lists.
- def reset (self)

  Resets to the first list in the list of lists.
- def getAllOptions (self)

  Get elements that could possibly be called.
- def val (self)

  Retrieves current list of parameters.
- def __str__ (self)

  String representation of class.
- def __len__ (self)

  Retrieves the length of parameters contained in the list.
- def __getitem__ (self, ii)

  Retrieves item from list.
- def __setitem__ (self, ii, val)

  Set a value in the list.
- def __call__ (self)

  Retrieve current list.

Public Attributes

- list_val_list
- val_list
- index
- val_init

6.2.1 Detailed Description

An Autolist that cycles through different lists.

6.2.2 Constructor & Destructor Documentation

6.2.2.1 __init__()

```
def skdaccess.framework.param_class.AutoListCycle.__init__ (
            self,
            list_val_list )
```

Construct a AutoList_Cycle object.

Parameters

list_val_list	List of different lists to cycle through

6.2.3 Member Function Documentation

6.2.3.1 __call__()

```
def skdaccess.framework.param_class.AutoList.__call__ (
              self )  [inherited]
```

Retrieve current list.

Returns

Current list

6.2.3.2 __getitem__()

```
def skdaccess.framework.param_class.AutoList.__getitem__ (
              self,
              ii )  [inherited]
```

Retrieves item from list.

Parameters

ii	Index of item to be retrieved

Returns

Item at index ii

6.2.3.3 __len__()

```
def skdaccess.framework.param_class.AutoList.__len__ (
              self )  [inherited]
```

Retrieves the length of parameters contained in the list.

Returns

Number of elements in the list

6.2.3.4 __setitem__()

```
def skdaccess.framework.param_class.AutoList.__setitem__ (
              self,
              ii,
              val )  [inherited]
```

Set a value in the list.

Parameters

ii	Index of list to be set
val	Input value

6.2.3.5 __str__()

```
def skdaccess.framework.param_class.AutoList.__str__ (
              self )  [inherited]
```

String representation of class.

Returns

String containing all parmaters in list

6.2.3.6 getAllOptions()

```
def skdaccess.framework.param_class.AutoListCycle.getAllOptions (
              self )
```

Get elements that could possibly be called.

Returns

List of all possible elements

6.2.3.7 perturb()

```
def skdaccess.framework.param_class.AutoListCycle.perturb (
              self )
```

Select next list from list of lists.

6.2.3.8 reset()

```
def skdaccess.framework.param_class.AutoListCycle.reset (
              self )
```

Resets to the first list in the list of lists.

6.2.3.9 val()

```
def skdaccess.framework.param_class.AutoList.val (
              self )  [inherited]
```

Retrieves current list of parameters.

Returns

List of current parameters

6.2.4 Member Data Documentation

6.2.4.1 index

```
skdaccess.framework.param_class.AutoListCycle.index
```

6.2.4.2 list_val_list

```
skdaccess.framework.param_class.AutoListCycle.list_val_list
```

6.2.4.3 val_init

skdaccess.framework.param_class.AutoList.val_init [inherited]

6.2.4.4 val_list

skdaccess.framework.param_class.AutoListCycle.val_list

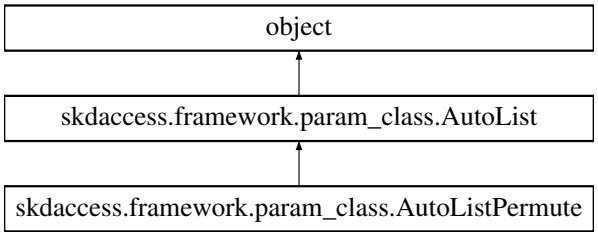
The documentation for this class was generated from the following file:

- framework/param_class.py

6.3 skdaccess.framework.param_class.AutoListPermute Class Reference

A perturber that permutes a list.

Inheritance diagram for skdaccess.framework.param_class.AutoListPermute:



Public Member Functions

- def perturb (self)
  Randomly permutes the initial list.
- def val (self)
  Retrieves current list of parameters.
- def reset (self)
  Reset current list to initial list.
- def getAllOptions (self)
  Get all possible options.
- def __str__ (self)
  String representation of class.
- def __len__ (self)
  Retrieves the length of parameters contained in the list.
- def __getitem__ (self, ii)
  Retrieves item from list.
- def __setitem__ (self, ii, val)
  Set a value in the list.
- def __call__ (self)
  Retrieve current list.

Public Attributes

- val_init
- val_list

6.3.1 Detailed Description

A perturber that permutes a list.

6.3.2 Member Function Documentation

6.3.2.1 __call__()

```
def skdaccess.framework.param_class.AutoList.__call__ (
              self )  [inherited]
```

Retrieve current list.

Returns

Current list

6.3.2.2 __getitem__()

```
def skdaccess.framework.param_class.AutoList.__getitem__ (
              self,
              ii )  [inherited]
```

Retrieves item from list.

Parameters

ii	Index of item to be retrieved

Returns

Item at index ii

6.3.2.3 __len__()

```
def skdaccess.framework.param_class.AutoList.__len__ (
              self )  [inherited]
```

Retrieves the length of parameters contained in the list.

Returns

Number of elements in the list

6.3.2.4 __setitem__()

```
def skdaccess.framework.param_class.AutoList.__setitem__ (
              self,
              ii,
              val )  [inherited]
```

Set a value in the list.

Parameters

ii	Index of list to be set
val	Input value

6.3.2.5 __str__()

```
def skdaccess.framework.param_class.AutoList.__str__ (
              self )  [inherited]
```

String representation of class.

Returns

String containing all parmaters in list

6.3.2.6 getAllOptions()

```
def skdaccess.framework.param_class.AutoList.getAllOptions (
              self )  [inherited]
```

Get all possible options.

Returns

List that contains every option that could possibly be selected

6.3.2.7 perturb()

```
def skdaccess.framework.param_class.AutoListPermute.perturb (
              self )
```

Randomly permutes the initial list.

6.3.2.8 reset()

```
def skdaccess.framework.param_class.AutoList.reset (
              self )  [inherited]
```

Reset current list to initial list.

6.3.2.9 val()

```
def skdaccess.framework.param_class.AutoList.val (
              self )  [inherited]
```

Retrieves current list of parameters.

Returns

List of current parameters

6.3.3 Member Data Documentation

6.3.3.1 val_init

skdaccess.framework.param_class.AutoList.val_init [inherited]

6.3.3.2 val_list

skdaccess.framework.param_class.AutoList.val_list [inherited]

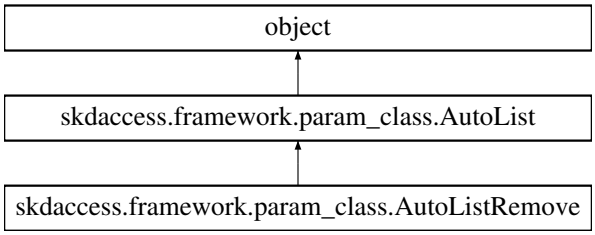
The documentation for this class was generated from the following file:

- framework/param_class.py

6.4 skdaccess.framework.param_class.AutoListRemove Class Reference

Removes a different single element from the initial list at each perturb call.

Inheritance diagram for skdaccess.framework.param_class.AutoListRemove:



Public Member Functions

- def __init__ (self, val_list)
  Construct a AutoList_Cycle object.
- def perturb (self)
  Systematically change which item is absent from the list.
- def reset (self)
  Reset the list to its initial value.
- def val (self)
  Retrieves current list of parameters.
- def getAllOptions (self)
  Get all possible options.
- def __str__ (self)
  String representation of class.
- def __len__ (self)
  Retrieves the length of parameters contained in the list.
- def __getitem__ (self, ii)
  Retrieves item from list.
- def __setitem__ (self, ii, val)
  Set a value in the list.
- def __call__ (self)
  Retrieve current list.

Public Attributes

- n
- val_list
- val_init

6.4.1 Detailed Description

Removes a different single element from the initial list at each perturb call.

6.4.2 Constructor & Destructor Documentation

6.4.2.1 __init__()

```
def skdaccess.framework.param_class.AutoListRemove.__init__ (
              self,
              val_list )
```

Construct a AutoList_Cycle object.

Parameters

val_list	Initial list of parameters.

6.4.3 Member Function Documentation

6.4.3.1 __call__()

```
def skdaccess.framework.param_class.AutoList.__call__ (
              self )  [inherited]
```

Retrieve current list.

Returns

Current list

6.4.3.2 __getitem__()

```
def skdaccess.framework.param_class.AutoList.__getitem__ (
              self,
              ii )  [inherited]
```

Retrieves item from list.

Parameters

ii	Index of item to be retrieved

Returns

Item at index ii

6.4.3.3 __len__()

```
def skdaccess.framework.param_class.AutoList.__len__ (
              self )  [inherited]
```

Retrieves the length of parameters contained in the list.

Returns

Number of elements in the list

6.4.3.4 __setitem__()

```
def skdaccess.framework.param_class.AutoList.__setitem__ (
              self,
              ii,
              val )  [inherited]
```

Set a value in the list.

Parameters

ii	Index of list to be set
val	Input value

6.4.3.5 __str__()

```
def skdaccess.framework.param_class.AutoList.__str__ (
              self )  [inherited]
```

String representation of class.

Returns

String containing all parmaters in list

6.4.3.6 getAllOptions()

```
def skdaccess.framework.param_class.AutoList.getAllOptions (
              self )  [inherited]
```

Get all possible options.

Returns

List that contains every option that could possibly be selected

6.4.3.7 perturb()

```
def skdaccess.framework.param_class.AutoListRemove.perturb (
              self )
```

Systematically change which item is absent from the list.

6.4.3.8 reset()

```
def skdaccess.framework.param_class.AutoListRemove.reset (
              self )
```

Reset the list to its initial value.

6.4.3.9 val()

```
def skdaccess.framework.param_class.AutoList.val (
              self )  [inherited]
```

Retrieves current list of parameters.

Returns

List of current parameters

6.4.4 Member Data Documentation

6.4.4.1 n

```
skdaccess.framework.param_class.AutoListRemove.n
```

6.4.4.2 val_init

```
skdaccess.framework.param_class.AutoList.val_init  [inherited]
```

6.4.4.3 val_list

```
skdaccess.framework.param_class.AutoListRemove.val_list
```

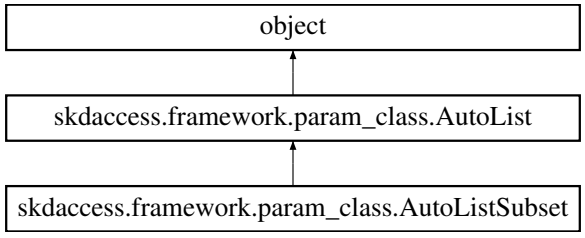
The documentation for this class was generated from the following file:

- framework/param_class.py

6.5 skdaccess.framework.param_class.AutoListSubset Class Reference

An AutoList perturber that creates random subsets of a list.

Inheritance diagram for skdaccess.framework.param_class.AutoListSubset:



Public Member Functions

- def perturb (self)

  Peturb the list by selecting a random subset of the initial list.
- def val (self)

  Retrieves current list of parameters.
- def reset (self)

  Reset current list to initial list.
- def getAllOptions (self)

  Get all possible options.
- def __str__ (self)

  String representation of class.
- def __len__ (self)

  Retrieves the length of parameters contained in the list.
- def __getitem__ (self, ii)

  Retrieves item from list.
- def __setitem__ (self, ii, val)

  Set a value in the list.
- def __call__ (self)

  Retrieve current list.

Public Attributes

- val_list
- val_init

6.5.1 Detailed Description

An AutoList perturber that creates random subsets of a list.

List can be empty

6.5.2 Member Function Documentation

6.5.2.1 __call__()

```
def skdaccess.framework.param_class.AutoList.__call__ (
             self )  [inherited]
```

Retrieve current list.

Returns

Current list

6.5.2.2 __getitem__()

```
def skdaccess.framework.param_class.AutoList.__getitem__ (
              self,
              ii )  [inherited]
```

Retrieves item from list.

Parameters

ii	Index of item to be retrieved

Returns

Item at index ii

6.5.2.3 __len__()

```
def skdaccess.framework.param_class.AutoList.__len__ (
              self )  [inherited]
```

Retrieves the length of parameters contained in the list.

Returns

Number of elements in the list

6.5.2.4 __setitem__()

```
def skdaccess.framework.param_class.AutoList.__setitem__ (
              self,
              ii,
              val )  [inherited]
```

Set a value in the list.

Parameters

ii	Index of list to be set
val	Input value

6.5.2.5 __str__()

```
def skdaccess.framework.param_class.AutoList.__str__ (
              self )  [inherited]
```

String representation of class.

Returns

String containing all parmaters in list

6.5.2.6 getAllOptions()

```
def skdaccess.framework.param_class.AutoList.getAllOptions (
              self )  [inherited]
```

Get all possible options.

Returns

List that contains every option that could possibly be selected

6.5.2.7 perturb()

```
def skdaccess.framework.param_class.AutoListSubset.perturb (
              self )
```

Peturb the list by selecting a random subset of the initial list.

6.5.2.8 reset()

```
def skdaccess.framework.param_class.AutoList.reset (
              self )  [inherited]
```

Reset current list to initial list.

6.5.2.9 val()

```
def skdaccess.framework.param_class.AutoList.val (
             self )  [inherited]
```

Retrieves current list of parameters.

Returns

List of current parameters

6.5.3 Member Data Documentation

6.5.3.1 val_init

```
skdaccess.framework.param_class.AutoList.val_init  [inherited]
```

6.5.3.2 val_list

```
skdaccess.framework.param_class.AutoListSubset.val_list
```

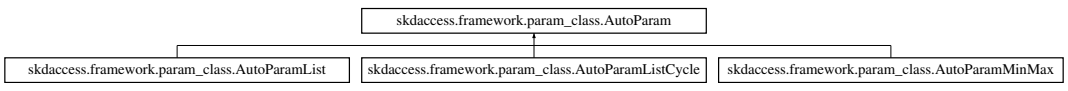
The documentation for this class was generated from the following file:

- framework/param_class.py

6.6 skdaccess.framework.param_class.AutoParam Class Reference

Defines a tunable parameter class inherited by specific subclasses.

Inheritance diagram for skdaccess.framework.param_class.AutoParam:



Public Member Functions

- def __init__ (self, val_init)

  Initialize an AutoParam object.
- def perturb (self)

  Perturb paramter.
- def reset (self)

  Reset value to initial value.
- def __str__ (self)

  String representation of class.
- def __call__ (self)

  Retrieves current value of the parameter.

Public Attributes

- val
- val_init

6.6.1 Detailed Description

Defines a tunable parameter class inherited by specific subclasses.

AutoParam class and subclass work on a single value. functions perturb value and reset to initial value

6.6.2 Constructor & Destructor Documentation

6.6.2.1 __init__()

```
def skdaccess.framework.param_class.AutoParam.__init__ (
            self,
            val_init )
```

Initialize an AutoParam object.

Parameters

val_init	Value for parameter

6.6.3 Member Function Documentation

6.6.3.1 __call__()

```
def skdaccess.framework.param_class.AutoParam.__call__ (
              self )
```

Retrieves current value of the parameter.

Returns

Current value of the parameter

6.6.3.2 __str__()

```
def skdaccess.framework.param_class.AutoParam.__str__ (
              self )
```

String representation of class.

Returns

String of current value

6.6.3.3 perturb()

```
def skdaccess.framework.param_class.AutoParam.perturb (
              self )
```

Perturb paramter.

This class doesn't change the value.

6.6.3.4 reset()

```
def skdaccess.framework.param_class.AutoParam.reset (
              self )
```

Reset value to initial value.

6.6.4 Member Data Documentation

6.6.4.1 val

skdaccess.framework.param_class.AutoParam.val

6.6.4.2 val_init

skdaccess.framework.param_class.AutoParam.val_init

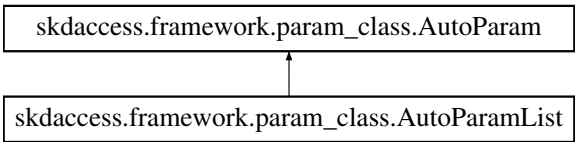
The documentation for this class was generated from the following file:

- framework/param_class.py

6.7 skdaccess.framework.param_class.AutoParamList Class Reference

A tunable parameter with a specified list of choices that can be randomly selected via perturb.

Inheritance diagram for skdaccess.framework.param_class.AutoParamList:



Public Member Functions

- def __init__ (self, val_init, val_list)
  Construct an AutoParamList object.
- def perturb (self)
  Randomly select a value from val_list.
- def reset (self)
  Reset the list to the default value.
- def __str__ (self)
  String representation of class.
- def __call__ (self)
  Retrieves current value of the parameter.

Public Attributes

- val
- val_init
- val_list

6.7.1 Detailed Description

A tunable parameter with a specified list of choices that can be randomly selected via perturb.

6.7.2 Constructor & Destructor Documentation

6.7.2.1 __init__()

```
def skdaccess.framework.param_class.AutoParamList.__init__ (
              self,
              val_init,
              val_list )
```

Construct an AutoParamList object.

Parameters

val_init	initial value for the parameter
val_list	List of possible variants for the parameter

6.7.3 Member Function Documentation

6.7.3.1 __call__()

```
def skdaccess.framework.param_class.AutoParam.__call__ (
              self )  [inherited]
```

Retrieves current value of the parameter.

Returns

Current value of the parameter

6.7.3.2 __str__()

```
def skdaccess.framework.param_class.AutoParam.__str__ (
              self )  [inherited]
```

String representation of class.

Returns

String of current value

6.7.3.3 perturb()

```
def skdaccess.framework.param_class.AutoParamList.perturb (
              self )
```

Randomly select a value from val_list.

6.7.3.4 reset()

```
def skdaccess.framework.param_class.AutoParamList.reset (
              self )
```

Reset the list to the default value.

6.7.4 Member Data Documentation

6.7.4.1 val

```
skdaccess.framework.param_class.AutoParamList.val
```

6.7.4.2 val_init

```
skdaccess.framework.param_class.AutoParamList.val_init
```

6.7.4.3 val_list

`skdaccess.framework.param_class.AutoParamList.val_list`

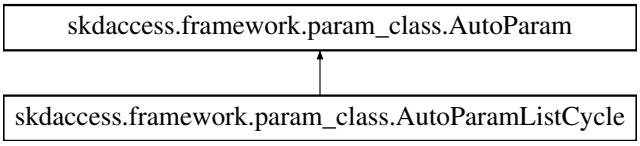
The documentation for this class was generated from the following file:

- framework/param_class.py

6.8 skdaccess.framework.param_class.AutoParamListCycle Class Reference

Cycles through a list of paramters.

Inheritance diagram for skdaccess.framework.param_class.AutoParamListCycle:



Public Member Functions

- def __init__ (self, val_list)

  Construct an AutoParamListCycle.
- def perturb (self)

  Select the next value from the list of parameters.
- def reset (self)

  Reset the list to the default values.
- def __str__ (self)

  String representation of class.
- def __call__ (self)

  Retrieves current value of the parameter.

Public Attributes

- val
- val_list
- current_index
- val_init

6.8.1 Detailed Description

Cycles through a list of paramters.

6.8.2 Constructor & Destructor Documentation

6.8.2.1 __init__()

```
def skdaccess.framework.param_class.AutoParamListCycle.__init__ (
              self,
              val_list )
```

Construct an AutoParamListCycle.

Parameters

val_list	List of possible variants for the parameter

6.8.3 Member Function Documentation

6.8.3.1 __call__()

```
def skdaccess.framework.param_class.AutoParam.__call__ (
              self )  [inherited]
```

Retrieves current value of the parameter.

Returns

Current value of the parameter

6.8.3.2 __str__()

```
def skdaccess.framework.param_class.AutoParam.__str__ (
              self )  [inherited]
```

String representation of class.

Returns

String of current value

6.8.3.3 perturb()

```
def skdaccess.framework.param_class.AutoParamListCycle.perturb (
              self )
```

Select the next value from the list of parameters.

6.8.3.4 reset()

```
def skdaccess.framework.param_class.AutoParamListCycle.reset (
              self )
```

Reset the list to the default values.

6.8.4 Member Data Documentation

6.8.4.1 current_index

```
skdaccess.framework.param_class.AutoParamListCycle.current_index
```

6.8.4.2 val

```
skdaccess.framework.param_class.AutoParamListCycle.val
```

6.8.4.3 val_init

```
skdaccess.framework.param_class.AutoParam.val_init  [inherited]
```

6.8.4.4 val_list

```
skdaccess.framework.param_class.AutoParamListCycle.val_list
```

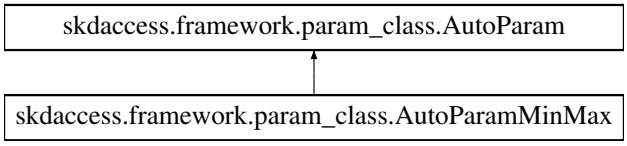
The documentation for this class was generated from the following file:

- framework/param_class.py

6.9 skdaccess.framework.param_class.AutoParamMinMax Class Reference

A tunable parameter with min and max ranges, perturbs to a random value in range.

Inheritance diagram for skdaccess.framework.param_class.AutoParamMinMax:



Public Member Functions

- def __init__ (self, val_init, val_min, val_max, decimals=0, extreme=0)

  Construct AutoParamMinMax object.
- def perturb (self)

  Peturb the paramter by choosing a random value between val_min and val_max.
- def reset (self)

  Reset to initial value.
- def __str__ (self)

  String representation of class.
- def __call__ (self)

  Retrieves current value of the parameter.

Public Attributes

- val
- val_init
- val_min
- val_max
- n
- n_max
- decimals

6.9.1 Detailed Description

A tunable parameter with min and max ranges, perturbs to a random value in range.

It can optionally choose either the min or the max after n perturbs

6.9.2 Constructor & Destructor Documentation

6.9.2.1 __init__()

```
def skdaccess.framework.param_class.AutoParamMinMax.__init__ (
              self,
              val_init,
              val_min,
              val_max,
              decimals = 0,
              extreme = 0 )
```

Construct AutoParamMinMax object.

Parameters

val_init	Initial value for parameter
val_min	Minimum value for param
val_max	Maximum value for parameter
decimals	Number of decimals to include in the random number
extreme	Either the maximum or minimum is chosen every extreme number of iterations. Using a value of one will be an extreme value every time. Using a value of zero will always choose a random value.

6.9.3 Member Function Documentation

6.9.3.1 __call__()

```
def skdaccess.framework.param_class.AutoParam.__call__ (
              self )  [inherited]
```

Retrieves current value of the parameter.

Returns

Current value of the parameter

6.9.3.2 __str__()

```
def skdaccess.framework.param_class.AutoParam.__str__ (
              self )  [inherited]
```

String representation of class.

Returns

String of current value

6.9.3.3 perturb()

```
def skdaccess.framework.param_class.AutoParamMinMax.perturb (
              self )
```

Peturb the paramter by choosing a random value between val_min and val_max.

Will choose a random number with precision specified by decimals. Will optionally pick the min or the max value after a specified number of perturb calls

6.9.3.4 reset()

```
def skdaccess.framework.param_class.AutoParamMinMax.reset (
              self )
```

Reset to initial value.

6.9.4 Member Data Documentation

6.9.4.1 decimals

```
skdaccess.framework.param_class.AutoParamMinMax.decimals
```

6.9.4.2 n

```
skdaccess.framework.param_class.AutoParamMinMax.n
```

6.9.4.3 n_max

```
skdaccess.framework.param_class.AutoParamMinMax.n_max
```

6.9.4.4 val

```
skdaccess.framework.param_class.AutoParamMinMax.val
```

6.9.4.5 val_init

skdaccess.framework.param_class.AutoParamMinMax.val_init

6.9.4.6 val_max

skdaccess.framework.param_class.AutoParamMinMax.val_max

6.9.4.7 val_min

skdaccess.framework.param_class.AutoParamMinMax.val_min

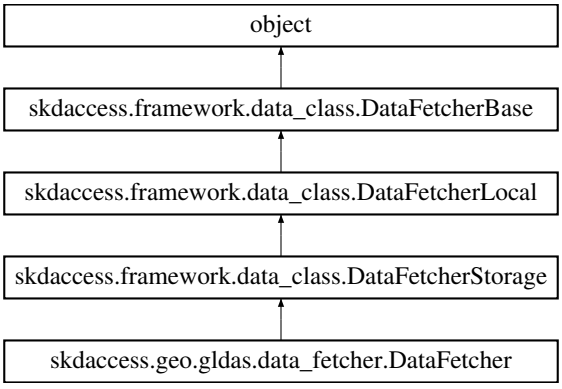
The documentation for this class was generated from the following file:

- framework/param_class.py

6.10 skdaccess.geo.gldas.DataFetcher Class Reference

Data Fetcher for GLDAS data.

Inheritance diagram for skdaccess.geo.gldas.DataFetcher:



Public Member Functions

- def __init__ (self, ap_paramList, start_date=None, end_date=None, resample=False)

  Construct a GLDAS Data Fetcher.
- def output (self)

  Create data wrapper of GLDAS data for specified geopoint.
- def downloadFullDataset (cls, out_file=None, use_file=None)

  Download GLDAS data.
- def __str__ (self)

  String representation of data fetcher.
- def multirun_enabled (self)

  Returns whether or not this data fetcher is multirun enabled.
- def getDataLocation (data_name)

  Get the location of data set.
- def setDataLocation (data_name, location, key='data_location')

  Set the location of a data set.
- def perturb (self)

  Perturb parameters.
- def reset (self)

  Set all parameters to initial value.
- def getMetadata (self)

  Return metadata about Data Fetcher.
- def getConfig ()

  Retrieve skdaccess configuration.
- def writeConfig (conf)

  Write config to disk.
- def verbose_print (self, args, kwargs)

Public Attributes

- start_date
- end_date
- resample
- ap_paramList
- verbose

6.10.1 Detailed Description

Data Fetcher for GLDAS data.

6.10.2 Constructor & Destructor Documentation

6.10.2.1 __init__()

```
def skdaccess.geo.gldas.DataFetcher.__init__ (
              self,
              ap_paramList,
              start_date = None,
              end_date = None,
              resample = False )
```

Construct a GLDAS Data Fetcher.

Parameters

ap_paramList[geo_point]	Autolist of Geographic location tuples
start_date	Beginning date
end_date	Ending date
resample	Resample the data to daily resolution, leaving NaN's in days without data (Default True)

6.10.3 Member Function Documentation

6.10.3.1 __str__()

```
def skdaccess.geo.gldas.DataFetcher.__str__ (
              self )
```

String representation of data fetcher.

Returns

String listing the name and geopoint of data fetcher

6.10.3.2 downloadFullDataset()

```
def skdaccess.geo.gldas.DataFetcher.downloadFullDataset (
              cls,
              out_file = None,
              use_file = None )
```

Download GLDAS data.

Parameters

out_file	Output filename for parsed data
use_file	Directory of downloaded data. If None, data will be downloaded.

Returns

Absolute path of parsed data

6.10.3.3 getConfig()

```
def skdaccess.framework.data_class.DataFetcherBase.getConfig ( )  [inherited]
```

Retrieve skdaccess configuration.

Returns

configParser.ConfigParser object of configuration

6.10.3.4 getDataLocation()

```
def skdaccess.framework.data_class.DataFetcherLocal.getDataLocation (
              data_name )  [inherited]
```

Get the location of data set.

Parameters

data_name	Name of data set

Returns

string of data location, None if not found

6.10.3.5 getMetadata()

```
def skdaccess.framework.data_class.DataFetcherBase.getMetadata (
              self )  [inherited]
```

Return metadata about Data Fetcher.

Returns

metadata of object.

6.10.3.6 multirun_enabled()

```
def skdaccess.framework.data_class.DataFetcherStorage.multirun_enabled (
              self )  [inherited]
```

Returns whether or not this data fetcher is multirun enabled.

Returns

Boolean indicating whether or not this data fetcher is multirun enabled

6.10.3.7 output()

```
def skdaccess.geo.gldas.DataFetcher.output (
              self )
```

Create data wrapper of GLDAS data for specified geopoint.

Returns

GLDAS Data Wrapper

6.10.3.8 perturb()

```
def skdaccess.framework.data_class.DataFetcherBase.perturb (
              self )  [inherited]
```

Perturb parameters.

6.10.3.9 reset()

```
def skdaccess.framework.data_class.DataFetcherBase.reset (
              self )  [inherited]
```

Set all parameters to initial value.

6.10.3.10 setDataLocation()

```
def skdaccess.framework.data_class.DataFetcherLocal.setDataLocation (
              data_name,
              location,
              key = 'data_location' )  [inherited]
```

Set the location of a data set.

Parameters

data_name	Name of data set
location	Location of data set
key	Key of configuration option

6.10.3.11 verbose_print()

```
def skdaccess.framework.data_class.DataFetcherBase.verbose_print (
              self,
              args,
              kwargs )  [inherited]
```

6.10.3.12 writeConfig()

```
def skdaccess.framework.data_class.DataFetcherBase.writeConfig (
              conf )  [inherited]
```

Write config to disk.

Parameters

conf	configparser.ConfigParser object

6.10.4 Member Data Documentation

6.10.4.1 ap_paramList

```
skdaccess.framework.data_class.DataFetcherBase.ap_paramList  [inherited]
```

6.10.4.2 end_date

```
skdaccess.geo.gldas.DataFetcher.end_date
```

6.10.4.3 resample

skdaccess.geo.gldas.DataFetcher.resample

6.10.4.4 start_date

skdaccess.geo.gldas.DataFetcher.start_date

6.10.4.5 verbose

skdaccess.framework.data_class.DataFetcherBase.verbose [inherited]

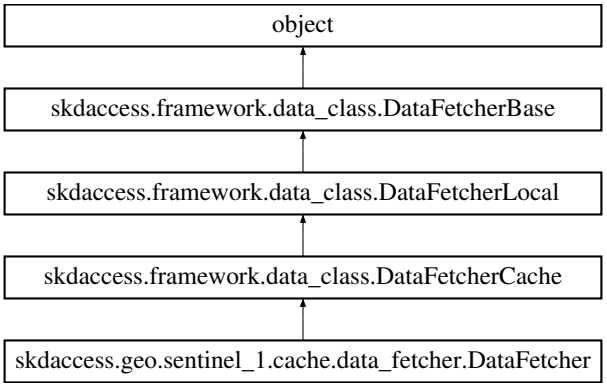
The documentation for this class was generated from the following file:

- geo/gldas/data_fetcher.py

6.11 skdaccess.geo.sentinel_1.cache.DataFetcher Class Reference

DataFetcher for retrieving Sentinel SLC data.

Inheritance diagram for skdaccess.geo.sentinel_1.cache.DataFetcher:



Public Member Functions

- def __init__ (self, url_list, satellite_url_list, username, password, swath, polarization='VV', local_paths=False, verbose=True)

  Initialize Sentinel Data Fetcher.
- def output (self)

  Generate data wrapper.
- def cacheData (self, keyname, online_path_list, username=None, password=None, authentication_url=None, cookiejar=None, use_requests=False, use_progress_bar=True)

  Download and store specified data to local disk.
- def multirun_enabled (self)

  Returns whether or not this data fetcher is multirun enabled.
- def getHDFStorage (self, keyname)
- def getDataLocation (data_name)

  Get the location of data set.
- def setDataLocation (data_name, location, key='data_location')

  Set the location of a data set.
- def perturb (self)

  Perturb parameters.
- def reset (self)

  Set all parameters to initial value.
- def __str__ (self)

  Generate string description.
- def getMetadata (self)

  Return metadata about Data Fetcher.
- def getConfig ()

  Retrieve skdaccess configuration.
- def writeConfig (conf)

  Write config to disk.
- def verbose_print (self, args, kwargs)

Public Attributes

- url_list
- satellite_url_list
- swath
- username
- password
- polarization
- local_paths
- ap_paramList
- verbose

6.11.1 Detailed Description

DataFetcher for retrieving Sentinel SLC data.

6.11.2 Constructor & Destructor Documentation

6.11.2.1 __init__()

```
def skdaccess.geo.sentinel_1.cache.DataFetcher.__init__ (
              self,
              url_list,
              satellite_url_list,
              username,
              password,
              swath,
              polarization = 'VV',
              local_paths = False,
              verbose = True )
```

Initialize Sentinel Data Fetcher.

Parameters

url_list	List of urls of SLC data
username	Username for downloading data
password	Password for downloading data
swath	Swath number (1, 2, or 3)
Polarization	Polarization of data to retrieve

6.11.3 Member Function Documentation

6.11.3.1 __str__()

```
def skdaccess.framework.data_class.DataFetcherBase.__str__ (
              self )  [inherited]
```

Generate string description.

6.11.3.2 cacheData()

```
def skdaccess.framework.data_class.DataFetcherCache.cacheData (
              self,
              keyname,
              online_path_list,
              username = None,
              password = None,
              authentication_url = None,
              cookiejar = None,
              use_requests = False,
              use_progress_bar = True )  [inherited]
```

Download and store specified data to local disk.

Parameters

data_specification	Specification of data to be retrieved

Returns

List of downloaded file locations

6.11.3.3 getConfig()

```
def skdaccess.framework.data_class.DataFetcherBase.getConfig ( )  [inherited]
```

Retrieve skdaccess configuration.

Returns

configParser.ConfigParser object of configuration

6.11.3.4 getDataLocation()

```
def skdaccess.framework.data_class.DataFetcherLocal.getDataLocation (
              data_name )  [inherited]
```

Get the location of data set.

Parameters

data_name	Name of data set

Returns

string of data location, None if not found

6.11.3.5 getHDFStorage()

```
def skdaccess.framework.data_class.DataFetcherCache.getHDFStorage (
              self,
              keyname )  [inherited]
```

6.11.3.6 getMetadata()

```
def skdaccess.framework.data_class.DataFetcherBase.getMetadata (
              self )  [inherited]
```

Return metadata about Data Fetcher.

Returns

metadata of object.

6.11.3.7 multirun_enabled()

```
def skdaccess.framework.data_class.DataFetcherCache.multirun_enabled (
              self )  [inherited]
```

Returns whether or not this data fetcher is multirun enabled.

Returns

Boolean indicating whether or not this data fetcher is multirun enabled

6.11.3.8 output()

```
def skdaccess.geo.sentinel_1.cache.DataFetcher.output (
              self )
```

Generate data wrapper.

Returns

Sentinel SLC data in a data wrapper

6.11.3.9 perturb()

```
def skdaccess.framework.data_class.DataFetcherBase.perturb (
              self )  [inherited]
```

Perturb parameters.

6.11.3.10 reset()

```
def skdaccess.framework.data_class.DataFetcherBase.reset (
              self )  [inherited]
```

Set all parameters to initial value.

6.11.3.11 setDataLocation()

```
def skdaccess.framework.data_class.DataFetcherLocal.setDataLocation (
              data_name,
              location,
              key = 'data_location' )  [inherited]
```

Set the location of a data set.

Parameters

data_name	Name of data set
location	Location of data set
key	Key of configuration option

6.11.3.12 verbose_print()

```
def skdaccess.framework.data_class.DataFetcherBase.verbose_print (
              self,
              args,
              kwargs )  [inherited]
```

6.11.3.13 writeConfig()

```
def skdaccess.framework.data_class.DataFetcherBase.writeConfig (
              conf )  [inherited]
```

Write config to disk.

Parameters

conf	configparser.ConfigParser object

6.11.4 Member Data Documentation

6.11.4.1 ap_paramList

```
skdaccess.framework.data_class.DataFetcherBase.ap_paramList  [inherited]
```

6.11.4.2 local_paths

```
skdaccess.geo.sentinel_1.cache.DataFetcher.local_paths
```

6.11.4.3 password

```
skdaccess.geo.sentinel_1.cache.DataFetcher.password
```

6.11.4.4 polarization

```
skdaccess.geo.sentinel_1.cache.DataFetcher.polarization
```

6.11.4.5 satellite_url_list

```
skdaccess.geo.sentinel_1.cache.DataFetcher.satellite_url_list
```

6.11.4.6 swath

skdaccess.geo.sentinel_1.cache.DataFetcher.swath

6.11.4.7 url_list

skdaccess.geo.sentinel_1.cache.DataFetcher.url_list

6.11.4.8 username

skdaccess.geo.sentinel_1.cache.DataFetcher.username

6.11.4.9 verbose

skdaccess.framework.data_class.DataFetcherBase.verbose [inherited]

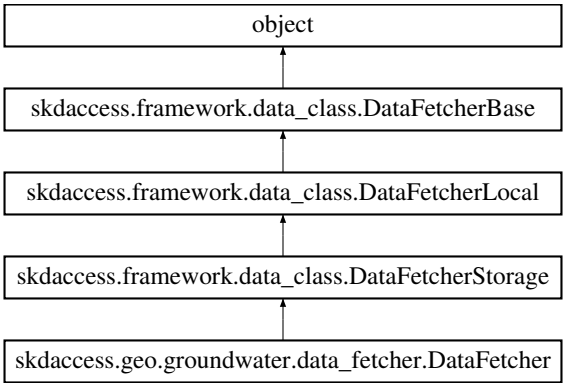
The documentation for this class was generated from the following file:

- geo/sentinel_1/cache/data_fetcher.py

6.12 skdaccess.geo.groundwater.DataFetcher Class Reference

Generates Data Wrappers of groundwater measurements taken in the US.

Inheritance diagram for skdaccess.geo.groundwater.DataFetcher:



Public Member Functions

- def __init__ (self, ap_paramList=[ ], start_date=None, end_date=None, cutoff=0.75)

  Construct a Groundwater Data Fetcher.
- def output (self)

  Fetch Groundwater Data Wrapper.
- def __str__ (self)

  String representation of data fetcher.
- def getStationMetadata ()

  Retrieve metadata on groundwater wells.
- def downloadFullDataset (cls, out_file='gw.h5', use_file=None)

  Download and parse US groundwater data provided by USGS.
- def multirun_enabled (self)

  Returns whether or not this data fetcher is multirun enabled.
- def getDataLocation (data_name)

  Get the location of data set.
- def setDataLocation (data_name, location, key='data_location')

  Set the location of a data set.
- def perturb (self)

  Perturb parameters.
- def reset (self)

  Set all parameters to initial value.
- def getMetadata (self)

  Return metadata about Data Fetcher.
- def getConfig ()

  Retrieve skdaccess configuration.
- def writeConfig (conf)

  Write config to disk.
- def verbose_print (self, args, kwargs)

Public Attributes

- start_date
- end_date
- ap_paramList
- cutoff
- verbose

6.12.1 Detailed Description

Generates Data Wrappers of groundwater measurements taken in the US.

6.12.2 Constructor & Destructor Documentation

6.12.2.1 __init__()

```
def skdaccess.geo.groundwater.DataFetcher.__init__ (
              self,
              ap_paramList = [],
              start_date = None,
              end_date = None,
              cutoff = 0.75 )
```

Construct a Groundwater Data Fetcher.

Parameters

ap_paramList[LowerLat]	Autoparam Lower latitude
ap_paramList[UpperLat]	Autoparam Upper latitude
ap_paramList[LeftLon]	Autoparam Left longitude
ap_paramList[RightLon]	Autoparam Right longitude
start_date	Starting date (defualt: None)
end_date	Ending date (default: None)
cutoff	Required amount of data for each station

6.12.3 Member Function Documentation

6.12.3.1 __str__()

```
def skdaccess.geo.groundwater.DataFetcher.__str__ (
              self )
```

String representation of data fetcher.

Returns

string describing data fetcher

6.12.3.2 downloadFullDataset()

```
def skdaccess.geo.groundwater.DataFetcher.downloadFullDataset (
              cls,
              out_file = 'gw.h5',
              use_file = None )
```

Download and parse US groundwater data provided by USGS.

Parameters

out_file	Output filename for parsed data
use_file	Specify the directory where the data is. If None, the function will download the data

Returns

Absolute path of parsed data

6.12.3.3 getConfig()

```
def skdaccess.framework.data_class.DataFetcherBase.getConfig ( )  [inherited]
```

Retrieve skdaccess configuration.

Returns

configParser.ConfigParser object of configuration

6.12.3.4 getDataLocation()

```
def skdaccess.framework.data_class.DataFetcherLocal.getDataLocation (
              data_name )  [inherited]
```

Get the location of data set.

Parameters

data_name	Name of data set

Returns

string of data location, None if not found

6.12.3.5 getMetadata()

```
def skdaccess.framework.data_class.DataFetcherBase.getMetadata (
              self )  [inherited]
```

Return metadata about Data Fetcher.

Returns

metadata of object.

6.12.3.6 getStationMetadata()

```
def skdaccess.geo.groundwater.DataFetcher.getStationMetadata ( )
```

Retrieve metadata on groundwater wells.

Returns

pandas dataframe with groundwater well information

6.12.3.7 multirun_enabled()

```
def skdaccess.framework.data_class.DataFetcherStorage.multirun_enabled (
              self )  [inherited]
```

Returns whether or not this data fetcher is multirun enabled.

Returns

Boolean indicating whether or not this data fetcher is multirun enabled

6.12.3.8 output()

```
def skdaccess.geo.groundwater.DataFetcher.output (
              self )
```

Fetch Groundwater Data Wrapper.

Returns

Groundwater Data Wrapper

6.12.3.9 perturb()

```
def skdaccess.framework.data_class.DataFetcherBase.perturb (
              self )  [inherited]
```

Perturb parameters.

6.12.3.10 reset()

```
def skdaccess.framework.data_class.DataFetcherBase.reset (
              self )  [inherited]
```

Set all parameters to initial value.

6.12.3.11 setDataLocation()

```
def skdaccess.framework.data_class.DataFetcherLocal.setDataLocation (
              data_name,
              location,
              key = 'data_location' )  [inherited]
```

Set the location of a data set.

Parameters

data_name	Name of data set
location	Location of data set
key	Key of configuration option

6.12.3.12 verbose_print()

```
def skdaccess.framework.data_class.DataFetcherBase.verbose_print (
              self,
              args,
              kwargs )  [inherited]
```

6.12.3.13 writeConfig()

```
def skdaccess.framework.data_class.DataFetcherBase.writeConfig (
              conf )  [inherited]
```

Write config to disk.

Parameters

conf	configparser.ConfigParser object

6.12.4 Member Data Documentation

6.12.4.1 ap_paramList

```
skdaccess.geo.groundwater.DataFetcher.ap_paramList
```

6.12.4.2 cutoff

```
skdaccess.geo.groundwater.DataFetcher.cutoff
```

6.12.4.3 end_date

```
skdaccess.geo.groundwater.DataFetcher.end_date
```

6.12.4.4 start_date

```
skdaccess.geo.groundwater.DataFetcher.start_date
```

6.12.4.5 verbose

`skdaccess.framework.data_class.DataFetcherBase.verbose [inherited]`

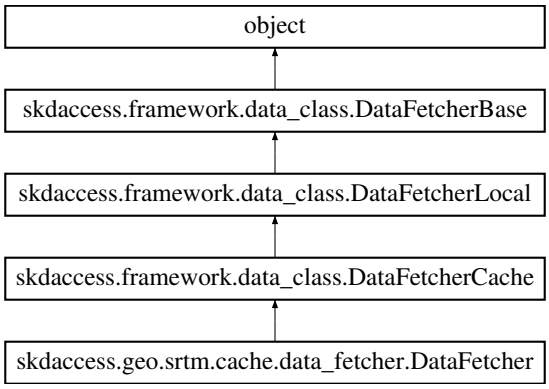
The documentation for this class was generated from the following file:

- geo/groundwater/data_fetcher.py

6.13 skdaccess.geo.srtm.cache.DataFetcher Class Reference

DataFetcher for retrieving data from the Shuttle Radar Topography Mission.

Inheritance diagram for skdaccess.geo.srtm.cache.DataFetcher:



Public Member Functions

- def __init__ (self, lat_tile_start, lat_tile_end, lon_tile_start, lon_tile_end, username, password, arcsecond_sampling=1, mask_water=True)

  Initialize Data Fetcher.
- def output (self)

  Generate SRTM data wrapper.
- def cacheData (self, keyname, online_path_list, username=None, password=None, authentication_url=None, cookiejar=None, use_requests=False, use_progress_bar=True)

  Download and store specified data to local disk.
- def multirun_enabled (self)

  Returns whether or not this data fetcher is multirun enabled.
- def getHDFStorage (self, keyname)
- def getDataLocation (data_name)

  Get the location of data set.
- def setDataLocation (data_name, location, key='data_location')

  Set the location of a data set.
- def perturb (self)

  Perturb parameters.

- def reset (self)

  Set all parameters to initial value.
- def __str__ (self)

  Generate string description.
- def getMetadata (self)

  Return metadata about Data Fetcher.
- def getConfig ()

  Retrieve skdaccess configuration.
- def writeConfig (conf)

  Write config to disk.
- def verbose_print (self, args, kwargs)

Public Attributes

- lat_tile_start
- lat_tile_end
- lon_tile_start
- lon_tile_end
- username
- password
- arcsecond_sampling

  Determine the longitude and latitude of the lowerleft corner of the input filename.
- mask_water
- ap_paramList
- verbose

6.13.1 Detailed Description

DataFetcher for retrieving data from the Shuttle Radar Topography Mission.

6.13.2 Constructor & Destructor Documentation

6.13.2.1 __init__()

```
def skdaccess.geo.srtm.cache.DataFetcher.__init__ (
              self,
              lat_tile_start,
              lat_tile_end,
              lon_tile_start,
              lon_tile_end,
              username,
              password,
              arcsecond_sampling = 1,
              mask_water = True )
```

Initialize Data Fetcher.

Parameters

lat_tile_start	Latitude of the southwest corner of the starting tile
lat_tile_end	Latitude of the southwset corner of the last tile
lon_tile_start	Longitude of the southwest corner of the starting tile
lon_tile_end	Longitude of the southwest corner of the last tile
username	NASA Earth Data username
password	NASA Earth Data Password
arcsecond_sampling	Sample spacing of the SRTM data, either 1 arc- second or 3 arc-seconds
mask_water	True if the water bodies should be masked, false otherwise

6.13.3 Member Function Documentation

6.13.3.1 __str__()

```
def skdaccess.framework.data_class.DataFetcherBase.__str__ (
              self )  [inherited]
```

Generate string description.

6.13.3.2 cacheData()

```
def skdaccess.framework.data_class.DataFetcherCache.cacheData (
              self,
              keyname,
              online_path_list,
              username = None,
              password = None,
              authentication_url = None,
              cookiejar = None,
              use_requests = False,
              use_progress_bar = True )  [inherited]
```

Download and store specified data to local disk.

Parameters

data_specification	Specification of data to be retrieved

Returns

List of downloaded file locations

6.13.3.3 getConfig()

```
def skdaccess.framework.data_class.DataFetcherBase.getConfig ( )  [inherited]
```

Retrieve skdaccess configuration.

Returns

configParser.ConfigParser object of configuration

6.13.3.4 getDataLocation()

```
def skdaccess.framework.data_class.DataFetcherLocal.getDataLocation (
              data_name )  [inherited]
```

Get the location of data set.

Parameters

data_name	Name of data set

Returns

string of data location, None if not found

6.13.3.5 getHDFStorage()

```
def skdaccess.framework.data_class.DataFetcherCache.getHDFStorage (
              self,
              keyname )  [inherited]
```

6.13.3.6 getMetadata()

```
def skdaccess.framework.data_class.DataFetcherBase.getMetadata (
              self )  [inherited]
```

Return metadata about Data Fetcher.

Returns

metadata of object.

6.13.3.7 multirun_enabled()

```
def skdaccess.framework.data_class.DataFetcherCache.multirun_enabled (
              self )  [inherited]
```

Returns whether or not this data fetcher is multirun enabled.

Returns

Boolean indicating whether or not this data fetcher is multirun enabled

6.13.3.8 output()

```
def skdaccess.geo.srtm.cache.DataFetcher.output (
              self )
```

Generate SRTM data wrapper.

Returns

SRTM Image Wrapper

6.13.3.9 perturb()

```
def skdaccess.framework.data_class.DataFetcherBase.perturb (
              self )  [inherited]
```

Perturb parameters.

6.13.3.10 reset()

```
def skdaccess.framework.data_class.DataFetcherBase.reset (
              self )  [inherited]
```

Set all parameters to initial value.

6.13.3.11 setDataLocation()

```
def skdaccess.framework.data_class.DataFetcherLocal.setDataLocation (
              data_name,
              location,
              key = 'data_location' )  [inherited]
```

Set the location of a data set.

Parameters

data_name	Name of data set
location	Location of data set
key	Key of configuration option

6.13.3.12 verbose_print()

```
def skdaccess.framework.data_class.DataFetcherBase.verbose_print (
              self,
              args,
              kwargs )  [inherited]
```

6.13.3.13 writeConfig()

```
def skdaccess.framework.data_class.DataFetcherBase.writeConfig (
              conf )  [inherited]
```

Write config to disk.

Parameters

conf	configparser.ConfigParser object

6.13.4 Member Data Documentation

6.13.4.1 ap_paramList

skdaccess.framework.data_class.DataFetcherBase.ap_paramList [inherited]

6.13.4.2 arcsecond_sampling

skdaccess.geo.srtm.cache.DataFetcher.arcsecond_sampling

Determine the longitude and latitude of the lowerleft corner of the input filename.

Parameters

in_filename	Input SRTM filename

Returns

Latitude of southwest corner, Longitude of southwest corner

6.13.4.3 lat_tile_end

skdaccess.geo.srtm.cache.DataFetcher.lat_tile_end

6.13.4.4 lat_tile_start

skdaccess.geo.srtm.cache.DataFetcher.lat_tile_start

6.13.4.5 lon_tile_end

skdaccess.geo.srtm.cache.DataFetcher.lon_tile_end

6.13.4.6 lon_tile_start

skdaccess.geo.srtm.cache.DataFetcher.lon_tile_start

6.13.4.7 mask_water

skdaccess.geo.srtm.cache.DataFetcher.mask_water

6.13.4.8 password

skdaccess.geo.srtm.cache.DataFetcher.password

6.13.4.9 username

skdaccess.geo.srtm.cache.DataFetcher.username

6.13.4.10 verbose

skdaccess.framework.data_class.DataFetcherBase.verbose [inherited]

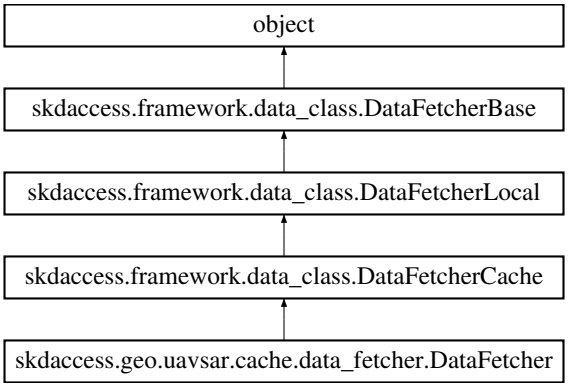
The documentation for this class was generated from the following file:

- geo/srtm/cache/data_fetcher.py

6.14 skdaccess.geo.uavsar.cache.DataFetcher Class Reference

Data Fetcher for UAVSAR data.

Inheritance diagram for skdaccess.geo.uavsar.cache.DataFetcher:



Public Member Functions

- def __init__ (self, slc_url_list, metadata_url_list, llh_url, memmap)

  Initialize UAVSAR data fetcher.
- def output (self)

  Output data as a data wrapper.
- def cacheData (self, keyname, online_path_list, username=None, password=None, authentication_url=None, cookiejar=None, use_requests=False, use_progress_bar=True)

  Download and store specified data to local disk.
- def multirun_enabled (self)

  Returns whether or not this data fetcher is multirun enabled.
- def getHDFStorage (self, keyname)
- def getDataLocation (data_name)

  Get the location of data set.
- def setDataLocation (data_name, location, key='data_location')

  Set the location of a data set.
- def perturb (self)

  Perturb parameters.
- def reset (self)

  Set all parameters to initial value.
- def __str__ (self)

  Generate string description.
- def getMetadata (self)

  Return metadata about Data Fetcher.
- def getConfig ()

  Retrieve skdaccess configuration.
- def writeConfig (conf)

  Write config to disk.
- def verbose_print (self, args, kwargs)

Public Attributes

- slc_url_list
- metadata_url_list
- llh_url
- memmap
- ap_paramList
- verbose

6.14.1 Detailed Description

Data Fetcher for UAVSAR data.

6.14.2 Constructor & Destructor Documentation

6.14.2.1 __init__()

```
def skdaccess.geo.uavsar.cache.DataFetcher.__init__ (
              self,
              slc_url_list,
              metadata_url_list,
              llh_url,
              memmap )
```

Initialize UAVSAR data fetcher.

Parameters

slc_url_list	List of slc urls
metadata_Url_list	List of metadata urls
llh_url	Latitude Longitude Height url
memmap	Open files using a memory map

6.14.3 Member Function Documentation

6.14.3.1 __str__()

```
def skdaccess.framework.data_class.DataFetcherBase.__str__ (
              self )  [inherited]
```

Generate string description.

6.14.3.2 cacheData()

```
def skdaccess.framework.data_class.DataFetcherCache.cacheData (
              self,
              keyname,
              online_path_list,
              username = None,
              password = None,
              authentication_url = None,
              cookiejar = None,
              use_requests = False,
              use_progress_bar = True )  [inherited]
```

Download and store specified data to local disk.

Parameters

data_specification	Specification of data to be retrieved

Returns

List of downloaded file locations

6.14.3.3 getConfig()

```
def skdaccess.framework.data_class.DataFetcherBase.getConfig ( )  [inherited]
```

Retrieve skdaccess configuration.

Returns

configParser.ConfigParser object of configuration

6.14.3.4 getDataLocation()

```
def skdaccess.framework.data_class.DataFetcherLocal.getDataLocation (
              data_name )  [inherited]
```

Get the location of data set.

Parameters

data_name	Name of data set

Returns

string of data location, None if not found

6.14.3.5 getHDFStorage()

```
def skdaccess.framework.data_class.DataFetcherCache.getHDFStorage (
              self,
              keyname )  [inherited]
```

6.14.3.6 getMetadata()

```
def skdaccess.framework.data_class.DataFetcherBase.getMetadata (
              self )  [inherited]
```

Return metadata about Data Fetcher.

Returns

metadata of object.

6.14.3.7 multirun_enabled()

```
def skdaccess.framework.data_class.DataFetcherCache.multirun_enabled (
              self )  [inherited]
```

Returns whether or not this data fetcher is multirun enabled.

Returns

Boolean indicating whether or not this data fetcher is multirun enabled

6.14.3.8 output()

```
def skdaccess.geo.uavsar.cache.DataFetcher.output (
              self )
```

Output data as a data wrapper.

Returns

Imagewrapper of data

6.14.3.9 perturb()

```
def skdaccess.framework.data_class.DataFetcherBase.perturb (
              self )  [inherited]
```

Perturb parameters.

6.14.3.10 reset()

```
def skdaccess.framework.data_class.DataFetcherBase.reset (
              self )  [inherited]
```

Set all parameters to initial value.

6.14.3.11 setDataLocation()

```
def skdaccess.framework.data_class.DataFetcherLocal.setDataLocation (
              data_name,
              location,
              key = 'data_location' )  [inherited]
```

Set the location of a data set.

Parameters

data_name	Name of data set
location	Location of data set
key	Key of configuration option

6.14.3.12 verbose_print()

```
def skdaccess.framework.data_class.DataFetcherBase.verbose_print (
              self,
              args,
              kwargs )  [inherited]
```

6.14.3.13 writeConfig()

```
def skdaccess.framework.data_class.DataFetcherBase.writeConfig (
              conf )  [inherited]
```

Write config to disk.

Parameters

conf	configparser.ConfigParser object

6.14.4 Member Data Documentation

6.14.4.1 ap_paramList

skdaccess.framework.data_class.DataFetcherBase.ap_paramList [inherited]

6.14.4.2 llh_url

skdaccess.geo.uavsar.cache.DataFetcher.llh_url

6.14.4.3 memmap

skdaccess.geo.uavsar.cache.DataFetcher.memmap

6.14.4.4 metadata_url_list

skdaccess.geo.uavsar.cache.DataFetcher.metadata_url_list

6.14.4.5 slc_url_list

skdaccess.geo.uavsar.cache.DataFetcher.slc_url_list

6.14.4.6 verbose

skdaccess.framework.data_class.DataFetcherBase.verbose [inherited]

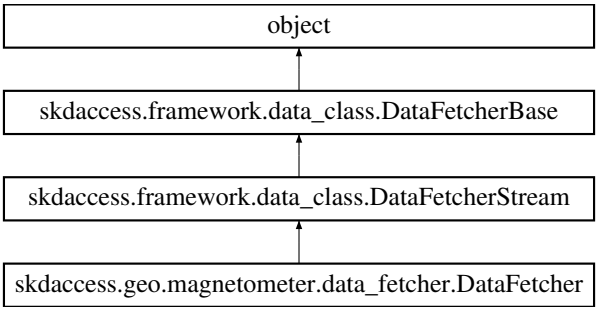
The documentation for this class was generated from the following file:

- geo/uavsar/cache/data_fetcher.py

6.15 skdaccess.geo.magnetometer.DataFetcher Class Reference

Data fetcher for USGS geomagnetic observatories.

Inheritance diagram for skdaccess.geo.magnetometer.DataFetcher:



Public Member Functions

- def __init__ (self, ap_paramList, start_time, end_time, interval='minute', channels=('X', 'Y', 'Z', 'F'), data_type='variation')

  Geomagnetism Data fetcher constructor.
- def output (self)

  Generate data wrapper for USGS geomagnetic data.
- def getDataMetadata ()

  Get data metadata.
- def retrieveOnlineData (self, data_specification)

  Method for downloading data into memory.
- def multirun_enabled (self)

  Returns whether or not this data fetcher is multirun enabled.
- def perturb (self)

  Perturb parameters.
- def reset (self)

  Set all parameters to initial value.
- def __str__ (self)

  Generate string description.
- def getMetadata (self)

  Return metadata about Data Fetcher.
- def getConfig ()

  Retrieve skdaccess configuration.
- def writeConfig (conf)

  Write config to disk.
- def verbose_print (self, args, kwargs)

Public Attributes

- start_time
- end_time
- interval
- channels
- data_type
- ap_paramList
- verbose

6.15.1 Detailed Description

Data fetcher for USGS geomagnetic observatories.

6.15.2 Constructor & Destructor Documentation

6.15.2.1 __init__()

```
def skdaccess.geo.magnetometer.DataFetcher.__init__ (
              self,
              ap_paramList,
              start_time,
              end_time,
              interval = 'minute',
              channels = ('X','Y','Z','F'),
              data_type = 'variation' )
```

Geomagnetism Data fetcher constructor.

Parameters

ap_paramList[AutoList]	

6.15.3 Member Function Documentation

6.15.3.1 __str__()

```
def skdaccess.framework.data_class.DataFetcherBase.__str__ (
              self )  [inherited]
```

Generate string description.

6.15.3.2 getConfig()

```
def skdaccess.framework.data_class.DataFetcherBase.getConfig ( )  [inherited]
```

Retrieve skdaccess configuration.

Returns

configParser.ConfigParser object of configuration

6.15.3.3 getDataMetadata()

```
def skdaccess.geo.magnetometer.DataFetcher.getDataMetadata ( )
```

Get data metadata.

Returns

Pandas dataframe containing station latitude and longitude coordinates

6.15.3.4 getMetadata()

```
def skdaccess.framework.data_class.DataFetcherBase.getMetadata (
             self )  [inherited]
```

Return metadata about Data Fetcher.

Returns

metadata of object.

6.15.3.5 multirun_enabled()

```
def skdaccess.framework.data_class.DataFetcherStream.multirun_enabled (
              self )  [inherited]
```

Returns whether or not this data fetcher is multirun enabled.

Returns

Boolean indicating whether or not this data fetcher is multirun enabled

6.15.3.6 output()

```
def skdaccess.geo.magnetometer.DataFetcher.output (
              self )
```

Generate data wrapper for USGS geomagnetic data.

Returns

geomagnetic data wrapper

6.15.3.7 perturb()

```
def skdaccess.framework.data_class.DataFetcherBase.perturb (
              self )  [inherited]
```

Perturb parameters.

6.15.3.8 reset()

```
def skdaccess.framework.data_class.DataFetcherBase.reset (
              self )  [inherited]
```

Set all parameters to initial value.

6.15.3.9 retrieveOnlineData()

```
def skdaccess.framework.data_class.DataFetcherStream.retrieveOnlineData (
              self,
              data_specification )  [inherited]
```

Method for downloading data into memory.

Parameters

data_specification	Url list of data to be retrieved

Returns

Retrieved data

6.15.3.10 verbose_print()

```
def skdaccess.framework.data_class.DataFetcherBase.verbose_print (
              self,
              args,
              kwargs )  [inherited]
```

6.15.3.11 writeConfig()

```
def skdaccess.framework.data_class.DataFetcherBase.writeConfig (
              conf )  [inherited]
```

Write config to disk.

Parameters

conf	configparser.ConfigParser object

6.15.4 Member Data Documentation

6.15.4.1 ap_paramList

```
skdaccess.framework.data_class.DataFetcherBase.ap_paramList  [inherited]
```

6.15.4.2 channels

skdaccess.geo.magnetometer.DataFetcher.channels

6.15.4.3 data_type

skdaccess.geo.magnetometer.DataFetcher.data_type

6.15.4.4 end_time

skdaccess.geo.magnetometer.DataFetcher.end_time

6.15.4.5 interval

skdaccess.geo.magnetometer.DataFetcher.interval

6.15.4.6 start_time

skdaccess.geo.magnetometer.DataFetcher.start_time

6.15.4.7 verbose

skdaccess.framework.data_class.DataFetcherBase.verbose [inherited]

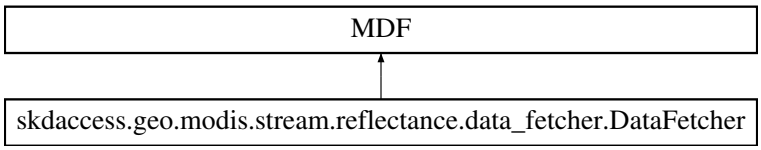
The documentation for this class was generated from the following file:

- geo/magnetometer/data_fetcher.py

6.16 skdaccess.geo.modis.stream.reflectance.DataFetcher Class Reference

Data fetcher for the modis surface reflectance product ('09', 1 km resolution)

Inheritance diagram for skdaccess.geo.modis.stream.reflectance.DataFetcher:



Public Member Functions

- def __init__ (self, ap_paramList, start_date, end_date, modis_platform='Terra', daynightboth='D', grid=None, bands=[1)

  Construct Data Fetcher for MODIS 1km surface reflectance.

6.16.1 Detailed Description

Data fetcher for the modis surface reflectance product ('09', 1 km resolution)

6.16.2 Constructor & Destructor Documentation

6.16.2.1 __init__()

```
def skdaccess.geo.modis.stream.reflectance.DataFetcher.__init__ (
              self,
              ap_paramList,
              start_date,
              end_date,
              modis_platform = 'Terra',
              daynightboth = 'D',
              grid = None,
              bands = [1 )
```

Construct Data Fetcher for MODIS 1km surface reflectance.

Parameters

ap_paramList[lat]	Search latitude
ap_paramList[lon]	Search longitude
start_date	Starting date
end_date	Ending date
modis_platform	Paltform (Either "Terra" or "Aqua")
daynightboth	Use daytime data ('D'), nighttime data ('N') or both ('B')
grid	Further divide each image into a multiple grids of size (y,x)

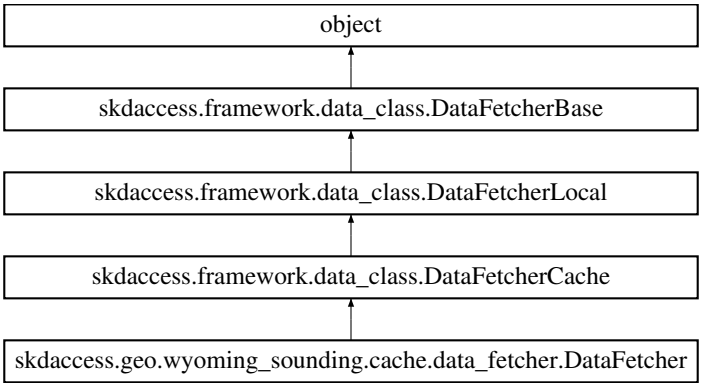
The documentation for this class was generated from the following file:

- geo/modis/stream/reflectance/data_fetcher.py

6.17 skdaccess.geo.wyoming_sounding.cache.DataFetcher Class Reference

DataFetcher for retrieving Wyoming Sounding data.

Inheritance diagram for skdaccess.geo.wyoming_sounding.cache.DataFetcher:



Public Member Functions

- def __init__ (self, station_number, year, month, day_start, day_end, start_hour=0, end_hour=12)

  Initialize Data Fetcher.
- def output (self)

  Generate data wrapper.
- def cacheData (self, keyname, online_path_list, username=None, password=None, authentication_url=None, cookiejar=None, use_requests=False, use_progress_bar=True)

  Download and store specified data to local disk.
- def multirun_enabled (self)

  Returns whether or not this data fetcher is multirun enabled.
- def getHDFStorage (self, keyname)
- def getDataLocation (data_name)

  Get the location of data set.
- def setDataLocation (data_name, location, key='data_location')

  Set the location of a data set.
- def perturb (self)

  Perturb parameters.
- def reset (self)

  Set all parameters to initial value.
- def __str__ (self)

  Generate string description.
- def getMetadata (self)

Return metadata about Data Fetcher.

- def getConfig ()

  Retrieve skdaccess configuration.

- def writeConfig (conf)

  Write config to disk.

- def verbose_print (self, args, kwargs)

Public Attributes

- station_number
- year_list
- month_list
- day_start
- day_end
- start_hour
- end_hour
- ap_paramList
- verbose

6.17.1 Detailed Description

DataFetcher for retrieving Wyoming Sounding data.

6.17.2 Constructor & Destructor Documentation

6.17.2.1 __init__()

```
def skdaccess.geo.wyoming_sounding.cache.DataFetcher.__init__ (
              self,
              station_number,
              year,
              month,
              day_start,
              day_end,
              start_hour = 0,
              end_hour = 12 )
```

Initialize Data Fetcher.

Parameters

station_number	Station number
year	Input year
month	Input month
start_time	Starting time to retrieve data. Should be 2 digits specifying day of year and 2 digits specifying hour. Hour may be either 00 or 1. Examples: 2512, 2100
end_time	Ending time. Same format as start time

6.17.3 Member Function Documentation

6.17.3.1 __str__()

```
def skdaccess.framework.data_class.DataFetcherBase.__str__ (
              self )  [inherited]
```

Generate string description.

6.17.3.2 cacheData()

```
def skdaccess.framework.data_class.DataFetcherCache.cacheData (
              self,
              keyname,
              online_path_list,
              username = None,
              password = None,
              authentication_url = None,
              cookiejar = None,
              use_requests = False,
              use_progress_bar = True )  [inherited]
```

Download and store specified data to local disk.

Parameters

data_specification	Specification of data to be retrieved

Returns

List of downloaded file locations

6.17.3.3 getConfig()

```
def skdaccess.framework.data_class.DataFetcherBase.getConfig ( )  [inherited]
```

Retrieve skdaccess configuration.

Returns

configParser.ConfigParser object of configuration

6.17.3.4 getDataLocation()

```
def skdaccess.framework.data_class.DataFetcherLocal.getDataLocation (
              data_name )  [inherited]
```

Get the location of data set.

Parameters

data_name	Name of data set

Returns

string of data location, None if not found

6.17.3.5 getHDFStorage()

```
def skdaccess.framework.data_class.DataFetcherCache.getHDFStorage (
              self,
              keyname )  [inherited]
```

6.17.3.6 getMetadata()

```
def skdaccess.framework.data_class.DataFetcherBase.getMetadata (
              self )  [inherited]
```

Return metadata about Data Fetcher.

Returns

metadata of object.

6.17.3.7 multirun_enabled()

```
def skdaccess.framework.data_class.DataFetcherCache.multirun_enabled (
              self )  [inherited]
```

Returns whether or not this data fetcher is multirun enabled.

Returns

Boolean indicating whether or not this data fetcher is multirun enabled

6.17.3.8 output()

```
def skdaccess.geo.wyoming_sounding.cache.DataFetcher.output (
              self )
```

Generate data wrapper.

Returns

Wyoming sounding data in a data wrapper

6.17.3.9 perturb()

```
def skdaccess.framework.data_class.DataFetcherBase.perturb (
              self )  [inherited]
```

Perturb parameters.

6.17.3.10 reset()

```
def skdaccess.framework.data_class.DataFetcherBase.reset (
              self )  [inherited]
```

Set all parameters to initial value.

6.17.3.11 setDataLocation()

```
def skdaccess.framework.data_class.DataFetcherLocal.setDataLocation (
              data_name,
              location,
              key = 'data_location' )  [inherited]
```

Set the location of a data set.

Parameters

data_name	Name of data set
location	Location of data set
key	Key of configuration option

6.17.3.12 verbose_print()

```
def skdaccess.framework.data_class.DataFetcherBase.verbose_print (
              self,
              args,
              kwargs )  [inherited]
```

6.17.3.13 writeConfig()

```
def skdaccess.framework.data_class.DataFetcherBase.writeConfig (
              conf )  [inherited]
```

Write config to disk.

Parameters

conf	configparser.ConfigParser object

6.17.4 Member Data Documentation

6.17.4.1 ap_paramList

```
skdaccess.framework.data_class.DataFetcherBase.ap_paramList  [inherited]
```

6.17.4.2 day_end

```
skdaccess.geo.wyoming_sounding.cache.DataFetcher.day_end
```

6.17.4.3 day_start

```
skdaccess.geo.wyoming_sounding.cache.DataFetcher.day_start
```

6.17.4.4 end_hour

skdaccess.geo.wyoming_sounding.cache.DataFetcher.end_hour

6.17.4.5 month_list

skdaccess.geo.wyoming_sounding.cache.DataFetcher.month_list

6.17.4.6 start_hour

skdaccess.geo.wyoming_sounding.cache.DataFetcher.start_hour

6.17.4.7 station_number

skdaccess.geo.wyoming_sounding.cache.DataFetcher.station_number

6.17.4.8 verbose

skdaccess.framework.data_class.DataFetcherBase.verbose [inherited]

6.17.4.9 year_list

skdaccess.geo.wyoming_sounding.cache.DataFetcher.year_list

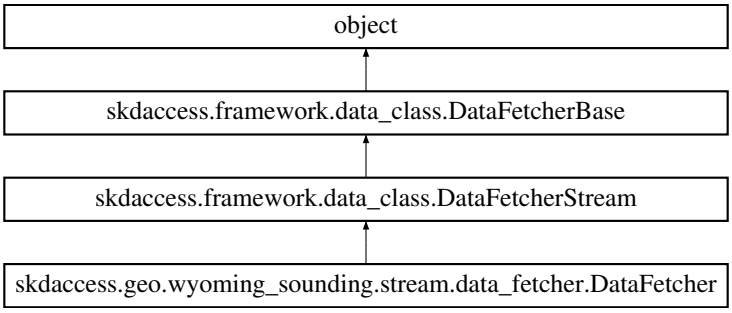
The documentation for this class was generated from the following file:

- geo/wyoming_sounding/cache/data_fetcher.py

6.18 skdaccess.geo.wyoming_sounding.stream.DataFetcher Class Reference

DataFetcher for retrieving Wyoming Sounding data.

Inheritance diagram for skdaccess.geo.wyoming_sounding.stream.DataFetcher:



Public Member Functions

- def __init__ (self, station_number, year, month, day_start, day_end, start_hour=0, end_hour=12)

  Initialize Data Fetcher.
- def output (self, shared_lock=None, shared_list=None)

  Generate data wrapper.
- def retrieveOnlineData (self, data_specification)

  Method for downloading data into memory.
- def multirun_enabled (self)

  Returns whether or not this data fetcher is multirun enabled.
- def output (self)

  Output data wrapper.
- def perturb (self)

  Perturb parameters.
- def reset (self)

  Set all parameters to initial value.
- def __str__ (self)

  Generate string description.
- def getMetadata (self)

  Return metadata about Data Fetcher.
- def getConfig ()

  Retrieve skdaccess configuration.
- def writeConfig (conf)

  Write config to disk.
- def verbose_print (self, args, kwargs)

Public Attributes

- station_number
- year_list
- month_list
- day_start
- day_end
- start_hour
- end_hour
- ap_paramList
- verbose

6.18.1 Detailed Description

DataFetcher for retrieving Wyoming Sounding data.

6.18.2 Constructor & Destructor Documentation

6.18.2.1 __init__()

```
def skdaccess.geo.wyoming_sounding.stream.DataFetcher.__init__ (
                self,
                station_number,
                year,
                month,
                day_start,
                day_end,
                start_hour = 0,
                end_hour = 12 )
```

Initialize Data Fetcher.

Parameters

station_number	Station number
year	Input year
month	Input month
start_time	Starting time to retrieve data. Should be 2 digits specifying day of year and 2 digits specifying hour. Hour may be either 00 or 1. Examples: 2512, 2100
end_time	Ending time. Same format as start time.

6.18.3 Member Function Documentation

6.18.3.1 __str__()

```
def skdaccess.framework.data_class.DataFetcherBase.__str__ (
              self )  [inherited]
```

Generate string description.

6.18.3.2 getConfig()

```
def skdaccess.framework.data_class.DataFetcherBase.getConfig ( )  [inherited]
```

Retrieve skdaccess configuration.

Returns

configParser.ConfigParser object of configuration

6.18.3.3 getMetadata()

```
def skdaccess.framework.data_class.DataFetcherBase.getMetadata (
              self )  [inherited]
```

Return metadata about Data Fetcher.

Returns

metadata of object.

6.18.3.4 multirun_enabled()

```
def skdaccess.framework.data_class.DataFetcherStream.multirun_enabled (
              self )  [inherited]
```

Returns whether or not this data fetcher is multirun enabled.

Returns

Boolean indicating whether or not this data fetcher is multirun enabled

6.18.3.5 output() [1/2]

```
def skdaccess.framework.data_class.DataFetcherBase.output (
              self )  [inherited]
```

Output data wrapper.

Returns

Datawrapper

6.18.3.6 output() [2/2]

```
def skdaccess.geo.wyoming_sounding.stream.DataFetcher.output (
              self,
              shared_lock = None,
              shared_list = None )
```

Generate data wrapper.

Returns

Wyoming sounding data in a data wrapper

6.18.3.7 perturb()

```
def skdaccess.framework.data_class.DataFetcherBase.perturb (
              self )  [inherited]
```

Perturb parameters.

6.18.3.8 reset()

```
def skdaccess.framework.data_class.DataFetcherBase.reset (
              self )  [inherited]
```

Set all parameters to initial value.

6.18.3.9 retrieveOnlineData()

```
def skdaccess.framework.data_class.DataFetcherStream.retrieveOnlineData (
              self,
              data_specification )  [inherited]
```

Method for downloading data into memory.

Parameters

data_specification	Url list of data to be retrieved

Returns

Retrieved data

6.18.3.10 verbose_print()

```
def skdaccess.framework.data_class.DataFetcherBase.verbose_print (
              self,
              args,
              kwargs )  [inherited]
```

6.18.3.11 writeConfig()

```
def skdaccess.framework.data_class.DataFetcherBase.writeConfig (
              conf )  [inherited]
```

Write config to disk.

Parameters

conf	configparser.ConfigParser object

6.18.4 Member Data Documentation

6.18.4.1 ap_paramList

```
skdaccess.framework.data_class.DataFetcherBase.ap_paramList  [inherited]
```

6.18.4.2 day_end

skdaccess.geo.wyoming_sounding.stream.DataFetcher.day_end

6.18.4.3 day_start

skdaccess.geo.wyoming_sounding.stream.DataFetcher.day_start

6.18.4.4 end_hour

skdaccess.geo.wyoming_sounding.stream.DataFetcher.end_hour

6.18.4.5 month_list

skdaccess.geo.wyoming_sounding.stream.DataFetcher.month_list

6.18.4.6 start_hour

skdaccess.geo.wyoming_sounding.stream.DataFetcher.start_hour

6.18.4.7 station_number

skdaccess.geo.wyoming_sounding.stream.DataFetcher.station_number

6.18.4.8 verbose

skdaccess.framework.data_class.DataFetcherBase.verbose [inherited]

6.18.4.9 year_list

```
skdaccess.geo.wyoming_sounding.stream.DataFetcher.year_list
```

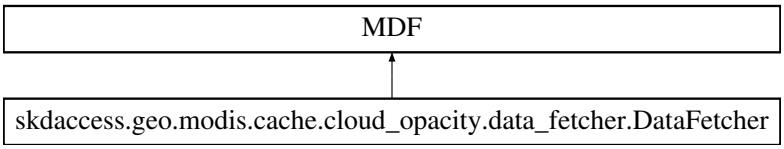
The documentation for this class was generated from the following file:

- geo/wyoming_sounding/stream/data_fetcher.py

6.19 skdaccess.geo.modis.cache.cloud_opacity.DataFetcher Class Reference

Data Fetcher for MODIS Cloud Opacity.

Inheritance diagram for skdaccess.geo.modis.cache.cloud_opacity.DataFetcher:



Public Member Functions

- def __init__ (self, ap_paramList, start_date, end_date, modis_platform='Terra', daynightboth='D', grid=None)
  Construct Data Fetcher object for MODIS cloud Opacity data.

6.19.1 Detailed Description

Data Fetcher for MODIS Cloud Opacity.

6.19.2 Constructor & Destructor Documentation

6.19.2.1 __init__()

```
def skdaccess.geo.modis.cache.cloud_opacity.DataFetcher.__init__ (
              self,
              ap_paramList,
              start_date,
              end_date,
              modis_platform = 'Terra',
              daynightboth = 'D',
              grid = None )
```

Construct Data Fetcher object for MODIS cloud Opacity data.

Parameters

ap_paramList[lat]	Search latitude
ap_paramList[lon]	Search longitude
start_date	Starting date
end_date	Ending date
modis_platform	Paltform (Either "Terra" or "Aqua")
daynightboth	Use daytime data ('D'), nighttime data ('N') or both ('B')
grid	Further divide each image into a multiple grids of size (y,x)

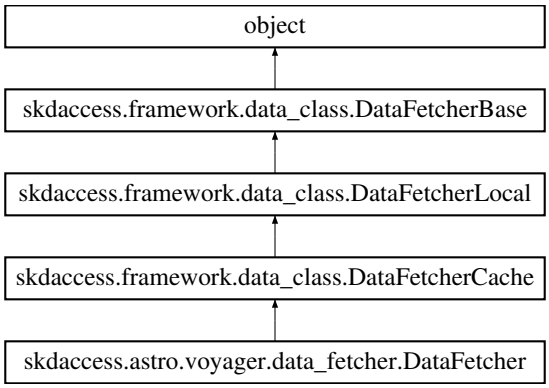
The documentation for this class was generated from the following file:

- geo/modis/cache/cloud_opacity/data_fetcher.py

6.20 skdaccess.astro.voyager.DataFetcher Class Reference

Data Fetcher for Mahali temperature data.

Inheritance diagram for skdaccess.astro.voyager.DataFetcher:



Public Member Functions

- def __init__ (self, start_year, end_year, spacecraft='both')

  Initialize Voyager data fetcher.
- def generateURL (self, spacecraft, in_year)

  Generate url for voyager data.
- def parseVoyagerData (self, spacecraft, in_filename)

  Parse Voyager Data.
- def parseVoyagerMetadata (self, in_file)

  Parse voyager metadata.
- def getMetadataFiles (self)

  Get path to metadata file.

- def output (self)

  Generate data wrapper.
- def cacheData (self, keyname, online_path_list, username=None, password=None, authentication_url=None, cookiejar=None, use_requests=False, use_progress_bar=True)

  Download and store specified data to local disk.
- def multirun_enabled (self)

  Returns whether or not this data fetcher is multirun enabled.
- def getHDFStorage (self, keyname)
- def getDataLocation (data_name)

  Get the location of data set.
- def setDataLocation (data_name, location, key='data_location')

  Set the location of a data set.
- def perturb (self)

  Perturb parameters.
- def reset (self)

  Set all parameters to initial value.
- def __str__ (self)

  Generate string description.
- def getMetadata (self)

  Return metadata about Data Fetcher.
- def getConfig ()

  Retrieve skdaccess configuration.
- def writeConfig (conf)

  Write config to disk.
- def verbose_print (self, args, kwargs)

Public Attributes

- year_list
- spacecraft_list
- field_names
- field_widths
- base_url
- ap_paramList
- verbose

6.20.1 Detailed Description

Data Fetcher for Mahali temperature data.

6.20.2 Constructor & Destructor Documentation

6.20.2.1 __init__()

```
def skdaccess.astro.voyager.DataFetcher.__init__ (
              self,
              start_year,
              end_year,
              spacecraft = 'both' )
```

Initialize Voyager data fetcher.

Parameters

start_year	Starting year
end_year	Ending year
spacecraft	Which spaceraft to use (voyager1, voyager2, or both).

6.20.3 Member Function Documentation

6.20.3.1 __str__()

```
def skdaccess.framework.data_class.DataFetcherBase.__str__ (
              self )  [inherited]
```

Generate string description.

6.20.3.2 cacheData()

```
def skdaccess.framework.data_class.DataFetcherCache.cacheData (
              self,
              keyname,
              online_path_list,
              username = None,
              password = None,
              authentication_url = None,
              cookiejar = None,
              use_requests = False,
              use_progress_bar = True )  [inherited]
```

Download and store specified data to local disk.

Parameters

data_specification	Specification of data to be retrieved

Returns

List of downloaded file locations

6.20.3.3 generateURL()

```
def skdaccess.astro.voyager.DataFetcher.generateURL (
              self,
              spacecraft,
              in_year )
```

Generate url for voyager data.

Parameters

spacecraft	Voyager spacecraft (vy1 or vy2)
in_year	Input year (or 'metadata')

Returns

Url of data location

6.20.3.4 getConfig()

```
def skdaccess.framework.data_class.DataFetcherBase.getConfig ( )  [inherited]
```

Retrieve skdaccess configuration.

Returns

configParser.ConfigParser object of configuration

6.20.3.5 getDataLocation()

```
def skdaccess.framework.data_class.DataFetcherLocal.getDataLocation (
              data_name )  [inherited]
```

Get the location of data set.

Parameters

data_name	Name of data set

Returns

string of data location, None if not found

6.20.3.6 getHDFStorage()

```
def skdaccess.framework.data_class.DataFetcherCache.getHDFStorage (
              self,
              keyname )  [inherited]
```

6.20.3.7 getMetadata()

```
def skdaccess.framework.data_class.DataFetcherBase.getMetadata (
              self )  [inherited]
```

Return metadata about Data Fetcher.

Returns

metadata of object.

6.20.3.8 getMetadataFiles()

```
def skdaccess.astro.voyager.DataFetcher.getMetadataFiles (
              self )
```

Get path to metadata file.

Metadata will download if necessary

Returns

List containing file path(s) for the metadata

6.20.3.9 multirun_enabled()

```
def skdaccess.framework.data_class.DataFetcherCache.multirun_enabled (
              self )  [inherited]
```

Returns whether or not this data fetcher is multirun enabled.

Returns

Boolean indicating whether or not this data fetcher is multirun enabled

6.20.3.10 output()

```
def skdaccess.astro.voyager.DataFetcher.output (
              self )
```

Generate data wrapper.

Returns

data wrapper of voyager data

6.20.3.11 parseVoyagerData()

```
def skdaccess.astro.voyager.DataFetcher.parseVoyagerData (
              self,
              spacecraft,
              in_filename )
```

Parse Voyager Data.

Parameters

spacecraft	Voyager spacecraft (vy1 or vy2)
in_filename	Input voyager data filename

Returns

Pandas Dataframe of Voyager data

6.20.3.12 parseVoyagerMetadata()

```
def skdaccess.astro.voyager.DataFetcher.parseVoyagerMetadata (
              self,
              in_file )
```

Parse voyager metadata.

Parameters

in_file	Input filename

Returns

Dictionary containing metadata

6.20.3.13 perturb()

```
def skdaccess.framework.data_class.DataFetcherBase.perturb (
              self )  [inherited]
```

Perturb parameters.

6.20.3.14 reset()

```
def skdaccess.framework.data_class.DataFetcherBase.reset (
              self )  [inherited]
```

Set all parameters to initial value.

6.20.3.15 setDataLocation()

```
def skdaccess.framework.data_class.DataFetcherLocal.setDataLocation (
              data_name,
              location,
              key = 'data_location' )  [inherited]
```

Set the location of a data set.

Parameters

data_name	Name of data set
location	Location of data set
key	Key of configuration option

6.20.3.16 verbose_print()

```
def skdaccess.framework.data_class.DataFetcherBase.verbose_print (
              self,
              args,
              kwargs )  [inherited]
```

6.20.3.17 writeConfig()

```
def skdaccess.framework.data_class.DataFetcherBase.writeConfig (
              conf )  [inherited]
```

Write config to disk.

Parameters

conf	configparser.ConfigParser object

6.20.4 Member Data Documentation

6.20.4.1 ap_paramList

```
skdaccess.framework.data_class.DataFetcherBase.ap_paramList  [inherited]
```

6.20.4.2 base_url

```
skdaccess.astro.voyager.DataFetcher.base_url
```

6.20.4.3 field_names

skdaccess.astro.voyager.DataFetcher.field_names

6.20.4.4 field_widths

skdaccess.astro.voyager.DataFetcher.field_widths

6.20.4.5 spacecraft_list

skdaccess.astro.voyager.DataFetcher.spacecraft_list

6.20.4.6 verbose

skdaccess.framework.data_class.DataFetcherBase.verbose [inherited]

6.20.4.7 year_list

skdaccess.astro.voyager.DataFetcher.year_list

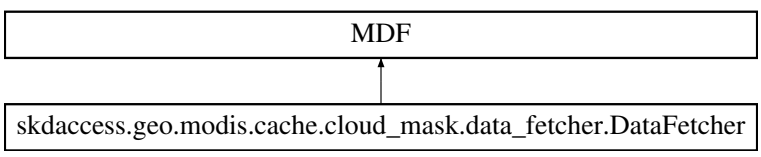
The documentation for this class was generated from the following file:

- astro/voyager/data_fetcher.py

6.21 skdaccess.geo.modis.cache.cloud_mask.DataFetcher Class Reference

Data Fetcher for MODIS Cloud Mask.

Inheritance diagram for skdaccess.geo.modis.cache.cloud_mask.DataFetcher:



Public Member Functions

- def __init__ (self, ap_paramList, start_date, end_date, modis_platform='Terra', daynightboth='D', grid=None)
  Construct Data Fetcher for MODIS cloud mask data.

6.21.1 Detailed Description

Data Fetcher for MODIS Cloud Mask.

6.21.2 Constructor & Destructor Documentation

6.21.2.1 __init__()

```
def skdaccess.geo.modis.cache.cloud_mask.DataFetcher.__init__ (
              self,
              ap_paramList,
              start_date,
              end_date,
              modis_platform = 'Terra',
              daynightboth = 'D',
              grid = None )
```

Construct Data Fetcher for MODIS cloud mask data.

Parameters

ap_paramList[lat]	Search latitude
ap_paramList[lon]	Search longitude
start_date	Starting date
end_date	Ending date
modis_platform	Paltform (Either "Terra" or "Aqua")
daynightboth	Use daytime data ('D'), nighttime data ('N') or both ('B')
grid	Further divide each image into a multiple grids of size (y,x)

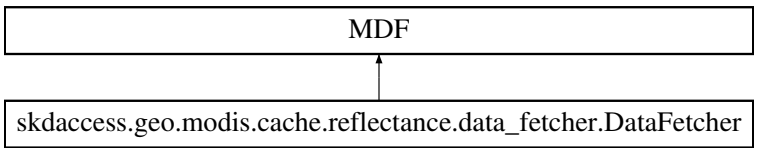
The documentation for this class was generated from the following file:

- geo/modis/cache/cloud_mask/data_fetcher.py

6.22 skdaccess.geo.modis.cache.reflectance.DataFetcher Class Reference

Data fetcher for the modis surface reflectance product ('09', 1 km resolution)

Inheritance diagram for skdaccess.geo.modis.cache.reflectance.DataFetcher:



Public Member Functions

- def __init__ (self, ap_paramList, start_date, end_date, modis_platform='Terra', daynightboth='D', grid=None, bands=[1)

  Construct Data Fetcher for MODIS 1km surface reflectance.

6.22.1 Detailed Description

Data fetcher for the modis surface reflectance product ('09', 1 km resolution)

6.22.2 Constructor & Destructor Documentation

6.22.2.1 __init__()

```
def skdaccess.geo.modis.cache.reflectance.DataFetcher.__init__ (
            self,
            ap_paramList,
            start_date,
            end_date,
            modis_platform = 'Terra',
            daynightboth = 'D',
            grid = None,
            bands = [1 )
```

Construct Data Fetcher for MODIS 1km surface reflectance.

Parameters

ap_paramList[lat]	Search latitude
ap_paramList[lon]	Search longitude
start_date	Starting date
end_date	Ending date
modis_platform	Paltform (Either "Terra" or "Aqua")
daynightboth	Use daytime data ('D'), nighttime data ('N') or both ('B')
grid	Further divide each image into a multiple grids of size (y,x)
bands	List of modis bands to retrieve

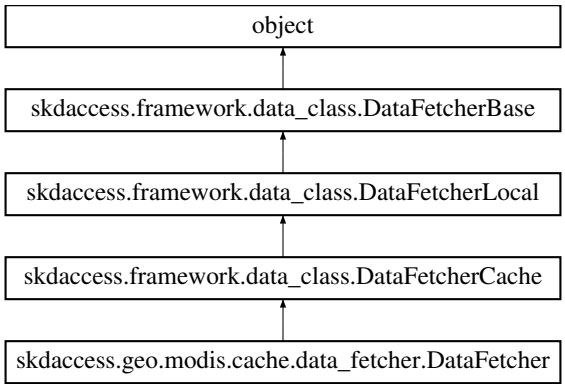
The documentation for this class was generated from the following file:

- geo/modis/cache/reflectance/data_fetcher.py

6.23 skdaccess.geo.modis.cache.DataFetcher Class Reference

Data Fetcher for MODIS data.

Inheritance diagram for skdaccess.geo.modis.cache.DataFetcher:



Public Member Functions

- def __init__ (self, ap_paramList, modis_platform, modis_id, variable_list, start_date, end_date, daynightboth='D', grid=None, grid_fill=np.nan, use_long_name=False)

  Construct Data Fetcher object.
- def find_data (self, fileid_list)

  Finds files previously downloaded files associated with fileids.
- def cacheData (self, data_specification)

  Download MODIS data.
- def output (self)

  Generate data wrapper.
- def cacheData (self, keyname, online_path_list, username=None, password=None, authentication_url=None, cookiejar=None, use_requests=False, use_progress_bar=True)

  Download and store specified data to local disk.
- def multirun_enabled (self)

  Returns whether or not this data fetcher is multirun enabled.
- def getHDFStorage (self, keyname)
- def getDataLocation (data_name)

  Get the location of data set.
- def setDataLocation (data_name, location, key='data_location')

  Set the location of a data set.
- def perturb (self)

  Perturb parameters.

- def reset (self)

  Set all parameters to initial value.
- def __str__ (self)

  Generate string description.
- def getMetadata (self)

  Return metadata about Data Fetcher.
- def getConfig ()

  Retrieve skdaccess configuration.
- def writeConfig (conf)

  Write config to disk.
- def verbose_print (self, args, kwargs)

Public Attributes

- modis_id
- variable_list
- start_date
- end_date
- daynightboth
- grid
- grid_fill
- use_long_name
- modis_platform
- modis_identifier
- ap_paramList
- verbose

6.23.1 Detailed Description

Data Fetcher for MODIS data.

6.23.2 Constructor & Destructor Documentation

6.23.2.1 __init__()

```
def skdaccess.geo.modis.cache.DataFetcher.__init__ (
              self,
              ap_paramList,
              modis_platform,
              modis_id,
              variable_list,
              start_date,
              end_date,
              daynightboth = 'D',
              grid = None,
              grid_fill = np.nan,
              use_long_name = False )
```

Construct Data Fetcher object.

Parameters

ap_paramList[lat]	Search latitude
ap_paramList[lon]	Search longitude
modis_platform	Platform (Either "Terra" or "Aqua")
modis_id	Product string (e.g. '06_L2')
variable_list	List of variables to fetch
start_date	Starting date
end_date	Ending date
daynightboth	Use daytime data ('D'), nighttime data ('N') or both ('B')
grid	Further divide each image into a multiple grids of size (y,x)
grid_fill	Fill value to use when creating gridded data
use_long_name	Use long names for metadata instead of variable name

6.23.3 Member Function Documentation

6.23.3.1 __str__()

```
def skdaccess.framework.data_class.DataFetcherBase.__str__ (
              self )  [inherited]
```

Generate string description.

6.23.3.2 cacheData() [1/2]

```
def skdaccess.geo.modis.cache.DataFetcher.cacheData (
              self,
              data_specification )
```

Download MODIS data.

Parameters

data_specification	List of file IDs to cache

6.23.3.3 cacheData() [2/2]

```
def skdaccess.framework.data_class.DataFetcherCache.cacheData (
              self,
              keyname,
              online_path_list,
              username = None,
              password = None,
              authentication_url = None,
              cookiejar = None,
              use_requests = False,
              use_progress_bar = True )  [inherited]
```

Download and store specified data to local disk.

Parameters

data_specification	Specification of data to be retrieved

Returns

List of downloaded file locations

6.23.3.4 find_data()

```
def skdaccess.geo.modis.cache.DataFetcher.find_data (
              self,
              fileid_list )
```

Finds files previously downloaded files associated with fileids.

Parameters

fileid_list	List of file id's

Returns

Pandas series of file locaitons indexed by file id

6.23.3.5 getConfig()

```
def skdaccess.framework.data_class.DataFetcherBase.getConfig ( )  [inherited]
```

Retrieve skdaccess configuration.

Returns

configParser.ConfigParser object of configuration

6.23.3.6 getDataLocation()

```
def skdaccess.framework.data_class.DataFetcherLocal.getDataLocation (
              data_name )  [inherited]
```

Get the location of data set.

Parameters

data_name	Name of data set

Returns

string of data location, None if not found

6.23.3.7 getHDFStorage()

```
def skdaccess.framework.data_class.DataFetcherCache.getHDFStorage (
              self,
              keyname )  [inherited]
```

6.23.3.8 getMetadata()

```
def skdaccess.framework.data_class.DataFetcherBase.getMetadata (
              self )  [inherited]
```

Return metadata about Data Fetcher.

Returns

metadata of object.

6.23.3.9 multirun_enabled()

```
def skdaccess.framework.data_class.DataFetcherCache.multirun_enabled (
              self )  [inherited]
```

Returns whether or not this data fetcher is multirun enabled.

Returns

Boolean indicating whether or not this data fetcher is multirun enabled

6.23.3.10 output()

```
def skdaccess.geo.modis.cache.DataFetcher.output (
              self )
```

Generate data wrapper.

Returns

data wrapper of MODIS data

6.23.3.11 perturb()

```
def skdaccess.framework.data_class.DataFetcherBase.perturb (
              self )  [inherited]
```

Perturb parameters.

6.23.3.12 reset()

```
def skdaccess.framework.data_class.DataFetcherBase.reset (
              self )  [inherited]
```

Set all parameters to initial value.

6.23.3.13 setDataLocation()

```
def skdaccess.framework.data_class.DataFetcherLocal.setDataLocation (
              data_name,
              location,
              key = 'data_location' )  [inherited]
```

Set the location of a data set.

Parameters

data_name	Name of data set
location	Location of data set
key	Key of configuration option

6.23.3.14 verbose_print()

```
def skdaccess.framework.data_class.DataFetcherBase.verbose_print (
              self,
              args,
              kwargs )  [inherited]
```

6.23.3.15 writeConfig()

```
def skdaccess.framework.data_class.DataFetcherBase.writeConfig (
              conf )  [inherited]
```

Write config to disk.

Parameters

conf	configparser.ConfigParser object

6.23.4 Member Data Documentation

6.23.4.1 ap_paramList

```
skdaccess.framework.data_class.DataFetcherBase.ap_paramList  [inherited]
```

6.23.4.2 daynightboth

```
skdaccess.geo.modis.cache.DataFetcher.daynightboth
```

6.23.4.3 end_date

skdaccess.geo.modis.cache.DataFetcher.end_date

6.23.4.4 grid

skdaccess.geo.modis.cache.DataFetcher.grid

6.23.4.5 grid_fill

skdaccess.geo.modis.cache.DataFetcher.grid_fill

6.23.4.6 modis_id

skdaccess.geo.modis.cache.DataFetcher.modis_id

6.23.4.7 modis_identifier

skdaccess.geo.modis.cache.DataFetcher.modis_identifier

6.23.4.8 modis_platform

skdaccess.geo.modis.cache.DataFetcher.modis_platform

6.23.4.9 start_date

skdaccess.geo.modis.cache.DataFetcher.start_date

6.23.4.10 use_long_name

skdaccess.geo.modis.cache.DataFetcher.use_long_name

6.23.4.11 variable_list

skdaccess.geo.modis.cache.DataFetcher.variable_list

6.23.4.12 verbose

skdaccess.framework.data_class.DataFetcherBase.verbose [inherited]

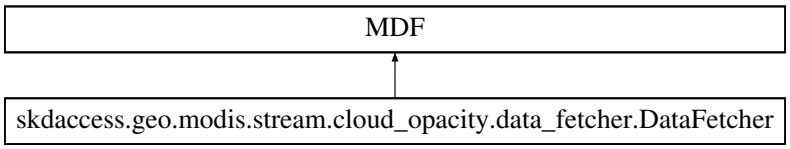
The documentation for this class was generated from the following file:

- geo/modis/cache/data_fetcher.py

6.24 skdaccess.geo.modis.stream.cloud_opacity.DataFetcher Class Reference

Data Fetcher for MODIS Cloud Opacity.

Inheritance diagram for skdaccess.geo.modis.stream.cloud_opacity.DataFetcher:



Public Member Functions

- def __init__ (self, ap_paramList, start_date, end_date, modis_platform='Terra', daynightboth='D', grid=None)
  Construct Data Fetcher object for MODIS cloud Opacity data.

6.24.1 Detailed Description

Data Fetcher for MODIS Cloud Opacity.

6.24.2 Constructor & Destructor Documentation

6.24.2.1 __init__()

```
def skdaccess.geo.modis.stream.cloud_opacity.DataFetcher.__init__ (
              self,
              ap_paramList,
              start_date,
              end_date,
              modis_platform = 'Terra',
              daynightboth = 'D',
              grid = None )
```

Construct Data Fetcher object for MODIS cloud Opacity data.

Parameters

ap_paramList[lat]	Search latitude
ap_paramList[lon]	Search longitude
start_date	Starting date
end_date	Ending date
modis_platform	Paltform (Either "Terra" or "Aqua")
daynightboth	Use daytime data ('D'), nighttime data ('N') or both ('B')
grid	Further divide each image into a multiple grids of size (y,x)

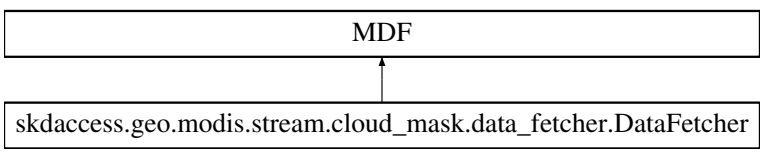
The documentation for this class was generated from the following file:

- geo/modis/stream/cloud_opacity/data_fetcher.py

6.25 skdaccess.geo.modis.stream.cloud_mask.DataFetcher Class Reference

Data Fetcher for MODIS Cloud Mask.

Inheritance diagram for skdaccess.geo.modis.stream.cloud_mask.DataFetcher:



Public Member Functions

- def __init__ (self, ap_paramList, start_date, end_date, modis_platform='Terra', daynightboth='D', grid=None)
  Construct Data Fetcher for MODIS cloud mask data.

6.25.1 Detailed Description

Data Fetcher for MODIS Cloud Mask.

6.25.2 Constructor & Destructor Documentation

6.25.2.1 __init__()

```
def skdaccess.geo.modis.stream.cloud_mask.DataFetcher.__init__ (
              self,
              ap_paramList,
              start_date,
              end_date,
              modis_platform = 'Terra',
              daynightboth = 'D',
              grid = None )
```

Construct Data Fetcher for MODIS cloud mask data.

Parameters

ap_paramList[lat]	Search latitude
ap_paramList[lon]	Search longitude
start_date	Starting date
end_date	Ending date
modis_platform	Paltform (Either "Terra" or "Aqua")
daynightboth	Use daytime data ('D'), nighttime data ('N') or both ('B')
grid	Further divide each image into a multiple grids of size (y,x)

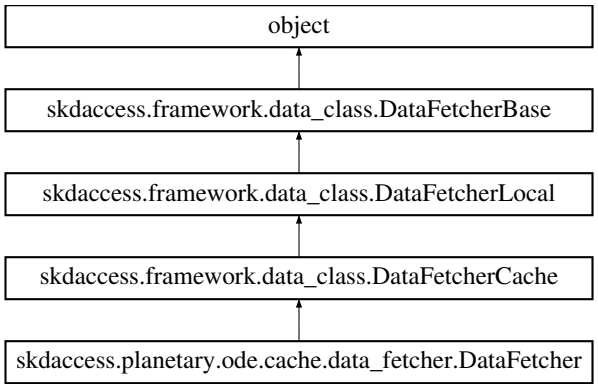
The documentation for this class was generated from the following file:

- geo/modis/stream/cloud_mask/data_fetcher.py

6.26 skdaccess.planetary.ode.cache.DataFetcher Class Reference

Data Fetcher from the Orbital Data Explorer (ODE)

Inheritance diagram for skdaccess.planetary.ode.cache.DataFetcher:



Public Member Functions

- def __init__ (self, target, mission, instrument, product_type, western_lon=None, eastern_lon=None, min_↩ lat=None, max_lat=None, min_ob_time='', max_ob_time='', product_id='', file_name='*', number_product_↩ limit=10, result_offset_number=0, remove_ndv=True)
- def output (self)

  Generate data wrapper from ODE data.
- def cacheData (self, keyname, online_path_list, username=None, password=None, authentication_url=None, cookiejar=None, use_requests=False, use_progress_bar=True)

  Download and store specified data to local disk.
- def multirun_enabled (self)

  Returns whether or not this data fetcher is multirun enabled.
- def getHDFStorage (self, keyname)
- def getDataLocation (data_name)

  Get the location of data set.
- def setDataLocation (data_name, location, key='data_location')

  Set the location of a data set.
- def perturb (self)

  Perturb parameters.
- def reset (self)

  Set all parameters to initial value.
- def __str__ (self)

  Generate string description.
- def getMetadata (self)

  Return metadata about Data Fetcher.
- def getConfig ()

  Retrieve skdaccess configuration.
- def writeConfig (conf)

  Write config to disk.
- def verbose_print (self, args, kwargs)

Public Attributes

- target
- mission
- instrument
- product_type
- western_lon
- eastern_lon
- min_lat
- max_lat
- min_ob_time
- max_ob_time
- product_id
- file_name
- number_product_limit
- result_offset_number
- remove_ndv
- ap_paramList
- verbose

6.26.1 Detailed Description

Data Fetcher from the Orbital Data Explorer (ODE)

6.26.2 Constructor & Destructor Documentation

6.26.2.1 __init__()

```
def skdaccess.planetary.ode.cache.DataFetcher.__init__ (
              self,
              target,
              mission,
              instrument,
              product_type,
              western_lon = None,
              eastern_lon = None,
              min_lat = None,
              max_lat = None,
              min_ob_time = '',
              max_ob_time = '',
              product_id = '',
              file_name = '*',
              number_product_limit = 10,
              result_offset_number = 0,
              remove_ndv = True )
```

6.26.3 Member Function Documentation

6.26.3.1 __str__()

```
def skdaccess.framework.data_class.DataFetcherBase.__str__ (
              self )  [inherited]
```

Generate string description.

6.26.3.2 cacheData()

```
def skdaccess.framework.data_class.DataFetcherCache.cacheData (
              self,
              keyname,
              online_path_list,
              username = None,
              password = None,
              authentication_url = None,
              cookiejar = None,
              use_requests = False,
              use_progress_bar = True )  [inherited]
```

Download and store specified data to local disk.

Parameters

data_specification	Specification of data to be retrieved

Returns

List of downloaded file locations

6.26.3.3 getConfig()

```
def skdaccess.framework.data_class.DataFetcherBase.getConfig ( )  [inherited]
```

Retrieve skdaccess configuration.

Returns

configParser.ConfigParser object of configuration

6.26.3.4 getDataLocation()

```
def skdaccess.framework.data_class.DataFetcherLocal.getDataLocation (
              data_name )  [inherited]
```

Get the location of data set.

Parameters

data_name	Name of data set

Returns

string of data location, None if not found

6.26.3.5 getHDFStorage()

```
def skdaccess.framework.data_class.DataFetcherCache.getHDFStorage (
              self,
              keyname )  [inherited]
```

6.26.3.6 getMetadata()

```
def skdaccess.framework.data_class.DataFetcherBase.getMetadata (
              self )  [inherited]
```

Return metadata about Data Fetcher.

Returns

metadata of object.

6.26.3.7 multirun_enabled()

```
def skdaccess.framework.data_class.DataFetcherCache.multirun_enabled (
              self )  [inherited]
```

Returns whether or not this data fetcher is multirun enabled.

Returns

Boolean indicating whether or not this data fetcher is multirun enabled

6.26.3.8 output()

```
def skdaccess.planetary.ode.cache.DataFetcher.output (
              self )
```

Generate data wrapper from ODE data.

6.26.3.9 perturb()

```
def skdaccess.framework.data_class.DataFetcherBase.perturb (
              self )  [inherited]
```

Perturb parameters.

6.26.3.10 reset()

```
def skdaccess.framework.data_class.DataFetcherBase.reset (
              self )  [inherited]
```

Set all parameters to initial value.

6.26.3.11 setDataLocation()

```
def skdaccess.framework.data_class.DataFetcherLocal.setDataLocation (
              data_name,
              location,
              key = 'data_location' )  [inherited]
```

Set the location of a data set.

Parameters

data_name	Name of data set
location	Location of data set
key	Key of configuration option

6.26.3.12 verbose_print()

```
def skdaccess.framework.data_class.DataFetcherBase.verbose_print (
              self,
              args,
              kwargs )  [inherited]
```

6.26.3.13 writeConfig()

```
def skdaccess.framework.data_class.DataFetcherBase.writeConfig (
              conf )  [inherited]
```

Write config to disk.

Parameters

conf	configparser.ConfigParser object

6.26.4 Member Data Documentation

6.26.4.1 ap_paramList

```
skdaccess.framework.data_class.DataFetcherBase.ap_paramList  [inherited]
```

6.26.4.2 eastern_lon

```
skdaccess.planetary.ode.cache.DataFetcher.eastern_lon
```

6.26.4.3 file_name

```
skdaccess.planetary.ode.cache.DataFetcher.file_name
```

6.26.4.4 instrument

skdaccess.planetary.ode.cache.DataFetcher.instrument

6.26.4.5 max_lat

skdaccess.planetary.ode.cache.DataFetcher.max_lat

6.26.4.6 max_ob_time

skdaccess.planetary.ode.cache.DataFetcher.max_ob_time

6.26.4.7 min_lat

skdaccess.planetary.ode.cache.DataFetcher.min_lat

6.26.4.8 min_ob_time

skdaccess.planetary.ode.cache.DataFetcher.min_ob_time

6.26.4.9 mission

skdaccess.planetary.ode.cache.DataFetcher.mission

6.26.4.10 number_product_limit

skdaccess.planetary.ode.cache.DataFetcher.number_product_limit

6.26.4.11 product_id

skdaccess.planetary.ode.cache.DataFetcher.product_id

6.26.4.12 product_type

skdaccess.planetary.ode.cache.DataFetcher.product_type

6.26.4.13 remove_ndv

skdaccess.planetary.ode.cache.DataFetcher.remove_ndv

6.26.4.14 result_offset_number

skdaccess.planetary.ode.cache.DataFetcher.result_offset_number

6.26.4.15 target

skdaccess.planetary.ode.cache.DataFetcher.target

6.26.4.16 verbose

skdaccess.framework.data_class.DataFetcherBase.verbose [inherited]

6.26.4.17 western_lon

skdaccess.planetary.ode.cache.DataFetcher.western_lon

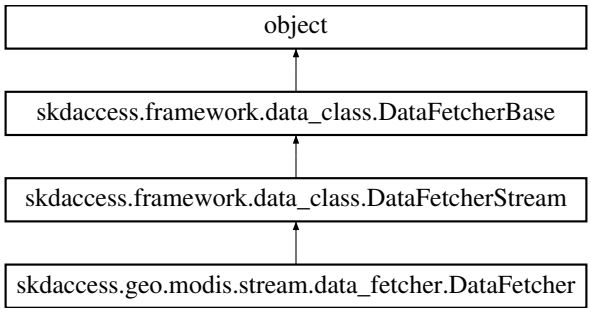
The documentation for this class was generated from the following file:

- planetary/ode/cache/data_fetcher.py

6.27 skdaccess.geo.modis.stream.DataFetcher Class Reference

Data Fetcher for MODIS data.

Inheritance diagram for skdaccess.geo.modis.stream.DataFetcher:



Public Member Functions

- def __init__ (self, ap_paramList, modis_platform, modis_id, variable_list, start_date, end_date, daynightboth='D', grid=None, grid_fill=np.nan, use_long_name=False)

  Construct Data Fetcher object.
- def output (self)

  Generate data wrapper.
- def retrieveOnlineData (self, data_specification)

  Method for downloading data into memory.
- def multirun_enabled (self)

  Returns whether or not this data fetcher is multirun enabled.
- def perturb (self)

  Perturb parameters.
- def reset (self)

  Set all parameters to initial value.
- def __str__ (self)

  Generate string description.
- def getMetadata (self)

  Return metadata about Data Fetcher.
- def getConfig ()

  Retrieve skdaccess configuration.
- def writeConfig (conf)

  Write config to disk.
- def verbose_print (self, args, kwargs)

Public Attributes

- modis_id
- variable_list
- start_date
- end_date
- daynightboth
- grid
- grid_fill
- use_long_name
- modis_platform
- modis_identifier
- ap_paramList
- verbose

6.27.1 Detailed Description

Data Fetcher for MODIS data.

6.27.2 Constructor & Destructor Documentation

6.27.2.1 __init__()

```
def skdaccess.geo.modis.stream.DataFetcher.__init__ (
              self,
              ap_paramList,
              modis_platform,
              modis_id,
              variable_list,
              start_date,
              end_date,
              daynightboth = 'D',
              grid = None,
              grid_fill = np.nan,
              use_long_name = False )
```

Construct Data Fetcher object.

Parameters

ap_paramList[lat]	Search latitude
ap_paramList[lon]	Search longitude
modis_platform	Platform (Either "Terra" or "Aqua")
modis_id	Product string (e.g. '06_L2')
variable_list	List of variables to fetch

Parameters

start_date	Starting date
end_date	Ending date
daynightboth	Use daytime data ('D'), nighttime data ('N') or both ('B')
grid	Further divide each image into a multiple grids of size (y,x)
grid_fill	Fill value to use when creating gridded data
use_long_name	Use long names for metadata instead of variable name

6.27.3 Member Function Documentation

6.27.3.1 __str__()

```
def skdaccess.framework.data_class.DataFetcherBase.__str__ (
              self )  [inherited]
```

Generate string description.

6.27.3.2 getConfig()

```
def skdaccess.framework.data_class.DataFetcherBase.getConfig ( )  [inherited]
```

Retrieve skdaccess configuration.

Returns

configParser.ConfigParser object of configuration

6.27.3.3 getMetadata()

```
def skdaccess.framework.data_class.DataFetcherBase.getMetadata (
              self )  [inherited]
```

Return metadata about Data Fetcher.

Returns

metadata of object.

6.27.3.4 multirun_enabled()

```
def skdaccess.framework.data_class.DataFetcherStream.multirun_enabled (
              self )  [inherited]
```

Returns whether or not this data fetcher is multirun enabled.

Returns

Boolean indicating whether or not this data fetcher is multirun enabled

6.27.3.5 output()

```
def skdaccess.geo.modis.stream.DataFetcher.output (
              self )
```

Generate data wrapper.

Returns

data wrapper of MODIS data

6.27.3.6 perturb()

```
def skdaccess.framework.data_class.DataFetcherBase.perturb (
              self )  [inherited]
```

Perturb parameters.

6.27.3.7 reset()

```
def skdaccess.framework.data_class.DataFetcherBase.reset (
              self )  [inherited]
```

Set all parameters to initial value.

6.27.3.8 retrieveOnlineData()

```
def skdaccess.framework.data_class.DataFetcherStream.retrieveOnlineData (
              self,
              data_specification )  [inherited]
```

Method for downloading data into memory.

Parameters

data_specification	Url list of data to be retrieved

Returns

Retrieved data

6.27.3.9 verbose_print()

```
def skdaccess.framework.data_class.DataFetcherBase.verbose_print (
              self,
              args,
              kwargs )  [inherited]
```

6.27.3.10 writeConfig()

```
def skdaccess.framework.data_class.DataFetcherBase.writeConfig (
              conf )  [inherited]
```

Write config to disk.

Parameters

conf	configparser.ConfigParser object

6.27.4 Member Data Documentation

6.27.4.1 ap_paramList

```
skdaccess.framework.data_class.DataFetcherBase.ap_paramList  [inherited]
```

6.27.4.2 daynightboth

skdaccess.geo.modis.stream.DataFetcher.daynightboth

6.27.4.3 end_date

skdaccess.geo.modis.stream.DataFetcher.end_date

6.27.4.4 grid

skdaccess.geo.modis.stream.DataFetcher.grid

6.27.4.5 grid_fill

skdaccess.geo.modis.stream.DataFetcher.grid_fill

6.27.4.6 modis_id

skdaccess.geo.modis.stream.DataFetcher.modis_id

6.27.4.7 modis_identifier

skdaccess.geo.modis.stream.DataFetcher.modis_identifier

6.27.4.8 modis_platform

skdaccess.geo.modis.stream.DataFetcher.modis_platform

6.27.4.9 start_date

skdaccess.geo.modis.stream.DataFetcher.start_date

6.27.4.10 use_long_name

skdaccess.geo.modis.stream.DataFetcher.use_long_name

6.27.4.11 variable_list

skdaccess.geo.modis.stream.DataFetcher.variable_list

6.27.4.12 verbose

skdaccess.framework.data_class.DataFetcherBase.verbose [inherited]

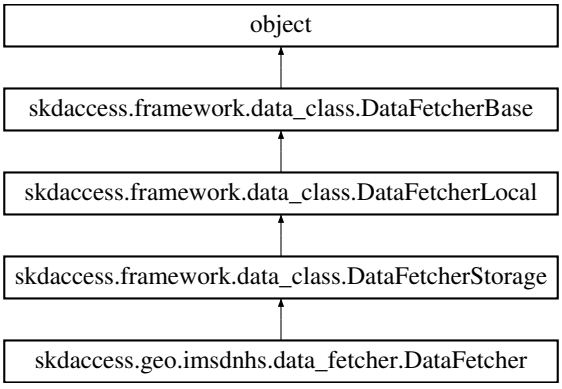
The documentation for this class was generated from the following file:

- geo/modis/stream/data_fetcher.py

6.28 skdaccess.geo.imsdnhs.DataFetcher Class Reference

Fetches data for the Interactive Multisensor Snow and Ice Mapping System Daily Northern Hemisphere Snow and Ice Analysis.

Inheritance diagram for skdaccess.geo.imsdnhs.DataFetcher:



Public Member Functions

- def __init__ (self, coordinate_dict, start_date, end_date)

  Intializes the Data Fetcher.
- def output (self)

  Fetch snow coverage data for coordinates.
- def downloadFullDataset (cls, out_file, use_file=None)

  Abstract function used to download full data set.
- def multirun_enabled (self)

  Returns whether or not this data fetcher is multirun enabled.
- def getDataLocation (data_name)

  Get the location of data set.
- def setDataLocation (data_name, location, key='data_location')

  Set the location of a data set.
- def perturb (self)

  Perturb parameters.
- def reset (self)

  Set all parameters to initial value.
- def __str__ (self)

  Generate string description.
- def getMetadata (self)

  Return metadata about Data Fetcher.
- def getConfig ()

  Retrieve skdaccess configuration.
- def writeConfig (conf)

  Write config to disk.
- def verbose_print (self, args, kwargs)

Public Attributes

- coordinate_dict
- start_date
- end_date
- ap_paramList
- verbose

6.28.1 Detailed Description

Fetches data for the Interactive Multisensor Snow and Ice Mapping System Daily Northern Hemisphere Snow and Ice Analysis.

6.28.2 Constructor & Destructor Documentation

6.28.2.1 __init__()

```
def skdaccess.geo.imsdnhs.DataFetcher.__init__ (
              self,
              coordinate_dict,
              start_date,
              end_date )
```

Intializes the Data Fetcher.

Parameters

coordinate_dict	Dictionary of locations where the names are the keys and the items are lists containing the latitude and longitude are the values
start_date	Starting date
end_date	Ending date

6.28.3 Member Function Documentation

6.28.3.1 __str__()

```
def skdaccess.framework.data_class.DataFetcherBase.__str__ (
              self )  [inherited]
```

Generate string description.

6.28.3.2 downloadFullDataset()

```
def skdaccess.framework.data_class.DataFetcherStorage.downloadFullDataset (
              cls,
              out_file,
              use_file = None )  [inherited]
```

Abstract function used to download full data set.

Parameters

out_file	output file name
use_file	Use previously downloaded data

Returns

Absolute path of parsed data

6.28.3.3 getConfig()

```
def skdaccess.framework.data_class.DataFetcherBase.getConfig ( )  [inherited]
```

Retrieve skdaccess configuration.

Returns

configParser.ConfigParser object of configuration

6.28.3.4 getDataLocation()

```
def skdaccess.framework.data_class.DataFetcherLocal.getDataLocation (
              data_name )  [inherited]
```

Get the location of data set.

Parameters

data_name	Name of data set

Returns

string of data location, None if not found

6.28.3.5 getMetadata()

```
def skdaccess.framework.data_class.DataFetcherBase.getMetadata (
              self )  [inherited]
```

Return metadata about Data Fetcher.

Returns

metadata of object.

6.28.3.6 multirun_enabled()

```
def skdaccess.framework.data_class.DataFetcherStorage.multirun_enabled (
              self )  [inherited]
```

Returns whether or not this data fetcher is multirun enabled.

Returns

Boolean indicating whether or not this data fetcher is multirun enabled

6.28.3.7 output()

```
def skdaccess.geo.imsdnhs.DataFetcher.output (
              self )
```

Fetch snow coverage data for coordinates.

Returns

Data wrapper for snow coverage

6.28.3.8 perturb()

```
def skdaccess.framework.data_class.DataFetcherBase.perturb (
              self )  [inherited]
```

Perturb parameters.

6.28.3.9 reset()

```
def skdaccess.framework.data_class.DataFetcherBase.reset (
              self )  [inherited]
```

Set all parameters to initial value.

6.28.3.10 setDataLocation()

```
def skdaccess.framework.data_class.DataFetcherLocal.setDataLocation (
              data_name,
              location,
              key = 'data_location' )  [inherited]
```

Set the location of a data set.

Parameters

data_name	Name of data set
location	Location of data set
key	Key of configuration option

6.28.3.11 verbose_print()

```
def skdaccess.framework.data_class.DataFetcherBase.verbose_print (
              self,
              args,
              kwargs )  [inherited]
```

6.28.3.12 writeConfig()

```
def skdaccess.framework.data_class.DataFetcherBase.writeConfig (
              conf )  [inherited]
```

Write config to disk.

Parameters

conf	configparser.ConfigParser object

6.28.4 Member Data Documentation

6.28.4.1 ap_paramList

```
skdaccess.framework.data_class.DataFetcherBase.ap_paramList  [inherited]
```

6.28.4.2 coordinate_dict

```
skdaccess.geo.imsdnhs.DataFetcher.coordinate_dict
```

6.28.4.3 end_date

skdaccess.geo.imsdnhs.DataFetcher.end_date

6.28.4.4 start_date

skdaccess.geo.imsdnhs.DataFetcher.start_date

6.28.4.5 verbose

skdaccess.framework.data_class.DataFetcherBase.verbose [inherited]

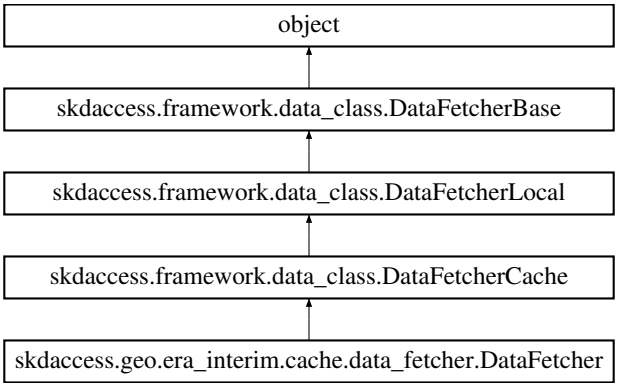
The documentation for this class was generated from the following file:

- geo/imsdnhs/data_fetcher.py

6.29 skdaccess.geo.era_interim.cache.DataFetcher Class Reference

DataFetcher for retrieving ERA-I data.

Inheritance diagram for skdaccess.geo.era_interim.cache.DataFetcher:



Public Member Functions

- def __init__ (self, date_list, data_names, username, password)

  Initialize Data Fetcher.
- def output (self)

  Generate data wrapper.
- def cacheData (self, keyname, online_path_list, username=None, password=None, authentication_url=None, cookiejar=None, use_requests=False, use_progress_bar=True)

  Download and store specified data to local disk.
- def multirun_enabled (self)

  Returns whether or not this data fetcher is multirun enabled.
- def getHDFStorage (self, keyname)
- def getDataLocation (data_name)

  Get the location of data set.
- def setDataLocation (data_name, location, key='data_location')

  Set the location of a data set.
- def perturb (self)

  Perturb parameters.
- def reset (self)

  Set all parameters to initial value.
- def __str__ (self)

  Generate string description.
- def getMetadata (self)

  Return metadata about Data Fetcher.
- def getConfig ()

  Retrieve skdaccess configuration.
- def writeConfig (conf)

  Write config to disk.
- def verbose_print (self, args, kwargs)

Public Attributes

- date_list
- data_names
- username
- password
- ap_paramList
- verbose

6.29.1 Detailed Description

DataFetcher for retrieving ERA-I data.

6.29.2 Constructor & Destructor Documentation

6.29.2.1 __init__()

```
def skdaccess.geo.era_interim.cache.DataFetcher.__init__ (
              self,
              date_list,
              data_names,
              username,
              password )
```

Initialize Data Fetcher.

Parameters

date_list	list of dates
data_names	list of data names
username	UCAR username
password	UCAR password

6.29.3 Member Function Documentation

6.29.3.1 __str__()

```
def skdaccess.framework.data_class.DataFetcherBase.__str__ (
              self )  [inherited]
```

Generate string description.

6.29.3.2 cacheData()

```
def skdaccess.framework.data_class.DataFetcherCache.cacheData (
              self,
              keyname,
              online_path_list,
              username = None,
              password = None,
              authentication_url = None,
              cookiejar = None,
              use_requests = False,
              use_progress_bar = True )  [inherited]
```

Download and store specified data to local disk.

Parameters

data_specification	Specification of data to be retrieved

Returns

List of downloaded file locations

6.29.3.3 getConfig()

```
def skdaccess.framework.data_class.DataFetcherBase.getConfig ( )  [inherited]
```

Retrieve skdaccess configuration.

Returns

configParser.ConfigParser object of configuration

6.29.3.4 getDataLocation()

```
def skdaccess.framework.data_class.DataFetcherLocal.getDataLocation (
              data_name )  [inherited]
```

Get the location of data set.

Parameters

data_name	Name of data set

Returns

string of data location, None if not found

6.29.3.5 getHDFStorage()

```
def skdaccess.framework.data_class.DataFetcherCache.getHDFStorage (
              self,
              keyname )  [inherited]
```

6.29.3.6 getMetadata()

```
def skdaccess.framework.data_class.DataFetcherBase.getMetadata (
              self )  [inherited]
```

Return metadata about Data Fetcher.

Returns

metadata of object.

6.29.3.7 multirun_enabled()

```
def skdaccess.framework.data_class.DataFetcherCache.multirun_enabled (
              self )  [inherited]
```

Returns whether or not this data fetcher is multirun enabled.

Returns

Boolean indicating whether or not this data fetcher is multirun enabled

6.29.3.8 output()

```
def skdaccess.geo.era_interim.cache.DataFetcher.output (
              self )
```

Generate data wrapper.

Returns

Era-I weather in a data wrapper

6.29.3.9 perturb()

```
def skdaccess.framework.data_class.DataFetcherBase.perturb (
              self )  [inherited]
```

Perturb parameters.

6.29.3.10 reset()

```
def skdaccess.framework.data_class.DataFetcherBase.reset (
              self )  [inherited]
```

Set all parameters to initial value.

6.29.3.11 setDataLocation()

```
def skdaccess.framework.data_class.DataFetcherLocal.setDataLocation (
              data_name,
              location,
              key = 'data_location' )  [inherited]
```

Set the location of a data set.

Parameters

data_name	Name of data set
location	Location of data set
key	Key of configuration option

6.29.3.12 verbose_print()

```
def skdaccess.framework.data_class.DataFetcherBase.verbose_print (
              self,
              args,
              kwargs )  [inherited]
```

6.29.3.13 writeConfig()

```
def skdaccess.framework.data_class.DataFetcherBase.writeConfig (
              conf )  [inherited]
```

Write config to disk.

Parameters

conf	configparser.ConfigParser object

6.29.4 Member Data Documentation

6.29.4.1 ap_paramList

skdaccess.framework.data_class.DataFetcherBase.ap_paramList [inherited]

6.29.4.2 data_names

skdaccess.geo.era_interim.cache.DataFetcher.data_names

6.29.4.3 date_list

skdaccess.geo.era_interim.cache.DataFetcher.date_list

6.29.4.4 password

skdaccess.geo.era_interim.cache.DataFetcher.password

6.29.4.5 username

skdaccess.geo.era_interim.cache.DataFetcher.username

6.29.4.6 verbose

skdaccess.framework.data_class.DataFetcherBase.verbose [inherited]

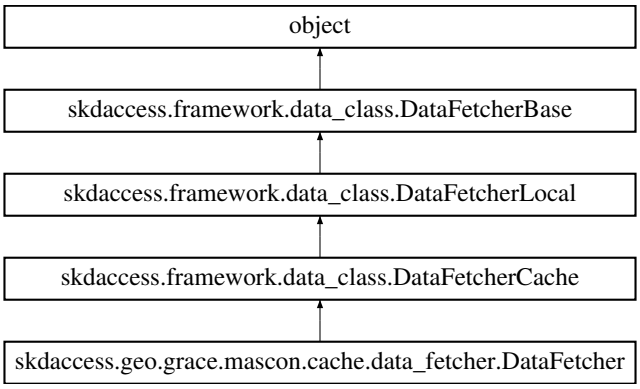
The documentation for this class was generated from the following file:

- geo/era_interim/cache/data_fetcher.py

6.30 skdaccess.geo.grace.mascon.cache.DataFetcher Class Reference

Data Fetcher for GRACE mascon data.

Inheritance diagram for skdaccess.geo.grace.mascon.cache.DataFetcher:



Public Member Functions

- def __init__ (self, ap_paramList, start_date=None, end_date=None)

  Construct a GRACE mascon Data Fetcher.
- def output (self)

  Create a datawrapper containing GRACE mascon data.
- def getMasconPlacement (self)

  Retrieve mascon placement data.
- def cacheData (self, keyname, online_path_list, username=None, password=None, authentication_url=None, cookiejar=None, use_requests=False, use_progress_bar=True)

  Download and store specified data to local disk.
- def multirun_enabled (self)

  Returns whether or not this data fetcher is multirun enabled.
- def getHDFStorage (self, keyname)
- def getDataLocation (data_name)

  Get the location of data set.
- def setDataLocation (data_name, location, key='data_location')

  Set the location of a data set.
- def perturb (self)

  Perturb parameters.
- def reset (self)

  Set all parameters to initial value.
- def __str__ (self)

  Generate string description.
- def getMetadata (self)

  Return metadata about Data Fetcher.
- def getConfig ()

  Retrieve skdaccess configuration.
- def writeConfig (conf)

  Write config to disk.
- def verbose_print (self, args, kwargs)

Public Attributes

- start_date
- end_date
- mascon_url
- scale_factor_url
- mascon_placement_url
- ap_paramList
- verbose

6.30.1 Detailed Description

Data Fetcher for GRACE mascon data.

6.30.2 Constructor & Destructor Documentation

6.30.2.1 __init__()

```
def skdaccess.geo.grace.mascon.cache.DataFetcher.__init__ (
              self,
              ap_paramList,
              start_date = None,
              end_date = None )
```

Construct a GRACE mascon Data Fetcher.

Parameters

ap_paramList[geo_point]	AutoList of geographic location tuples (lat,lon)
start_date	Beginning date
end_date	Ending date

6.30.3 Member Function Documentation

6.30.3.1 __str__()

```
def skdaccess.framework.data_class.DataFetcherBase.__str__ (
              self ) [inherited]
```

Generate string description.

6.30.3.2 cacheData()

```
def skdaccess.framework.data_class.DataFetcherCache.cacheData (
              self,
              keyname,
              online_path_list,
              username = None,
              password = None,
              authentication_url = None,
              cookiejar = None,
              use_requests = False,
              use_progress_bar = True )  [inherited]
```

Download and store specified data to local disk.

Parameters

data_specification	Specification of data to be retrieved

Returns

List of downloaded file locations

6.30.3.3 getConfig()

```
def skdaccess.framework.data_class.DataFetcherBase.getConfig ( )  [inherited]
```

Retrieve skdaccess configuration.

Returns

configParser.ConfigParser object of configuration

6.30.3.4 getDataLocation()

```
def skdaccess.framework.data_class.DataFetcherLocal.getDataLocation (
              data_name )  [inherited]
```

Get the location of data set.

Parameters

data_name	Name of data set

Returns

string of data location, None if not found

6.30.3.5 getHDFStorage()

```
def skdaccess.framework.data_class.DataFetcherCache.getHDFStorage (
              self,
              keyname )  [inherited]
```

6.30.3.6 getMasconPlacement()

```
def skdaccess.geo.grace.mascon.cache.DataFetcher.getMasconPlacement (
              self )
```

Retrieve mascon placement data.

Returns

Mascon data, Mascon metadata

6.30.3.7 getMetadata()

```
def skdaccess.framework.data_class.DataFetcherBase.getMetadata (
              self )  [inherited]
```

Return metadata about Data Fetcher.

Returns

metadata of object.

6.30.3.8 multirun_enabled()

```
def skdaccess.framework.data_class.DataFetcherCache.multirun_enabled (
              self )  [inherited]
```

Returns whether or not this data fetcher is multirun enabled.

Returns

Boolean indicating whether or not this data fetcher is multirun enabled

6.30.3.9 output()

```
def skdaccess.geo.grace.mascon.cache.DataFetcher.output (
              self )
```

Create a datawrapper containing GRACE mascon data.

Returns

Table Datawrapper containing Mascon GRACE data

6.30.3.10 perturb()

```
def skdaccess.framework.data_class.DataFetcherBase.perturb (
              self )  [inherited]
```

Perturb parameters.

6.30.3.11 reset()

```
def skdaccess.framework.data_class.DataFetcherBase.reset (
              self )  [inherited]
```

Set all parameters to initial value.

6.30.3.12 setDataLocation()

```
def skdaccess.framework.data_class.DataFetcherLocal.setDataLocation (
              data_name,
              location,
              key = 'data_location' )  [inherited]
```

Set the location of a data set.

Parameters

data_name	Name of data set
location	Location of data set
key	Key of configuration option

6.30.3.13 verbose_print()

```
def skdaccess.framework.data_class.DataFetcherBase.verbose_print (
              self,
              args,
              kwargs )  [inherited]
```

6.30.3.14 writeConfig()

```
def skdaccess.framework.data_class.DataFetcherBase.writeConfig (
              conf )  [inherited]
```

Write config to disk.

Parameters

conf	configparser.ConfigParser object

6.30.4 Member Data Documentation

6.30.4.1 ap_paramList

```
skdaccess.framework.data_class.DataFetcherBase.ap_paramList  [inherited]
```

6.30.4.2 end_date

```
skdaccess.geo.grace.mascon.cache.DataFetcher.end_date
```

6.30.4.3 mascon_placement_url

```
skdaccess.geo.grace.mascon.cache.DataFetcher.mascon_placement_url
```

6.30.4.4 mascon_url

skdaccess.geo.grace.mascon.cache.DataFetcher.mascon_url

6.30.4.5 scale_factor_url

skdaccess.geo.grace.mascon.cache.DataFetcher.scale_factor_url

6.30.4.6 start_date

skdaccess.geo.grace.mascon.cache.DataFetcher.start_date

6.30.4.7 verbose

skdaccess.framework.data_class.DataFetcherBase.verbose [inherited]

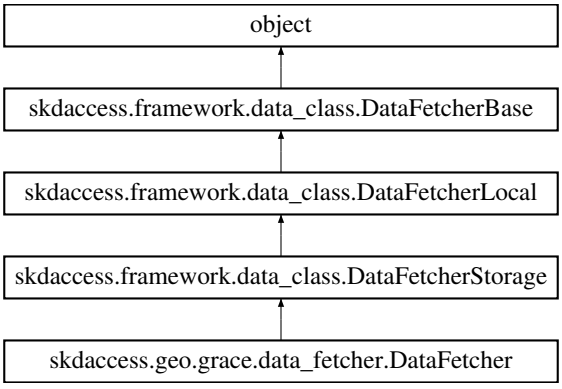
The documentation for this class was generated from the following file:

- geo/grace/mascon/cache/data_fetcher.py

6.31 skdaccess.geo.grace.DataFetcher Class Reference

Data Fetcher for GRACE data.

Inheritance diagram for skdaccess.geo.grace.DataFetcher:



Public Member Functions

- def __init__ (self, ap_paramList, start_date=None, end_date=None)

  Construct a Grace Data Fetcher.
- def output (self)

  Create data wrapper of grace data for specified geopoints.
- def __str__ (self)

  String representation of data fetcher.
- def downloadFullDataset (cls, out_file='grace.h5', use_file=None)

  Download and parse data from the Gravity Recovery and Climate Experiment.
- def multirun_enabled (self)

  Returns whether or not this data fetcher is multirun enabled.
- def getDataLocation (data_name)

  Get the location of data set.
- def setDataLocation (data_name, location, key='data_location')

  Set the location of a data set.
- def perturb (self)

  Perturb parameters.
- def reset (self)

  Set all parameters to initial value.
- def getMetadata (self)

  Return metadata about Data Fetcher.
- def getConfig ()

  Retrieve skdaccess configuration.
- def writeConfig (conf)

  Write config to disk.
- def verbose_print (self, args, kwargs)

Public Attributes

- start_date
- end_date
- ap_paramList
- verbose

6.31.1 Detailed Description

Data Fetcher for GRACE data.

6.31.2 Constructor & Destructor Documentation

6.31.2.1 __init__()

```
def skdaccess.geo.grace.DataFetcher.__init__ (
              self,
              ap_paramList,
              start_date = None,
              end_date = None )
```

Construct a Grace Data Fetcher.

Parameters

ap_paramList[geo_point]	AutoList of geographic location tuples (lat,lon)
start_date	Beginning date
end_date	Ending date

6.31.3 Member Function Documentation

6.31.3.1 __str__()

```
def skdaccess.geo.grace.DataFetcher.__str__ (
              self )
```

String representation of data fetcher.

Returns

String listing the name and geopoint of data fetcher

6.31.3.2 downloadFullDataset()

```
def skdaccess.geo.grace.DataFetcher.downloadFullDataset (
              cls,
              out_file = 'grace.h5',
              use_file = None )
```

Download and parse data from the Gravity Recovery and Climate Experiment.

Parameters

out_file	Output filename for parsed data
use_file	Directory of already downloaded data. If None, data will be downloaded.

Returns

Absolute path of parsed data

6.31.3.3 getConfig()

```
def skdaccess.framework.data_class.DataFetcherBase.getConfig ( )  [inherited]
```

Retrieve skdaccess configuration.

Returns

configParser.ConfigParser object of configuration

6.31.3.4 getDataLocation()

```
def skdaccess.framework.data_class.DataFetcherLocal.getDataLocation (
              data_name )  [inherited]
```

Get the location of data set.

Parameters

data_name	Name of data set

Returns

string of data location, None if not found

6.31.3.5 getMetadata()

```
def skdaccess.framework.data_class.DataFetcherBase.getMetadata (
              self )  [inherited]
```

Return metadata about Data Fetcher.

Returns

metadata of object.

6.31.3.6 multirun_enabled()

```
def skdaccess.framework.data_class.DataFetcherStorage.multirun_enabled (
              self )  [inherited]
```

Returns whether or not this data fetcher is multirun enabled.

Returns

Boolean indicating whether or not this data fetcher is multirun enabled

6.31.3.7 output()

```
def skdaccess.geo.grace.DataFetcher.output (
              self )
```

Create data wrapper of grace data for specified geopoints.

Returns

Grace Data Wrapper

6.31.3.8 perturb()

```
def skdaccess.framework.data_class.DataFetcherBase.perturb (
              self )  [inherited]
```

Perturb parameters.

6.31.3.9 reset()

```
def skdaccess.framework.data_class.DataFetcherBase.reset (
              self )  [inherited]
```

Set all parameters to initial value.

6.31.3.10 setDataLocation()

```
def skdaccess.framework.data_class.DataFetcherLocal.setDataLocation (
              data_name,
              location,
              key = 'data_location' )  [inherited]
```

Set the location of a data set.

Parameters

data_name	Name of data set
location	Location of data set
key	Key of configuration option

6.31.3.11 verbose_print()

```
def skdaccess.framework.data_class.DataFetcherBase.verbose_print (
              self,
              args,
              kwargs )  [inherited]
```

6.31.3.12 writeConfig()

```
def skdaccess.framework.data_class.DataFetcherBase.writeConfig (
              conf )  [inherited]
```

Write config to disk.

Parameters

conf	configparser.ConfigParser object

6.31.4 Member Data Documentation

6.31.4.1 ap_paramList

```
skdaccess.framework.data_class.DataFetcherBase.ap_paramList  [inherited]
```

6.31.4.2 end_date

```
skdaccess.geo.grace.DataFetcher.end_date
```

6.31.4.3 start_date

```
skdaccess.geo.grace.DataFetcher.start_date
```

6.31.4.4 verbose

```
skdaccess.framework.data_class.DataFetcherBase.verbose  [inherited]
```

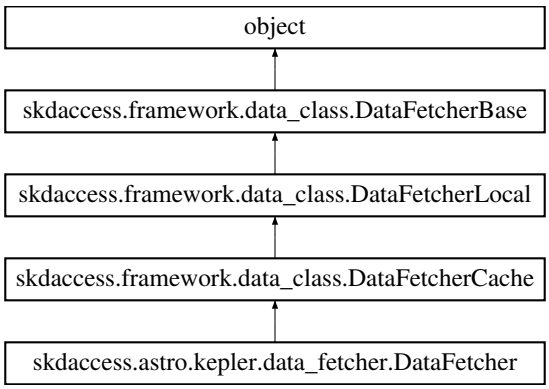
The documentation for this class was generated from the following file:

- geo/grace/data_fetcher.py

6.32 skdaccess.astro.kepler.DataFetcher Class Reference

Data Fetcher for Kepler light curve data.

Inheritance diagram for skdaccess.astro.kepler.DataFetcher:



Public Member Functions

- def __init__ (self, ap_paramList, quarter_list=None)

  Initialize Kepler Data Fetcher.
- def downloadKeplerData (self, kid_list)

  Download and parse Kepler data for a list of kepler id's.
- def cacheData (self, data_specification)

  Cache Kepler data locally.
- def output (self)

  Output kepler data wrapper.
- def cacheData (self, keyname, online_path_list, username=None, password=None, authentication_url=None, cookiejar=None, use_requests=False, use_progress_bar=True)

Download and store specified data to local disk.

- def multirun_enabled (self)

  Returns whether or not this data fetcher is multirun enabled.
- def getHDFStorage (self, keyname)
- def getDataLocation (data_name)

  Get the location of data set.
- def setDataLocation (data_name, location, key='data_location')

  Set the location of a data set.
- def perturb (self)

  Perturb parameters.
- def reset (self)

  Set all parameters to initial value.
- def __str__ (self)

  Generate string description.
- def getMetadata (self)

  Return metadata about Data Fetcher.
- def getConfig ()

  Retrieve skdaccess configuration.
- def writeConfig (conf)

  Write config to disk.
- def verbose_print (self, args, kwargs)

Public Attributes

- quarter_list
- ap_paramList
- verbose

6.32.1 Detailed Description

Data Fetcher for Kepler light curve data.

6.32.2 Constructor & Destructor Documentation

6.32.2.1 __init__()

```
def skdaccess.astro.kepler.DataFetcher.__init__ (
              self,
              ap_paramList,
              quarter_list = None )
```

Initialize Kepler Data Fetcher.

Parameters

ap_paramList[kepler_id_list]	List of kepler id's
quarter_list	List of quarters (0-17) (default: all quarters)

6.32.3 Member Function Documentation

6.32.3.1 __str__()

```
def skdaccess.framework.data_class.DataFetcherBase.__str__ (
              self )  [inherited]
```

Generate string description.

6.32.3.2 cacheData() [1/2]

```
def skdaccess.astro.kepler.DataFetcher.cacheData (
              self,
              data_specification )
```

Cache Kepler data locally.

Parameters

data_specification	List of kepler IDs

6.32.3.3 cacheData() [2/2]

```
def skdaccess.framework.data_class.DataFetcherCache.cacheData (
              self,
              keyname,
              online_path_list,
              username = None,
              password = None,
              authentication_url = None,
              cookiejar = None,
              use_requests = False,
              use_progress_bar = True )  [inherited]
```

Download and store specified data to local disk.

Parameters

data_specification	Specification of data to be retrieved

Returns

List of downloaded file locations

6.32.3.4 downloadKeplerData()

```
def skdaccess.astro.kepler.DataFetcher.downloadKeplerData (
              self,
              kid_list )
```

Download and parse Kepler data for a list of kepler id's.

Parameters

kid_list	List of Kepler ID's to download

Returns

dictionary of kepler data

6.32.3.5 getConfig()

```
def skdaccess.framework.data_class.DataFetcherBase.getConfig ( )  [inherited]
```

Retrieve skdaccess configuration.

Returns

configParser.ConfigParser object of configuration

6.32.3.6 getDataLocation()

```
def skdaccess.framework.data_class.DataFetcherLocal.getDataLocation (
              data_name )  [inherited]
```

Get the location of data set.

Parameters

data_name	Name of data set

Returns

string of data location, None if not found

6.32.3.7 getHDFStorage()

```
def skdaccess.framework.data_class.DataFetcherCache.getHDFStorage (
              self,
              keyname )  [inherited]
```

6.32.3.8 getMetadata()

```
def skdaccess.framework.data_class.DataFetcherBase.getMetadata (
              self )  [inherited]
```

Return metadata about Data Fetcher.

Returns

metadata of object.

6.32.3.9 multirun_enabled()

```
def skdaccess.framework.data_class.DataFetcherCache.multirun_enabled (
              self )  [inherited]
```

Returns whether or not this data fetcher is multirun enabled.

Returns

Boolean indicating whether or not this data fetcher is multirun enabled

6.32.3.10 output()

```
def skdaccess.astro.kepler.DataFetcher.output (
              self )
```

Output kepler data wrapper.

Returns

DataWrapper

6.32.3.11 perturb()

```
def skdaccess.framework.data_class.DataFetcherBase.perturb (
              self )  [inherited]
```

Perturb parameters.

6.32.3.12 reset()

```
def skdaccess.framework.data_class.DataFetcherBase.reset (
              self )  [inherited]
```

Set all parameters to initial value.

6.32.3.13 setDataLocation()

```
def skdaccess.framework.data_class.DataFetcherLocal.setDataLocation (
              data_name,
              location,
              key = 'data_location' )  [inherited]
```

Set the location of a data set.

Parameters

data_name	Name of data set
location	Location of data set
key	Key of configuration option

6.32.3.14 verbose_print()

```
def skdaccess.framework.data_class.DataFetcherBase.verbose_print (
              self,
              args,
              kwargs )  [inherited]
```

6.32.3.15 writeConfig()

```
def skdaccess.framework.data_class.DataFetcherBase.writeConfig (
              conf )  [inherited]
```

Write config to disk.

Parameters

conf	configparser.ConfigParser object

6.32.4 Member Data Documentation

6.32.4.1 ap_paramList

```
skdaccess.framework.data_class.DataFetcherBase.ap_paramList  [inherited]
```

6.32.4.2 quarter_list

```
skdaccess.astro.kepler.DataFetcher.quarter_list
```

6.32.4.3 verbose

```
skdaccess.framework.data_class.DataFetcherBase.verbose  [inherited]
```

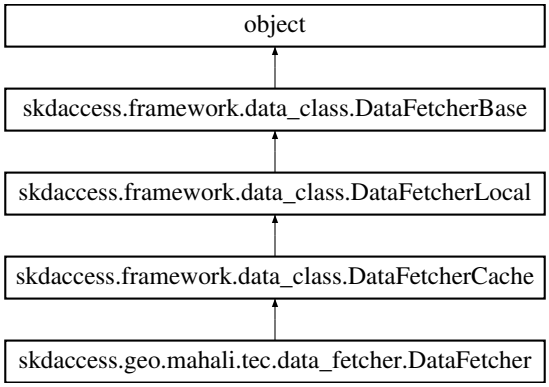
The documentation for this class was generated from the following file:

- astro/kepler/data_fetcher.py

6.33 skdaccess.geo.mahali.tec.DataFetcher Class Reference

Data Fetcher for Mahali Data.

Inheritance diagram for skdaccess.geo.mahali.tec.DataFetcher:



Public Member Functions

- def __init__ (self, ap_paramList=[ ], start_date=None, end_date=None)

  Initialize Mahali Data Fetcher.
- def output (self)

  Generate data wrapper for Mahali tec data.
- def cacheData (self, keyname, online_path_list, username=None, password=None, authentication_url=None, cookiejar=None, use_requests=False, use_progress_bar=True)

  Download and store specified data to local disk.
- def multirun_enabled (self)

  Returns whether or not this data fetcher is multirun enabled.
- def getHDFStorage (self, keyname)
- def getDataLocation (data_name)

  Get the location of data set.
- def setDataLocation (data_name, location, key='data_location')

  Set the location of a data set.
- def perturb (self)

  Perturb parameters.
- def reset (self)

  Set all parameters to initial value.
- def __str__ (self)

  Generate string description.
- def getMetadata (self)

  Return metadata about Data Fetcher.
- def getConfig ()

  Retrieve skdaccess configuration.
- def writeConfig (conf)

  Write config to disk.
- def verbose_print (self, args, kwargs)

Public Attributes

- start_date
- end_date
- date_range
- ap_paramList
- verbose

6.33.1 Detailed Description

Data Fetcher for Mahali Data.

6.33.2 Constructor & Destructor Documentation

6.33.2.1 __init__()

```
def skdaccess.geo.mahali.tec.DataFetcher.__init__ (
              self,
              ap_paramList = [],
              start_date = None,
              end_date = None )
```

Initialize Mahali Data Fetcher.

Parameters

ap_paramList[stations]	Autolist of stations (Defaults to all stations)
start_date	Starting date for seelcting data (Defaults to beginning of available data)
end_date	Ending date for selecting data (Defaults to end of available data)

6.33.3 Member Function Documentation

6.33.3.1 __str__()

```
def skdaccess.framework.data_class.DataFetcherBase.__str__ (
              self )  [inherited]
```

Generate string description.

6.33.3.2 cacheData()

```
def skdaccess.framework.data_class.DataFetcherCache.cacheData (
              self,
              keyname,
              online_path_list,
              username = None,
              password = None,
              authentication_url = None,
              cookiejar = None,
              use_requests = False,
              use_progress_bar = True )  [inherited]
```

Download and store specified data to local disk.

Parameters

data_specification	Specification of data to be retrieved

Returns

List of downloaded file locations

6.33.3.3 getConfig()

```
def skdaccess.framework.data_class.DataFetcherBase.getConfig ( )  [inherited]
```

Retrieve skdaccess configuration.

Returns

configParser.ConfigParser object of configuration

6.33.3.4 getDataLocation()

```
def skdaccess.framework.data_class.DataFetcherLocal.getDataLocation (
              data_name )  [inherited]
```

Get the location of data set.

Parameters

data_name	Name of data set

Returns

string of data location, None if not found

6.33.3.5 getHDFStorage()

```
def skdaccess.framework.data_class.DataFetcherCache.getHDFStorage (
              self,
              keyname )  [inherited]
```

6.33.3.6 getMetadata()

```
def skdaccess.framework.data_class.DataFetcherBase.getMetadata (
              self )  [inherited]
```

Return metadata about Data Fetcher.

Returns

metadata of object.

6.33.3.7 multirun_enabled()

```
def skdaccess.framework.data_class.DataFetcherCache.multirun_enabled (
              self )  [inherited]
```

Returns whether or not this data fetcher is multirun enabled.

Returns

Boolean indicating whether or not this data fetcher is multirun enabled

6.33.3.8 output()

```
def skdaccess.geo.mahali.tec.DataFetcher.output (
              self )
```

Generate data wrapper for Mahali tec data.

Returns

Mahali data wrapper

6.33.3.9 perturb()

```
def skdaccess.framework.data_class.DataFetcherBase.perturb (
              self )  [inherited]
```

Perturb parameters.

6.33.3.10 reset()

```
def skdaccess.framework.data_class.DataFetcherBase.reset (
              self )  [inherited]
```

Set all parameters to initial value.

6.33.3.11 setDataLocation()

```
def skdaccess.framework.data_class.DataFetcherLocal.setDataLocation (
              data_name,
              location,
              key = 'data_location' )  [inherited]
```

Set the location of a data set.

Parameters

data_name	Name of data set
location	Location of data set
key	Key of configuration option

6.33.3.12 verbose_print()

```
def skdaccess.framework.data_class.DataFetcherBase.verbose_print (
              self,
              args,
              kwargs )  [inherited]
```

6.33.3.13 writeConfig()

```
def skdaccess.framework.data_class.DataFetcherBase.writeConfig (
              conf )  [inherited]
```

Write config to disk.

Parameters

conf	configparser.ConfigParser object

6.33.4 Member Data Documentation

6.33.4.1 ap_paramList

```
skdaccess.framework.data_class.DataFetcherBase.ap_paramList  [inherited]
```

6.33.4.2 date_range

```
skdaccess.geo.mahali.tec.DataFetcher.date_range
```

6.33.4.3 end_date

```
skdaccess.geo.mahali.tec.DataFetcher.end_date
```

6.33.4.4 start_date

```
skdaccess.geo.mahali.tec.DataFetcher.start_date
```

6.33.4.5 verbose

skdaccess.framework.data_class.DataFetcherBase.verbose [inherited]

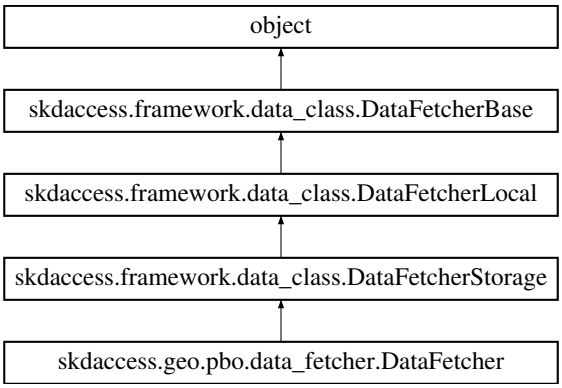
The documentation for this class was generated from the following file:

- geo/mahali/tec/data_fetcher.py

6.34 skdaccess.geo.pbo.DataFetcher Class Reference

Data fetcher for PBO GPS data.

Inheritance diagram for skdaccess.geo.pbo.DataFetcher:



Public Member Functions

- def __init__ (self, start_time, end_time, ap_paramList, mdyratio=.5, default_columns=['dN', dE, dU, default_↩ error_columns=['Sn', Se, Su, use_progress_bar=True, index_date_only=True)

  Initialize a DataFetcher.
- def setStationList (self, station_list)

  Set the list of stations to use.
- def getInfo (self)

  Get information about the stations and geo_point.
- def output (self)

  Generate PBO Data Wrapper.
- def __str__ (self)

  print the parameter values
- def getStationMetadata (data_frame=False)

  Read in the metadata and convert to dictionary.
- def getAntennaLogs ()

  Get antenna logs.
- def downloadFullDataset (cls, out_file='pbo_data.h5', use_file=None)

  Download and parse data from the Plate Boundary Observatory.

- def multirun_enabled (self)

  Returns whether or not this data fetcher is multirun enabled.
- def getDataLocation (data_name)

  Get the location of data set.
- def setDataLocation (data_name, location, key='data_location')

  Set the location of a data set.
- def perturb (self)

  Perturb parameters.
- def reset (self)

  Set all parameters to initial value.
- def getMetadata (self)

  Return metadata about Data Fetcher.
- def getConfig ()

  Retrieve skdaccess configuration.
- def writeConfig (conf)

  Write config to disk.
- def verbose_print (self, args, kwargs)

Public Attributes

- station_list
- default_columns
- default_error_columns
- use_progress_bar
- index_date_only
- antenna_info
- meta_data
- ap_paramList
- verbose

6.34.1 Detailed Description

Data fetcher for PBO GPS data.

6.34.2 Constructor & Destructor Documentation

6.34.2.1 __init__()

```
def skdaccess.geo.pbo.DataFetcher.__init__ (
                self,
                start_time,
                end_time,
                ap_paramList,
                mdyratio = .5,
                default_columns = ['dN',
                dE,
                dU,
                default_error_columns = ['Sn',
                Se,
                Su,
                use_progress_bar = True,
                index_date_only = True )
```

Initialize a DataFetcher.

Parameters

start_time	String of starting date in the form of "2005-01-01"
end_time	String of ending date in the form of "2014-12-31"
ap_paramList[lat_range]	AutoList, Latitude range used to select stabilization sites
ap_paramList[lon_range]	AutoList, Longitude range used to select stabilization sites
mdyratio	Only keep stations that have mdyratio of data in the specified time range
default_columns	Default columns to process
default_error_columns	Default error columns to process
use_progress_bar	Use a progress bar when loading data
index_date_only	Create a index using date only (no hour information)

6.34.3 Member Function Documentation

6.34.3.1 __str__()

```
def skdaccess.geo.pbo.DataFetcher.__str__ (
                self )
```

print the parameter values

Returns

String representation of Data Fetcher

6.34.3.2 downloadFullDataset()

```
def skdaccess.geo.pbo.DataFetcher.downloadFullDataset (
              cls,
              out_file = 'pbo_data.h5',
              use_file = None )
```

Download and parse data from the Plate Boundary Observatory.

Parameters

out_file	Output filename for parsed data
use_file	Use already downloaded data. If None, data will be downloaded.

Returns

Absolute path of parsed data

6.34.3.3 getAntennaLogs()

```
def skdaccess.geo.pbo.DataFetcher.getAntennaLogs ( )
```

Get antenna logs.

Returns

dictionary of data frames containing antenna logs

6.34.3.4 getConfig()

```
def skdaccess.framework.data_class.DataFetcherBase.getConfig ( )  [inherited]
```

Retrieve skdaccess configuration.

Returns

configParser.ConfigParser object of configuration

6.34.3.5 getDataLocation()

```
def skdaccess.framework.data_class.DataFetcherLocal.getDataLocation (
              data_name )  [inherited]
```

Get the location of data set.

Parameters

data_name	Name of data set

Returns

string of data location, None if not found

6.34.3.6 getInfo()

```
def skdaccess.geo.pbo.DataFetcher.getInfo (
              self )
```

Get information about the stations and geo_point.

Returns

tuple containing station list and geo_point

6.34.3.7 getMetadata()

```
def skdaccess.framework.data_class.DataFetcherBase.getMetadata (
              self )  [inherited]
```

Return metadata about Data Fetcher.

Returns

metadata of object.

6.34.3.8 getStationMetadata()

```
def skdaccess.geo.pbo.DataFetcher.getStationMetadata (
              data_frame = False )
```

Read in the metadata and convert to dictionary.

Returns

dictionary of PBO metadata

6.34.3.9 multirun_enabled()

```
def skdaccess.framework.data_class.DataFetcherStorage.multirun_enabled (
              self )  [inherited]
```

Returns whether or not this data fetcher is multirun enabled.

Returns

Boolean indicating whether or not this data fetcher is multirun enabled

6.34.3.10 output()

```
def skdaccess.geo.pbo.DataFetcher.output (
              self )
```

Generate PBO Data Wrapper.

Returns

PBO Data Wrapper

6.34.3.11 perturb()

```
def skdaccess.framework.data_class.DataFetcherBase.perturb (
              self )  [inherited]
```

Perturb parameters.

6.34.3.12 reset()

```
def skdaccess.framework.data_class.DataFetcherBase.reset (
              self )  [inherited]
```

Set all parameters to initial value.

6.34.3.13 setDataLocation()

```
def skdaccess.framework.data_class.DataFetcherLocal.setDataLocation (
              data_name,
              location,
              key = 'data_location' )  [inherited]
```

Set the location of a data set.

Parameters

data_name	Name of data set
location	Location of data set
key	Key of configuration option

6.34.3.14 setStationList()

```
def skdaccess.geo.pbo.DataFetcher.setStationList (
              self,
              station_list )
```

Set the list of stations to use.

Parameters

station_list	List of stations to fetch

6.34.3.15 verbose_print()

```
def skdaccess.framework.data_class.DataFetcherBase.verbose_print (
              self,
              args,
              kwargs )  [inherited]
```

6.34.3.16 writeConfig()

```
def skdaccess.framework.data_class.DataFetcherBase.writeConfig (
              conf )  [inherited]
```

Write config to disk.

Parameters

conf	configparser.ConfigParser object

6.34.4 Member Data Documentation

6.34.4.1 antenna_info

skdaccess.geo.pbo.DataFetcher.antenna_info

6.34.4.2 ap_paramList

skdaccess.framework.data_class.DataFetcherBase.ap_paramList [inherited]

6.34.4.3 default_columns

skdaccess.geo.pbo.DataFetcher.default_columns

6.34.4.4 default_error_columns

skdaccess.geo.pbo.DataFetcher.default_error_columns

6.34.4.5 index_date_only

skdaccess.geo.pbo.DataFetcher.index_date_only

6.34.4.6 meta_data

skdaccess.geo.pbo.DataFetcher.meta_data

6.34.4.7 station_list

skdaccess.geo.pbo.DataFetcher.station_list

6.34.4.8 use_progress_bar

skdaccess.geo.pbo.DataFetcher.use_progress_bar

6.34.4.9 verbose

skdaccess.framework.data_class.DataFetcherBase.verbose [inherited]

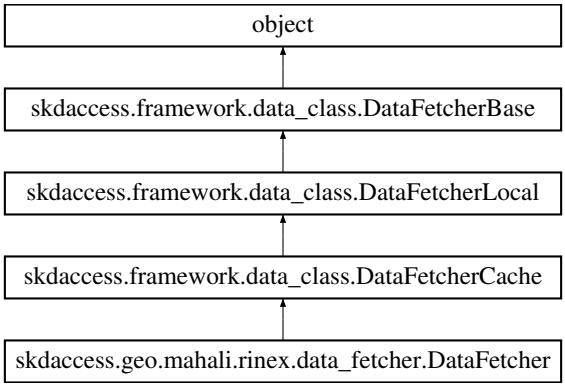
The documentation for this class was generated from the following file:

- geo/pbo/data_fetcher.py

6.35 skdaccess.geo.mahali.rinex.DataFetcher Class Reference

Data Fetcher for Mahali Data.

Inheritance diagram for skdaccess.geo.mahali.rinex.DataFetcher:



Public Member Functions

- def __init__ (self, ap_paramList=[ ], start_date=None, end_date=None, generate_links=False)

  Initialize Mahali Data Fetcher.
- def cacheData (self)

  Downloads all needed data.
- def output (self)

  Generate data wrapper for Mahali data.
- def cacheData (self, keyname, online_path_list, username=None, password=None, authentication_url=None, cookiejar=None, use_requests=False, use_progress_bar=True)

  Download and store specified data to local disk.
- def multirun_enabled (self)

  Returns whether or not this data fetcher is multirun enabled.
- def getHDFStorage (self, keyname)
- def getDataLocation (data_name)

  Get the location of data set.
- def setDataLocation (data_name, location, key='data_location')

  Set the location of a data set.
- def perturb (self)

  Perturb parameters.
- def reset (self)

  Set all parameters to initial value.
- def __str__ (self)

  Generate string description.
- def getMetadata (self)

  Return metadata about Data Fetcher.
- def getConfig ()

  Retrieve skdaccess configuration.
- def writeConfig (conf)

  Write config to disk.
- def verbose_print (self, args, kwargs)

Public Attributes

- start_date
- end_date
- date_range
- generate_links
- ap_paramList
- verbose

6.35.1 Detailed Description

Data Fetcher for Mahali Data.

6.35.2 Constructor & Destructor Documentation

6.35.2.1 __init__()

```
def skdaccess.geo.mahali.rinex.DataFetcher.__init__ (
              self,
              ap_paramList = [],
              start_date = None,
              end_date = None,
              generate_links = False )
```

Initialize Mahali Data Fetcher.

Parameters

ap_paramList[stations]	Autolist of stations (Defaults to all stations)
start_date	Starting date for seelcting data (Defaults to beginning of available data)
end_date	Ending date for selecting data (Defaults to end of available data)
generate_links	Generate links to data instead of downloading data

6.35.3 Member Function Documentation

6.35.3.1 __str__()

```
def skdaccess.framework.data_class.DataFetcherBase.__str__ (
              self )  [inherited]
```

Generate string description.

6.35.3.2 cacheData() [1/2]

```
def skdaccess.geo.mahali.rinex.DataFetcher.cacheData (
              self )
```

Downloads all needed data.

Called by output().

6.35.3.3 cacheData() [2/2]

```
def skdaccess.framework.data_class.DataFetcherCache.cacheData (
              self,
              keyname,
              online_path_list,
              username = None,
              password = None,
              authentication_url = None,
              cookiejar = None,
              use_requests = False,
              use_progress_bar = True )  [inherited]
```

Download and store specified data to local disk.

Parameters

data_specification	Specification of data to be retrieved

Returns

List of downloaded file locations

6.35.3.4 getConfig()

```
def skdaccess.framework.data_class.DataFetcherBase.getConfig ( )  [inherited]
```

Retrieve skdaccess configuration.

Returns

configParser.ConfigParser object of configuration

6.35.3.5 getDataLocation()

```
def skdaccess.framework.data_class.DataFetcherLocal.getDataLocation (
              data_name )  [inherited]
```

Get the location of data set.

Parameters

data_name	Name of data set

Returns

string of data location, None if not found

6.35.3.6 getHDFStorage()

```
def skdaccess.framework.data_class.DataFetcherCache.getHDFStorage (
              self,
              keyname )  [inherited]
```

6.35.3.7 getMetadata()

```
def skdaccess.framework.data_class.DataFetcherBase.getMetadata (
              self )  [inherited]
```

Return metadata about Data Fetcher.

Returns

metadata of object.

6.35.3.8 multirun_enabled()

```
def skdaccess.framework.data_class.DataFetcherCache.multirun_enabled (
              self )  [inherited]
```

Returns whether or not this data fetcher is multirun enabled.

Returns

Boolean indicating whether or not this data fetcher is multirun enabled

6.35.3.9 output()

```
def skdaccess.geo.mahali.rinex.DataFetcher.output (
              self )
```

Generate data wrapper for Mahali data.

Returns

Mahali data wrapper

6.35.3.10 perturb()

```
def skdaccess.framework.data_class.DataFetcherBase.perturb (
              self )  [inherited]
```

Perturb parameters.

6.35.3.11 reset()

```
def skdaccess.framework.data_class.DataFetcherBase.reset (
              self )  [inherited]
```

Set all parameters to initial value.

6.35.3.12 setDataLocation()

```
def skdaccess.framework.data_class.DataFetcherLocal.setDataLocation (
              data_name,
              location,
              key = 'data_location' )  [inherited]
```

Set the location of a data set.

Parameters

data_name	Name of data set
location	Location of data set
key	Key of configuration option

6.35.3.13 verbose_print()

```
def skdaccess.framework.data_class.DataFetcherBase.verbose_print (
              self,
              args,
              kwargs )  [inherited]
```

6.35.3.14 writeConfig()

```
def skdaccess.framework.data_class.DataFetcherBase.writeConfig (
              conf )  [inherited]
```

Write config to disk.

Parameters

conf	configparser.ConfigParser object

6.35.4 Member Data Documentation

6.35.4.1 ap_paramList

```
skdaccess.framework.data_class.DataFetcherBase.ap_paramList  [inherited]
```

6.35.4.2 date_range

```
skdaccess.geo.mahali.rinex.DataFetcher.date_range
```

6.35.4.3 end_date

```
skdaccess.geo.mahali.rinex.DataFetcher.end_date
```

6.35.4.4 generate_links

```
skdaccess.geo.mahali.rinex.DataFetcher.generate_links
```

6.35.4.5 start_date

```
skdaccess.geo.mahali.rinex.DataFetcher.start_date
```

6.35.4.6 verbose

`skdaccess.framework.data_class.DataFetcherBase.verbose [inherited]`

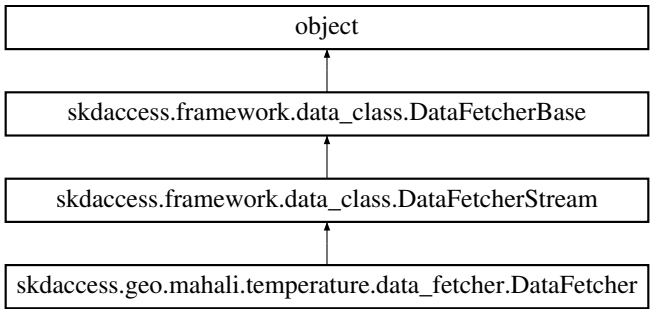
The documentation for this class was generated from the following file:

- geo/mahali/rinex/data_fetcher.py

6.36 skdaccess.geo.mahali.temperature.DataFetcher Class Reference

Data Fetcher for Mahali temperature data.

Inheritance diagram for skdaccess.geo.mahali.temperature.DataFetcher:



Public Member Functions

- def __init__ (self, ap_paramList=[ ], start_date=None, end_date=None)
  Initialize Mahali temperature data fetcher.
- def retrieveOnlineData (self, data_specification)
  Load data in from a remote source.
- def output (self)
  Generate data wrapper for Mahali temperatures.
- def multirun_enabled (self)
  Returns whether or not this data fetcher is multirun enabled.
- def perturb (self)
  Perturb parameters.
- def reset (self)
  Set all parameters to initial value.
- def __str__ (self)
  Generate string description.
- def getMetadata (self)
  Return metadata about Data Fetcher.
- def getConfig ()
  Retrieve skdaccess configuration.
- def writeConfig (conf)
  Write config to disk.
- def verbose_print (self, args, kwargs)

Public Attributes

- start_date
- end_date
- ap_paramList
- verbose

6.36.1 Detailed Description

Data Fetcher for Mahali temperature data.

6.36.2 Constructor & Destructor Documentation

6.36.2.1 __init__()

```
def skdaccess.geo.mahali.temperature.DataFetcher.__init__ (
              self,
              ap_paramList = [],
              start_date = None,
              end_date = None )
```

Initialize Mahali temperature data fetcher.

Parameters

ap_paramList[stations]	Autolist of stations (Defaults to all stations)
start_date	Starting date for seelcting data (Defaults to beginning of available data)
end_date	Ending date for selecting data (Defaults to end of available data)

6.36.3 Member Function Documentation

6.36.3.1 __str__()

```
def skdaccess.framework.data_class.DataFetcherBase.__str__ (
              self ) [inherited]
```

Generate string description.

6.36.3.2 getConfig()

```
def skdaccess.framework.data_class.DataFetcherBase.getConfig ( )  [inherited]
```

Retrieve skdaccess configuration.

Returns

configParser.ConfigParser object of configuration

6.36.3.3 getMetadata()

```
def skdaccess.framework.data_class.DataFetcherBase.getMetadata (
              self )  [inherited]
```

Return metadata about Data Fetcher.

Returns

metadata of object.

6.36.3.4 multirun_enabled()

```
def skdaccess.framework.data_class.DataFetcherStream.multirun_enabled (
              self )  [inherited]
```

Returns whether or not this data fetcher is multirun enabled.

Returns

Boolean indicating whether or not this data fetcher is multirun enabled

6.36.3.5 output()

```
def skdaccess.geo.mahali.temperature.DataFetcher.output (
              self )
```

Generate data wrapper for Mahali temperatures.

Returns

Mahali temperature data wrapper

6.36.3.6 perturb()

```
def skdaccess.framework.data_class.DataFetcherBase.perturb (
              self )  [inherited]
```

Perturb parameters.

6.36.3.7 reset()

```
def skdaccess.framework.data_class.DataFetcherBase.reset (
              self )  [inherited]
```

Set all parameters to initial value.

6.36.3.8 retrieveOnlineData()

```
def skdaccess.geo.mahali.temperature.DataFetcher.retrieveOnlineData (
              self,
              data_specification )
```

Load data in from a remote source.

Parameters

data_specification	Pandas dataframe containing the columns 'station', 'date', and 'filename'

Returns

Ordered dictionary for each station (key) which cointains a pandas data frame of the temperature

6.36.3.9 verbose_print()

```
def skdaccess.framework.data_class.DataFetcherBase.verbose_print (
              self,
              args,
              kwargs )  [inherited]
```

6.36.3.10 writeConfig()

```
def skdaccess.framework.data_class.DataFetcherBase.writeConfig (
              conf )  [inherited]
```

Write config to disk.

Parameters

conf	configparser.ConfigParser object

6.36.4 Member Data Documentation

6.36.4.1 ap_paramList

```
skdaccess.framework.data_class.DataFetcherBase.ap_paramList  [inherited]
```

6.36.4.2 end_date

```
skdaccess.geo.mahali.temperature.DataFetcher.end_date
```

6.36.4.3 start_date

```
skdaccess.geo.mahali.temperature.DataFetcher.start_date
```

6.36.4.4 verbose

```
skdaccess.framework.data_class.DataFetcherBase.verbose  [inherited]
```

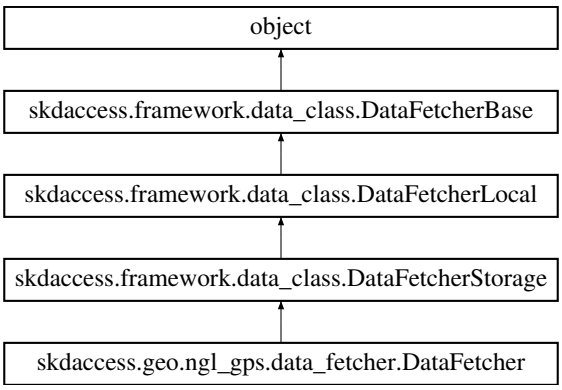
The documentation for this class was generated from the following file:

- geo/mahali/temperature/data_fetcher.py

6.37 skdaccess.geo.ngl_gps.DataFetcher Class Reference

Data fetcher for GPS data from Neveda Geodetic Laboratory.

Inheritance diagram for skdaccess.geo.ngl_gps.DataFetcher:



Public Member Functions

- def __init__ (self, start_date, end_date, lat_range, lon_range, mdyratio=0.7, data_type='ngl_gps')

  Consctruct NGL data fetcher.
- def getStationMetadata ()

  Get station metadata.
- def getAntennaLogs ()

  Retrieve information about antenna changes.
- def output (self)

  Construct NGL GPS data wrapper.
- def downloadFullDataset (cls, out_file, use_file=None)

  Abstract function used to download full data set.
- def multirun_enabled (self)

  Returns whether or not this data fetcher is multirun enabled.
- def getDataLocation (data_name)

  Get the location of data set.
- def setDataLocation (data_name, location, key='data_location')

  Set the location of a data set.
- def perturb (self)

  Perturb parameters.
- def reset (self)

  Set all parameters to initial value.
- def __str__ (self)

  Generate string description.
- def getMetadata (self)

  Return metadata about Data Fetcher.
- def getConfig ()

  Retrieve skdaccess configuration.
- def writeConfig (conf)

  Write config to disk.
- def verbose_print (self, args, kwargs)

Public Attributes

- start_date
- end_date
- lat_range
- lon_range
- mdyratio
- data_type
- ap_paramList
- verbose

6.37.1 Detailed Description

Data fetcher for GPS data from Neveda Geodetic Laboratory.

6.37.2 Constructor & Destructor Documentation

6.37.2.1 __init__()

```
def skdaccess.geo.ngl_gps.DataFetcher.__init__ (
              self,
              start_date,
              end_date,
              lat_range,
              lon_range,
              mdyratio = 0.7,
              data_type = 'ngl_gps' )
```

Consctruct NGL data fetcher.

Parameters

start_date	Starting date (string: '2002-01-01')
end_date	Ending date (string: '2015-01-01')
lat_range	Tuple containing latitude range
lon_range	Tuple containing longitude range
mdyratio	Choose stations whose ratio of valid/total is greater than mdyratio
data_type	Either 24 hour product ('ngl_gps') or 5 minute product ('ngl_5min')

6.37.3 Member Function Documentation

6.37.3.1 __str__()

```
def skdaccess.framework.data_class.DataFetcherBase.__str__ (
              self )  [inherited]
```

Generate string description.

6.37.3.2 downloadFullDataset()

```
def skdaccess.framework.data_class.DataFetcherStorage.downloadFullDataset (
              cls,
              out_file,
              use_file = None )  [inherited]
```

Abstract function used to download full data set.

Parameters

out_file	output file name
use_file	Use previously downloaded data

Returns

Absolute path of parsed data

6.37.3.3 getAntennaLogs()

```
def skdaccess.geo.ngl_gps.DataFetcher.getAntennaLogs ( )
```

Retrieve information about antenna changes.

Returns

dictionary of antenna changes

6.37.3.4 getConfig()

```
def skdaccess.framework.data_class.DataFetcherBase.getConfig ( )  [inherited]
```

Retrieve skdaccess configuration.

Returns

configParser.ConfigParser object of configuration

6.37.3.5 getDataLocation()

```
def skdaccess.framework.data_class.DataFetcherLocal.getDataLocation (
              data_name )  [inherited]
```

Get the location of data set.

Parameters

data_name	Name of data set

Returns

string of data location, None if not found

6.37.3.6 getMetadata()

```
def skdaccess.framework.data_class.DataFetcherBase.getMetadata (
              self )  [inherited]
```

Return metadata about Data Fetcher.

Returns

metadata of object.

6.37.3.7 getStationMetadata()

```
def skdaccess.geo.ngl_gps.DataFetcher.getStationMetadata ( )
```

Get station metadata.

Returns

data frame of station metadata

6.37.3.8 multirun_enabled()

```
def skdaccess.framework.data_class.DataFetcherStorage.multirun_enabled (
              self )  [inherited]
```

Returns whether or not this data fetcher is multirun enabled.

Returns

Boolean indicating whether or not this data fetcher is multirun enabled

6.37.3.9 output()

```
def skdaccess.geo.ngl_gps.DataFetcher.output (
              self )
```

Construct NGL GPS data wrapper.

Returns

NGL GPS data wrapper

6.37.3.10 perturb()

```
def skdaccess.framework.data_class.DataFetcherBase.perturb (
              self )  [inherited]
```

Perturb parameters.

6.37.3.11 reset()

```
def skdaccess.framework.data_class.DataFetcherBase.reset (
              self )  [inherited]
```

Set all parameters to initial value.

6.37.3.12 setDataLocation()

```
def skdaccess.framework.data_class.DataFetcherLocal.setDataLocation (
              data_name,
              location,
              key = 'data_location' )  [inherited]
```

Set the location of a data set.

Parameters

data_name	Name of data set
location	Location of data set
key	Key of configuration option

6.37.3.13 verbose_print()

```
def skdaccess.framework.data_class.DataFetcherBase.verbose_print (
              self,
              args,
              kwargs )  [inherited]
```

6.37.3.14 writeConfig()

```
def skdaccess.framework.data_class.DataFetcherBase.writeConfig (
              conf )  [inherited]
```

Write config to disk.

Parameters

conf	configparser.ConfigParser object

6.37.4 Member Data Documentation

6.37.4.1 ap_paramList

```
skdaccess.framework.data_class.DataFetcherBase.ap_paramList  [inherited]
```

6.37.4.2 data_type

```
skdaccess.geo.ngl_gps.DataFetcher.data_type
```

6.37.4.3 end_date

skdaccess.geo.ngl_gps.DataFetcher.end_date

6.37.4.4 lat_range

skdaccess.geo.ngl_gps.DataFetcher.lat_range

6.37.4.5 lon_range

skdaccess.geo.ngl_gps.DataFetcher.lon_range

6.37.4.6 mdyratio

skdaccess.geo.ngl_gps.DataFetcher.mdyratio

6.37.4.7 start_date

skdaccess.geo.ngl_gps.DataFetcher.start_date

6.37.4.8 verbose

skdaccess.framework.data_class.DataFetcherBase.verbose [inherited]

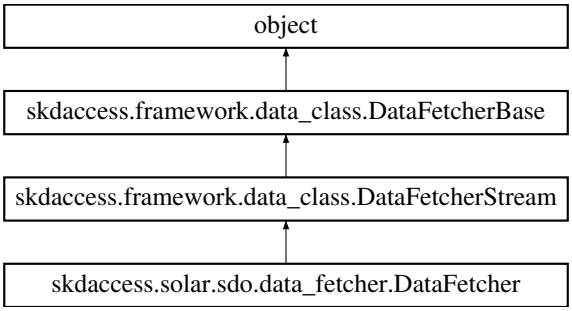
The documentation for this class was generated from the following file:

- geo/ngl_gps/data_fetcher.py

6.38 skdaccess.solar.sdo.DataFetcher Class Reference

Data Fetcher for Mahali temperature data.

Inheritance diagram for skdaccess.solar.sdo.DataFetcher:



Public Member Functions

- def __init__ (self, ap_paramList)
  Initialize Solar Dynamics Observatory.
- def output (self)
  Generate data wrapper.
- def retrieveOnlineData (self, data_specification)
  Method for downloading data into memory.
- def multirun_enabled (self)
  Returns whether or not this data fetcher is multirun enabled.
- def perturb (self)
  Perturb parameters.
- def reset (self)
  Set all parameters to initial value.
- def __str__ (self)
  Generate string description.
- def getMetadata (self)
  Return metadata about Data Fetcher.
- def getConfig ()
  Retrieve skdaccess configuration.
- def writeConfig (conf)
  Write config to disk.
- def verbose_print (self, args, kwargs)

Public Attributes

- ap_paramList
- verbose

6.38.1 Detailed Description

Data Fetcher for Mahali temperature data.

6.38.2 Constructor & Destructor Documentation

6.38.2.1 __init__()

```
def skdaccess.solar.sdo.DataFetcher.__init__ (
              self,
              ap_paramList )
```

Initialize Solar Dynamics Observatory.

Parameters

ap_paramList[url_list]	Autolist of URLS to access

6.38.3 Member Function Documentation

6.38.3.1 __str__()

```
def skdaccess.framework.data_class.DataFetcherBase.__str__ (
              self )  [inherited]
```

Generate string description.

6.38.3.2 getConfig()

```
def skdaccess.framework.data_class.DataFetcherBase.getConfig ( )  [inherited]
```

Retrieve skdaccess configuration.

Returns

configParser.ConfigParser object of configuration

6.38.3.3 getMetadata()

```
def skdaccess.framework.data_class.DataFetcherBase.getMetadata (
              self )  [inherited]
```

Return metadata about Data Fetcher.

Returns

metadata of object.

6.38.3.4 multirun_enabled()

```
def skdaccess.framework.data_class.DataFetcherStream.multirun_enabled (
              self )  [inherited]
```

Returns whether or not this data fetcher is multirun enabled.

Returns

Boolean indicating whether or not this data fetcher is multirun enabled

6.38.3.5 output()

```
def skdaccess.solar.sdo.DataFetcher.output (
              self )
```

Generate data wrapper.

Returns

data wrapper of SDO data

6.38.3.6 perturb()

```
def skdaccess.framework.data_class.DataFetcherBase.perturb (
              self )  [inherited]
```

Perturb parameters.

6.38.3.7 reset()

```
def skdaccess.framework.data_class.DataFetcherBase.reset (
              self )  [inherited]
```

Set all parameters to initial value.

6.38.3.8 retrieveOnlineData()

```
def skdaccess.framework.data_class.DataFetcherStream.retrieveOnlineData (
              self,
              data_specification )  [inherited]
```

Method for downloading data into memory.

Parameters

data_specification	Url list of data to be retrieved

Returns

Retrieved data

6.38.3.9 verbose_print()

```
def skdaccess.framework.data_class.DataFetcherBase.verbose_print (
              self,
              args,
              kwargs )  [inherited]
```

6.38.3.10 writeConfig()

```
def skdaccess.framework.data_class.DataFetcherBase.writeConfig (
              conf )  [inherited]
```

Write config to disk.

Parameters

conf	configparser.ConfigParser object

6.38.4 Member Data Documentation

6.38.4.1 ap_paramList

skdaccess.framework.data_class.DataFetcherBase.ap_paramList [inherited]

6.38.4.2 verbose

skdaccess.framework.data_class.DataFetcherBase.verbose [inherited]

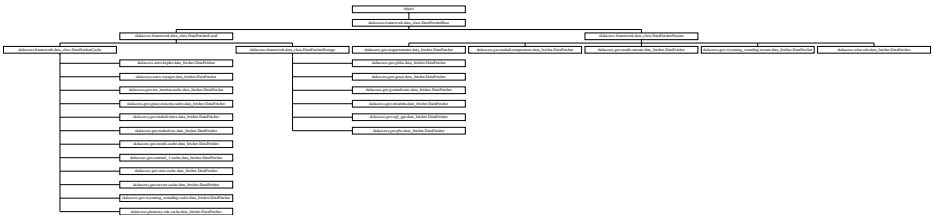
The documentation for this class was generated from the following file:

- solar/sdo/data_fetcher.py

6.39 skdaccess.framework.data_class.DataFetcherBase Class Reference

Base class for all data fetchers.

Inheritance diagram for skdaccess.framework.data_class.DataFetcherBase:



Public Member Functions

- def __init__ (self, ap_paramList=[ ], verbose=False)
  Initialize data fetcher with parameter list.
- def output (self)
  Output data wrapper.
- def perturb (self)
  Perturb parameters.
- def reset (self)
  Set all parameters to initial value.
- def __str__ (self)
  Generate string description.

- def getMetadata (self)

  Return metadata about Data Fetcher.
- def getConfig ()

  Retrieve skdaccess configuration.
- def writeConfig (conf)

  Write config to disk.
- def multirun_enabled (self)

  Returns whether or not this data fetcher is multirun enabled.
- def verbose_print (self, args, kwargs)

Public Attributes

- ap_paramList
- verbose

6.39.1 Detailed Description

Base class for all data fetchers.

6.39.2 Constructor & Destructor Documentation

6.39.2.1 __init__()

```
def skdaccess.framework.data_class.DataFetcherBase.__init__ (
              self,
              ap_paramList = [],
              verbose = False )
```

Initialize data fetcher with parameter list.

Parameters

ap_paramList	List of parameters

6.39.3 Member Function Documentation

6.39.3.1 __str__()

```
def skdaccess.framework.data_class.DataFetcherBase.__str__ (
              self )
```

Generate string description.

6.39.3.2 getConfig()

```
def skdaccess.framework.data_class.DataFetcherBase.getConfig ( )
```

Retrieve skdaccess configuration.

Returns

configParser.ConfigParser object of configuration

6.39.3.3 getMetadata()

```
def skdaccess.framework.data_class.DataFetcherBase.getMetadata (
              self )
```

Return metadata about Data Fetcher.

Returns

metadata of object.

6.39.3.4 multirun_enabled()

```
def skdaccess.framework.data_class.DataFetcherBase.multirun_enabled (
              self )
```

Returns whether or not this data fetcher is multirun enabled.

Returns

Boolean indicating whether or not this data fetcher is multirun enabled

6.39.3.5 output()

```
def skdaccess.framework.data_class.DataFetcherBase.output (
              self )
```

Output data wrapper.

Returns

Datawrapper

6.39.3.6 perturb()

```
def skdaccess.framework.data_class.DataFetcherBase.perturb (
              self )
```

Perturb parameters.

6.39.3.7 reset()

```
def skdaccess.framework.data_class.DataFetcherBase.reset (
              self )
```

Set all parameters to initial value.

6.39.3.8 verbose_print()

```
def skdaccess.framework.data_class.DataFetcherBase.verbose_print (
              self,
              args,
              kwargs )
```

6.39.3.9 writeConfig()

```
def skdaccess.framework.data_class.DataFetcherBase.writeConfig (
              conf )
```

Write config to disk.

Parameters

conf	configparser.ConfigParser object

6.39.4 Member Data Documentation

6.39.4.1 ap_paramList

`skdaccess.framework.data_class.DataFetcherBase.ap_paramList`

6.39.4.2 verbose

`skdaccess.framework.data_class.DataFetcherBase.verbose`

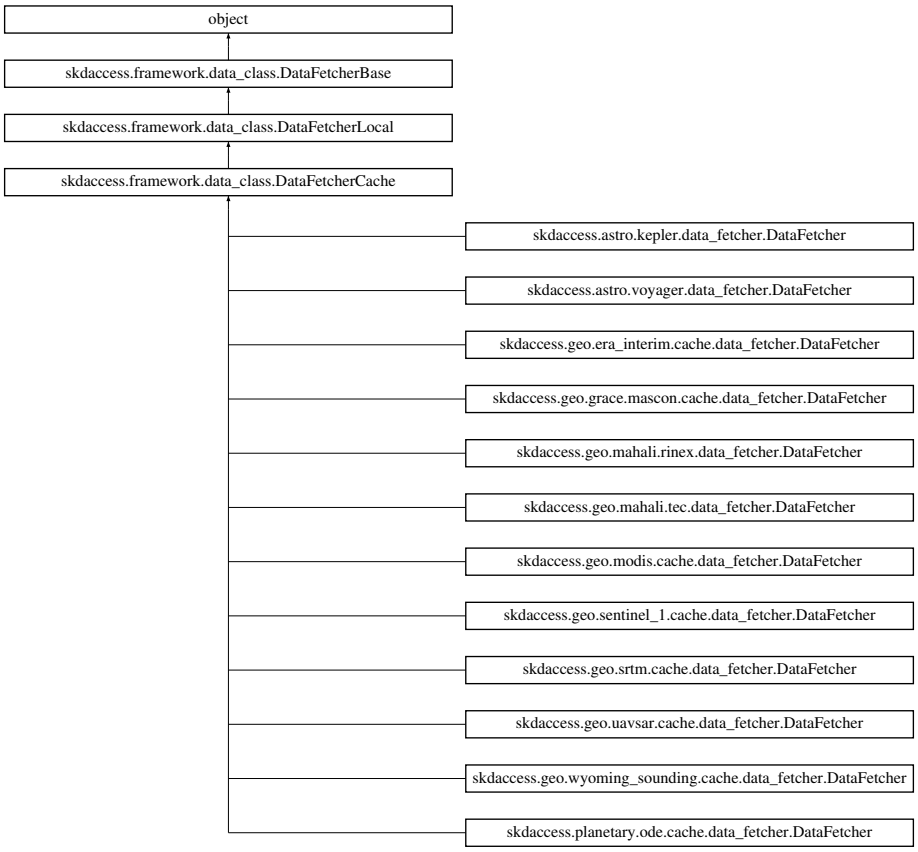
The documentation for this class was generated from the following file:

- framework/data_class.py

6.40 skdaccess.framework.data_class.DataFetcherCache Class Reference

Data fetcher base class for downloading data and caching results on hard disk.

Inheritance diagram for skdaccess.framework.data_class.DataFetcherCache:



Public Member Functions

- def cacheData (self, keyname, online_path_list, username=None, password=None, authentication_url=None, cookiejar=None, use_requests=False, use_progress_bar=True)

  Download and store specified data to local disk.
- def multirun_enabled (self)

  Returns whether or not this data fetcher is multirun enabled.
- def getHDFStorage (self, keyname)
- def getDataLocation (data_name)

  Get the location of data set.
- def setDataLocation (data_name, location, key='data_location')

  Set the location of a data set.
- def output (self)

  Output data wrapper.
- def perturb (self)

  Perturb parameters.
- def reset (self)

  Set all parameters to initial value.
- def __str__ (self)

  Generate string description.
- def getMetadata (self)

  Return metadata about Data Fetcher.

- def getConfig ()

  Retrieve skdaccess configuration.
- def writeConfig (conf)

  Write config to disk.
- def verbose_print (self, args, kwargs)

Public Attributes

- ap_paramList
- verbose

6.40.1 Detailed Description

Data fetcher base class for downloading data and caching results on hard disk.

6.40.2 Member Function Documentation

6.40.2.1 __str__()

```
def skdaccess.framework.data_class.DataFetcherBase.__str__ (
              self )  [inherited]
```

Generate string description.

6.40.2.2 cacheData()

```
def skdaccess.framework.data_class.DataFetcherCache.cacheData (
              self,
              keyname,
              online_path_list,
              username = None,
              password = None,
              authentication_url = None,
              cookiejar = None,
              use_requests = False,
              use_progress_bar = True )
```

Download and store specified data to local disk.

Parameters

data_specification	Specification of data to be retrieved

Returns

List of downloaded file locations

6.40.2.3 getConfig()

```
def skdaccess.framework.data_class.DataFetcherBase.getConfig ( )  [inherited]
```

Retrieve skdaccess configuration.

Returns

configParser.ConfigParser object of configuration

6.40.2.4 getDataLocation()

```
def skdaccess.framework.data_class.DataFetcherLocal.getDataLocation (
              data_name )  [inherited]
```

Get the location of data set.

Parameters

data_name	Name of data set

Returns

string of data location, None if not found

6.40.2.5 getHDFStorage()

```
def skdaccess.framework.data_class.DataFetcherCache.getHDFStorage (
              self,
              keyname )
```

6.40.2.6 getMetadata()

```
def skdaccess.framework.data_class.DataFetcherBase.getMetadata (
              self )  [inherited]
```

Return metadata about Data Fetcher.

Returns

metadata of object.

6.40.2.7 multirun_enabled()

```
def skdaccess.framework.data_class.DataFetcherCache.multirun_enabled (
              self )
```

Returns whether or not this data fetcher is multirun enabled.

Returns

Boolean indicating whether or not this data fetcher is multirun enabled

6.40.2.8 output()

```
def skdaccess.framework.data_class.DataFetcherBase.output (
              self )  [inherited]
```

Output data wrapper.

Returns

Datawrapper

6.40.2.9 perturb()

```
def skdaccess.framework.data_class.DataFetcherBase.perturb (
              self )  [inherited]
```

Perturb parameters.

6.40.2.10 reset()

```
def skdaccess.framework.data_class.DataFetcherBase.reset (
              self )  [inherited]
```

Set all parameters to initial value.

6.40.2.11 setDataLocation()

```
def skdaccess.framework.data_class.DataFetcherLocal.setDataLocation (
              data_name,
              location,
              key = 'data_location' )  [inherited]
```

Set the location of a data set.

Parameters

data_name	Name of data set
location	Location of data set
key	Key of configuration option

6.40.2.12 verbose_print()

```
def skdaccess.framework.data_class.DataFetcherBase.verbose_print (
              self,
              args,
              kwargs )  [inherited]
```

6.40.2.13 writeConfig()

```
def skdaccess.framework.data_class.DataFetcherBase.writeConfig (
              conf )  [inherited]
```

Write config to disk.

Parameters

conf	configparser.ConfigParser object

6.40.3 Member Data Documentation

6.40.3.1 ap_paramList

`skdaccess.framework.data_class.DataFetcherBase.ap_paramList [inherited]`

6.40.3.2 verbose

`skdaccess.framework.data_class.DataFetcherBase.verbose [inherited]`

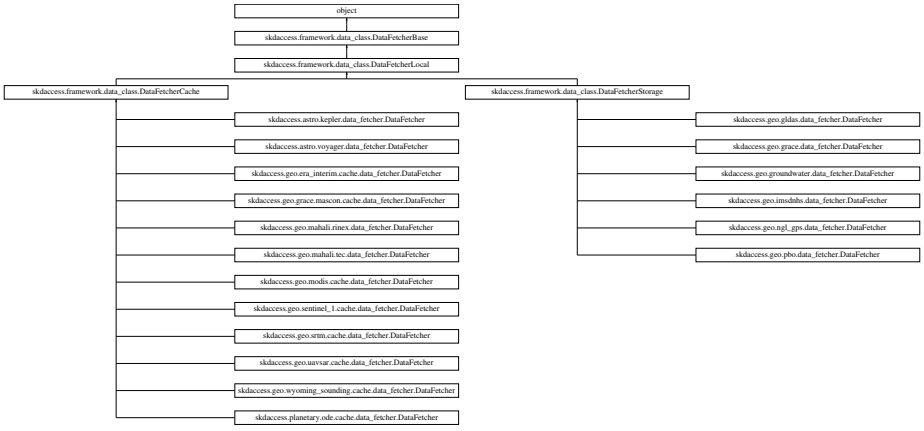
The documentation for this class was generated from the following file:

- framework/data_class.py

6.41 skdaccess.framework.data_class.DataFetcherLocal Class Reference

Data fetcher base class for use when storing data locally.

Inheritance diagram for skdaccess.framework.data_class.DataFetcherLocal:



Public Member Functions

- def getDataLocation (data_name)

  Get the location of data set.
- def setDataLocation (data_name, location, key='data_location')

  Set the location of a data set.
- def output (self)

  Output data wrapper.
- def perturb (self)

  Perturb parameters.
- def reset (self)

  Set all parameters to initial value.
- def __str__ (self)

  Generate string description.
- def getMetadata (self)

  Return metadata about Data Fetcher.
- def getConfig ()

  Retrieve skdaccess configuration.
- def writeConfig (conf)

  Write config to disk.
- def multirun_enabled (self)

  Returns whether or not this data fetcher is multirun enabled.
- def verbose_print (self, args, kwargs)

Public Attributes

- ap_paramList
- verbose

6.41.1 Detailed Description

Data fetcher base class for use when storing data locally.

6.41.2 Member Function Documentation

6.41.2.1 __str__()

```
def skdaccess.framework.data_class.DataFetcherBase.__str__ (
            self ) [inherited]
```

Generate string description.

6.41.2.2 getConfig()

```
def skdaccess.framework.data_class.DataFetcherBase.getConfig ( )  [inherited]
```

Retrieve skdaccess configuration.

Returns

configParser.ConfigParser object of configuration

6.41.2.3 getDataLocation()

```
def skdaccess.framework.data_class.DataFetcherLocal.getDataLocation (
              data_name )
```

Get the location of data set.

Parameters

data_name	Name of data set

Returns

string of data location, None if not found

6.41.2.4 getMetadata()

```
def skdaccess.framework.data_class.DataFetcherBase.getMetadata (
              self )  [inherited]
```

Return metadata about Data Fetcher.

Returns

metadata of object.

6.41.2.5 multirun_enabled()

```
def skdaccess.framework.data_class.DataFetcherBase.multirun_enabled (
              self )  [inherited]
```

Returns whether or not this data fetcher is multirun enabled.

Returns

Boolean indicating whether or not this data fetcher is multirun enabled

6.41.2.6 output()

```
def skdaccess.framework.data_class.DataFetcherBase.output (
              self )  [inherited]
```

Output data wrapper.

Returns

Datawrapper

6.41.2.7 perturb()

```
def skdaccess.framework.data_class.DataFetcherBase.perturb (
              self )  [inherited]
```

Perturb parameters.

6.41.2.8 reset()

```
def skdaccess.framework.data_class.DataFetcherBase.reset (
              self )  [inherited]
```

Set all parameters to initial value.

6.41.2.9 setDataLocation()

```
def skdaccess.framework.data_class.DataFetcherLocal.setDataLocation (
              data_name,
              location,
              key = 'data_location' )
```

Set the location of a data set.

Parameters

data_name	Name of data set
location	Location of data set
key	Key of configuration option

6.41.2.10 verbose_print()

```
def skdaccess.framework.data_class.DataFetcherBase.verbose_print (
              self,
              args,
              kwargs )  [inherited]
```

6.41.2.11 writeConfig()

```
def skdaccess.framework.data_class.DataFetcherBase.writeConfig (
              conf )  [inherited]
```

Write config to disk.

Parameters

conf	configparser.ConfigParser object

6.41.3 Member Data Documentation

6.41.3.1 ap_paramList

```
skdaccess.framework.data_class.DataFetcherBase.ap_paramList  [inherited]
```

6.41.3.2 verbose

```
skdaccess.framework.data_class.DataFetcherBase.verbose  [inherited]
```

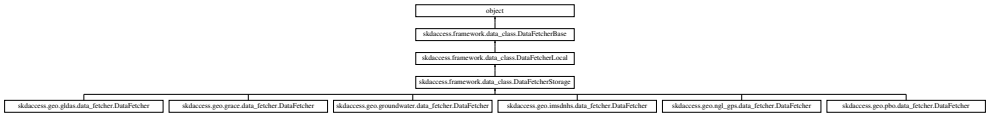
The documentation for this class was generated from the following file:

- framework/data_class.py

6.42 skdaccess.framework.data_class.DataFetcherStorage Class Reference

Data fetcher base class for use when entire data set is downloaded.

Inheritance diagram for skdaccess.framework.data_class.DataFetcherStorage:



Public Member Functions

- def downloadFullDataset (cls, out_file, use_file=None)

  Abstract function used to download full data set.
- def multirun_enabled (self)

  Returns whether or not this data fetcher is multirun enabled.
- def getDataLocation (data_name)

  Get the location of data set.
- def setDataLocation (data_name, location, key='data_location')

  Set the location of a data set.
- def output (self)

  Output data wrapper.
- def perturb (self)

  Perturb parameters.
- def reset (self)

  Set all parameters to initial value.
- def __str__ (self)

  Generate string description.
- def getMetadata (self)

  Return metadata about Data Fetcher.
- def getConfig ()

  Retrieve skdaccess configuration.
- def writeConfig (conf)

  Write config to disk.
- def verbose_print (self, args, kwargs)

Public Attributes

- ap_paramList
- verbose

6.42.1 Detailed Description

Data fetcher base class for use when entire data set is downloaded.

6.42.2 Member Function Documentation

6.42.2.1 __str__()

```
def skdaccess.framework.data_class.DataFetcherBase.__str__ (
              self )  [inherited]
```

Generate string description.

6.42.2.2 downloadFullDataset()

```
def skdaccess.framework.data_class.DataFetcherStorage.downloadFullDataset (
              cls,
              out_file,
              use_file = None )
```

Abstract function used to download full data set.

Parameters

out_file	output file name
use_file	Use previously downloaded data

Returns

Absolute path of parsed data

6.42.2.3 getConfig()

```
def skdaccess.framework.data_class.DataFetcherBase.getConfig ( )  [inherited]
```

Retrieve skdaccess configuration.

Returns

configParser.ConfigParser object of configuration

6.42.2.4 getDataLocation()

```
def skdaccess.framework.data_class.DataFetcherLocal.getDataLocation (
              data_name )  [inherited]
```

Get the location of data set.

Parameters

data_name	Name of data set

Returns

string of data location, None if not found

6.42.2.5 getMetadata()

```
def skdaccess.framework.data_class.DataFetcherBase.getMetadata (
              self )  [inherited]
```

Return metadata about Data Fetcher.

Returns

metadata of object.

6.42.2.6 multirun_enabled()

```
def skdaccess.framework.data_class.DataFetcherStorage.multirun_enabled (
              self )
```

Returns whether or not this data fetcher is multirun enabled.

Returns

Boolean indicating whether or not this data fetcher is multirun enabled

6.42.2.7 output()

```
def skdaccess.framework.data_class.DataFetcherBase.output (
              self )  [inherited]
```

Output data wrapper.

Returns

Datawrapper

6.42.2.8 perturb()

```
def skdaccess.framework.data_class.DataFetcherBase.perturb (
              self )  [inherited]
```

Perturb parameters.

6.42.2.9 reset()

```
def skdaccess.framework.data_class.DataFetcherBase.reset (
              self )  [inherited]
```

Set all parameters to initial value.

6.42.2.10 setDataLocation()

```
def skdaccess.framework.data_class.DataFetcherLocal.setDataLocation (
              data_name,
              location,
              key = 'data_location' )  [inherited]
```

Set the location of a data set.

Parameters

data_name	Name of data set
location	Location of data set
key	Key of configuration option

6.42.2.11 verbose_print()

```
def skdaccess.framework.data_class.DataFetcherBase.verbose_print (
              self,
              args,
              kwargs )  [inherited]
```

6.42.2.12 writeConfig()

```
def skdaccess.framework.data_class.DataFetcherBase.writeConfig (
              conf )  [inherited]
```

Write config to disk.

Parameters

conf	configparser.ConfigParser object

6.42.3 Member Data Documentation

6.42.3.1 ap_paramList

```
skdaccess.framework.data_class.DataFetcherBase.ap_paramList  [inherited]
```

6.42.3.2 verbose

```
skdaccess.framework.data_class.DataFetcherBase.verbose  [inherited]
```

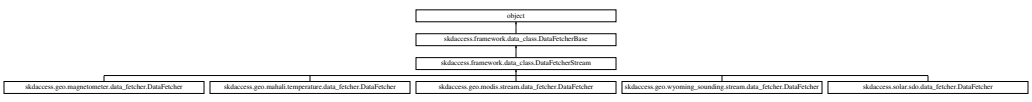
The documentation for this class was generated from the following file:

- framework/data_class.py

6.43 skdaccess.framework.data_class.DataFetcherStream Class Reference

Data fetcher base class for downloading data into memory.

Inheritance diagram for skdaccess.framework.data_class.DataFetcherStream:



Public Member Functions

- def retrieveOnlineData (self, data_specification)

  Method for downloading data into memory.
- def multirun_enabled (self)

  Returns whether or not this data fetcher is multirun enabled.
- def output (self)

  Output data wrapper.
- def perturb (self)

  Perturb parameters.
- def reset (self)

  Set all parameters to initial value.
- def __str__ (self)

  Generate string description.
- def getMetadata (self)

  Return metadata about Data Fetcher.
- def getConfig ()

  Retrieve skdaccess configuration.
- def writeConfig (conf)

  Write config to disk.
- def verbose_print (self, args, kwargs)

Public Attributes

- ap_paramList
- verbose

6.43.1 Detailed Description

Data fetcher base class for downloading data into memory.

6.43.2 Member Function Documentation

6.43.2.1 __str__()

```
def skdaccess.framework.data_class.DataFetcherBase.__str__ (
             self ) [inherited]
```

Generate string description.

6.43.2.2 getConfig()

```
def skdaccess.framework.data_class.DataFetcherBase.getConfig ( )  [inherited]
```

Retrieve skdaccess configuration.

Returns

configParser.ConfigParser object of configuration

6.43.2.3 getMetadata()

```
def skdaccess.framework.data_class.DataFetcherBase.getMetadata (
              self )  [inherited]
```

Return metadata about Data Fetcher.

Returns

metadata of object.

6.43.2.4 multirun_enabled()

```
def skdaccess.framework.data_class.DataFetcherStream.multirun_enabled (
              self )
```

Returns whether or not this data fetcher is multirun enabled.

Returns

Boolean indicating whether or not this data fetcher is multirun enabled

6.43.2.5 output()

```
def skdaccess.framework.data_class.DataFetcherBase.output (
              self )  [inherited]
```

Output data wrapper.

Returns

Datawrapper

6.43.2.6 perturb()

```
def skdaccess.framework.data_class.DataFetcherBase.perturb (
              self )  [inherited]
```

Perturb parameters.

6.43.2.7 reset()

```
def skdaccess.framework.data_class.DataFetcherBase.reset (
              self )  [inherited]
```

Set all parameters to initial value.

6.43.2.8 retrieveOnlineData()

```
def skdaccess.framework.data_class.DataFetcherStream.retrieveOnlineData (
              self,
              data_specification )
```

Method for downloading data into memory.

Parameters

data_specification	Url list of data to be retrieved

Returns

Retrieved data

6.43.2.9 verbose_print()

```
def skdaccess.framework.data_class.DataFetcherBase.verbose_print (
              self,
              args,
              kwargs )  [inherited]
```

6.43.2.10 writeConfig()

```
def skdaccess.framework.data_class.DataFetcherBase.writeConfig (
              conf )  [inherited]
```

Write config to disk.

Parameters

conf	configparser.ConfigParser object

6.43.3 Member Data Documentation

6.43.3.1 ap_paramList

```
skdaccess.framework.data_class.DataFetcherBase.ap_paramList  [inherited]
```

6.43.3.2 verbose

```
skdaccess.framework.data_class.DataFetcherBase.verbose  [inherited]
```

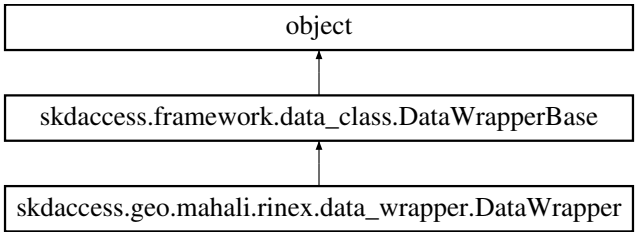
The documentation for this class was generated from the following file:

- framework/data_class.py

6.44 skdaccess.geo.mahali.rinex.data_wrapper.DataWrapper Class Reference

Data wrapper for Mahali data.

Inheritance diagram for skdaccess.geo.mahali.rinex.data_wrapper.DataWrapper:



Public Member Functions

- def getIterator (self)

  Get iterator to Mahali data.
- def update (self, obj)

  Updated wrapped data.
- def get (self)

  Retrieve stored data.
- def getResults (self)

  Retrieve accumulated results, if any.
- def addResult (self, rkey, rres)

  Add a result to the data wrapper.
- def reset (self)

  Reset data back to original state.
- def info (self, key=None)

  Get information about data wrapper.
- def __len__ (self)

  Get length of wrapped data.

Public Attributes

- data
- results
- constants
- run_id
- meta_data

6.44.1 Detailed Description

Data wrapper for Mahali data.

6.44.2 Member Function Documentation

6.44.2.1 __len__()

```
def skdaccess.framework.data_class.DataWrapperBase.__len__ (
            self ) [inherited]
```

Get length of wrapped data.

Returns

length of wrapped data

6.44.2.2 addResult()

```
def skdaccess.framework.data_class.DataWrapperBase.addResult (
              self,
              rkey,
              rres )  [inherited]
```

Add a result to the data wrapper.

Parameters

rkey	Result key
rres	Result

6.44.2.3 get()

```
def skdaccess.framework.data_class.DataWrapperBase.get (
              self )  [inherited]
```

Retrieve stored data.

Returns

Stored data

6.44.2.4 getIterator()

```
def skdaccess.geo.mahali.rinex.data_wrapper.DataWrapper.getIterator (
              self )
```

Get iterator to Mahali data.

Returns

Iterator yielding (site,date,nav,obs)

6.44.2.5 getResults()

```
def skdaccess.framework.data_class.DataWrapperBase.getResults (
              self )  [inherited]
```

Retrieve accumulated results, if any.

Returns

store results

6.44.2.6 info()

```
def skdaccess.framework.data_class.DataWrapperBase.info (
              self,
              key = None )  [inherited]
```

Get information about data wrapper.

Returns

The stored metadata

6.44.2.7 reset()

```
def skdaccess.framework.data_class.DataWrapperBase.reset (
              self )  [inherited]
```

Reset data back to original state.

6.44.2.8 update()

```
def skdaccess.framework.data_class.DataWrapperBase.update (
              self,
              obj )  [inherited]
```

Updated wrapped data.

Parameters

obj	New data for wrapper

6.44.3 Member Data Documentation

6.44.3.1 constants

```
skdaccess.framework.data_class.DataWrapperBase.constants  [inherited]
```

6.44.3.2 data

```
skdaccess.framework.data_class.DataWrapperBase.data  [inherited]
```

6.44.3.3 meta_data

```
skdaccess.framework.data_class.DataWrapperBase.meta_data  [inherited]
```

6.44.3.4 results

```
skdaccess.framework.data_class.DataWrapperBase.results  [inherited]
```

6.44.3.5 run_id

```
skdaccess.framework.data_class.DataWrapperBase.run_id  [inherited]
```

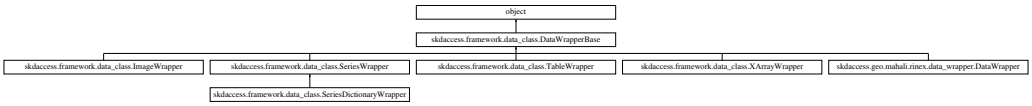
The documentation for this class was generated from the following file:

- geo/mahali/rinex/data_wrapper.py

6.45 skdaccess.framework.data_class.DataWrapperBase Class Reference

Base class for wrapping data for use in DiscoveryPipeline.

Inheritance diagram for skdaccess.framework.data_class.DataWrapperBase:



Public Member Functions

- def __init__ (self, obj_wrap, run_id=-1, meta_data=None)

  Construct wrapper from input data.
- def update (self, obj)

  Updated wrapped data.
- def get (self)

  Retrieve stored data.
- def getResults (self)

  Retrieve accumulated results, if any.
- def addResult (self, rkey, rres)

  Add a result to the data wrapper.
- def reset (self)

  Reset data back to original state.
- def info (self, key=None)

  Get information about data wrapper.
- def getIterator (self)

  Get an iterator to the data.
- def __len__ (self)

  Get length of wrapped data.

Public Attributes

- data
- results
- constants
- run_id
- meta_data

6.45.1 Detailed Description

Base class for wrapping data for use in DiscoveryPipeline.

6.45.2 Constructor & Destructor Documentation

6.45.2.1 __init__()

```
def skdaccess.framework.data_class.DataWrapperBase.__init__ (
              self,
              obj_wrap,
              run_id = -1,
              meta_data = None )
```

Construct wrapper from input data.

Parameters

obj_wrap	Data to be wrapped
run_id	ID of the run
meta_data	Metadata to store with data

6.45.3 Member Function Documentation

6.45.3.1 __len__()

```
def skdaccess.framework.data_class.DataWrapperBase.__len__ (
              self )
```

Get length of wrapped data.

Returns

length of wrapped data

6.45.3.2 addResult()

```
def skdaccess.framework.data_class.DataWrapperBase.addResult (
              self,
              rkey,
              rres )
```

Add a result to the data wrapper.

Parameters

rkey	Result key
rres	Result

6.45.3.3 get()

```
def skdaccess.framework.data_class.DataWrapperBase.get (
              self )
```

Retrieve stored data.

Returns

Stored data

6.45.3.4 getIterator()

```
def skdaccess.framework.data_class.DataWrapperBase.getIterator (
              self )
```

Get an iterator to the data.

Returns

iterator to data

6.45.3.5 getResults()

```
def skdaccess.framework.data_class.DataWrapperBase.getResults (
              self )
```

Retrieve accumulated results, if any.

Returns

store results

6.45.3.6 info()

```
def skdaccess.framework.data_class.DataWrapperBase.info (
              self,
              key = None )
```

Get information about data wrapper.

Returns

The stored metadata

6.45.3.7 reset()

```
def skdaccess.framework.data_class.DataWrapperBase.reset (
              self )
```

Reset data back to original state.

6.45.3.8 update()

```
def skdaccess.framework.data_class.DataWrapperBase.update (
              self,
              obj )
```

Updated wrapped data.

Parameters

obj	New data for wrapper

6.45.4 Member Data Documentation

6.45.4.1 constants

```
skdaccess.framework.data_class.DataWrapperBase.constants
```

6.45.4.2 data

skdaccess.framework.data_class.DataWrapperBase.data

6.45.4.3 meta_data

skdaccess.framework.data_class.DataWrapperBase.meta_data

6.45.4.4 results

skdaccess.framework.data_class.DataWrapperBase.results

6.45.4.5 run_id

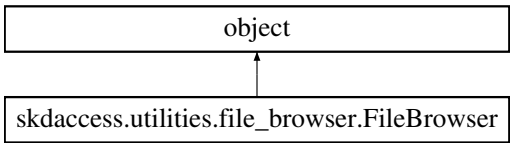
skdaccess.framework.data_class.DataWrapperBase.run_id

The documentation for this class was generated from the following file:

- framework/data_class.py

6.46 skdaccess.utilities.file_browser.FileBrowser Class Reference

Inheritance diagram for skdaccess.utilities.file_browser.FileBrowser:



Public Member Functions

- def __init__ (self)
- def widget (self)

Public Attributes

- path
- files
- dirs

6.46.1 Constructor & Destructor Documentation

6.46.1.1 __init__()

```
def skdaccess.utilities.file_browser.FileBrowser.__init__ (
              self )
```

6.46.2 Member Function Documentation

6.46.2.1 widget()

```
def skdaccess.utilities.file_browser.FileBrowser.widget (
              self )
```

6.46.3 Member Data Documentation

6.46.3.1 dirs

```
skdaccess.utilities.file_browser.FileBrowser.dirs
```

6.46.3.2 files

```
skdaccess.utilities.file_browser.FileBrowser.files
```

6.46.3.3 path

`skdaccess.utilities.file_browser.FileBrowser.path`

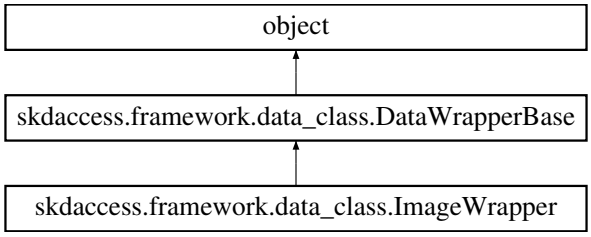
The documentation for this class was generated from the following file:

- utilities/file_browser.py

6.47 skdaccess.framework.data_class.ImageWrapper Class Reference

Wrapper for image data.

Inheritance diagram for skdaccess.framework.data_class.ImageWrapper:



Public Member Functions

- def getIterator (self)
  Get an iterator to the data.
- def updateData (self, label, new_data)
  Change image.
- def deleteData (self, label)
  Delete image.
- def update (self, obj)
  Updated wrapped data.
- def get (self)
  Retrieve stored data.
- def getResults (self)
  Retrieve accumulated results, if any.
- def addResult (self, rkey, rres)
  Add a result to the data wrapper.
- def reset (self)
  Reset data back to original state.
- def info (self, key=None)
  Get information about data wrapper.
- def __len__ (self)
  Get length of wrapped data.

Public Attributes

- data
- results
- constants
- run_id
- meta_data

6.47.1 Detailed Description

Wrapper for image data.

6.47.2 Member Function Documentation

6.47.2.1 __len__()

```
def skdaccess.framework.data_class.DataWrapperBase.__len__ (
              self )  [inherited]
```

Get length of wrapped data.

Returns

length of wrapped data

6.47.2.2 addResult()

```
def skdaccess.framework.data_class.DataWrapperBase.addResult (
              self,
              rkey,
              rres )  [inherited]
```

Add a result to the data wrapper.

Parameters

rkey	Result key
rres	Result

6.47.2.3 deleteData()

```
def skdaccess.framework.data_class.ImageWrapper.deleteData (
              self,
              label )
```

Delete image.

Parameters

label	Delete image with label

6.47.2.4 get()

```
def skdaccess.framework.data_class.DataWrapperBase.get (
              self )  [inherited]
```

Retrieve stored data.

Returns

Stored data

6.47.2.5 getIterator()

```
def skdaccess.framework.data_class.ImageWrapper.getIterator (
              self )
```

Get an iterator to the data.

Returns

Iterator yielding (label, image_data)

6.47.2.6 getResults()

```
def skdaccess.framework.data_class.DataWrapperBase.getResults (
              self )  [inherited]
```

Retrieve accumulated results, if any.

Returns

store results

6.47.2.7 info()

```
def skdaccess.framework.data_class.DataWrapperBase.info (
              self,
              key = None )  [inherited]
```

Get information about data wrapper.

Returns

The stored metadata

6.47.2.8 reset()

```
def skdaccess.framework.data_class.DataWrapperBase.reset (
              self )  [inherited]
```

Reset data back to original state.

6.47.2.9 update()

```
def skdaccess.framework.data_class.DataWrapperBase.update (
              self,
              obj )  [inherited]
```

Updated wrapped data.

Parameters

obj	New data for wrapper

6.47.2.10 updateData()

```
def skdaccess.framework.data_class.ImageWrapper.updateData (
              self,
              label,
              new_data )
```

Change image.

Parameters

label	Label of data to be changed
new_data	New data to replace old data

6.47.3 Member Data Documentation

6.47.3.1 constants

`skdaccess.framework.data_class.DataWrapperBase.constants [inherited]`

6.47.3.2 data

`skdaccess.framework.data_class.DataWrapperBase.data [inherited]`

6.47.3.3 meta_data

`skdaccess.framework.data_class.DataWrapperBase.meta_data [inherited]`

6.47.3.4 results

`skdaccess.framework.data_class.DataWrapperBase.results [inherited]`

6.47.3.5 run_id

`skdaccess.framework.data_class.DataWrapperBase.run_id [inherited]`

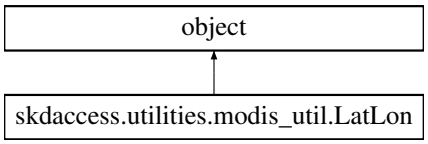
The documentation for this class was generated from the following file:

- framework/data_class.py

6.48 skdaccess.utilities.modis_util.LatLon Class Reference

Calculates Lat/Lon position from y,x pixel coordinate.

Inheritance diagram for skdaccess.utilities.modis_util.LatLon:



Public Member Functions

- def __init__ (self, metadata, x_offset=0, y_offset=0)

  Initialize getLatLon object.
- def __call__ (self, y, x)

  Convert pixel coordinates to lat/lon.

Public Attributes

- x_offset
- y_offset
- lat_data
- lon_data
- alat
- alon

6.48.1 Detailed Description

Calculates Lat/Lon position from y,x pixel coordinate.

6.48.2 Constructor & Destructor Documentation

6.48.2.1 __init__()

```
def skdaccess.utilities.modis_util.LatLon.__init__ (
              self,
              metadata,
              x_offset = 0,
              y_offset = 0 )
```

Initialize getLatLon object.

Parameters

metadata	Image metadata
x_offset	Pixel offset (used when gridding data)
y_offset	Pixel offset (used when gridding data)

6.48.3 Member Function Documentation

6.48.3.1 __call__()

```
def skdaccess.utilities.modis_util.LatLon.__call__ (
              self,
              y,
              x )
```

Convert pixel coordinates to lat/lon.

Parameters

y	y coordinate
x	x coordinate

Returns

(lat, lon)

6.48.4 Member Data Documentation

6.48.4.1 alat

```
skdaccess.utilities.modis_util.LatLon.alat
```

6.48.4.2 alon

```
skdaccess.utilities.modis_util.LatLon.alon
```

6.48.4.3 lat_data

skdaccess.utilities.modis_util.LatLon.lat_data

6.48.4.4 lon_data

skdaccess.utilities.modis_util.LatLon.lon_data

6.48.4.5 x_offset

skdaccess.utilities.modis_util.LatLon.x_offset

6.48.4.6 y_offset

skdaccess.utilities.modis_util.LatLon.y_offset

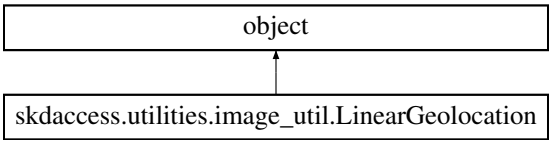
The documentation for this class was generated from the following file:

- utilities/modis_util.py

6.49 skdaccess.utilities.image_util.LinearGeolocation Class Reference

This class provides functions to convert between pixel and geodetic coordinates.

Inheritance diagram for skdaccess.utilities.image_util.LinearGeolocation:



Public Member Functions

- def __init__ (self, data, extents, x_offset=0, y_offset=0, flip_y=False)

  Initialize Linear Geolocation object.
- def getLatLon (self, y, x)

  Retrive the Latitude and Longitude from pixel coordinates.
- def getYX (self, lat, lon)

  Retrive the Latitude and Longitude from pixel coordinates.
- def getExtents (self)

  Retrieve the extents of the data.

Public Attributes

- flip_y
- lon_extents
- lat_extents
- lat_pixel_size
- lon_pixel_size
- start_lat
- start_lon
- x_offset
- y_offset
- len_x
- len_y

6.49.1 Detailed Description

This class provides functions to convert between pixel and geodetic coordinates.

Assumes a linear relationship between pixel and geodetic coordinates

6.49.2 Constructor & Destructor Documentation

6.49.2.1 __init__()

```
def skdaccess.utilities.image_util.LinearGeolocation.__init__ (
              self,
              data,
              extents,
              x_offset = 0,
              y_offset = 0,
              flip_y = False )
```

Initialize Linear Geolocation object.

Parameters

data	Numpy 2d data
extents	Latitude and longitude extents
x_offset	Pixel offset in x
y_offset	Pixel offset in y
flip_y	The y axis has been flipped so that increasing y values are decreasing in latitude

6.49.3 Member Function Documentation

6.49.3.1 getExtents()

```
def skdaccess.utilities.image_util.LinearGeolocation.getExtents (
              self )
```

Retrieve the extents of the data.

Returns

(minimum_longitude, maximum_longitude, minimum_latitude, maximum_latitude)

6.49.3.2 getLatLon()

```
def skdaccess.utilities.image_util.LinearGeolocation.getLatLon (
              self,
              y,
              x )
```

Retrive the Latitude and Longitude from pixel coordinates.

Parameters

y	The y pixel
x	The x pixel

Returns

(latitude, longitude) of the pixel coordinate

6.49.3.3 getYX()

```
def skdaccess.utilities.image_util.LinearGeolocation.getYX (
              self,
              lat,
              lon )
```

Retrive the Latitude and Longitude from pixel coordinates.

Parameters

lat	The Latitude
lon	The Longitude

Returns

(y, x) pixel coordinates of the input latitude and longitude

6.49.4 Member Data Documentation

6.49.4.1 flip_y

```
skdaccess.utilities.image_util.LinearGeolocation.flip_y
```

6.49.4.2 lat_extents

```
skdaccess.utilities.image_util.LinearGeolocation.lat_extents
```

6.49.4.3 lat_pixel_size

```
skdaccess.utilities.image_util.LinearGeolocation.lat_pixel_size
```

6.49.4.4 len_x

```
skdaccess.utilities.image_util.LinearGeolocation.len_x
```

6.49.4.5 len_y

skdaccess.utilities.image_util.LinearGeolocation.len_y

6.49.4.6 lon_extents

skdaccess.utilities.image_util.LinearGeolocation.lon_extents

6.49.4.7 lon_pixel_size

skdaccess.utilities.image_util.LinearGeolocation.lon_pixel_size

6.49.4.8 start_lat

skdaccess.utilities.image_util.LinearGeolocation.start_lat

6.49.4.9 start_lon

skdaccess.utilities.image_util.LinearGeolocation.start_lon

6.49.4.10 x_offset

skdaccess.utilities.image_util.LinearGeolocation.x_offset

6.49.4.11 y_offset

skdaccess.utilities.image_util.LinearGeolocation.y_offset

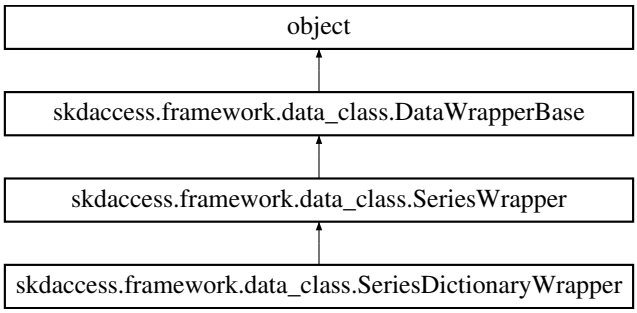
The documentation for this class was generated from the following file:

- utilities/image_util.py

6.50 skdaccess.framework.data_class.SeriesDictionaryWrapper Class Reference

Data wrapper for series data using a dictionary of data frames.

Inheritance diagram for skdaccess.framework.data_class.SeriesDictionaryWrapper:



Public Member Functions

- def getIterator (self)

  Get an iterator to the data.
- def getIndices (self)

  Get the indices of the data.
- def getLength (self)

  Get total number of series that the iterate will loop over.
- def update (self, obj)

  Updated wrapped data.
- def get (self)

  Retrieve stored data.
- def getResults (self)

  Retrieve accumulated results, if any.
- def addResult (self, rkey, rres)

  Add a result to the data wrapper.
- def reset (self)

  Reset data back to original state.
- def info (self, key=None)

  Get information about data wrapper.
- def __len__ (self)

  Get length of wrapped data.

Public Attributes

- data_names
- error_names
- data
- results
- constants
- run_id
- meta_data

6.50.1 Detailed Description

Data wrapper for series data using a dictionary of data frames.

6.50.2 Member Function Documentation

6.50.2.1 __len__()

```
def skdaccess.framework.data_class.DataWrapperBase.__len__ (
              self )  [inherited]
```

Get length of wrapped data.

Returns

length of wrapped data

6.50.2.2 addResult()

```
def skdaccess.framework.data_class.DataWrapperBase.addResult (
              self,
              rkey,
              rres )  [inherited]
```

Add a result to the data wrapper.

Parameters

rkey	Result key
rres	Result

6.50.2.3 get()

```
def skdaccess.framework.data_class.DataWrapperBase.get (
              self )  [inherited]
```

Retrieve stored data.

Returns

Stored data

6.50.2.4 getIndices()

```
def skdaccess.framework.data_class.SeriesDictionaryWrapper.getIndices (
              self )
```

Get the indices of the data.

Returns

index of data

6.50.2.5 getIterator()

```
def skdaccess.framework.data_class.SeriesDictionaryWrapper.getIterator (
              self )
```

Get an iterator to the data.

Returns

Iterator (label, data, errors) that will cycle over data and error names

6.50.2.6 getLength()

```
def skdaccess.framework.data_class.SeriesDictionaryWrapper.getLength (
              self )
```

Get total number of series that the iterate will loop over.

Returns

Number of series iterator will traverse over

6.50.2.7 getResults()

```
def skdaccess.framework.data_class.DataWrapperBase.getResults (
              self )  [inherited]
```

Retrieve accumulated results, if any.

Returns

store results

6.50.2.8 info()

```
def skdaccess.framework.data_class.DataWrapperBase.info (
              self,
              key = None )  [inherited]
```

Get information about data wrapper.

Returns

The stored metadata

6.50.2.9 reset()

```
def skdaccess.framework.data_class.DataWrapperBase.reset (
              self )  [inherited]
```

Reset data back to original state.

6.50.2.10 update()

```
def skdaccess.framework.data_class.DataWrapperBase.update (
              self,
              obj )  [inherited]
```

Updated wrapped data.

Parameters

obj	New data for wrapper

6.50.3 Member Data Documentation

6.50.3.1 constants

skdaccess.framework.data_class.DataWrapperBase.constants [inherited]

6.50.3.2 data

skdaccess.framework.data_class.DataWrapperBase.data [inherited]

6.50.3.3 data_names

skdaccess.framework.data_class.SeriesWrapper.data_names [inherited]

6.50.3.4 error_names

skdaccess.framework.data_class.SeriesWrapper.error_names [inherited]

6.50.3.5 meta_data

skdaccess.framework.data_class.DataWrapperBase.meta_data [inherited]

6.50.3.6 results

skdaccess.framework.data_class.DataWrapperBase.results [inherited]

6.50.3.7 run_id

skdaccess.framework.data_class.DataWrapperBase.run_id [inherited]

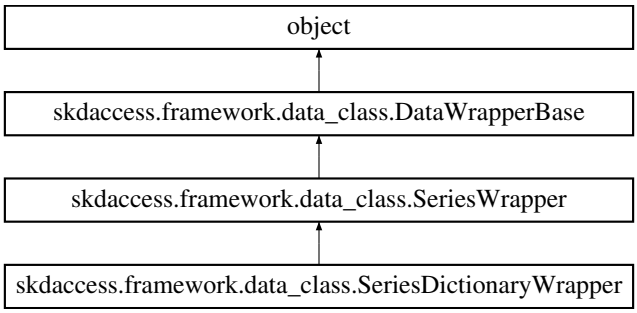
The documentation for this class was generated from the following file:

- framework/data_class.py

6.51 skdaccess.framework.data_class.SeriesWrapper Class Reference

Data wrapper for series data using a data panel.

Inheritance diagram for skdaccess.framework.data_class.SeriesWrapper:



Public Member Functions

- def __init__ (self, obj_wrap, data_names, error_names=None, meta_data=None, run_id=-1)
  Initialize Series Wrapper.
- def getIterator (self)
  Get an iterator to the data.
- def getIndices (self)
  Get the indicies of the data.
- def getLength (self)
  Get total number of series that the iterate will loop over.
- def update (self, obj)
  Updated wrapped data.
- def get (self)
  Retrieve stored data.

- def getResults (self)

  Retrieve accumulated results, if any.
- def addResult (self, rkey, rres)

  Add a result to the data wrapper.
- def reset (self)

  Reset data back to original state.
- def info (self, key=None)

  Get information about data wrapper.
- def __len__ (self)

  Get length of wrapped data.

Public Attributes

- data_names
- error_names
- data
- results
- constants
- run_id
- meta_data

6.51.1 Detailed Description

Data wrapper for series data using a data panel.

6.51.2 Constructor & Destructor Documentation

6.51.2.1 __init__()

```
def skdaccess.framework.data_class.SeriesWrapper.__init__ (
              self,
              obj_wrap,
              data_names,
              error_names = None,
              meta_data = None,
              run_id = -1 )
```

Initialize Series Wrapper.

Parameters

obj_wrap	Pandas data panel to wrap
data_names	List of data column names
error_names	List of error column names
meta_data	Metadata
run_id	ID of run

6.51.3 Member Function Documentation

6.51.3.1 __len__()

```
def skdaccess.framework.data_class.DataWrapperBase.__len__ (
              self )  [inherited]
```

Get length of wrapped data.

Returns

length of wrapped data

6.51.3.2 addResult()

```
def skdaccess.framework.data_class.DataWrapperBase.addResult (
              self,
              rkey,
              rres )  [inherited]
```

Add a result to the data wrapper.

Parameters

rkey	Result key
rres	Result

6.51.3.3 get()

```
def skdaccess.framework.data_class.DataWrapperBase.get (
              self )  [inherited]
```

Retrieve stored data.

Returns

Stored data

6.51.3.4 getIndices()

```
def skdaccess.framework.data_class.SeriesWrapper.getIndices (
              self )
```

Get the indicies of the data.

Returns

index of data

6.51.3.5 getIterator()

```
def skdaccess.framework.data_class.SeriesWrapper.getIterator (
              self )
```

Get an iterator to the data.

Returns

Iterator (label, data, errors) that will cycle over data and error names

6.51.3.6 getLength()

```
def skdaccess.framework.data_class.SeriesWrapper.getLength (
              self )
```

Get total number of series that the iterate will loop over.

Returns

Number of series iterator will traverse over

6.51.3.7 getResults()

```
def skdaccess.framework.data_class.DataWrapperBase.getResults (
              self )  [inherited]
```

Retrieve accumulated results, if any.

Returns

store results

6.51.3.8 info()

```
def skdaccess.framework.data_class.DataWrapperBase.info (
              self,
              key = None )  [inherited]
```

Get information about data wrapper.

Returns

The stored metadata

6.51.3.9 reset()

```
def skdaccess.framework.data_class.DataWrapperBase.reset (
              self )  [inherited]
```

Reset data back to original state.

6.51.3.10 update()

```
def skdaccess.framework.data_class.DataWrapperBase.update (
              self,
              obj )  [inherited]
```

Updated wrapped data.

Parameters

obj	New data for wrapper

6.51.4 Member Data Documentation

6.51.4.1 constants

```
skdaccess.framework.data_class.DataWrapperBase.constants  [inherited]
```

6.51.4.2 data

skdaccess.framework.data_class.DataWrapperBase.data [inherited]

6.51.4.3 data_names

skdaccess.framework.data_class.SeriesWrapper.data_names

6.51.4.4 error_names

skdaccess.framework.data_class.SeriesWrapper.error_names

6.51.4.5 meta_data

skdaccess.framework.data_class.DataWrapperBase.meta_data [inherited]

6.51.4.6 results

skdaccess.framework.data_class.DataWrapperBase.results [inherited]

6.51.4.7 run_id

skdaccess.framework.data_class.DataWrapperBase.run_id [inherited]

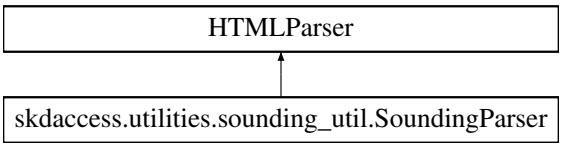
The documentation for this class was generated from the following file:

- framework/data_class.py

6.52 skdaccess.utilities.sounding_util.SoundingParser Class Reference

This class parses Wyoming Sounding data.

Inheritance diagram for skdaccess.utilities.sounding_util.SoundingParser:



Public Member Functions

- def __init__ (self)

  Initialize SoundingParser.
- def handle_starttag (self, tag, attrs)

  Function called everytime a start tag is encountered.
- def handle_endtag (self, tag)

  Function called everytime an end tag is encountered.
- def handle_data (self, data)

  Function to parse data between.

Public Attributes

- data_dict
- metadata_dict
- label
- in_pre_tag
- in_header
- read_data
- tmp

6.52.1 Detailed Description

This class parses Wyoming Sounding data.

6.52.2 Constructor & Destructor Documentation

6.52.2.1 __init__()

```
def skdaccess.utilities.sounding_util.SoundingParser.__init__ (
              self )
```

Initialize SoundingParser.

6.52.3 Member Function Documentation

6.52.3.1 handle_data()

```
def skdaccess.utilities.sounding_util.SoundingParser.handle_data (
              self,
              data )
```

Function to parse data between.

```
 tags

    @param data: Input data
```

6.52.3.2 handle_endtag()

```
def skdaccess.utilities.sounding_util.SoundingParser.handle_endtag (
              self,
              tag )
```

Function called everytime an end tag is encountered.

Parameters

tag	Ending tag

6.52.3.3 handle_starttag()

```
def skdaccess.utilities.sounding_util.SoundingParser.handle_starttag (
              self,
```

```
            tag,
            attrs )
```

Function called everytime a start tag is encountered.

Parameters

tag	Starting tag
attrs	Tag attributes

6.52.4 Member Data Documentation

6.52.4.1 data_dict

skdaccess.utilities.sounding_util.SoundingParser.data_dict

6.52.4.2 in_header

skdaccess.utilities.sounding_util.SoundingParser.in_header

6.52.4.3 in_pre_tag

skdaccess.utilities.sounding_util.SoundingParser.in_pre_tag

6.52.4.4 label

skdaccess.utilities.sounding_util.SoundingParser.label

6.52.4.5 metadata_dict

skdaccess.utilities.sounding_util.SoundingParser.metadata_dict

6.52.4.6 read_data

skdaccess.utilities.sounding_util.SoundingParser.read_data

6.52.4.7 tmp

skdaccess.utilities.sounding_util.SoundingParser.tmp

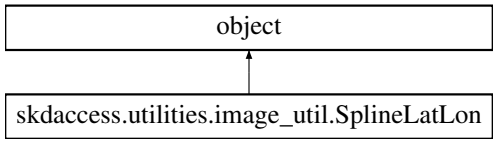
The documentation for this class was generated from the following file:

- utilities/sounding_util.py

6.53 skdaccess.utilities.image_util.SplineLatLon Class Reference

Holds a 2d spline for interpolating lat/lon grid.

Inheritance diagram for skdaccess.utilities.image_util.SplineLatLon:



Public Member Functions

- def __init__ (self, lat_func=None, lon_func=None, lat_grid=None, lon_grid=None, x_points=None, y_points=None, lat_extents=None, lon_extents=None, y_num_pixels=None, x_num_pixels=None, x_offset=0, y_offset=0, interp_type='grid')

  Initialize SplineLatLon with premade lat/lon functions.
- def __call__ (self, y, x)

  Convert pixel coordinates to lat/lon.

Public Attributes

- lat_func
- lon_func
- x_offset
- y_offset

6.53.1 Detailed Description

Holds a 2d spline for interpolating lat/lon grid.

6.53.2 Constructor & Destructor Documentation

6.53.2.1 __init__()

```
def skdaccess.utilities.image_util.SplineLatLon.__init__ (
              self,
              lat_func = None,
              lon_func = None,
              lat_grid = None,
              lon_grid = None,
              x_points = None,
              y_points = None,
              lat_extents = None,
              lon_extents = None,
              y_num_pixels = None,
              x_num_pixels = None,
              x_offset = 0,
              y_offset = 0,
              interp_type = 'grid' )
```

Initialize SplineLatLon with premade lat/lon functions.

Parameters

lat_func	Latitude spline function
lon_func	Longitude spline function
x_offset	Offset in the x coordinate
y_offset	Offset in the y coordinate

6.53.3 Member Function Documentation

6.53.3.1 __call__()

```
def skdaccess.utilities.image_util.SplineLatLon.__call__ (
              self,
```

y,
x)

Convert pixel coordinates to lat/lon.

Parameters

y	y coordinate
x	x coordinate

Returns

(lat, lon)

6.53.4 Member Data Documentation

6.53.4.1 lat_func

`skdaccess.utilities.image_util.SplineLatLon.lat_func`

6.53.4.2 lon_func

`skdaccess.utilities.image_util.SplineLatLon.lon_func`

6.53.4.3 x_offset

`skdaccess.utilities.image_util.SplineLatLon.x_offset`

6.53.4.4 y_offset

`skdaccess.utilities.image_util.SplineLatLon.y_offset`

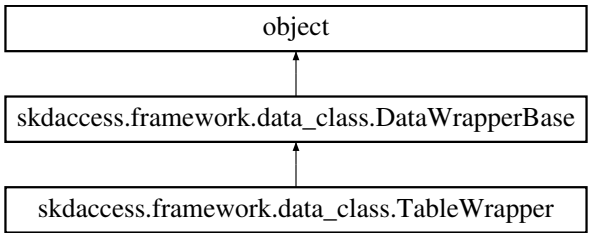
The documentation for this class was generated from the following file:

- utilities/image_util.py

6.54 skdaccess.framework.data_class.TableWrapper Class Reference

Data wrapper for table data using an ordered dictionary.

Inheritance diagram for skdaccess.framework.data_class.TableWrapper:



Public Member Functions

- def __init__ (self, obj_wrap, run_id=-1, meta_data=None, default_columns=None, default_error_columns=None)

  Construct object from input data.
- def getIterator (self)

  Iterator access to data.
- def getLength (self)

  Get number of data frames.
- def updateData (self, label, index, column_names, new_data)

  Update wrapped data.
- def addColumn (self, label, column_names, new_data)

  Add new column to data.
- def getDefaultColumns (self)

  Get the default columns of data.
- def getDefaultErrorColumns (self)

  Get the default error columns of data.
- def removeFrames (self, label_list)

  Remove Data Frames from wrapper.
- def updateFrames (self, label_list, frame_list)

  Update data frames.
- def update (self, obj)

  Updated wrapped data.
- def get (self)

  Retrieve stored data.
- def getResults (self)

  Retrieve accumulated results, if any.
- def addResult (self, rkey, rres)

  Add a result to the data wrapper.
- def reset (self)

  Reset data back to original state.
- def info (self, key=None)

  Get information about data wrapper.
- def __len__ (self)

  Get length of wrapped data.

Public Attributes

- default_columns
- default_error_columns
- data
- results
- constants
- run_id
- meta_data

6.54.1 Detailed Description

Data wrapper for table data using an ordered dictionary.

6.54.2 Constructor & Destructor Documentation

6.54.2.1 __init__()

```
def skdaccess.framework.data_class.TableWrapper.__init__ (
              self,
              obj_wrap,
              run_id = -1,
              meta_data = None,
              default_columns = None,
              default_error_columns = None )
```

Construct object from input data.

Parameters

obj_wrap	Data to be wrapped
run_id	ID of the run
meta_data	Metadata to store with data
default_columns	Default columns for pipeline items
default_error_columns	Default error columns for pipeline items

6.54.3 Member Function Documentation

6.54.3.1 __len__()

```
def skdaccess.framework.data_class.DataWrapperBase.__len__ (
              self )  [inherited]
```

Get length of wrapped data.

Returns

length of wrapped data

6.54.3.2 addColumn()

```
def skdaccess.framework.data_class.TableWrapper.addColumn (
              self,
              label,
              column_names,
              new_data )
```

Add new column to data.

Parameters

label	Data label
column_names	Names of columns to update
new_data	New data to add

6.54.3.3 addResult()

```
def skdaccess.framework.data_class.DataWrapperBase.addResult (
              self,
              rkey,
              rres )  [inherited]
```

Add a result to the data wrapper.

Parameters

rkey	Result key
rres	Result

6.54.3.4 get()

```
def skdaccess.framework.data_class.DataWrapperBase.get (
              self )  [inherited]
```

Retrieve stored data.

Returns

Stored data

6.54.3.5 getDefaultColumns()

```
def skdaccess.framework.data_class.TableWrapper.getDefaultColumns (
              self )
```

Get the default columns of data.

Returns

List of default columns

6.54.3.6 getDefaultErrorColumns()

```
def skdaccess.framework.data_class.TableWrapper.getDefaultErrorColumns (
              self )
```

Get the default error columns of data.

Returns

List of default error columns

6.54.3.7 getIterator()

```
def skdaccess.framework.data_class.TableWrapper.getIterator (
              self )
```

Iterator access to data.

Returns

iterator to (label, data frame) from Dictionary

6.54.3.8 getLength()

```
def skdaccess.framework.data_class.TableWrapper.getLength (
              self )
```

Get number of data frames.

Returns

Number of data frames

6.54.3.9 getResults()

```
def skdaccess.framework.data_class.DataWrapperBase.getResults (
              self )  [inherited]
```

Retrieve accumulated results, if any.

Returns

store results

6.54.3.10 info()

```
def skdaccess.framework.data_class.DataWrapperBase.info (
              self,
              key = None )  [inherited]
```

Get information about data wrapper.

Returns

The stored metadata

6.54.3.11 removeFrames()

```
def skdaccess.framework.data_class.TableWrapper.removeFrames (
              self,
              label_list )
```

Remove Data Frames from wrapper.

Parameters

label_list	List of labels to remove

6.54.3.12 reset()

```
def skdaccess.framework.data_class.DataWrapperBase.reset (
              self )  [inherited]
```

Reset data back to original state.

6.54.3.13 update()

```
def skdaccess.framework.data_class.DataWrapperBase.update (
              self,
              obj )  [inherited]
```

Updated wrapped data.

Parameters

obj	New data for wrapper

6.54.3.14 updateData()

```
def skdaccess.framework.data_class.TableWrapper.updateData (
              self,
              label,
              index,
              column_names,
              new_data )
```

Update wrapped data.

Parameters

label	Data label
index	Index of data to update
column_names	Names of columns to update
new_data	Data to replace the old data

6.54.3.15 updateFrames()

```
def skdaccess.framework.data_class.TableWrapper.updateFrames (
              self,
              label_list,
              frame_list )
```

Update data frames.

Parameters

label_list	List of labels to update
frame_list	List of updated frames

6.54.4 Member Data Documentation

6.54.4.1 constants

```
skdaccess.framework.data_class.DataWrapperBase.constants  [inherited]
```

6.54.4.2 data

```
skdaccess.framework.data_class.DataWrapperBase.data  [inherited]
```

6.54.4.3 default_columns

```
skdaccess.framework.data_class.TableWrapper.default_columns
```

6.54.4.4 default_error_columns

```
skdaccess.framework.data_class.TableWrapper.default_error_columns
```

6.54.4.5 meta_data

skdaccess.framework.data_class.DataWrapperBase.meta_data [inherited]

6.54.4.6 results

skdaccess.framework.data_class.DataWrapperBase.results [inherited]

6.54.4.7 run_id

skdaccess.framework.data_class.DataWrapperBase.run_id [inherited]

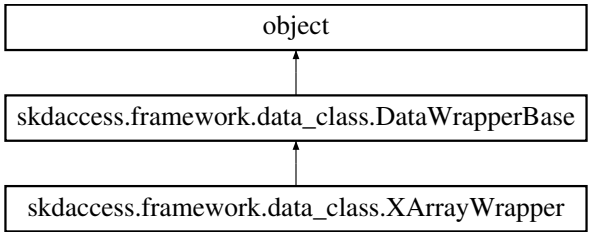
The documentation for this class was generated from the following file:

- framework/data_class.py

6.55 skdaccess.framework.data_class.XArrayWrapper Class Reference

Wrapper for xarrays.

Inheritance diagram for skdaccess.framework.data_class.XArrayWrapper:



Public Member Functions

- def __init__ (self, obj_wrap, index_list, run_id=-1)
- def getIterator (self)

  Get an iterator that iterators over the index.
- def info (self, key=None)

  Get information about xarray data wrapper.
- def update (self, obj)

  Updated wrapped data.
- def get (self)

  Retrieve stored data.
- def getResults (self)

  Retrieve accumulated results, if any.
- def addResult (self, rkey, rres)

  Add a result to the data wrapper.
- def reset (self)

  Reset data back to original state.
- def __len__ (self)

  Get length of wrapped data.

Public Attributes

- index_list
- data
- results
- constants
- run_id
- meta_data

6.55.1 Detailed Description

Wrapper for xarrays.

6.55.2 Constructor & Destructor Documentation

6.55.2.1 __init__()

```
def skdaccess.framework.data_class.XArrayWrapper.__init__ (
              self,
              obj_wrap,
              index_list,
              run_id = -1 )
```

6.55.3 Member Function Documentation

6.55.3.1 __len__()

```
def skdaccess.framework.data_class.DataWrapperBase.__len__ (
              self )  [inherited]
```

Get length of wrapped data.

Returns

length of wrapped data

6.55.3.2 addResult()

```
def skdaccess.framework.data_class.DataWrapperBase.addResult (
              self,
              rkey,
              rres )  [inherited]
```

Add a result to the data wrapper.

Parameters

rkey	Result key
rres	Result

6.55.3.3 get()

```
def skdaccess.framework.data_class.DataWrapperBase.get (
              self )  [inherited]
```

Retrieve stored data.

Returns

Stored data

6.55.3.4 getIterator()

```
def skdaccess.framework.data_class.XArrayWrapper.getIterator (
              self )
```

Get an iterator that iterators over the index.

Returns

iterator to data

6.55.3.5 getResults()

```
def skdaccess.framework.data_class.DataWrapperBase.getResults (
              self )  [inherited]
```

Retrieve accumulated results, if any.

Returns

store results

6.55.3.6 info()

```
def skdaccess.framework.data_class.XArrayWrapper.info (
              self,
              key = None )
```

Get information about xarray data wrapper.

Returns

The stored metadata

6.55.3.7 reset()

```
def skdaccess.framework.data_class.DataWrapperBase.reset (
              self )  [inherited]
```

Reset data back to original state.

6.55.3.8 update()

```
def skdaccess.framework.data_class.DataWrapperBase.update (
              self,
              obj )  [inherited]
```

Updated wrapped data.

Parameters

obj	New data for wrapper

6.55.4 Member Data Documentation

6.55.4.1 constants

```
skdaccess.framework.data_class.DataWrapperBase.constants  [inherited]
```

6.55.4.2 data

```
skdaccess.framework.data_class.DataWrapperBase.data  [inherited]
```

6.55.4.3 index_list

```
skdaccess.framework.data_class.XArrayWrapper.index_list
```

6.55.4.4 meta_data

```
skdaccess.framework.data_class.DataWrapperBase.meta_data  [inherited]
```

6.55.4.5 results

```
skdaccess.framework.data_class.DataWrapperBase.results  [inherited]
```

6.55.4.6 run_id

```
skdaccess.framework.data_class.DataWrapperBase.run_id  [inherited]
```

The documentation for this class was generated from the following file:

- framework/data_class.py

Chapter 7

File Documentation

7.1 framework/data_class.py File Reference

Classes

- class skdaccess.framework.data_class.DataFetcherBase

  Base class for all data fetchers.
- class skdaccess.framework.data_class.DataFetcherLocal

  Data fetcher base class for use when storing data locally.
- class skdaccess.framework.data_class.DataFetcherStorage

  Data fetcher base class for use when entire data set is downloaded.
- class skdaccess.framework.data_class.DataFetcherStream

  Data fetcher base class for downloading data into memory.
- class skdaccess.framework.data_class.DataFetcherCache

  Data fetcher base class for downloading data and caching results on hard disk.
- class skdaccess.framework.data_class.DataWrapperBase

  Base class for wrapping data for use in DiscoveryPipeline.
- class skdaccess.framework.data_class.SeriesWrapper

  Data wrapper for series data using a data panel.
- class skdaccess.framework.data_class.SeriesDictionaryWrapper

  Data wrapper for series data using a dictionary of data frames.
- class skdaccess.framework.data_class.TableWrapper

  Data wrapper for table data using an ordered dictionary.
- class skdaccess.framework.data_class.ImageWrapper

  Wrapper for image data.
- class skdaccess.framework.data_class.XArrayWrapper

  Wrapper for xarrays.

Namespaces

- skdaccess.framework.data_class

7.2 framework/param_class.py File Reference

Classes

- class skdaccess.framework.param_class.AutoParam

  Defines a tunable parameter class inherited by specific subclasses.
- class skdaccess.framework.param_class.AutoParamMinMax

  A tunable parameter with min and max ranges, perturbs to a random value in range.
- class skdaccess.framework.param_class.AutoParamList

  A tunable parameter with a specified list of choices that can be randomly selected via perturb.
- class skdaccess.framework.param_class.AutoParamListCycle

  Cycles through a list of paramters.
- class skdaccess.framework.param_class.AutoList

  Specifies a list for returning selections of lists, as opposed to a single element.
- class skdaccess.framework.param_class.AutoListSubset

  An AutoList perturber that creates random subsets of a list.
- class skdaccess.framework.param_class.AutoListPermute

  A perturber that permutes a list.
- class skdaccess.framework.param_class.AutoListRemove

  Removes a different single element from the initial list at each perturb call.
- class skdaccess.framework.param_class.AutoListCycle

  An Autolist that cycles through different lists.

Namespaces

- skdaccess.framework.param_class

7.3 geo/mahali/rinex/data_wrapper.py File Reference

Classes

- class skdaccess.geo.mahali.rinex.data_wrapper.DataWrapper

  Data wrapper for Mahali data.

Namespaces

- skdaccess.geo.mahali.rinex.data_wrapper

7.4 solar/sdo/data_fetcher.py File Reference

Classes

- class skdaccess.solar.sdo.DataFetcher

  Data Fetcher for Mahali temperature data.

Namespaces

- skdaccess.solar.sdo.data_fetcher

7.5 planetary/ode/cache/data_fetcher.py File Reference

Classes

- class skdaccess.planetary.ode.cache.DataFetcher

  Data Fetcher from the Orbital Data Explorer (ODE)

Namespaces

- skdaccess.planetary.ode.cache.data_fetcher

7.6 geo/grace/mascon/cache/data_fetcher.py File Reference

Classes

- class skdaccess.geo.grace.mascon.cache.DataFetcher

  Data Fetcher for GRACE mascon data.

Namespaces

- skdaccess.geo.grace.mascon.cache.data_fetcher

7.7 geo/grace/data_fetcher.py File Reference

Classes

- class skdaccess.geo.grace.DataFetcher

  Data Fetcher for GRACE data.

Namespaces

- skdaccess.geo.grace.data_fetcher

7.8 geo/mahali/tec/data_fetcher.py File Reference

Classes

- class skdaccess.geo.mahali.tec.DataFetcher
  Data Fetcher for Mahali Data.

Namespaces

- skdaccess.geo.mahali.tec.data_fetcher

7.9 geo/mahali/rinex/data_fetcher.py File Reference

Classes

- class skdaccess.geo.mahali.rinex.DataFetcher
  Data Fetcher for Mahali Data.

Namespaces

- skdaccess.geo.mahali.rinex.data_fetcher

7.10 geo/mahali/temperature/data_fetcher.py File Reference

Classes

- class skdaccess.geo.mahali.temperature.DataFetcher
  Data Fetcher for Mahali temperature data.

Namespaces

- skdaccess.geo.mahali.temperature.data_fetcher

7.11 geo/ngl_gps/data_fetcher.py File Reference

Classes

- class skdaccess.geo.ngl_gps.DataFetcher
  Data fetcher for GPS data from Neveda Geodetic Laboratory.

Namespaces

- skdaccess.geo.ngl_gps.data_fetcher

7.12 geo/era_interim/cache/data_fetcher.py File Reference

Classes

- class skdaccess.geo.era_interim.cache.DataFetcher

  DataFetcher for retrieving ERA-I data.

Namespaces

- skdaccess.geo.era_interim.cache.data_fetcher

7.13 geo/imsdnhs/data_fetcher.py File Reference

Classes

- class skdaccess.geo.imsdnhs.DataFetcher

  Fetches data for the Interactive Multisensor Snow and Ice Mapping System Daily Northern Hemisphere Snow and Ice Analysis.

Namespaces

- skdaccess.geo.imsdnhs.data_fetcher

7.14 geo/gldas/data_fetcher.py File Reference

Classes

- class skdaccess.geo.gldas.DataFetcher

  Data Fetcher for GLDAS data.

Namespaces

- skdaccess.geo.gldas.data_fetcher

7.15 geo/sentinel_1/cache/data_fetcher.py File Reference

Classes

- class skdaccess.geo.sentinel_1.cache.DataFetcher
  DataFetcher for retrieving Sentinel SLC data.

Namespaces

- skdaccess.geo.sentinel_1.cache.data_fetcher

7.16 geo/magnetometer/data_fetcher.py File Reference

Classes

- class skdaccess.geo.magnetometer.DataFetcher
  Data fetcher for USGS geomagnetic observatories.

Namespaces

- skdaccess.geo.magnetometer.data_fetcher

7.17 geo/wyoming_sounding/cache/data_fetcher.py File Reference

Classes

- class skdaccess.geo.wyoming_sounding.cache.DataFetcher
  DataFetcher for retrieving Wyoming Sounding data.

Namespaces

- skdaccess.geo.wyoming_sounding.cache.data_fetcher

7.18 geo/wyoming_sounding/stream/data_fetcher.py File Reference

Classes

- class skdaccess.geo.wyoming_sounding.stream.DataFetcher
  DataFetcher for retrieving Wyoming Sounding data.

Namespaces

- skdaccess.geo.wyoming_sounding.stream.data_fetcher

7.19 geo/modis/cache/cloud_opacity/data_fetcher.py File Reference

Classes

- class skdaccess.geo.modis.cache.cloud_opacity.DataFetcher

  Data Fetcher for MODIS Cloud Opacity.

Namespaces

- skdaccess.geo.modis.cache.cloud_opacity.data_fetcher

7.20 geo/modis/cache/cloud_mask/data_fetcher.py File Reference

Classes

- class skdaccess.geo.modis.cache.cloud_mask.DataFetcher

  Data Fetcher for MODIS Cloud Mask.

Namespaces

- skdaccess.geo.modis.cache.cloud_mask.data_fetcher

7.21 geo/modis/cache/reflectance/data_fetcher.py File Reference

Classes

- class skdaccess.geo.modis.cache.reflectance.DataFetcher

  Data fetcher for the modis surface reflectance product ('09', 1 km resolution)

Namespaces

- skdaccess.geo.modis.cache.reflectance.data_fetcher

7.22 geo/modis/cache/data_fetcher.py File Reference

Classes

- class skdaccess.geo.modis.cache.DataFetcher
  Data Fetcher for MODIS data.

Namespaces

- skdaccess.geo.modis.cache.data_fetcher

7.23 geo/modis/stream/cloud_opacity/data_fetcher.py File Reference

Classes

- class skdaccess.geo.modis.stream.cloud_opacity.DataFetcher
  Data Fetcher for MODIS Cloud Opacity.

Namespaces

- skdaccess.geo.modis.stream.cloud_opacity.data_fetcher

7.24 geo/modis/stream/cloud_mask/data_fetcher.py File Reference

Classes

- class skdaccess.geo.modis.stream.cloud_mask.DataFetcher
  Data Fetcher for MODIS Cloud Mask.

Namespaces

- skdaccess.geo.modis.stream.cloud_mask.data_fetcher

7.25 geo/modis/stream/reflectance/data_fetcher.py File Reference

Classes

- class skdaccess.geo.modis.stream.reflectance.DataFetcher
  Data fetcher for the modis surface reflectance product ('09', 1 km resolution)

Namespaces

- skdaccess.geo.modis.stream.reflectance.data_fetcher

7.26 geo/modis/stream/data_fetcher.py File Reference

Classes

- class skdaccess.geo.modis.stream.DataFetcher

  Data Fetcher for MODIS data.

Namespaces

- skdaccess.geo.modis.stream.data_fetcher

7.27 geo/uavsar/cache/data_fetcher.py File Reference

Classes

- class skdaccess.geo.uavsar.cache.DataFetcher

  Data Fetcher for UAVSAR data.

Namespaces

- skdaccess.geo.uavsar.cache.data_fetcher

7.28 geo/srtm/cache/data_fetcher.py File Reference

Classes

- class skdaccess.geo.srtm.cache.DataFetcher

  DataFetcher for retrieving data from the Shuttle Radar Topography Mission.

Namespaces

- skdaccess.geo.srtm.cache.data_fetcher

7.29 geo/groundwater/data_fetcher.py File Reference

Classes

- class skdaccess.geo.groundwater.DataFetcher

  Generates Data Wrappers of groundwater measurements taken in the US.

Namespaces

- skdaccess.geo.groundwater.data_fetcher

7.30 geo/pbo/data_fetcher.py File Reference

Classes

- class skdaccess.geo.pbo.DataFetcher

  Data fetcher for PBO GPS data.

Namespaces

- skdaccess.geo.pbo.data_fetcher

7.31 astro/kepler/data_fetcher.py File Reference

Classes

- class skdaccess.astro.kepler.DataFetcher

  Data Fetcher for Kepler light curve data.

Namespaces

- skdaccess.astro.kepler.data_fetcher

7.32 astro/voyager/data_fetcher.py File Reference

Classes

- class skdaccess.astro.voyager.DataFetcher

  Data Fetcher for Mahali temperature data.

Namespaces

- skdaccess.astro.voyager.data_fetcher

7.33 utilities/file_browser.py File Reference

Classes

- class skdaccess.utilities.file_browser.FileBrowser

Namespaces

- skdaccess.utilities.file_browser

7.34 utilities/grace_util.py File Reference

Namespaces

- skdaccess.utilities.grace_util

Functions

- def skdaccess.utilities.grace_util.averageDates (dates, round_nearest_day=False)

  Compute the average of a pandas series of timestamps.
- def skdaccess.utilities.grace_util.dateMismatch (dates, days=10)

  Check if dates are not within a certain number of days of each other.
- def skdaccess.utilities.grace_util.computeEWD (grace_data, scale_factor, round_nearest_day=False)

  Compute scale corrected equivalent water depth.
- def skdaccess.utilities.grace_util.readTellusData (filename, lat_lon_list, lat_name, lon_name, data_name, data_label=None, time_name=None, lat_bounds_name=None, lon_bounds_name=None, uncertainty_name=None, lat_bounds=None, lon_bounds=None)

  This function reads in netcdf data provided by GRACE Tellus.
- def skdaccess.utilities.grace_util.getStartEndDate (in_data)

7.35 utilities/gw_util.py File Reference

Namespaces

- skdaccess.utilities.gw_util

Functions

- def skdaccess.utilities.gw_util.combine_water_heights (in_data)

  Combine median and average water heights.

7.36 utilities/image_util.py File Reference

Classes

- class skdaccess.utilities.image_util.SplineLatLon

  Holds a 2d spline for interpolating lat/lon grid.
- class skdaccess.utilities.image_util.LinearGeolocation

  This class provides functions to convert between pixel and geodetic coordinates.

Namespaces

- skdaccess.utilities.image_util

Functions

- def skdaccess.utilities.image_util.getExtentsFromCentersPlateCarree (westmost_pixel_lon, eastmost_pixel_lon, southmost_pixel_lat, northmost_pixel_lat, lon_grid_spacing, lat_grid_spacing)
- def skdaccess.utilities.image_util.convertBinCentersToEdges (bin_centers)

  Calculate edges of a set of bins from their centers.

7.37 utilities/kepler_util.py File Reference

Namespaces

- skdaccess.utilities.kepler_util

Functions

- def skdaccess.utilities.kepler_util.normalize (in_data, column='PDCSAP_FLUX', group_column='QUARTER')

  This function normalizes PDCSAP_FLUX data by quarter by dividing the flux by the median for the quarter.

7.38 utilities/mahali_util.py File Reference

Namespaces

- skdaccess.utilities.mahali_util

Functions

- def skdaccess.utilities.mahali_util.convert_date (in_date)

  Converts input string to pandas date time, ignores other types of objects.
- def skdaccess.utilities.mahali_util.parseIonoFile (in_file, compression='infer')

7.39 utilities/modis_util.py File Reference

Classes

- class skdaccess.utilities.modis_util.LatLon

  Calculates Lat/Lon position from y,x pixel coordinate.

Namespaces

- skdaccess.utilities.modis_util

Functions

- def skdaccess.utilities.modis_util.getImageType (in_data)

  Determine what type of modis data is being processed.
- def skdaccess.utilities.modis_util.calibrateModis (data, metadata)

  This function calibrates input modis data.
- def skdaccess.utilities.modis_util.rescale (in_array, max_val=0.9, min_val=-0.01)

  This function rescales an image to fall between 0 and 1.
- def skdaccess.utilities.modis_util.checkBit (data, bit)

  Get the bit value from a bit flag.
- def skdaccess.utilities.modis_util.createGrid (data, y_start, y_end, x_start, x_end, y_grid, x_grid, dtype, grid_↩ fill=np.nan)

  Subsets image data into a smaller image.
- def skdaccess.utilities.modis_util.getFileIDs (modis_identifier, start_date, end_date, lat, lon, daynightboth)

  Retrieve file IDs for images matching search parameters.
- def skdaccess.utilities.modis_util.getFileURLs (file_ids)

  Retrieve the ftp location for a list of file IDs.
- def skdaccess.utilities.modis_util.getModisData (dataset, variable_name)

  Loads modis data.
- def skdaccess.utilities.modis_util.readMODISData (modis_list, variables, grid, grid_fill, use_long_name, platform, product_id)

  Retrieve a list of modis data.

7.40 utilities/ode_util.py File Reference

Namespaces

- skdaccess.utilities.ode_util

Functions

- def skdaccess.utilities.ode_util.query_yes_no (question, default="yes")
- def skdaccess.utilities.ode_util.get_query_url (target, mission, instrument, product_type, western_lon, eastern_lon, min_lat, max_lat, min_ob_time, max_ob_time, product_id, query_type, output, results, number_product_limit, result_offset_number)
- def skdaccess.utilities.ode_util.get_files_urls (query_url, file_name='*', print_info=False)
- def skdaccess.utilities.ode_util.query_files_urls (target, mission, instrument, product_type, western_lon, eastern_lon, min_lat, max_lat, min_ob_time, max_ob_time, product_id, file_name, number_product_limit, result_offset_number)

  Retrieve the URL locations based on a query using ODE REST interface.
- def skdaccess.utilities.ode_util.correct_CRISM_label (label_file_location)
- def skdaccess.utilities.ode_util.correct_file_name_case_in_label (label_file_location, other_file_locations)
- def skdaccess.utilities.ode_util.correct_label_file (label_file_location, other_file_locations=[])

  Correct a label file if GDAL cannot open the corresponding data file.
- def skdaccess.utilities.ode_util.get_raster_array (gdal_raster, remove_ndv=True)

  Get a NumPy array from a raster opened with GDAL.
- def skdaccess.utilities.ode_util.get_raster_extent (gdal_raster)

  Get the extent of a raster opened with GDAL.

7.41 utilities/pbo_util.py File Reference

Namespaces

- skdaccess.utilities.pbo_util

Functions

- def skdaccess.utilities.pbo_util.getStationCoords (pbo_info, station_list)

  Get the station coordinates for a list of stations.
- def skdaccess.utilities.pbo_util.getLatLonRange (pbo_info, station_list)

  Retrive the range of latitude and longitude occupied by a set of stations.
- def skdaccess.utilities.pbo_util.getROIstations (geo_point, radiusParam, data, header)

  This function returns the 4ID station codes for the stations in a region.
- def skdaccess.utilities.pbo_util.stab_sys (data_iterator, metadata, stab_min_NE=.0005, stab_min_U=.005, sigsc=2, errProp=1)

  Stabilize GPS data to a region.
- def skdaccess.utilities.pbo_util.propagateErrors (R, sc, stationCovs)

  Propagate GPS errors.
- def skdaccess.utilities.pbo_util.nostab_sys (allH, allD, timerng, indx=1, mdyratio=.7, use_progress_bar=True, index_date_only=False)

  Do not apply stabilization and simply returns stations after checking for sufficient amount of data.
- def skdaccess.utilities.pbo_util.removeAntennaOffset (antenna_offsets, data, window_start=pd.to_timedelta('4D'), window_end=pd.to_timedelta('4D'), min_diff=0.005, debug=False)

  Remove offsets caused by changes in antennas.

7.42 utilities/sentinel_1_util.py File Reference

Namespaces

- skdaccess.utilities.sentinel_1_util

Functions

- def skdaccess.utilities.sentinel_1_util.parseSatelliteData (in_satellite_file)

  Parse Sentinel satelllite data.

7.43 utilities/sounding_util.py File Reference

Classes

- class skdaccess.utilities.sounding_util.SoundingParser

  This class parses Wyoming Sounding data.

Namespaces

- skdaccess.utilities.sounding_util

Functions

- def skdaccess.utilities.sounding_util.generateQueries (station_number, year_list, month_list, day_start, day_end, start_hour, end_hour)

  Generate url queries for sounding data.

7.44 utilities/srtm_util.py File Reference

Namespaces

- skdaccess.utilities.srtm_util

Functions

- def skdaccess.utilities.srtm_util.merge_srtm_tiles (srtm_tiles, lon_min, lon_max, lat_min, lat_max)
- def skdaccess.utilities.srtm_util.getSRTMLatLon (lat_min, lat_max, lon_min, lon_max)

  Retrieve parameters that encompass area when creating SRTM data fetcher.
- def skdaccess.utilities.srtm_util.getSRTMData (srtmdw, lat_start, lat_end, lon_start, lon_end)

  Select SRTM data in a latitude/longitude box.

7.45 utilities/support.py File Reference

Namespaces

- skdaccess.utilities.support

Functions

- def skdaccess.utilities.support.retrieveCommonDatesHDF (support_data_filename, key_list, in_date_list)

  Get a list of all dates that have data available.
- def skdaccess.utilities.support.progress_bar (in_iterable, total=None, enabled=True)

  Progess bar using tqdm.
- def skdaccess.utilities.support.convertToStr (in_value, zfill=0)

7.46 utilities/uavsar_util.py File Reference

Namespaces

- skdaccess.utilities.uavsar_util

Functions

- def skdaccess.utilities.uavsar_util.readUAVSARMetadata (in_file)

  Parse UAVSAR metadata.

Index

__call__
    skdaccess::framework::param_class::AutoList, 54
    skdaccess::framework::param_class::AutoListCycle, 59
    skdaccess::framework::param_class::AutoList↩ Permute, 63
    skdaccess::framework::param_class::AutoList↩ Remove, 67
    skdaccess::framework::param_class::AutoList↩ Subset, 71
    skdaccess::framework::param_class::AutoParam, 76
    skdaccess::framework::param_class::AutoParamList, 78
    skdaccess::framework::param_class::AutoParam↩ ListCycle, 81
    skdaccess::framework::param_class::AutoParam↩ MinMax, 84
    skdaccess::utilities::image_util::SplineLatLon, 309
    skdaccess::utilities::modis_util::LatLon, 288
__getitem__
    skdaccess::framework::param_class::AutoList, 54
    skdaccess::framework::param_class::AutoListCycle, 59
    skdaccess::framework::param_class::AutoList↩ Permute, 63
    skdaccess::framework::param_class::AutoList↩ Remove, 67
    skdaccess::framework::param_class::AutoList↩ Subset, 71
__init__
    skdaccess::astro::kepler::data_fetcher::DataFetcher, 203
    skdaccess::astro::voyager::data_fetcher::Data↩ Fetcher, 142
    skdaccess::framework::data_class::DataFetcher↩ Base, 248
    skdaccess::framework::data_class::DataWrapper↩ Base, 277
    skdaccess::framework::data_class::SeriesWrapper, 300
    skdaccess::framework::data_class::TableWrapper, 313
    skdaccess::framework::data_class::XArrayWrapper, 320
    skdaccess::framework::param_class::AutoList, 54
    skdaccess::framework::param_class::AutoListCycle, 58
    skdaccess::framework::param_class::AutoList↩ Remove, 67
    skdaccess::framework::param_class::AutoParam, 75
    skdaccess::framework::param_class::AutoParamList, 78
    skdaccess::framework::param_class::AutoParam↩ ListCycle, 81
    skdaccess::framework::param_class::AutoParam↩ MinMax, 83
    skdaccess::geo::era_interim::cache::data_fetcher::↩ DataFetcher, 184
    skdaccess::geo::gldas::data_fetcher::DataFetcher, 87
    skdaccess::geo::grace::data_fetcher::DataFetcher, 197
    skdaccess::geo::grace::mascon::cache::data_↩ fetcher::DataFetcher, 191
    skdaccess::geo::groundwater::data_fetcher::Data↩ Fetcher, 100
    skdaccess::geo::imsdnhs::data_fetcher::Data↩ Fetcher, 178
    skdaccess::geo::magnetometer::data_fetcher::↩ DataFetcher, 121
    skdaccess::geo::mahali::rinex::data_fetcher::Data↩ Fetcher, 226
    skdaccess::geo::mahali::tec::data_fetcher::Data↩ Fetcher, 211
    skdaccess::geo::mahali::temperature::data_fetcher↩ ::DataFetcher, 232
    skdaccess::geo::modis::cache::cloud_mask::data_↩ fetcher::DataFetcher, 150
    skdaccess::geo::modis::cache::cloud_opacity↩ ::data_fetcher::DataFetcher, 140
    skdaccess::geo::modis::cache::data_fetcher::Data↩ Fetcher, 153
    skdaccess::geo::modis::cache::reflectance::data_↩ fetcher::DataFetcher, 151
    skdaccess::geo::modis::stream::cloud_mask::data↩ _fetcher::DataFetcher, 162
    skdaccess::geo::modis::stream::cloud_opacity↩ ::data_fetcher::DataFetcher, 161
    skdaccess::geo::modis::stream::data_fetcher::↩ DataFetcher, 172

skdaccess::geo::modis::stream::reflectance::data_↩
fetcher::DataFetcher, 126
skdaccess::geo::ngl_gps::data_fetcher::DataFetcher, 237
skdaccess::geo::pbo::data_fetcher::DataFetcher, 217
skdaccess::geo::sentinel_1::cache::data_fetcher::↩
DataFetcher, 94
skdaccess::geo::srtm::cache::data_fetcher::Data↩
Fetcher, 107
skdaccess::geo::uavsar::cache::data_fetcher::Data↩
Fetcher, 114
skdaccess::geo::wyoming_sounding::cache::data_↩
fetcher::DataFetcher, 128
skdaccess::geo::wyoming_sounding::stream::data↩
_fetcher::DataFetcher, 135
skdaccess::planetary::ode::cache::data_fetcher::↩
DataFetcher, 164
skdaccess::solar::sdo::data_fetcher::DataFetcher, 244
skdaccess::utilities::file_browser::FileBrowser, 281
skdaccess::utilities::image_util::LinearGeolocation, 290
skdaccess::utilities::image_util::SplineLatLon, 309
skdaccess::utilities::modis_util::LatLon, 287
skdaccess::utilities::sounding_util::SoundingParser, 305
__len__
skdaccess::framework::data_class::DataWrapper↩
Base, 277
skdaccess::framework::data_class::ImageWrapper, 283
skdaccess::framework::data_class::SeriesDictionary↩
Wrapper, 295
skdaccess::framework::data_class::SeriesWrapper, 301
skdaccess::framework::data_class::TableWrapper, 313
skdaccess::framework::data_class::XArrayWrapper, 321
skdaccess::framework::param_class::AutoList, 55
skdaccess::framework::param_class::AutoListCycle, 59
skdaccess::framework::param_class::AutoList↩
Permute, 63
skdaccess::framework::param_class::AutoList↩
Remove, 68
skdaccess::framework::param_class::AutoList↩
Subset, 72
skdaccess::geo::mahali::rinex::data_wrapper::Data↩
Wrapper, 272
__setitem__
skdaccess::framework::param_class::AutoList, 55
skdaccess::framework::param_class::AutoListCycle, 60
skdaccess::framework::param_class::AutoList↩
Permute, 64
skdaccess::framework::param_class::AutoList↩
Remove, 68
skdaccess::framework::param_class::AutoList↩
Subset, 72
__str__
skdaccess::astro::kepler::data_fetcher::DataFetcher, 204
skdaccess::astro::voyager::data_fetcher::Data↩
Fetcher, 143
skdaccess::framework::data_class::DataFetcher↩
Base, 248
skdaccess::framework::data_class::DataFetcher↩
Cache, 253
skdaccess::framework::data_class::DataFetcher↩
Local, 258
skdaccess::framework::data_class::DataFetcher↩
Storage, 263
skdaccess::framework::data_class::DataFetcher↩
Stream, 268
skdaccess::framework::param_class::AutoList, 55
skdaccess::framework::param_class::AutoListCycle, 60
skdaccess::framework::param_class::AutoList↩
Permute, 64
skdaccess::framework::param_class::AutoList↩
Remove, 68
skdaccess::framework::param_class::AutoList↩
Subset, 72
skdaccess::framework::param_class::AutoParam, 76
skdaccess::framework::param_class::AutoParamList, 78
skdaccess::framework::param_class::AutoParam↩
ListCycle, 81
skdaccess::framework::param_class::AutoParam↩
MinMax, 84
skdaccess::geo::era_interim::cache::data_fetcher::↩
DataFetcher, 185
skdaccess::geo::gldas::data_fetcher::DataFetcher, 88
skdaccess::geo::grace::data_fetcher::DataFetcher, 198
skdaccess::geo::grace::mascon::cache::data_↩
fetcher::DataFetcher, 191
skdaccess::geo::groundwater::data_fetcher::Data↩
Fetcher, 101
skdaccess::geo::imsdnhs::data_fetcher::Data↩
Fetcher, 179
skdaccess::geo::magnetometer::data_fetcher::↩
DataFetcher, 121
skdaccess::geo::mahali::rinex::data_fetcher::Data↩
Fetcher, 226
skdaccess::geo::mahali::tec::data_fetcher::Data↩

Fetcher, 211
skdaccess::geo::mahali::temperature::data_fetcher::DataFetcher, 232
skdaccess::geo::modis::cache::data_fetcher::DataFetcher, 154
skdaccess::geo::modis::stream::data_fetcher::DataFetcher, 173
skdaccess::geo::ngl_gps::data_fetcher::DataFetcher, 237
skdaccess::geo::pbo::data_fetcher::DataFetcher, 218
skdaccess::geo::sentinel_1::cache::data_fetcher::DataFetcher, 94
skdaccess::geo::srtm::cache::data_fetcher::DataFetcher, 108
skdaccess::geo::uavsar::cache::data_fetcher::DataFetcher, 115
skdaccess::geo::wyoming_sounding::cache::data_fetcher::DataFetcher, 129
skdaccess::geo::wyoming_sounding::stream::data_fetcher::DataFetcher, 136
skdaccess::planetary::ode::cache::data_fetcher::DataFetcher, 165
skdaccess::solar::sdo::data_fetcher::DataFetcher, 244

addColumn
skdaccess::framework::data_class::TableWrapper, 314
addResult
skdaccess::framework::data_class::DataWrapperBase, 277
skdaccess::framework::data_class::ImageWrapper, 283
skdaccess::framework::data_class::SeriesDictionaryWrapper, 295
skdaccess::framework::data_class::SeriesWrapper, 301
skdaccess::framework::data_class::TableWrapper, 314
skdaccess::framework::data_class::XArrayWrapper, 321
skdaccess::geo::mahali::rinex::data_wrapper::DataWrapper, 272
alat
skdaccess::utilities::modis_util::LatLon, 288
alon
skdaccess::utilities::modis_util::LatLon, 288
antenna_info
skdaccess::geo::pbo::data_fetcher::DataFetcher, 223
ap_paramList
skdaccess::astro::kepler::data_fetcher::DataFetcher, 209
skdaccess::astro::voyager::data_fetcher::DataFetcher, 148
skdaccess::framework::data_class::DataFetcherBase, 251
skdaccess::framework::data_class::DataFetcherCache, 257
skdaccess::framework::data_class::DataFetcherLocal, 261
skdaccess::framework::data_class::DataFetcherStorage, 267
skdaccess::framework::data_class::DataFetcherStream, 271
skdaccess::geo::era_interim::cache::data_fetcher::DataFetcher, 189
skdaccess::geo::gldas::data_fetcher::DataFetcher, 91
skdaccess::geo::grace::data_fetcher::DataFetcher, 201
skdaccess::geo::grace::mascon::cache::data_fetcher::DataFetcher, 195
skdaccess::geo::groundwater::data_fetcher::DataFetcher, 105
skdaccess::geo::imsdnhs::data_fetcher::DataFetcher, 182
skdaccess::geo::magnetometer::data_fetcher::DataFetcher, 124
skdaccess::geo::mahali::rinex::data_fetcher::DataFetcher, 230
skdaccess::geo::mahali::tec::data_fetcher::DataFetcher, 215
skdaccess::geo::mahali::temperature::data_fetcher::DataFetcher, 235
skdaccess::geo::modis::cache::data_fetcher::DataFetcher, 158
skdaccess::geo::modis::stream::data_fetcher::DataFetcher, 175
skdaccess::geo::ngl_gps::data_fetcher::DataFetcher, 241
skdaccess::geo::pbo::data_fetcher::DataFetcher, 223
skdaccess::geo::sentinel_1::cache::data_fetcher::DataFetcher, 98
skdaccess::geo::srtm::cache::data_fetcher::DataFetcher, 112
skdaccess::geo::uavsar::cache::data_fetcher::DataFetcher, 119
skdaccess::geo::wyoming_sounding::cache::data_fetcher::DataFetcher, 132
skdaccess::geo::wyoming_sounding::stream::data_fetcher::DataFetcher, 138
skdaccess::planetary::ode::cache::data_fetcher::DataFetcher, 168
skdaccess::solar::sdo::data_fetcher::DataFetcher, 247
arcsecond_sampling
skdaccess::geo::srtm::cache::data_fetcher::DataFetcher, 112

astro/kepler/data_fetcher.py, 334
astro/voyager/data_fetcher.py, 334
averageDates
skdaccess::utilities::grace_util, 27

base_url
skdaccess::astro::voyager::data_fetcher::Data↩ Fetcher, 148

cacheData
skdaccess::astro::kepler::data_fetcher::DataFetcher, 204
skdaccess::astro::voyager::data_fetcher::Data↩ Fetcher, 143
skdaccess::framework::data_class::DataFetcher↩ Cache, 253
skdaccess::geo::era_interim::cache::data_fetcher::↩ DataFetcher, 185
skdaccess::geo::grace::mascon::cache::data_↩ fetcher::DataFetcher, 191
skdaccess::geo::mahali::rinex::data_fetcher::Data↩ Fetcher, 226
skdaccess::geo::mahali::tec::data_fetcher::Data↩ Fetcher, 211
skdaccess::geo::modis::cache::data_fetcher::Data↩ Fetcher, 154
skdaccess::geo::sentinel_1::cache::data_fetcher::↩ DataFetcher, 94
skdaccess::geo::srtm::cache::data_fetcher::Data↩ Fetcher, 108
skdaccess::geo::uavsar::cache::data_fetcher::Data↩ Fetcher, 115
skdaccess::geo::wyoming_sounding::cache::data_↩ fetcher::DataFetcher, 129
skdaccess::planetary::ode::cache::data_fetcher::↩ DataFetcher, 165
calibrateModis
skdaccess::utilities::modis_util, 34
channels
skdaccess::geo::magnetometer::data_fetcher::↩ DataFetcher, 124
checkBit
skdaccess::utilities::modis_util, 35
combine_water_heights
skdaccess::utilities::gw_util, 31
computeEWD
skdaccess::utilities::grace_util, 28
constants
skdaccess::framework::data_class::DataWrapper↩ Base, 279
skdaccess::framework::data_class::ImageWrapper, 286
skdaccess::framework::data_class::SeriesDictionary↩ Wrapper, 298
skdaccess::framework::data_class::SeriesWrapper, 303
skdaccess::framework::data_class::TableWrapper, 318
skdaccess::framework::data_class::XArrayWrapper, 323
skdaccess::geo::mahali::rinex::data_wrapper::Data↩ Wrapper, 275
convert_date
skdaccess::utilities::mahali_util, 33
convertBinCentersToEdges
skdaccess::utilities::image_util, 32
convertToStr
skdaccess::utilities::support, 50
coordinate_dict
skdaccess::geo::imsdnhs::data_fetcher::Data↩ Fetcher, 182
correct_CRISM_label
skdaccess::utilities::ode_util, 39
correct_file_name_case_in_label
skdaccess::utilities::ode_util, 39
correct_label_file
skdaccess::utilities::ode_util, 40
createGrid
skdaccess::utilities::modis_util, 35
current_index
skdaccess::framework::param_class::AutoParam↩ ListCycle, 82
cutoff
skdaccess::geo::groundwater::data_fetcher::Data↩ Fetcher, 105

data
skdaccess::framework::data_class::DataWrapper↩ Base, 279
skdaccess::framework::data_class::ImageWrapper, 286
skdaccess::framework::data_class::SeriesDictionary↩ Wrapper, 298
skdaccess::framework::data_class::SeriesWrapper, 303
skdaccess::framework::data_class::TableWrapper, 318
skdaccess::framework::data_class::XArrayWrapper, 323
skdaccess::geo::mahali::rinex::data_wrapper::Data↩ Wrapper, 275
data_dict
skdaccess::utilities::sounding_util::SoundingParser, 307
data_names
skdaccess::framework::data_class::SeriesDictionary↩ Wrapper, 298

skdaccess::framework::data_class::SeriesWrapper, 304
skdaccess::geo::era_interim::cache::data_fetcher::DataFetcher, 189
data_type
skdaccess::geo::magnetometer::data_fetcher::DataFetcher, 125
skdaccess::geo::ngl_gps::data_fetcher::DataFetcher, 241
date_list
skdaccess::geo::era_interim::cache::data_fetcher::DataFetcher, 189
date_range
skdaccess::geo::mahali::rinex::data_fetcher::DataFetcher, 230
skdaccess::geo::mahali::tec::data_fetcher::DataFetcher, 215
dateMismatch
skdaccess::utilities::grace_util, 28
day_end
skdaccess::geo::wyoming_sounding::cache::data_fetcher::DataFetcher, 132
skdaccess::geo::wyoming_sounding::stream::data_fetcher::DataFetcher, 138
day_start
skdaccess::geo::wyoming_sounding::cache::data_fetcher::DataFetcher, 132
skdaccess::geo::wyoming_sounding::stream::data_fetcher::DataFetcher, 139
daynightboth
skdaccess::geo::modis::cache::data_fetcher::DataFetcher, 158
skdaccess::geo::modis::stream::data_fetcher::DataFetcher, 175
decimals
skdaccess::framework::param_class::AutoParamMinMax, 85
default_columns
skdaccess::framework::data_class::TableWrapper, 318
skdaccess::geo::pbo::data_fetcher::DataFetcher, 223
default_error_columns
skdaccess::framework::data_class::TableWrapper, 318
skdaccess::geo::pbo::data_fetcher::DataFetcher, 223
deleteData
skdaccess::framework::data_class::ImageWrapper, 283
dirs
skdaccess::utilities::file_browser::FileBrowser, 281
downloadFullDataset
skdaccess::framework::data_class::DataFetcherStorage, 263
skdaccess::geo::gldas::data_fetcher::DataFetcher, 88
skdaccess::geo::grace::data_fetcher::DataFetcher, 198
skdaccess::geo::groundwater::data_fetcher::DataFetcher, 101
skdaccess::geo::imsdnhs::data_fetcher::DataFetcher, 179
skdaccess::geo::ngl_gps::data_fetcher::DataFetcher, 238
skdaccess::geo::pbo::data_fetcher::DataFetcher, 218
downloadKeplerData
skdaccess::astro::kepler::data_fetcher::DataFetcher, 206

eastern_lon
skdaccess::planetary::ode::cache::data_fetcher::DataFetcher, 168
end_date
skdaccess::geo::gldas::data_fetcher::DataFetcher, 91
skdaccess::geo::grace::data_fetcher::DataFetcher, 201
skdaccess::geo::grace::mascon::cache::data_fetcher::DataFetcher, 195
skdaccess::geo::groundwater::data_fetcher::DataFetcher, 105
skdaccess::geo::imsdnhs::data_fetcher::DataFetcher, 182
skdaccess::geo::mahali::rinex::data_fetcher::DataFetcher, 230
skdaccess::geo::mahali::tec::data_fetcher::DataFetcher, 215
skdaccess::geo::mahali::temperature::data_fetcher::DataFetcher, 235
skdaccess::geo::modis::cache::data_fetcher::DataFetcher, 158
skdaccess::geo::modis::stream::data_fetcher::DataFetcher, 176
skdaccess::geo::ngl_gps::data_fetcher::DataFetcher, 241
end_hour
skdaccess::geo::wyoming_sounding::cache::data_fetcher::DataFetcher, 132
skdaccess::geo::wyoming_sounding::stream::data_fetcher::DataFetcher, 139
end_time
skdaccess::geo::magnetometer::data_fetcher::DataFetcher, 125
error_names
skdaccess::framework::data_class::SeriesDictionaryWrapper, 298
skdaccess::framework::data_class::SeriesWrapper, 304

field_names

skdaccess::astro::voyager::data_fetcher::Data↩ Fetcher, 148
field_widths
skdaccess::astro::voyager::data_fetcher::Data↩ Fetcher, 149
file_name
skdaccess::planetary::ode::cache::data_fetcher::↩ DataFetcher, 168
files
skdaccess::utilities::file_browser::FileBrowser, 281
find_data
skdaccess::geo::modis::cache::data_fetcher::Data↩ Fetcher, 155
flip_y
skdaccess::utilities::image_util::LinearGeolocation, 292
framework/data_class.py, 325
framework/param_class.py, 326

generate_links
skdaccess::geo::mahali::rinex::data_fetcher::Data↩ Fetcher, 230
generateQueries
skdaccess::utilities::sounding_util, 48
generateURL
skdaccess::astro::voyager::data_fetcher::Data↩ Fetcher, 144
geo/era_interim/cache/data_fetcher.py, 329
geo/gldas/data_fetcher.py, 329
geo/grace/data_fetcher.py, 327
geo/grace/mascon/cache/data_fetcher.py, 327
geo/groundwater/data_fetcher.py, 334
geo/imsdnhs/data_fetcher.py, 329
geo/magnetometer/data_fetcher.py, 330
geo/mahali/rinex/data_fetcher.py, 328
geo/mahali/rinex/data_wrapper.py, 326
geo/mahali/tec/data_fetcher.py, 328
geo/mahali/temperature/data_fetcher.py, 328
geo/modis/cache/cloud_mask/data_fetcher.py, 331
geo/modis/cache/cloud_opacity/data_fetcher.py, 331
geo/modis/cache/data_fetcher.py, 332
geo/modis/cache/reflectance/data_fetcher.py, 331
geo/modis/stream/cloud_mask/data_fetcher.py, 332
geo/modis/stream/cloud_opacity/data_fetcher.py, 332
geo/modis/stream/data_fetcher.py, 333
geo/modis/stream/reflectance/data_fetcher.py, 332
geo/ngl_gps/data_fetcher.py, 328
geo/pbo/data_fetcher.py, 334
geo/sentinel_1/cache/data_fetcher.py, 330
geo/srtm/cache/data_fetcher.py, 333
geo/uavsar/cache/data_fetcher.py, 333
geo/wyoming_sounding/cache/data_fetcher.py, 330
geo/wyoming_sounding/stream/data_fetcher.py, 330
get
skdaccess::framework::data_class::DataWrapper↩ Base, 278
skdaccess::framework::data_class::ImageWrapper, 284
skdaccess::framework::data_class::SeriesDictionary↩ Wrapper, 295
skdaccess::framework::data_class::SeriesWrapper, 301
skdaccess::framework::data_class::TableWrapper, 314
skdaccess::framework::data_class::XArrayWrapper, 321
skdaccess::geo::mahali::rinex::data_wrapper::Data↩ Wrapper, 273
get_files_urls
skdaccess::utilities::ode_util, 40
get_query_url
skdaccess::utilities::ode_util, 40
get_raster_array
skdaccess::utilities::ode_util, 41
get_raster_extent
skdaccess::utilities::ode_util, 41
getAllOptions
skdaccess::framework::param_class::AutoList, 56
skdaccess::framework::param_class::AutoListCycle, 60
skdaccess::framework::param_class::AutoList↩ Permute, 64
skdaccess::framework::param_class::AutoList↩ Remove, 69
skdaccess::framework::param_class::AutoList↩ Subset, 73
getAntennaLogs
skdaccess::geo::ngl_gps::data_fetcher::DataFetcher, 238
skdaccess::geo::pbo::data_fetcher::DataFetcher, 219
getConfig
skdaccess::astro::kepler::data_fetcher::DataFetcher, 206
skdaccess::astro::voyager::data_fetcher::Data↩ Fetcher, 144
skdaccess::framework::data_class::DataFetcher↩ Base, 249
skdaccess::framework::data_class::DataFetcher↩ Cache, 254
skdaccess::framework::data_class::DataFetcher↩ Local, 258
skdaccess::framework::data_class::DataFetcher↩ Storage, 263
skdaccess::framework::data_class::DataFetcher↩ Stream, 268
skdaccess::geo::era_interim::cache::data_fetcher::↩ DataFetcher, 186
skdaccess::geo::gldas::data_fetcher::DataFetcher,

89
skdaccess::geo::grace::data_fetcher::DataFetcher, 199
skdaccess::geo::grace::mascon::cache::data_↩ fetcher::DataFetcher, 192
skdaccess::geo::groundwater::data_fetcher::Data↩ Fetcher, 102
skdaccess::geo::imsdnhs::data_fetcher::Data↩ Fetcher, 180
skdaccess::geo::magnetometer::data_fetcher::↩ DataFetcher, 122
skdaccess::geo::mahali::rinex::data_fetcher::Data↩ Fetcher, 227
skdaccess::geo::mahali::tec::data_fetcher::Data↩ Fetcher, 212
skdaccess::geo::mahali::temperature::data_fetcher↩ ::DataFetcher, 232
skdaccess::geo::modis::cache::data_fetcher::Data↩ Fetcher, 155
skdaccess::geo::modis::stream::data_fetcher::↩ DataFetcher, 173
skdaccess::geo::ngl_gps::data_fetcher::DataFetcher, 238
skdaccess::geo::pbo::data_fetcher::DataFetcher, 219
skdaccess::geo::sentinel_1::cache::data_fetcher::↩ DataFetcher, 95
skdaccess::geo::srtm::cache::data_fetcher::Data↩ Fetcher, 109
skdaccess::geo::uavsar::cache::data_fetcher::Data↩ Fetcher, 116
skdaccess::geo::wyoming_sounding::cache::data_↩ fetcher::DataFetcher, 129
skdaccess::geo::wyoming_sounding::stream::data↩ _fetcher::DataFetcher, 136
skdaccess::planetary::ode::cache::data_fetcher::↩ DataFetcher, 165
skdaccess::solar::sdo::data_fetcher::DataFetcher, 244
getDataLocation
skdaccess::astro::kepler::data_fetcher::DataFetcher, 206
skdaccess::astro::voyager::data_fetcher::Data↩ Fetcher, 144
skdaccess::framework::data_class::DataFetcher↩ Cache, 254
skdaccess::framework::data_class::DataFetcher↩ Local, 259
skdaccess::framework::data_class::DataFetcher↩ Storage, 263
skdaccess::geo::era_interim::cache::data_fetcher::↩ DataFetcher, 186
skdaccess::geo::gldas::data_fetcher::DataFetcher, 89
skdaccess::geo::grace::data_fetcher::DataFetcher, 199
skdaccess::geo::grace::mascon::cache::data_↩ fetcher::DataFetcher, 192
skdaccess::geo::groundwater::data_fetcher::Data↩ Fetcher, 102
skdaccess::geo::imsdnhs::data_fetcher::Data↩ Fetcher, 180
skdaccess::geo::mahali::rinex::data_fetcher::Data↩ Fetcher, 227
skdaccess::geo::mahali::tec::data_fetcher::Data↩ Fetcher, 212
skdaccess::geo::modis::cache::data_fetcher::Data↩ Fetcher, 156
skdaccess::geo::ngl_gps::data_fetcher::DataFetcher, 238
skdaccess::geo::pbo::data_fetcher::DataFetcher, 219
skdaccess::geo::sentinel_1::cache::data_fetcher::↩ DataFetcher, 95
skdaccess::geo::srtm::cache::data_fetcher::Data↩ Fetcher, 109
skdaccess::geo::uavsar::cache::data_fetcher::Data↩ Fetcher, 116
skdaccess::geo::wyoming_sounding::cache::data_↩ fetcher::DataFetcher, 129
skdaccess::planetary::ode::cache::data_fetcher::↩ DataFetcher, 165
getDataMetadata
skdaccess::geo::magnetometer::data_fetcher::↩ DataFetcher, 122
getDefaultColumns
skdaccess::framework::data_class::TableWrapper, 315
getDefaultErrorColumns
skdaccess::framework::data_class::TableWrapper, 315
getExtents
skdaccess::utilities::image_util::LinearGeolocation, 291
getExtentsFromCentersPlateCarree
skdaccess::utilities::image_util, 32
getFileIDs
skdaccess::utilities::modis_util, 36
getFileURLs
skdaccess::utilities::modis_util, 36
getHDFStorage
skdaccess::astro::kepler::data_fetcher::DataFetcher, 207
skdaccess::astro::voyager::data_fetcher::Data↩ Fetcher, 145
skdaccess::framework::data_class::DataFetcher↩ Cache, 254
skdaccess::geo::era_interim::cache::data_fetcher::↩ DataFetcher, 186
skdaccess::geo::grace::mascon::cache::data_↩

fetcher::DataFetcher, 193
skdaccess::geo::mahali::rinex::data_fetcher::Data↩ Fetcher, 228
skdaccess::geo::mahali::tec::data_fetcher::Data↩ Fetcher, 213
skdaccess::geo::modis::cache::data_fetcher::Data↩ Fetcher, 156
skdaccess::geo::sentinel_1::cache::data_fetcher::↩ DataFetcher, 96
skdaccess::geo::srtm::cache::data_fetcher::Data↩ Fetcher, 109
skdaccess::geo::uavsar::cache::data_fetcher::Data↩ Fetcher, 116
skdaccess::geo::wyoming_sounding::cache::data_↩ fetcher::DataFetcher, 130
skdaccess::planetary::ode::cache::data_fetcher::↩ DataFetcher, 166
getImageType
skdaccess::utilities::modis_util, 37
getIndices
skdaccess::framework::data_class::SeriesDictionary↩ Wrapper, 296
skdaccess::framework::data_class::SeriesWrapper, 301
getInfo
skdaccess::geo::pbo::data_fetcher::DataFetcher, 220
getIterator
skdaccess::framework::data_class::DataWrapper↩ Base, 278
skdaccess::framework::data_class::ImageWrapper, 284
skdaccess::framework::data_class::SeriesDictionary↩ Wrapper, 296
skdaccess::framework::data_class::SeriesWrapper, 302
skdaccess::framework::data_class::TableWrapper, 315
skdaccess::framework::data_class::XArrayWrapper, 321
skdaccess::geo::mahali::rinex::data_wrapper::Data↩ Wrapper, 273
getLatLon
skdaccess::utilities::image_util::LinearGeolocation, 291
getLatLonRange
skdaccess::utilities::pbo_util, 43
getLength
skdaccess::framework::data_class::SeriesDictionary↩ Wrapper, 296
skdaccess::framework::data_class::SeriesWrapper, 302
skdaccess::framework::data_class::TableWrapper, 315
getMasconPlacement
skdaccess::geo::grace::mascon::cache::data_↩ fetcher::DataFetcher, 193
getMetadata
skdaccess::astro::kepler::data_fetcher::DataFetcher, 207
skdaccess::astro::voyager::data_fetcher::Data↩ Fetcher, 145
skdaccess::framework::data_class::DataFetcher↩ Base, 249
skdaccess::framework::data_class::DataFetcher↩ Cache, 254
skdaccess::framework::data_class::DataFetcher↩ Local, 259
skdaccess::framework::data_class::DataFetcher↩ Storage, 265
skdaccess::framework::data_class::DataFetcher↩ Stream, 269
skdaccess::geo::era_interim::cache::data_fetcher::↩ DataFetcher, 186
skdaccess::geo::gldas::data_fetcher::DataFetcher, 89
skdaccess::geo::grace::data_fetcher::DataFetcher, 199
skdaccess::geo::grace::mascon::cache::data_↩ fetcher::DataFetcher, 193
skdaccess::geo::groundwater::data_fetcher::Data↩ Fetcher, 102
skdaccess::geo::imsdnhs::data_fetcher::Data↩ Fetcher, 180
skdaccess::geo::magnetometer::data_fetcher::↩ DataFetcher, 122
skdaccess::geo::mahali::rinex::data_fetcher::Data↩ Fetcher, 228
skdaccess::geo::mahali::tec::data_fetcher::Data↩ Fetcher, 213
skdaccess::geo::mahali::temperature::data_fetcher↩ ::DataFetcher, 233
skdaccess::geo::modis::cache::data_fetcher::Data↩ Fetcher, 156
skdaccess::geo::modis::stream::data_fetcher::↩ DataFetcher, 173
skdaccess::geo::ngl_gps::data_fetcher::DataFetcher, 239
skdaccess::geo::pbo::data_fetcher::DataFetcher, 220
skdaccess::geo::sentinel_1::cache::data_fetcher::↩ DataFetcher, 96
skdaccess::geo::srtm::cache::data_fetcher::Data↩ Fetcher, 109
skdaccess::geo::uavsar::cache::data_fetcher::Data↩ Fetcher, 116
skdaccess::geo::wyoming_sounding::cache::data_↩ fetcher::DataFetcher, 130
skdaccess::geo::wyoming_sounding::stream::data↩ _fetcher::DataFetcher, 136

skdaccess::planetary::ode::cache::data_fetcher::↩ DataFetcher, 166
skdaccess::solar::sdo::data_fetcher::DataFetcher, 244
getMetadataFiles
skdaccess::astro::voyager::data_fetcher::Data↩ Fetcher, 145
getModisData
skdaccess::utilities::modis_util, 37
getROIstations
skdaccess::utilities::pbo_util, 43
getResults
skdaccess::framework::data_class::DataWrapper↩ Base, 278
skdaccess::framework::data_class::ImageWrapper, 284
skdaccess::framework::data_class::SeriesDictionary↩ Wrapper, 296
skdaccess::framework::data_class::SeriesWrapper, 302
skdaccess::framework::data_class::TableWrapper, 316
skdaccess::framework::data_class::XArrayWrapper, 322
skdaccess::geo::mahali::rinex::data_wrapper::Data↩ Wrapper, 273
getSRTMData
skdaccess::utilities::srtm_util, 48
getSRTMLatLon
skdaccess::utilities::srtm_util, 49
getStartEndDate
skdaccess::utilities::grace_util, 30
getStationCoords
skdaccess::utilities::pbo_util, 44
getStationMetadata
skdaccess::geo::groundwater::data_fetcher::Data↩ Fetcher, 103
skdaccess::geo::ngl_gps::data_fetcher::DataFetcher, 239
skdaccess::geo::pbo::data_fetcher::DataFetcher, 220
getYX
skdaccess::utilities::image_util::LinearGeolocation, 291
grid
skdaccess::geo::modis::cache::data_fetcher::Data↩ Fetcher, 159
skdaccess::geo::modis::stream::data_fetcher::↩ DataFetcher, 176
grid_fill
skdaccess::geo::modis::cache::data_fetcher::Data↩ Fetcher, 159
skdaccess::geo::modis::stream::data_fetcher::↩ DataFetcher, 176
handle_data
skdaccess::utilities::sounding_util::SoundingParser, 306
handle_endtag
skdaccess::utilities::sounding_util::SoundingParser, 306
handle_starttag
skdaccess::utilities::sounding_util::SoundingParser, 306
in_header
skdaccess::utilities::sounding_util::SoundingParser, 307
in_pre_tag
skdaccess::utilities::sounding_util::SoundingParser, 307
index
skdaccess::framework::param_class::AutoListCycle, 61
index_date_only
skdaccess::geo::pbo::data_fetcher::DataFetcher, 223
index_list
skdaccess::framework::data_class::XArrayWrapper, 323
info
skdaccess::framework::data_class::DataWrapper↩ Base, 278
skdaccess::framework::data_class::ImageWrapper, 284
skdaccess::framework::data_class::SeriesDictionary↩ Wrapper, 297
skdaccess::framework::data_class::SeriesWrapper, 302
skdaccess::framework::data_class::TableWrapper, 316
skdaccess::framework::data_class::XArrayWrapper, 322
skdaccess::geo::mahali::rinex::data_wrapper::Data↩ Wrapper, 274
instrument
skdaccess::planetary::ode::cache::data_fetcher::↩ DataFetcher, 168
interval
skdaccess::geo::magnetometer::data_fetcher::↩ DataFetcher, 125
label
skdaccess::utilities::sounding_util::SoundingParser, 307
lat_data
skdaccess::utilities::modis_util::LatLon, 288
lat_extents
skdaccess::utilities::image_util::LinearGeolocation, 292
lat_func

skdaccess::utilities::image_util::SplineLatLon, 311
lat_pixel_size
skdaccess::utilities::image_util::LinearGeolocation, 292
lat_range
skdaccess::geo::ngl_gps::data_fetcher::DataFetcher, 242
lat_tile_end
skdaccess::geo::srtm::cache::data_fetcher::DataFetcher, 112
lat_tile_start
skdaccess::geo::srtm::cache::data_fetcher::DataFetcher, 112
len_x
skdaccess::utilities::image_util::LinearGeolocation, 292
len_y
skdaccess::utilities::image_util::LinearGeolocation, 292
list_val_list
skdaccess::framework::param_class::AutoListCycle, 61
llh_url
skdaccess::geo::uavsar::cache::data_fetcher::DataFetcher, 119
local_paths
skdaccess::geo::sentinel_1::cache::data_fetcher::DataFetcher, 98
lon_data
skdaccess::utilities::modis_util::LatLon, 289
lon_extents
skdaccess::utilities::image_util::LinearGeolocation, 293
lon_func
skdaccess::utilities::image_util::SplineLatLon, 311
lon_pixel_size
skdaccess::utilities::image_util::LinearGeolocation, 293
lon_range
skdaccess::geo::ngl_gps::data_fetcher::DataFetcher, 242
lon_tile_end
skdaccess::geo::srtm::cache::data_fetcher::DataFetcher, 112
lon_tile_start
skdaccess::geo::srtm::cache::data_fetcher::DataFetcher, 112

mascon_placement_url
skdaccess::geo::grace::mascon::cache::data_fetcher::DataFetcher, 195
mascon_url
skdaccess::geo::grace::mascon::cache::data_fetcher::DataFetcher, 195
mask_water
skdaccess::geo::srtm::cache::data_fetcher::DataFetcher, 113
max_lat
skdaccess::planetary::ode::cache::data_fetcher::DataFetcher, 169
max_ob_time
skdaccess::planetary::ode::cache::data_fetcher::DataFetcher, 169
mdyratio
skdaccess::geo::ngl_gps::data_fetcher::DataFetcher, 242
memmap
skdaccess::geo::uavsar::cache::data_fetcher::DataFetcher, 119
merge_srtm_tiles
skdaccess::utilities::srtm_util, 50
meta_data
skdaccess::framework::data_class::DataWrapperBase, 280
skdaccess::framework::data_class::ImageWrapper, 286
skdaccess::framework::data_class::SeriesDictionaryWrapper, 298
skdaccess::framework::data_class::SeriesWrapper, 304
skdaccess::framework::data_class::TableWrapper, 318
skdaccess::framework::data_class::XArrayWrapper, 323
skdaccess::geo::mahali::rinex::data_wrapper::DataWrapper, 275
skdaccess::geo::pbo::data_fetcher::DataFetcher, 223
metadata_dict
skdaccess::utilities::sounding_util::SoundingParser, 307
metadata_url_list
skdaccess::geo::uavsar::cache::data_fetcher::DataFetcher, 119
min_lat
skdaccess::planetary::ode::cache::data_fetcher::DataFetcher, 169
min_ob_time
skdaccess::planetary::ode::cache::data_fetcher::DataFetcher, 169
mission
skdaccess::planetary::ode::cache::data_fetcher::DataFetcher, 169
modis_id
skdaccess::geo::modis::cache::data_fetcher::DataFetcher, 159
skdaccess::geo::modis::stream::data_fetcher::DataFetcher, 176
modis_identifier

skdaccess::geo::modis::cache::data_fetcher::Data↩ Fetcher, 159
skdaccess::geo::modis::stream::data_fetcher::↩ DataFetcher, 176
modis_platform
skdaccess::geo::modis::cache::data_fetcher::Data↩ Fetcher, 159
skdaccess::geo::modis::stream::data_fetcher::↩ DataFetcher, 176
month_list
skdaccess::geo::wyoming_sounding::cache::data_↩ fetcher::DataFetcher, 133
skdaccess::geo::wyoming_sounding::stream::data↩ _fetcher::DataFetcher, 139
multirun_enabled
skdaccess::astro::kepler::data_fetcher::DataFetcher, 207
skdaccess::astro::voyager::data_fetcher::Data↩ Fetcher, 145
skdaccess::framework::data_class::DataFetcher↩ Base, 249
skdaccess::framework::data_class::DataFetcher↩ Cache, 255
skdaccess::framework::data_class::DataFetcher↩ Local, 259
skdaccess::framework::data_class::DataFetcher↩ Storage, 265
skdaccess::framework::data_class::DataFetcher↩ Stream, 269
skdaccess::geo::era_interim::cache::data_fetcher::↩ DataFetcher, 187
skdaccess::geo::gldas::data_fetcher::DataFetcher, 90
skdaccess::geo::grace::data_fetcher::DataFetcher, 199
skdaccess::geo::grace::mascon::cache::data_↩ fetcher::DataFetcher, 193
skdaccess::geo::groundwater::data_fetcher::Data↩ Fetcher, 103
skdaccess::geo::imsdnhs::data_fetcher::Data↩ Fetcher, 180
skdaccess::geo::magnetometer::data_fetcher::↩ DataFetcher, 122
skdaccess::geo::mahali::rinex::data_fetcher::Data↩ Fetcher, 228
skdaccess::geo::mahali::tec::data_fetcher::Data↩ Fetcher, 213
skdaccess::geo::mahali::temperature::data_fetcher↩ ::DataFetcher, 233
skdaccess::geo::modis::cache::data_fetcher::Data↩ Fetcher, 156
skdaccess::geo::modis::stream::data_fetcher::↩ DataFetcher, 173
skdaccess::geo::ngl_gps::data_fetcher::DataFetcher, 239
skdaccess::geo::pbo::data_fetcher::DataFetcher, 220
skdaccess::geo::sentinel_1::cache::data_fetcher::↩ DataFetcher, 96
skdaccess::geo::srtm::cache::data_fetcher::Data↩ Fetcher, 110
skdaccess::geo::uavsar::cache::data_fetcher::Data↩ Fetcher, 117
skdaccess::geo::wyoming_sounding::cache::data_↩ fetcher::DataFetcher, 130
skdaccess::geo::wyoming_sounding::stream::data↩ _fetcher::DataFetcher, 136
skdaccess::planetary::ode::cache::data_fetcher::↩ DataFetcher, 166
skdaccess::solar::sdo::data_fetcher::DataFetcher, 245

n
skdaccess::framework::param_class::AutoList↩ Remove, 70
skdaccess::framework::param_class::AutoParam↩ MinMax, 85
n_max
skdaccess::framework::param_class::AutoParam↩ MinMax, 85
normalize
skdaccess::utilities::kepler_util, 32
nostab_sys
skdaccess::utilities::pbo_util, 44
number_product_limit
skdaccess::planetary::ode::cache::data_fetcher::↩ DataFetcher, 169

output
skdaccess::astro::kepler::data_fetcher::DataFetcher, 207
skdaccess::astro::voyager::data_fetcher::Data↩ Fetcher, 146
skdaccess::framework::data_class::DataFetcher↩ Base, 249
skdaccess::framework::data_class::DataFetcher↩ Cache, 255
skdaccess::framework::data_class::DataFetcher↩ Local, 260
skdaccess::framework::data_class::DataFetcher↩ Storage, 265
skdaccess::framework::data_class::DataFetcher↩ Stream, 269
skdaccess::geo::era_interim::cache::data_fetcher::↩ DataFetcher, 187
skdaccess::geo::gldas::data_fetcher::DataFetcher, 90
skdaccess::geo::grace::data_fetcher::DataFetcher, 200

skdaccess::geo::grace::mascon::cache::data_↩
fetcher::DataFetcher, 193
skdaccess::geo::groundwater::data_fetcher::Data↩
Fetcher, 103
skdaccess::geo::imsdnhs::data_fetcher::Data↩
Fetcher, 181
skdaccess::geo::magnetometer::data_fetcher::↩
DataFetcher, 123
skdaccess::geo::mahali::rinex::data_fetcher::Data↩
Fetcher, 228
skdaccess::geo::mahali::tec::data_fetcher::Data↩
Fetcher, 213
skdaccess::geo::mahali::temperature::data_fetcher↩
::DataFetcher, 233
skdaccess::geo::modis::cache::data_fetcher::Data↩
Fetcher, 157
skdaccess::geo::modis::stream::data_fetcher::↩
DataFetcher, 174
skdaccess::geo::ngl_gps::data_fetcher::DataFetcher, 240
skdaccess::geo::pbo::data_fetcher::DataFetcher, 221
skdaccess::geo::sentinel_1::cache::data_fetcher::↩
DataFetcher, 96
skdaccess::geo::srtm::cache::data_fetcher::Data↩
Fetcher, 110
skdaccess::geo::uavsar::cache::data_fetcher::Data↩
Fetcher, 117
skdaccess::geo::wyoming_sounding::cache::data_↩
fetcher::DataFetcher, 130
skdaccess::geo::wyoming_sounding::stream::data↩
_fetcher::DataFetcher, 136, 137
skdaccess::planetary::ode::cache::data_fetcher::↩
DataFetcher, 166
skdaccess::solar::sdo::data_fetcher::DataFetcher, 245

parseIonoFile
skdaccess::utilities::mahali_util, 33
parseSatelliteData
skdaccess::utilities::sentinel_1_util, 47
parseVoyagerData
skdaccess::astro::voyager::data_fetcher::Data↩
Fetcher, 146
parseVoyagerMetadata
skdaccess::astro::voyager::data_fetcher::Data↩
Fetcher, 146
password
skdaccess::geo::era_interim::cache::data_fetcher::↩
DataFetcher, 189
skdaccess::geo::sentinel_1::cache::data_fetcher::↩
DataFetcher, 98
skdaccess::geo::srtm::cache::data_fetcher::Data↩
Fetcher, 113
path
skdaccess::utilities::file_browser::FileBrowser, 281
perturb
skdaccess::astro::kepler::data_fetcher::DataFetcher, 208
skdaccess::astro::voyager::data_fetcher::Data↩
Fetcher, 147
skdaccess::framework::data_class::DataFetcher↩
Base, 250
skdaccess::framework::data_class::DataFetcher↩
Cache, 255
skdaccess::framework::data_class::DataFetcher↩
Local, 260
skdaccess::framework::data_class::DataFetcher↩
Storage, 265
skdaccess::framework::data_class::DataFetcher↩
Stream, 269
skdaccess::framework::param_class::AutoList, 56
skdaccess::framework::param_class::AutoListCycle, 60
skdaccess::framework::param_class::AutoList↩
Permute, 65
skdaccess::framework::param_class::AutoList↩
Remove, 69
skdaccess::framework::param_class::AutoList↩
Subset, 73
skdaccess::framework::param_class::AutoParam, 76
skdaccess::framework::param_class::AutoParamList, 79
skdaccess::framework::param_class::AutoParam↩
ListCycle, 81
skdaccess::framework::param_class::AutoParam↩
MinMax, 84
skdaccess::geo::era_interim::cache::data_fetcher::↩
DataFetcher, 187
skdaccess::geo::gldas::data_fetcher::DataFetcher, 90
skdaccess::geo::grace::data_fetcher::DataFetcher, 200
skdaccess::geo::grace::mascon::cache::data_↩
fetcher::DataFetcher, 194
skdaccess::geo::groundwater::data_fetcher::Data↩
Fetcher, 103
skdaccess::geo::imsdnhs::data_fetcher::Data↩
Fetcher, 181
skdaccess::geo::magnetometer::data_fetcher::↩
DataFetcher, 123
skdaccess::geo::mahali::rinex::data_fetcher::Data↩
Fetcher, 228
skdaccess::geo::mahali::tec::data_fetcher::Data↩
Fetcher, 213
skdaccess::geo::mahali::temperature::data_fetcher↩
::DataFetcher, 233
skdaccess::geo::modis::cache::data_fetcher::Data↩
Fetcher, 157

skdaccess::geo::modis::stream::data_fetcher::↩
DataFetcher, 174
skdaccess::geo::ngl_gps::data_fetcher::DataFetcher, 240
skdaccess::geo::pbo::data_fetcher::DataFetcher, 221
skdaccess::geo::sentinel_1::cache::data_fetcher::↩
DataFetcher, 96
skdaccess::geo::srtm::cache::data_fetcher::Data↩
Fetcher, 110
skdaccess::geo::uavsar::cache::data_fetcher::Data↩
Fetcher, 117
skdaccess::geo::wyoming_sounding::cache::data_↩
fetcher::DataFetcher, 131
skdaccess::geo::wyoming_sounding::stream::data↩
_fetcher::DataFetcher, 137
skdaccess::planetary::ode::cache::data_fetcher::↩
DataFetcher, 167
skdaccess::solar::sdo::data_fetcher::DataFetcher, 245
planetary/ode/cache/data_fetcher.py, 327
polarization
skdaccess::geo::sentinel_1::cache::data_fetcher::↩
DataFetcher, 98
product_id
skdaccess::planetary::ode::cache::data_fetcher::↩
DataFetcher, 169
product_type
skdaccess::planetary::ode::cache::data_fetcher::↩
DataFetcher, 170
progress_bar
skdaccess::utilities::support, 50
propagateErrors
skdaccess::utilities::pbo_util, 45

quarter_list
skdaccess::astro::kepler::data_fetcher::DataFetcher, 209
query_files_urls
skdaccess::utilities::ode_util, 41
query_yes_no
skdaccess::utilities::ode_util, 42

read_data
skdaccess::utilities::sounding_util::SoundingParser, 307
readMODISData
skdaccess::utilities::modis_util, 38
readTellusData
skdaccess::utilities::grace_util, 30
readUAVSARMetadata
skdaccess::utilities::uavsar_util, 51
remove_ndv
skdaccess::planetary::ode::cache::data_fetcher::↩
DataFetcher, 170
removeAntennaOffset
skdaccess::utilities::pbo_util, 45
removeFrames
skdaccess::framework::data_class::TableWrapper, 316
resample
skdaccess::geo::gldas::data_fetcher::DataFetcher, 91
rescale
skdaccess::utilities::modis_util, 38
reset
skdaccess::astro::kepler::data_fetcher::DataFetcher, 208
skdaccess::astro::voyager::data_fetcher::Data↩
Fetcher, 147
skdaccess::framework::data_class::DataFetcher↩
Base, 250
skdaccess::framework::data_class::DataFetcher↩
Cache, 255
skdaccess::framework::data_class::DataFetcher↩
Local, 260
skdaccess::framework::data_class::DataFetcher↩
Storage, 266
skdaccess::framework::data_class::DataFetcher↩
Stream, 270
skdaccess::framework::data_class::DataWrapper↩
Base, 279
skdaccess::framework::data_class::ImageWrapper, 285
skdaccess::framework::data_class::SeriesDictionary↩
Wrapper, 297
skdaccess::framework::data_class::SeriesWrapper, 303
skdaccess::framework::data_class::TableWrapper, 317
skdaccess::framework::data_class::XArrayWrapper, 322
skdaccess::framework::param_class::AutoList, 56
skdaccess::framework::param_class::AutoListCycle, 61
skdaccess::framework::param_class::AutoList↩
Permute, 65
skdaccess::framework::param_class::AutoList↩
Remove, 69
skdaccess::framework::param_class::AutoList↩
Subset, 73
skdaccess::framework::param_class::AutoParam, 76
skdaccess::framework::param_class::AutoParamList, 79
skdaccess::framework::param_class::AutoParam↩
ListCycle, 82
skdaccess::framework::param_class::AutoParam↩
MinMax, 85
skdaccess::geo::era_interim::cache::data_fetcher::↩
DataFetcher, 187

skdaccess::geo::gldas::data_fetcher::DataFetcher, 90
skdaccess::geo::grace::data_fetcher::DataFetcher, 200
skdaccess::geo::grace::mascon::cache::data_↩ fetcher::DataFetcher, 194
skdaccess::geo::groundwater::data_fetcher::Data↩ Fetcher, 104
skdaccess::geo::imsdnhs::data_fetcher::Data↩ Fetcher, 181
skdaccess::geo::magnetometer::data_fetcher::↩ DataFetcher, 123
skdaccess::geo::mahali::rinex::data_fetcher::Data↩ Fetcher, 229
skdaccess::geo::mahali::rinex::data_wrapper::Data↩ Wrapper, 274
skdaccess::geo::mahali::tec::data_fetcher::Data↩ Fetcher, 214
skdaccess::geo::mahali::temperature::data_fetcher↩ ::DataFetcher, 234
skdaccess::geo::modis::cache::data_fetcher::Data↩ Fetcher, 157
skdaccess::geo::modis::stream::data_fetcher::↩ DataFetcher, 174
skdaccess::geo::ngl_gps::data_fetcher::DataFetcher, 240
skdaccess::geo::pbo::data_fetcher::DataFetcher, 221
skdaccess::geo::sentinel_1::cache::data_fetcher::↩ DataFetcher, 97
skdaccess::geo::srtm::cache::data_fetcher::Data↩ Fetcher, 110
skdaccess::geo::uavsar::cache::data_fetcher::Data↩ Fetcher, 117
skdaccess::geo::wyoming_sounding::cache::data_↩ fetcher::DataFetcher, 131
skdaccess::geo::wyoming_sounding::stream::data↩ _fetcher::DataFetcher, 137
skdaccess::planetary::ode::cache::data_fetcher::↩ DataFetcher, 167
skdaccess::solar::sdo::data_fetcher::DataFetcher, 245
result_offset_number
skdaccess::planetary::ode::cache::data_fetcher::↩ DataFetcher, 170
results
skdaccess::framework::data_class::DataWrapper↩ Base, 280
skdaccess::framework::data_class::ImageWrapper, 286
skdaccess::framework::data_class::SeriesDictionary↩ Wrapper, 298
skdaccess::framework::data_class::SeriesWrapper, 304
skdaccess::framework::data_class::TableWrapper, 319
skdaccess::framework::data_class::XArrayWrapper, 323
skdaccess::geo::mahali::rinex::data_wrapper::Data↩ Wrapper, 275
retrieveCommonDatesHDF
skdaccess::utilities::support, 51
retrieveOnlineData
skdaccess::framework::data_class::DataFetcher↩ Stream, 270
skdaccess::geo::magnetometer::data_fetcher::↩ DataFetcher, 123
skdaccess::geo::mahali::temperature::data_fetcher↩ ::DataFetcher, 234
skdaccess::geo::modis::stream::data_fetcher::↩ DataFetcher, 174
skdaccess::geo::wyoming_sounding::stream::data↩ _fetcher::DataFetcher, 137
skdaccess::solar::sdo::data_fetcher::DataFetcher, 246
run_id
skdaccess::framework::data_class::DataWrapper↩ Base, 280
skdaccess::framework::data_class::ImageWrapper, 286
skdaccess::framework::data_class::SeriesDictionary↩ Wrapper, 299
skdaccess::framework::data_class::SeriesWrapper, 304
skdaccess::framework::data_class::TableWrapper, 319
skdaccess::framework::data_class::XArrayWrapper, 323
skdaccess::geo::mahali::rinex::data_wrapper::Data↩ Wrapper, 275

satellite_url_list
skdaccess::geo::sentinel_1::cache::data_fetcher::↩ DataFetcher, 98
scale_factor_url
skdaccess::geo::grace::mascon::cache::data_↩ fetcher::DataFetcher, 196
setDataLocation
skdaccess::astro::kepler::data_fetcher::DataFetcher, 208
skdaccess::astro::voyager::data_fetcher::Data↩ Fetcher, 147
skdaccess::framework::data_class::DataFetcher↩ Cache, 256
skdaccess::framework::data_class::DataFetcher↩ Local, 260
skdaccess::framework::data_class::DataFetcher↩ Storage, 266

skdaccess::geo::era_interim::cache::data_fetcher::↩ DataFetcher, 188
skdaccess::geo::gldas::data_fetcher::DataFetcher, 90
skdaccess::geo::grace::data_fetcher::DataFetcher, 200
skdaccess::geo::grace::mascon::cache::data_↩ fetcher::DataFetcher, 194
skdaccess::geo::groundwater::data_fetcher::Data↩ Fetcher, 104
skdaccess::geo::imsdnhs::data_fetcher::Data↩ Fetcher, 181
skdaccess::geo::mahali::rinex::data_fetcher::Data↩ Fetcher, 229
skdaccess::geo::mahali::tec::data_fetcher::Data↩ Fetcher, 214
skdaccess::geo::modis::cache::data_fetcher::Data↩ Fetcher, 157
skdaccess::geo::ngl_gps::data_fetcher::DataFetcher, 240
skdaccess::geo::pbo::data_fetcher::DataFetcher, 221
skdaccess::geo::sentinel_1::cache::data_fetcher::↩ DataFetcher, 97
skdaccess::geo::srtm::cache::data_fetcher::Data↩ Fetcher, 111
skdaccess::geo::uavsar::cache::data_fetcher::Data↩ Fetcher, 118
skdaccess::geo::wyoming_sounding::cache::data_↩ fetcher::DataFetcher, 131
skdaccess::planetary::ode::cache::data_fetcher::↩ DataFetcher, 167
setStationList
skdaccess::geo::pbo::data_fetcher::DataFetcher, 222
skdaccess, 13
skdaccess.astro, 13
skdaccess.astro.kepler, 13
skdaccess.astro.kepler.data_fetcher, 13
skdaccess.astro.kepler.DataFetcher, 202
skdaccess.astro.voyager, 14
skdaccess.astro.voyager.data_fetcher, 14
skdaccess.astro.voyager.DataFetcher, 141
skdaccess.framework, 14
skdaccess.framework.data_class, 14
skdaccess.framework.data_class.DataFetcherBase, 247
skdaccess.framework.data_class.DataFetcherCache, 251
skdaccess.framework.data_class.DataFetcherLocal, 257
skdaccess.framework.data_class.DataFetcherStorage, 262
skdaccess.framework.data_class.DataFetcherStream, 267
skdaccess.framework.data_class.DataWrapperBase, 276
skdaccess.framework.data_class.ImageWrapper, 282
skdaccess.framework.data_class.SeriesDictionary↩ Wrapper, 294
skdaccess.framework.data_class.SeriesWrapper, 299
skdaccess.framework.data_class.TableWrapper, 312
skdaccess.framework.data_class.XArrayWrapper, 319
skdaccess.framework.param_class, 15
skdaccess.framework.param_class.AutoList, 53
skdaccess.framework.param_class.AutoListCycle, 57
skdaccess.framework.param_class.AutoListPermute, 62
skdaccess.framework.param_class.AutoListRemove, 66
skdaccess.framework.param_class.AutoListSubset, 70
skdaccess.framework.param_class.AutoParam, 74
skdaccess.framework.param_class.AutoParamList, 77
skdaccess.framework.param_class.AutoParamListCycle, 80
skdaccess.framework.param_class.AutoParamMinMax, 83
skdaccess.geo, 15
skdaccess.geo.era_interim, 15
skdaccess.geo.era_interim.cache, 16
skdaccess.geo.era_interim.cache.data_fetcher, 16
skdaccess.geo.era_interim.cache.DataFetcher, 183
skdaccess.geo.gldas, 16
skdaccess.geo.gldas.data_fetcher, 16
skdaccess.geo.gldas.DataFetcher, 86
skdaccess.geo.grace, 16
skdaccess.geo.grace.data_fetcher, 16
skdaccess.geo.grace.DataFetcher, 196
skdaccess.geo.grace.mascon, 17
skdaccess.geo.grace.mascon.cache, 17
skdaccess.geo.grace.mascon.cache.data_fetcher, 17
skdaccess.geo.grace.mascon.cache.DataFetcher, 190
skdaccess.geo.groundwater, 17
skdaccess.geo.groundwater.data_fetcher, 17
skdaccess.geo.groundwater.DataFetcher, 99
skdaccess.geo.imsdnhs, 17
skdaccess.geo.imsdnhs.data_fetcher, 18
skdaccess.geo.imsdnhs.DataFetcher, 177
skdaccess.geo.magnetometer, 18
skdaccess.geo.magnetometer.data_fetcher, 18
skdaccess.geo.magnetometer.DataFetcher, 120
skdaccess.geo.mahali, 18
skdaccess.geo.mahali.rinex, 18
skdaccess.geo.mahali.rinex.data_fetcher, 19
skdaccess.geo.mahali.rinex.data_wrapper, 19
skdaccess.geo.mahali.rinex.data_wrapper.DataWrapper, 271
skdaccess.geo.mahali.rinex.DataFetcher, 224
skdaccess.geo.mahali.tec, 19
skdaccess.geo.mahali.tec.data_fetcher, 19
skdaccess.geo.mahali.tec.DataFetcher, 210
skdaccess.geo.mahali.temperature, 19
skdaccess.geo.mahali.temperature.data_fetcher, 19
skdaccess.geo.mahali.temperature.DataFetcher, 231
skdaccess.geo.modis, 20
skdaccess.geo.modis.cache, 20

skdaccess.geo.modis.cache.cloud_mask, 20
skdaccess.geo.modis.cache.cloud_mask.data_fetcher, 20
skdaccess.geo.modis.cache.cloud_mask.DataFetcher, 149
skdaccess.geo.modis.cache.cloud_opacity, 20
skdaccess.geo.modis.cache.cloud_opacity.data_fetcher, 20
skdaccess.geo.modis.cache.cloud_opacity.DataFetcher, 140
skdaccess.geo.modis.cache.data_fetcher, 21
skdaccess.geo.modis.cache.DataFetcher, 152
skdaccess.geo.modis.cache.reflectance, 21
skdaccess.geo.modis.cache.reflectance.data_fetcher, 21
skdaccess.geo.modis.cache.reflectance.DataFetcher, 150
skdaccess.geo.modis.stream, 21
skdaccess.geo.modis.stream.cloud_mask, 21
skdaccess.geo.modis.stream.cloud_mask.data_fetcher, 21
skdaccess.geo.modis.stream.cloud_mask.DataFetcher, 161
skdaccess.geo.modis.stream.cloud_opacity, 22
skdaccess.geo.modis.stream.cloud_opacity.data_fetcher, 22
skdaccess.geo.modis.stream.cloud_opacity.DataFetcher, 160
skdaccess.geo.modis.stream.data_fetcher, 22
skdaccess.geo.modis.stream.DataFetcher, 171
skdaccess.geo.modis.stream.reflectance, 22
skdaccess.geo.modis.stream.reflectance.data_fetcher, 22
skdaccess.geo.modis.stream.reflectance.DataFetcher, 126
skdaccess.geo.ngl_gps, 22
skdaccess.geo.ngl_gps.data_fetcher, 23
skdaccess.geo.ngl_gps.DataFetcher, 236
skdaccess.geo.pbo, 23
skdaccess.geo.pbo.data_fetcher, 23
skdaccess.geo.pbo.DataFetcher, 216
skdaccess.geo.sentinel_1, 23
skdaccess.geo.sentinel_1.cache, 23
skdaccess.geo.sentinel_1.cache.data_fetcher, 23
skdaccess.geo.sentinel_1.cache.DataFetcher, 92
skdaccess.geo.srtm, 24
skdaccess.geo.srtm.cache, 24
skdaccess.geo.srtm.cache.data_fetcher, 24
skdaccess.geo.srtm.cache.DataFetcher, 106
skdaccess.geo.uavsar, 24
skdaccess.geo.uavsar.cache, 24
skdaccess.geo.uavsar.cache.data_fetcher, 24
skdaccess.geo.uavsar.cache.DataFetcher, 113
skdaccess.geo.wyoming_sounding, 25
skdaccess.geo.wyoming_sounding.cache, 25
skdaccess.geo.wyoming_sounding.cache.data_fetcher, 25
skdaccess.geo.wyoming_sounding.cache.DataFetcher, 127
skdaccess.geo.wyoming_sounding.stream, 25
skdaccess.geo.wyoming_sounding.stream.data_fetcher, 25
skdaccess.geo.wyoming_sounding.stream.DataFetcher, 134
skdaccess.planetary, 25
skdaccess.planetary.ode, 26
skdaccess.planetary.ode.cache, 26
skdaccess.planetary.ode.cache.data_fetcher, 26
skdaccess.planetary.ode.cache.DataFetcher, 162
skdaccess.solar, 26
skdaccess.solar.sdo, 26
skdaccess.solar.sdo.data_fetcher, 26
skdaccess.solar.sdo.DataFetcher, 243
skdaccess.utilities, 27
skdaccess.utilities.file_browser, 27
skdaccess.utilities.file_browser.FileBrowser, 280
skdaccess.utilities.grace_util, 27
skdaccess.utilities.gw_util, 31
skdaccess.utilities.image_util, 31
skdaccess.utilities.image_util.LinearGeolocation, 289
skdaccess.utilities.image_util.SplineLatLon, 308
skdaccess.utilities.kepler_util, 32
skdaccess.utilities.mahali_util, 33
skdaccess.utilities.modis_util, 34
skdaccess.utilities.modis_util.LatLon, 287
skdaccess.utilities.ode_util, 39
skdaccess.utilities.pbo_util, 43
skdaccess.utilities.sentinel_1_util, 47
skdaccess.utilities.sounding_util, 47
skdaccess.utilities.sounding_util.SoundingParser, 305
skdaccess.utilities.srtm_util, 48
skdaccess.utilities.support, 50
skdaccess.utilities.uavsar_util, 51
skdaccess::astro::kepler::data_fetcher::DataFetcher
- __init__, 203
- __str__, 204
- ap_paramList, 209
- cacheData, 204
- downloadKeplerData, 206
- getConfig, 206
- getDataLocation, 206
- getHDFStorage, 207
- getMetadata, 207
- multirun_enabled, 207
- output, 207
- perturb, 208
- quarter_list, 209
- reset, 208
- setDataLocation, 208
- verbose, 209
- verbose_print, 209

writeConfig, 209
skdaccess::astro::voyager::data_fetcher::DataFetcher
__init__, 142
__str__, 143
ap_paramList, 148
base_url, 148
cacheData, 143
field_names, 148
field_widths, 149
generateURL, 144
getConfig, 144
getDataLocation, 144
getHDFStorage, 145
getMetadata, 145
getMetadataFiles, 145
multirun_enabled, 145
output, 146
parseVoyagerData, 146
parseVoyagerMetadata, 146
perturb, 147
reset, 147
setDataLocation, 147
spacecraft_list, 149
verbose, 149
verbose_print, 148
writeConfig, 148
year_list, 149
skdaccess::framework::data_class::DataFetcherBase
__init__, 248
__str__, 248
ap_paramList, 251
getConfig, 249
getMetadata, 249
multirun_enabled, 249
output, 249
perturb, 250
reset, 250
verbose, 251
verbose_print, 250
writeConfig, 250
skdaccess::framework::data_class::DataFetcherCache
__str__, 253
ap_paramList, 257
cacheData, 253
getConfig, 254
getDataLocation, 254
getHDFStorage, 254
getMetadata, 254
multirun_enabled, 255
output, 255
perturb, 255
reset, 255
setDataLocation, 256
verbose, 257
verbose_print, 256
writeConfig, 256
skdaccess::framework::data_class::DataFetcherLocal
__str__, 258
ap_paramList, 261
getConfig, 258
getDataLocation, 259
getMetadata, 259
multirun_enabled, 259
output, 260
perturb, 260
reset, 260
setDataLocation, 260
verbose, 261
verbose_print, 261
writeConfig, 261
skdaccess::framework::data_class::DataFetcherStorage
__str__, 263
ap_paramList, 267
downloadFullDataset, 263
getConfig, 263
getDataLocation, 263
getMetadata, 265
multirun_enabled, 265
output, 265
perturb, 265
reset, 266
setDataLocation, 266
verbose, 267
verbose_print, 266
writeConfig, 266
skdaccess::framework::data_class::DataFetcherStream
__str__, 268
ap_paramList, 271
getConfig, 268
getMetadata, 269
multirun_enabled, 269
output, 269
perturb, 269
reset, 270
retrieveOnlineData, 270
verbose, 271
verbose_print, 270
writeConfig, 270
skdaccess::framework::data_class::DataWrapperBase
__init__, 277
__len__, 277
addResult, 277
constants, 279
data, 279
get, 278
getIterator, 278
getResults, 278
info, 278

meta_data, 280
reset, 279
results, 280
run_id, 280
update, 279
skdaccess::framework::data_class::ImageWrapper
__len__, 283
addResult, 283
constants, 286
data, 286
deleteData, 283
get, 284
getIterator, 284
getResults, 284
info, 284
meta_data, 286
reset, 285
results, 286
run_id, 286
update, 285
updateData, 285
skdaccess::framework::data_class::SeriesDictionary↩
Wrapper
__len__, 295
addResult, 295
constants, 298
data, 298
data_names, 298
error_names, 298
get, 295
getIndices, 296
getIterator, 296
getLength, 296
getResults, 296
info, 297
meta_data, 298
reset, 297
results, 298
run_id, 299
update, 297
skdaccess::framework::data_class::SeriesWrapper
__init__, 300
__len__, 301
addResult, 301
constants, 303
data, 303
data_names, 304
error_names, 304
get, 301
getIndices, 301
getIterator, 302
getLength, 302
getResults, 302
info, 302
meta_data, 304
reset, 303
results, 304
run_id, 304
update, 303
skdaccess::framework::data_class::TableWrapper
__init__, 313
__len__, 313
addColumn, 314
addResult, 314
constants, 318
data, 318
default_columns, 318
default_error_columns, 318
get, 314
getDefaultColumns, 315
getDefaultErrorColumns, 315
getIterator, 315
getLength, 315
getResults, 316
info, 316
meta_data, 318
removeFrames, 316
reset, 317
results, 319
run_id, 319
update, 317
updateData, 317
updateFrames, 318
skdaccess::framework::data_class::XArrayWrapper
__init__, 320
__len__, 321
addResult, 321
constants, 323
data, 323
get, 321
getIterator, 321
getResults, 322
index_list, 323
info, 322
meta_data, 323
reset, 322
results, 323
run_id, 323
update, 322
skdaccess::framework::param_class::AutoList
__call__, 54
__getitem__, 54
__init__, 54
__len__, 55
__setitem__, 55
__str__, 55
getAllOptions, 56
perturb, 56

reset, 56
val, 56
val_init, 57
val_list, 57
skdaccess::framework::param_class::AutoListCycle
__call__, 59
__getitem__, 59
__init__, 58
__len__, 59
__setitem__, 60
__str__, 60
getAllOptions, 60
index, 61
list_val_list, 61
perturb, 60
reset, 61
val, 61
val_init, 61
val_list, 62
skdaccess::framework::param_class::AutoListPermute
__call__, 63
__getitem__, 63
__len__, 63
__setitem__, 64
__str__, 64
getAllOptions, 64
perturb, 65
reset, 65
val, 65
val_init, 65
val_list, 66
skdaccess::framework::param_class::AutoListRemove
__call__, 67
__getitem__, 67
__init__, 67
__len__, 68
__setitem__, 68
__str__, 68
getAllOptions, 69
n, 70
perturb, 69
reset, 69
val, 69
val_init, 70
val_list, 70
skdaccess::framework::param_class::AutoListSubset
__call__, 71
__getitem__, 71
__len__, 72
__setitem__, 72
__str__, 72
getAllOptions, 73
perturb, 73
reset, 73
val, 73
val_init, 74
val_list, 74
skdaccess::framework::param_class::AutoParam
__call__, 76
__init__, 75
__str__, 76
perturb, 76
reset, 76
val, 77
val_init, 77
skdaccess::framework::param_class::AutoParamList
__call__, 78
__init__, 78
__str__, 78
perturb, 79
reset, 79
val, 79
val_init, 79
val_list, 79
skdaccess::framework::param_class::AutoParamListCycle
__call__, 81
__init__, 81
__str__, 81
current_index, 82
perturb, 81
reset, 82
val, 82
val_init, 82
val_list, 82
skdaccess::framework::param_class::AutoParamMinMax
__call__, 84
__init__, 83
__str__, 84
decimals, 85
n, 85
n_max, 85
perturb, 84
reset, 85
val, 85
val_init, 85
val_max, 86
val_min, 86
skdaccess::geo::era_interim::cache::data_fetcher::Data↩
Fetcher
__init__, 184
__str__, 185
ap_paramList, 189
cacheData, 185
data_names, 189
date_list, 189
getConfig, 186
getDataLocation, 186
getHDFStorage, 186

getMetadata, 186
multirun_enabled, 187
output, 187
password, 189
perturb, 187
reset, 187
setDataLocation, 188
username, 189
verbose, 189
verbose_print, 188
writeConfig, 188
skdaccess::geo::gldas::data_fetcher::DataFetcher
__init__, 87
__str__, 88
ap_paramList, 91
downloadFullDataset, 88
end_date, 91
getConfig, 89
getDataLocation, 89
getMetadata, 89
multirun_enabled, 90
output, 90
perturb, 90
resample, 91
reset, 90
setDataLocation, 90
start_date, 92
verbose, 92
verbose_print, 91
writeConfig, 91
skdaccess::geo::grace::data_fetcher::DataFetcher
__init__, 197
__str__, 198
ap_paramList, 201
downloadFullDataset, 198
end_date, 201
getConfig, 199
getDataLocation, 199
getMetadata, 199
multirun_enabled, 199
output, 200
perturb, 200
reset, 200
setDataLocation, 200
start_date, 201
verbose, 202
verbose_print, 201
writeConfig, 201
skdaccess::geo::grace::mascon::cache::data_fetcher::↩
DataFetcher
__init__, 191
__str__, 191
ap_paramList, 195
cacheData, 191
end_date, 195
getConfig, 192
getDataLocation, 192
getHDFStorage, 193
getMasconPlacement, 193
getMetadata, 193
mascon_placement_url, 195
mascon_url, 195
multirun_enabled, 193
output, 193
perturb, 194
reset, 194
scale_factor_url, 196
setDataLocation, 194
start_date, 196
verbose, 196
verbose_print, 195
writeConfig, 195
skdaccess::geo::groundwater::data_fetcher::DataFetcher
__init__, 100
__str__, 101
ap_paramList, 105
cutoff, 105
downloadFullDataset, 101
end_date, 105
getConfig, 102
getDataLocation, 102
getMetadata, 102
getStationMetadata, 103
multirun_enabled, 103
output, 103
perturb, 103
reset, 104
setDataLocation, 104
start_date, 105
verbose, 105
verbose_print, 104
writeConfig, 104
skdaccess::geo::imsdnhs::data_fetcher::DataFetcher
__init__, 178
__str__, 179
ap_paramList, 182
coordinate_dict, 182
downloadFullDataset, 179
end_date, 182
getConfig, 180
getDataLocation, 180
getMetadata, 180
multirun_enabled, 180
output, 181
perturb, 181
reset, 181
setDataLocation, 181
start_date, 183

verbose, 183
verbose_print, 182
writeConfig, 182
skdaccess::geo::magnetometer::data_fetcher::Data↩ Fetcher
__init__, 121
__str__, 121
ap_paramList, 124
channels, 124
data_type, 125
end_time, 125
getConfig, 122
getDataMetadata, 122
getMetadata, 122
interval, 125
multirun_enabled, 122
output, 123
perturb, 123
reset, 123
retrieveOnlineData, 123
start_time, 125
verbose, 125
verbose_print, 124
writeConfig, 124
skdaccess::geo::mahali::rinex::data_fetcher::DataFetcher
__init__, 226
__str__, 226
ap_paramList, 230
cacheData, 226
date_range, 230
end_date, 230
generate_links, 230
getConfig, 227
getDataLocation, 227
getHDFStorage, 228
getMetadata, 228
multirun_enabled, 228
output, 228
perturb, 228
reset, 229
setDataLocation, 229
start_date, 230
verbose, 230
verbose_print, 229
writeConfig, 229
skdaccess::geo::mahali::rinex::data_wrapper::Data↩ Wrapper
__len__, 272
addResult, 272
constants, 275
data, 275
get, 273
getIterator, 273
getResults, 273
info, 274
meta_data, 275
reset, 274
results, 275
run_id, 275
update, 274
skdaccess::geo::mahali::tec::data_fetcher::DataFetcher
__init__, 211
__str__, 211
ap_paramList, 215
cacheData, 211
date_range, 215
end_date, 215
getConfig, 212
getDataLocation, 212
getHDFStorage, 213
getMetadata, 213
multirun_enabled, 213
output, 213
perturb, 213
reset, 214
setDataLocation, 214
start_date, 215
verbose, 215
verbose_print, 214
writeConfig, 214
skdaccess::geo::mahali::temperature::data_fetcher::↩ DataFetcher
__init__, 232
__str__, 232
ap_paramList, 235
end_date, 235
getConfig, 232
getMetadata, 233
multirun_enabled, 233
output, 233
perturb, 233
reset, 234
retrieveOnlineData, 234
start_date, 235
verbose, 235
verbose_print, 234
writeConfig, 234
skdaccess::geo::modis::cache::cloud_mask::data_↩ fetcher::DataFetcher
__init__, 150
skdaccess::geo::modis::cache::cloud_opacity::data_↩ fetcher::DataFetcher
__init__, 140
skdaccess::geo::modis::cache::data_fetcher::DataFetcher
__init__, 153
__str__, 154
ap_paramList, 158
cacheData, 154

daynightboth, 158
end_date, 158
find_data, 155
getConfig, 155
getDataLocation, 156
getHDFStorage, 156
getMetadata, 156
grid, 159
grid_fill, 159
modis_id, 159
modis_identifier, 159
modis_platform, 159
multirun_enabled, 156
output, 157
perturb, 157
reset, 157
setDataLocation, 157
start_date, 159
use_long_name, 159
variable_list, 160
verbose, 160
verbose_print, 158
writeConfig, 158
skdaccess::geo::modis::cache::reflectance::data_↩
fetcher::DataFetcher
__init__, 151
skdaccess::geo::modis::stream::cloud_mask::data_↩
fetcher::DataFetcher
__init__, 162
skdaccess::geo::modis::stream::cloud_opacity::data_↩
fetcher::DataFetcher
__init__, 161
skdaccess::geo::modis::stream::data_fetcher::Data↩
Fetcher
__init__, 172
__str__, 173
ap_paramList, 175
daynightboth, 175
end_date, 176
getConfig, 173
getMetadata, 173
grid, 176
grid_fill, 176
modis_id, 176
modis_identifier, 176
modis_platform, 176
multirun_enabled, 173
output, 174
perturb, 174
reset, 174
retrieveOnlineData, 174
start_date, 176
use_long_name, 177
variable_list, 177
verbose, 177
verbose_print, 175
writeConfig, 175
skdaccess::geo::modis::stream::reflectance::data_↩
fetcher::DataFetcher
__init__, 126
skdaccess::geo::ngl_gps::data_fetcher::DataFetcher
__init__, 237
__str__, 237
ap_paramList, 241
data_type, 241
downloadFullDataset, 238
end_date, 241
getAntennaLogs, 238
getConfig, 238
getDataLocation, 238
getMetadata, 239
getStationMetadata, 239
lat_range, 242
lon_range, 242
mdyratio, 242
multirun_enabled, 239
output, 240
perturb, 240
reset, 240
setDataLocation, 240
start_date, 242
verbose, 242
verbose_print, 241
writeConfig, 241
skdaccess::geo::pbo::data_fetcher::DataFetcher
__init__, 217
__str__, 218
antenna_info, 223
ap_paramList, 223
default_columns, 223
default_error_columns, 223
downloadFullDataset, 218
getAntennaLogs, 219
getConfig, 219
getDataLocation, 219
getInfo, 220
getMetadata, 220
getStationMetadata, 220
index_date_only, 223
meta_data, 223
multirun_enabled, 220
output, 221
perturb, 221
reset, 221
setDataLocation, 221
setStationList, 222
station_list, 223
use_progress_bar, 224

verbose, 224
verbose_print, 222
writeConfig, 222
skdaccess::geo::sentinel_1::cache::data_fetcher::DataFetcher
__init__, 94
__str__, 94
ap_paramList, 98
cacheData, 94
getConfig, 95
getDataLocation, 95
getHDFStorage, 96
getMetadata, 96
local_paths, 98
multirun_enabled, 96
output, 96
password, 98
perturb, 96
polarization, 98
reset, 97
satellite_url_list, 98
setDataLocation, 97
swath, 98
url_list, 99
username, 99
verbose, 99
verbose_print, 97
writeConfig, 97
skdaccess::geo::srtm::cache::data_fetcher::DataFetcher
__init__, 107
__str__, 108
ap_paramList, 112
arcsecond_sampling, 112
cacheData, 108
getConfig, 109
getDataLocation, 109
getHDFStorage, 109
getMetadata, 109
lat_tile_end, 112
lat_tile_start, 112
lon_tile_end, 112
lon_tile_start, 112
mask_water, 113
multirun_enabled, 110
output, 110
password, 113
perturb, 110
reset, 110
setDataLocation, 111
username, 113
verbose, 113
verbose_print, 111
writeConfig, 111
skdaccess::geo::uavsar::cache::data_fetcher::DataFetcher
__init__, 114
__str__, 115
ap_paramList, 119
cacheData, 115
getConfig, 116
getDataLocation, 116
getHDFStorage, 116
getMetadata, 116
llh_url, 119
memmap, 119
metadata_url_list, 119
multirun_enabled, 117
output, 117
perturb, 117
reset, 117
setDataLocation, 118
slc_url_list, 119
verbose, 119
verbose_print, 118
writeConfig, 118
skdaccess::geo::wyoming_sounding::cache::data_fetcher::DataFetcher
__init__, 128
__str__, 129
ap_paramList, 132
cacheData, 129
day_end, 132
day_start, 132
end_hour, 132
getConfig, 129
getDataLocation, 129
getHDFStorage, 130
getMetadata, 130
month_list, 133
multirun_enabled, 130
output, 130
perturb, 131
reset, 131
setDataLocation, 131
start_hour, 133
station_number, 133
verbose, 133
verbose_print, 132
writeConfig, 132
year_list, 133
skdaccess::geo::wyoming_sounding::stream::data_fetcher::DataFetcher
__init__, 135
__str__, 136
ap_paramList, 138
day_end, 138
day_start, 139

end_hour, 139
getConfig, 136
getMetadata, 136
month_list, 139
multirun_enabled, 136
output, 136, 137
perturb, 137
reset, 137
retrieveOnlineData, 137
start_hour, 139
station_number, 139
verbose, 139
verbose_print, 138
writeConfig, 138
year_list, 139
skdaccess::planetary::ode::cache::data_fetcher::Data↩ Fetcher
__init__, 164
__str__, 165
ap_paramList, 168
cacheData, 165
eastern_lon, 168
file_name, 168
getConfig, 165
getDataLocation, 165
getHDFStorage, 166
getMetadata, 166
instrument, 168
max_lat, 169
max_ob_time, 169
min_lat, 169
min_ob_time, 169
mission, 169
multirun_enabled, 166
number_product_limit, 169
output, 166
perturb, 167
product_id, 169
product_type, 170
remove_ndv, 170
reset, 167
result_offset_number, 170
setDataLocation, 167
target, 170
verbose, 170
verbose_print, 167
western_lon, 170
writeConfig, 168
skdaccess::solar::sdo::data_fetcher::DataFetcher
__init__, 244
__str__, 244
ap_paramList, 247
getConfig, 244
getMetadata, 244
multirun_enabled, 245
output, 245
perturb, 245
reset, 245
retrieveOnlineData, 246
verbose, 247
verbose_print, 246
writeConfig, 246
skdaccess::utilities::file_browser::FileBrowser
__init__, 281
dirs, 281
files, 281
path, 281
widget, 281
skdaccess::utilities::grace_util
averageDates, 27
computeEWD, 28
dateMismatch, 28
getStartEndDate, 30
readTellusData, 30
skdaccess::utilities::gw_util
combine_water_heights, 31
skdaccess::utilities::image_util
convertBinCentersToEdges, 32
getExtentsFromCentersPlateCarree, 32
skdaccess::utilities::image_util::LinearGeolocation
__init__, 290
flip_y, 292
getExtents, 291
getLatLon, 291
getYX, 291
lat_extents, 292
lat_pixel_size, 292
len_x, 292
len_y, 292
lon_extents, 293
lon_pixel_size, 293
start_lat, 293
start_lon, 293
x_offset, 293
y_offset, 293
skdaccess::utilities::image_util::SplineLatLon
__call__, 309
__init__, 309
lat_func, 311
lon_func, 311
x_offset, 311
y_offset, 311
skdaccess::utilities::kepler_util
normalize, 32
skdaccess::utilities::mahali_util
convert_date, 33
parseIonoFile, 33
skdaccess::utilities::modis_util

calibrateModis, 34
checkBit, 35
createGrid, 35
getFileIDs, 36
getFileURLs, 36
getImageType, 37
getModisData, 37
readMODISData, 38
rescale, 38
skdaccess::utilities::modis_util::LatLon
__call__, 288
__init__, 287
alat, 288
alon, 288
lat_data, 288
lon_data, 289
x_offset, 289
y_offset, 289
skdaccess::utilities::ode_util
correct_CRISM_label, 39
correct_file_name_case_in_label, 39
correct_label_file, 40
get_files_urls, 40
get_query_url, 40
get_raster_array, 41
get_raster_extent, 41
query_files_urls, 41
query_yes_no, 42
skdaccess::utilities::pbo_util
getLatLonRange, 43
getROIstations, 43
getStationCoords, 44
nostab_sys, 44
propagateErrors, 45
removeAntennaOffset, 45
stab_sys, 46
skdaccess::utilities::sentinel_1_util
parseSatelliteData, 47
skdaccess::utilities::sounding_util
generateQueries, 48
skdaccess::utilities::sounding_util::SoundingParser
__init__, 305
data_dict, 307
handle_data, 306
handle_endtag, 306
handle_starttag, 306
in_header, 307
in_pre_tag, 307
label, 307
metadata_dict, 307
read_data, 307
tmp, 308
skdaccess::utilities::srtm_util
getSRTMData, 48
getSRTMLatLon, 49
merge_srtm_tiles, 50
skdaccess::utilities::support
convertToStr, 50
progress_bar, 50
retrieveCommonDatesHDF, 51
skdaccess::utilities::uavsar_util
readUAVSARMetadata, 51
slc_url_list
skdaccess::geo::uavsar::cache::data_fetcher::Data↩
Fetcher, 119
solar/sdo/data_fetcher.py, 326
spacecraft_list
skdaccess::astro::voyager::data_fetcher::Data↩
Fetcher, 149
stab_sys
skdaccess::utilities::pbo_util, 46
start_date
skdaccess::geo::gldas::data_fetcher::DataFetcher,
92
skdaccess::geo::grace::data_fetcher::DataFetcher,
201
skdaccess::geo::grace::mascon::cache::data_↩
fetcher::DataFetcher, 196
skdaccess::geo::groundwater::data_fetcher::Data↩
Fetcher, 105
skdaccess::geo::imsdnhs::data_fetcher::Data↩
Fetcher, 183
skdaccess::geo::mahali::rinex::data_fetcher::Data↩
Fetcher, 230
skdaccess::geo::mahali::tec::data_fetcher::Data↩
Fetcher, 215
skdaccess::geo::mahali::temperature::data_fetcher↩
::DataFetcher, 235
skdaccess::geo::modis::cache::data_fetcher::Data↩
Fetcher, 159
skdaccess::geo::modis::stream::data_fetcher::↩
DataFetcher, 176
skdaccess::geo::ngl_gps::data_fetcher::DataFetcher,
242
start_hour
skdaccess::geo::wyoming_sounding::cache::data_↩
fetcher::DataFetcher, 133
skdaccess::geo::wyoming_sounding::stream::data↩
_fetcher::DataFetcher, 139
start_lat
skdaccess::utilities::image_util::LinearGeolocation,
293
start_lon
skdaccess::utilities::image_util::LinearGeolocation,
293
start_time
skdaccess::geo::magnetometer::data_fetcher::↩
DataFetcher, 125

station_list
skdaccess::geo::pbo::data_fetcher::DataFetcher, 223
station_number
skdaccess::geo::wyoming_sounding::cache::data_↩ fetcher::DataFetcher, 133
skdaccess::geo::wyoming_sounding::stream::data↩ _fetcher::DataFetcher, 139
swath
skdaccess::geo::sentinel_1::cache::data_fetcher::↩ DataFetcher, 98

target
skdaccess::planetary::ode::cache::data_fetcher::↩ DataFetcher, 170
tmp
skdaccess::utilities::sounding_util::SoundingParser, 308

update
skdaccess::framework::data_class::DataWrapper↩ Base, 279
skdaccess::framework::data_class::ImageWrapper, 285
skdaccess::framework::data_class::SeriesDictionary↩ Wrapper, 297
skdaccess::framework::data_class::SeriesWrapper, 303
skdaccess::framework::data_class::TableWrapper, 317
skdaccess::framework::data_class::XArrayWrapper, 322
skdaccess::geo::mahali::rinex::data_wrapper::Data↩ Wrapper, 274
updateData
skdaccess::framework::data_class::ImageWrapper, 285
skdaccess::framework::data_class::TableWrapper, 317
updateFrames
skdaccess::framework::data_class::TableWrapper, 318
url_list
skdaccess::geo::sentinel_1::cache::data_fetcher::↩ DataFetcher, 99
use_long_name
skdaccess::geo::modis::cache::data_fetcher::Data↩ Fetcher, 159
skdaccess::geo::modis::stream::data_fetcher::↩ DataFetcher, 177
use_progress_bar
skdaccess::geo::pbo::data_fetcher::DataFetcher, 224
username
skdaccess::geo::era_interim::cache::data_fetcher::↩ DataFetcher, 189
skdaccess::geo::sentinel_1::cache::data_fetcher::↩ DataFetcher, 99
skdaccess::geo::srtm::cache::data_fetcher::Data↩ Fetcher, 113
utilities/file_browser.py, 335
utilities/grace_util.py, 335
utilities/gw_util.py, 335
utilities/image_util.py, 336
utilities/kepler_util.py, 336
utilities/mahali_util.py, 336
utilities/modis_util.py, 337
utilities/ode_util.py, 337
utilities/pbo_util.py, 338
utilities/sentinel_1_util.py, 339
utilities/sounding_util.py, 339
utilities/srtm_util.py, 339
utilities/support.py, 340
utilities/uavsar_util.py, 340

val
skdaccess::framework::param_class::AutoList, 56
skdaccess::framework::param_class::AutoListCycle, 61
skdaccess::framework::param_class::AutoList↩ Permute, 65
skdaccess::framework::param_class::AutoList↩ Remove, 69
skdaccess::framework::param_class::AutoList↩ Subset, 73
skdaccess::framework::param_class::AutoParam, 77
skdaccess::framework::param_class::AutoParamList, 79
skdaccess::framework::param_class::AutoParam↩ ListCycle, 82
skdaccess::framework::param_class::AutoParam↩ MinMax, 85
val_init
skdaccess::framework::param_class::AutoList, 57
skdaccess::framework::param_class::AutoListCycle, 61
skdaccess::framework::param_class::AutoList↩ Permute, 65
skdaccess::framework::param_class::AutoList↩ Remove, 70
skdaccess::framework::param_class::AutoList↩ Subset, 74
skdaccess::framework::param_class::AutoParam, 77
skdaccess::framework::param_class::AutoParamList, 79
skdaccess::framework::param_class::AutoParam↩ ListCycle, 82
skdaccess::framework::param_class::AutoParam↩ MinMax, 85
val_list

skdaccess::framework::param_class::AutoList, 57
skdaccess::framework::param_class::AutoListCycle, 62
skdaccess::framework::param_class::AutoList↩ Permute, 66
skdaccess::framework::param_class::AutoList↩ Remove, 70
skdaccess::framework::param_class::AutoList↩ Subset, 74
skdaccess::framework::param_class::AutoParamList, 79
skdaccess::framework::param_class::AutoParam↩ ListCycle, 82
val_max
skdaccess::framework::param_class::AutoParam↩ MinMax, 86
val_min
skdaccess::framework::param_class::AutoParam↩ MinMax, 86
variable_list
skdaccess::geo::modis::cache::data_fetcher::Data↩ Fetcher, 160
skdaccess::geo::modis::stream::data_fetcher::↩ DataFetcher, 177
verbose
skdaccess::astro::kepler::data_fetcher::DataFetcher, 209
skdaccess::astro::voyager::data_fetcher::Data↩ Fetcher, 149
skdaccess::framework::data_class::DataFetcher↩ Base, 251
skdaccess::framework::data_class::DataFetcher↩ Cache, 257
skdaccess::framework::data_class::DataFetcher↩ Local, 261
skdaccess::framework::data_class::DataFetcher↩ Storage, 267
skdaccess::framework::data_class::DataFetcher↩ Stream, 271
skdaccess::geo::era_interim::cache::data_fetcher::↩ DataFetcher, 189
skdaccess::geo::gldas::data_fetcher::DataFetcher, 92
skdaccess::geo::grace::data_fetcher::DataFetcher, 202
skdaccess::geo::grace::mascon::cache::data_↩ fetcher::DataFetcher, 196
skdaccess::geo::groundwater::data_fetcher::Data↩ Fetcher, 105
skdaccess::geo::imsdnhs::data_fetcher::Data↩ Fetcher, 183
skdaccess::geo::magnetometer::data_fetcher::↩ DataFetcher, 125
skdaccess::geo::mahali::rinex::data_fetcher::Data↩ Fetcher, 230
skdaccess::geo::mahali::tec::data_fetcher::Data↩ Fetcher, 215
skdaccess::geo::mahali::temperature::data_fetcher↩ ::DataFetcher, 235
skdaccess::geo::modis::cache::data_fetcher::Data↩ Fetcher, 160
skdaccess::geo::modis::stream::data_fetcher::↩ DataFetcher, 177
skdaccess::geo::ngl_gps::data_fetcher::DataFetcher, 242
skdaccess::geo::pbo::data_fetcher::DataFetcher, 224
skdaccess::geo::sentinel_1::cache::data_fetcher::↩ DataFetcher, 99
skdaccess::geo::srtm::cache::data_fetcher::Data↩ Fetcher, 113
skdaccess::geo::uavsar::cache::data_fetcher::Data↩ Fetcher, 119
skdaccess::geo::wyoming_sounding::cache::data_↩ fetcher::DataFetcher, 133
skdaccess::geo::wyoming_sounding::stream::data↩ _fetcher::DataFetcher, 139
skdaccess::planetary::ode::cache::data_fetcher::↩ DataFetcher, 170
skdaccess::solar::sdo::data_fetcher::DataFetcher, 247
verbose_print
skdaccess::astro::kepler::data_fetcher::DataFetcher, 209
skdaccess::astro::voyager::data_fetcher::Data↩ Fetcher, 148
skdaccess::framework::data_class::DataFetcher↩ Base, 250
skdaccess::framework::data_class::DataFetcher↩ Cache, 256
skdaccess::framework::data_class::DataFetcher↩ Local, 261
skdaccess::framework::data_class::DataFetcher↩ Storage, 266
skdaccess::framework::data_class::DataFetcher↩ Stream, 270
skdaccess::geo::era_interim::cache::data_fetcher::↩ DataFetcher, 188
skdaccess::geo::gldas::data_fetcher::DataFetcher, 91
skdaccess::geo::grace::data_fetcher::DataFetcher, 201
skdaccess::geo::grace::mascon::cache::data_↩ fetcher::DataFetcher, 195
skdaccess::geo::groundwater::data_fetcher::Data↩ Fetcher, 104
skdaccess::geo::imsdnhs::data_fetcher::Data↩ Fetcher, 182
skdaccess::geo::magnetometer::data_fetcher::↩

DataFetcher, 124
skdaccess::geo::mahali::rinex::data_fetcher::Data↩ Fetcher, 229
skdaccess::geo::mahali::tec::data_fetcher::Data↩ Fetcher, 214
skdaccess::geo::mahali::temperature::data_fetcher↩ ::DataFetcher, 234
skdaccess::geo::modis::cache::data_fetcher::Data↩ Fetcher, 158
skdaccess::geo::modis::stream::data_fetcher::↩ DataFetcher, 175
skdaccess::geo::ngl_gps::data_fetcher::DataFetcher, 241
skdaccess::geo::pbo::data_fetcher::DataFetcher, 222
skdaccess::geo::sentinel_1::cache::data_fetcher::↩ DataFetcher, 97
skdaccess::geo::srtm::cache::data_fetcher::Data↩ Fetcher, 111
skdaccess::geo::uavsar::cache::data_fetcher::Data↩ Fetcher, 118
skdaccess::geo::wyoming_sounding::cache::data_↩ fetcher::DataFetcher, 132
skdaccess::geo::wyoming_sounding::stream::data↩ _fetcher::DataFetcher, 138
skdaccess::planetary::ode::cache::data_fetcher::↩ DataFetcher, 167
skdaccess::solar::sdo::data_fetcher::DataFetcher, 246

western_lon
skdaccess::planetary::ode::cache::data_fetcher::↩ DataFetcher, 170
widget
skdaccess::utilities::file_browser::FileBrowser, 281
writeConfig
skdaccess::astro::kepler::data_fetcher::DataFetcher, 209
skdaccess::astro::voyager::data_fetcher::Data↩ Fetcher, 148
skdaccess::framework::data_class::DataFetcher↩ Base, 250
skdaccess::framework::data_class::DataFetcher↩ Cache, 256
skdaccess::framework::data_class::DataFetcher↩ Local, 261
skdaccess::framework::data_class::DataFetcher↩ Storage, 266
skdaccess::framework::data_class::DataFetcher↩ Stream, 270
skdaccess::geo::era_interim::cache::data_fetcher::↩ DataFetcher, 188
skdaccess::geo::gldas::data_fetcher::DataFetcher, 91
skdaccess::geo::grace::data_fetcher::DataFetcher, 201
skdaccess::geo::grace::mascon::cache::data_↩ fetcher::DataFetcher, 195
skdaccess::geo::groundwater::data_fetcher::Data↩ Fetcher, 104
skdaccess::geo::imsdnhs::data_fetcher::Data↩ Fetcher, 182
skdaccess::geo::magnetometer::data_fetcher::↩ DataFetcher, 124
skdaccess::geo::mahali::rinex::data_fetcher::Data↩ Fetcher, 229
skdaccess::geo::mahali::tec::data_fetcher::Data↩ Fetcher, 214
skdaccess::geo::mahali::temperature::data_fetcher↩ ::DataFetcher, 234
skdaccess::geo::modis::cache::data_fetcher::Data↩ Fetcher, 158
skdaccess::geo::modis::stream::data_fetcher::↩ DataFetcher, 175
skdaccess::geo::ngl_gps::data_fetcher::DataFetcher, 241
skdaccess::geo::pbo::data_fetcher::DataFetcher, 222
skdaccess::geo::sentinel_1::cache::data_fetcher::↩ DataFetcher, 97
skdaccess::geo::srtm::cache::data_fetcher::Data↩ Fetcher, 111
skdaccess::geo::uavsar::cache::data_fetcher::Data↩ Fetcher, 118
skdaccess::geo::wyoming_sounding::cache::data_↩ fetcher::DataFetcher, 132
skdaccess::geo::wyoming_sounding::stream::data↩ _fetcher::DataFetcher, 138
skdaccess::planetary::ode::cache::data_fetcher::↩ DataFetcher, 168
skdaccess::solar::sdo::data_fetcher::DataFetcher, 246

x_offset
skdaccess::utilities::image_util::LinearGeolocation, 293
skdaccess::utilities::image_util::SplineLatLon, 311
skdaccess::utilities::modis_util::LatLon, 289

y_offset
skdaccess::utilities::image_util::LinearGeolocation, 293
skdaccess::utilities::image_util::SplineLatLon, 311
skdaccess::utilities::modis_util::LatLon, 289
year_list
skdaccess::astro::voyager::data_fetcher::Data↩ Fetcher, 149
skdaccess::geo::wyoming_sounding::cache::data_↩ fetcher::DataFetcher, 133
skdaccess::geo::wyoming_sounding::stream::data↩ _fetcher::DataFetcher, 139