Scikit Data Access

Generated by Doxygen 1.8.11

Contents

1 Namespace Index **1**

1.1 Packages 1

2 Hierarchical Index **3**

2.1 Class Hierarchy 3

3 Class Index **5**

3.1 Class List 5

4 Namespace Documentation **7**

4.1 AlgoParam Namespace Reference 7

4.2 data_util Namespace Reference 7

4.3 DataClass Namespace Reference 7

4.4 GRACE Namespace Reference 7

4.5 Groundwater Namespace Reference 7

4.6 Kepler Namespace Reference 7

4.7 map_util Namespace Reference 8

4.8 PBO Namespace Reference 8

4.9 pbo_util Namespace Reference 8

4.10 trend_util Namespace Reference 8

5 Class Documentation **9**

5.1 framework.param_class.AutoList Class Reference . . . 9

5.1.1 Constructor & Destructor Documentation . . . 10

5.1.1.1 __init__(self, val_list) . . . 10

5.1.2 Member Function Documentation . . . 10

5.1.2.1 __call__(self) . . . 10

5.1.2.2 __getitem__(self, ii) . . . 10

5.1.2.3 __len__(self) . . . 10

5.1.2.4 __setitem__(self, ii, val) . . . 10

5.1.2.5 __str__(self) . . . 11

5.1.2.6 perturb(self) . . . 11

5.1.2.7 val(self) . . . 11

5.2 framework.param_class.AutoListCycle Class Reference . . . 11

5.2.1 Constructor & Destructor Documentation . . . 11

5.2.1.1 __init__(self, list_val_list) . . . 11

5.3 framework.param_class.AutoListPermute Class Reference . . . 12

5.4 framework.param_class.AutoListRemove Class Reference . . . 12

5.4.1 Constructor & Destructor Documentation . . . 13

5.4.1.1 __init__(self, val_list) . . . 13

5.5 framework.param_class.AutoListSubset Class Reference . . . 13

5.5.1 Detailed Description . . . 14

5.6 framework.param_class.AutoParam Class Reference . . . 14

5.6.1 Detailed Description . . . 14

5.6.2 Constructor & Destructor Documentation . . . 14

5.6.2.1 __init__(self, val_init) . . . 14

5.6.3 Member Function Documentation . . . 15

5.6.3.1 __call__(self) . . . 15

5.6.3.2 __str__(self) . . . 15

5.6.3.3 perturb(self) . . . 15
5.7 framework.param_class.AutoParamList Class Reference . . . 15
5.7.1 Constructor & Destructor Documentation . . . 16
5.7.1.1 __init__(self, val_init, val_list) . . . 16
5.8 framework.param_class.AutoParamListCycle Class Reference . . . 16
5.8.1 Constructor & Destructor Documentation . . . 17
5.8.1.1 __init__(self, val_list) . . . 17
5.9 framework.param_class.AutoParamMinMax Class Reference . . . 17
5.9.1 Constructor & Destructor Documentation . . . 17
5.9.1.1 __init__(self, val_init, val_min, val_max, decimals=0, extreme=0) . . . 17
5.9.2 Member Function Documentation . . . 18
5.9.2.1 perturb(self) . . . 18
5.10 geo.groundwater.DataFetcher Class Reference . . . 18
5.10.1 Constructor & Destructor Documentation . . . 19
5.10.1.1 __init__(self, ap_paramList=[], start_date=None, end_date=None, cutoff=0.75, adjust_heights=False) . . . 19
5.10.2 Member Function Documentation . . . 19
5.10.2.1 __str__(self) . . . 19
5.10.2.2 output(self) . . . 19
5.11 astro.kepler.DataFetcher Class Reference . . . 19
5.11.1 Constructor & Destructor Documentation . . . 20
5.11.1.1 __init__(self, ap_paramList, normalize=False, drop_on_quality=False, filter_↩ window=None, quarter_list=None) . . . 20
5.11.2 Member Function Documentation . . . 20
5.11.2.1 output(self) . . . 20
5.12 geo.pbo.DataFetcher Class Reference . . . 21
5.12.1 Constructor & Destructor Documentation . . . 22
5.12.1.1 __init__(self, start_time, end_time, lat_range, lon_range, ap_paramList, mdyratio=.5, epFlag=0, stabFlag=1) . . . 22

5.12.2 Member Function Documentation . . . 23
5.12.2.1 __str__(self) . . . 23
5.12.2.2 getStationMetadata() . . . 23
5.12.2.3 output(self) . . . 23
5.12.2.4 stationCheck(self) . . . 23
5.13 geo.grace.DataFetcher Class Reference . . . 24
5.13.1 Constructor & Destructor Documentation . . . 24
5.13.1.1 __init__(self, ap_paramList, start_date=None, end_date=None, resample=True) . . . 24
5.13.2 Member Function Documentation . . . 24
5.13.2.1 __str__(self) . . . 24
5.13.2.2 output(self) . . . 25
5.14 framework.data_class.DataFetcherBase Class Reference . . . 25
5.14.1 Constructor & Destructor Documentation . . . 25
5.14.1.1 __init__(self, ap_paramList=[]) . . . 25
5.14.2 Member Function Documentation . . . 26
5.14.2.1 getMetadata(self) . . . 26
5.15 geo.groundwater.DataWrapper Class Reference . . . 26
5.15.1 Constructor & Destructor Documentation . . . 26
5.15.1.1 __init__(self, obj_wrap, meta_data) . . . 26
5.15.2 Member Function Documentation . . . 27
5.15.2.1 getIndices(self) . . . 27
5.15.2.2 getIterator(self) . . . 27
5.15.2.3 info(self) . . . 27
5.16 geo.grace.DataWrapper Class Reference . . . 27
5.16.1 Member Function Documentation . . . 28
5.16.1.1 getIterator(self) . . . 28
5.17 geo.pbo.DataWrapper Class Reference . . . 28
5.17.1 Constructor & Destructor Documentation . . . 28

5.17.1.1 __init__(self, obj_wrap, geo_poi, info_dict) . . . 28
5.17.2 Member Function Documentation . . . 29
5.17.2.1 getIndices(self) . . . 29
5.17.2.2 getIterator(self) . . . 29
5.17.2.3 info(self) . . . 29
5.18 astro.kepler.DataWrapper Class Reference . . . 29
5.18.1 Member Function Documentation . . . 30
5.18.1.1 getIterator(self) . . . 30
5.19 framework.data_class.DataWrapperBase Class Reference . . . 30
5.19.1 Detailed Description . . . 31
5.19.2 Constructor & Destructor Documentation . . . 31
5.19.2.1 __init__(self, obj_wrap, run_id=-1) . . . 31
5.19.3 Member Function Documentation . . . 31
5.19.3.1 get(self) . . . 31
5.19.3.2 getResults(self) . . . 31
5.20 utilities.map_util.Planet Class Reference . . . 31
5.20.1 Detailed Description . . . 32

Index **33**

Chapter 1

Namespace Index

1.1 Packages

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

AlgoParam
: Provides tunable parameter classes for use in the Computer-Aided Discovery pipeline 7

data_util
: Provides utilities for handling data 7

DataClass
: Provides base data classes inherited by the specific data fetchers 7

GRACE
: Provides classes for accessing GRACE data 7

Groundwater
: Provides classes for accessing Groundwater data 7

Kepler
: Provides classes for accessing Kepler data 7

map_util
: A collection of map manipulation tools 8

PBO
: Provides classes for accessing PBO data 8

pbo_util
: Tools for working with PBO GPS data, including reference frame stabilization code 8

trend_util
: This module is designed to provide a suite of tools for quick analysis of the linear and sinusoidal (annual, semi-annual, seasonal, and monthly) trends of time-series data (formatted using the pandas format) 8

Chapter 2

Hierarchical Index

2.1 Class Hierarchy

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

framework.param_class.AutoParam . . . 14
framework.param_class.AutoParamList . . . 15
framework.param_class.AutoParamListCycle . . . 16
framework.param_class.AutoParamMinMax . . . 17
framework.data_class.DataFetcherBase . . . 25
object
framework.data_class.DataWrapperBase . . . 30
framework.param_class.AutoList . . . 9
framework.param_class.AutoListCycle . . . 11
framework.param_class.AutoListPermute . . . 12
framework.param_class.AutoListRemove . . . 12
framework.param_class.AutoListSubset . . . 13
utilities.map_util.Planet . . . 31
DataFetcherBase
astro.kepler.DataFetcher . . . 19
geo.grace.DataFetcher . . . 24
geo.groundwater.DataFetcher . . . 18
geo.pbo.DataFetcher . . . 21
DataWrapperBase
astro.kepler.DataWrapper . . . 29
geo.grace.DataWrapper . . . 27
geo.groundwater.DataWrapper . . . 26
geo.pbo.DataWrapper . . . 28

Chapter 3

Class Index

3.1 Class List

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

framework.param_class.AutoList
: List for returning selections of lists, as opposed to a single element . . . 9

framework.param_class.AutoListCycle
: Cycles through a list of list selections . . . 11

framework.param_class.AutoListPermute
: A perturber that permutes a list . . . 12

framework.param_class.AutoListRemove
: Removes a different single element from the initial list at each perturb call . . . 12

framework.param_class.AutoListSubset
: A list perturber that creates random subsets of a list . . . 13

framework.param_class.AutoParam
: Defines a tunable parameter class inherited by specific subclasses . . . 14

framework.param_class.AutoParamList
: Tunable parameter with a specified list of choices that can be randomly selected via perturb . . . 15

framework.param_class.AutoParamListCycle
: Cycles through a list of paramters . . . 16

framework.param_class.AutoParamMinMax . . . 17

geo.groundwater.DataFetcher
: Generates Data Wrappers of groundwater measurements taken in California . . . 18

astro.kepler.DataFetcher
: Data Fetcher for Kepler light curve data . . . 19

geo.pbo.DataFetcher
: Data_type = "pbo" or "snow" for now the parameters list must include: 1) region of interest window (for generating stations list) 2) stabilization area (for running stabilization) . . . 21

geo.grace.DataFetcher
: Data Fetcher for GRACE data . . . 24

framework.data_class.DataFetcherBase
: Base class for all data fetchers . . . 25

geo.groundwater.DataWrapper
: Wraps GroundWater Data . . . 26

geo.grace.DataWrapper
: Class used to wrap Grace data . . . 27

geo.pbo.DataWrapper
Class used to wrap PBO Data 28
astro.kepler.DataWrapper
Data wrapper for kepler light curve data 29
framework.data_class.DataWrapperBase
Base class for wrapping data for use in DiscoveryPipeline 30
utilities.map_util.Planet
A class for storing variables about a planetary body 31

Chapter 4

Namespace Documentation

4.1 AlgoParam Namespace Reference

Provides tunable parameter classes for use in the Computer-Aided Discovery pipeline.

4.2 data_util Namespace Reference

Provides utilities for handling data.

4.3 DataClass Namespace Reference

Provides base data classes inherited by the specific data fetchers.

4.4 GRACE Namespace Reference

Provides classes for accessing GRACE data.

4.5 Groundwater Namespace Reference

Provides classes for accessing Groundwater data.

4.6 Kepler Namespace Reference

Provides classes for accessing Kepler data.

4.7 map_util Namespace Reference

A collection of map manipulation tools.

4.8 PBO Namespace Reference

Provides classes for accessing PBO data.

4.9 pbo_util Namespace Reference

Tools for working with PBO GPS data, including reference frame stabilization code.

4.10 trend_util Namespace Reference

This module is designed to provide a suite of tools for quick analysis of the linear and sinusoidal (annual, semi-annual, seasonal, and monthly) trends of time-series data (formatted using the pandas format).

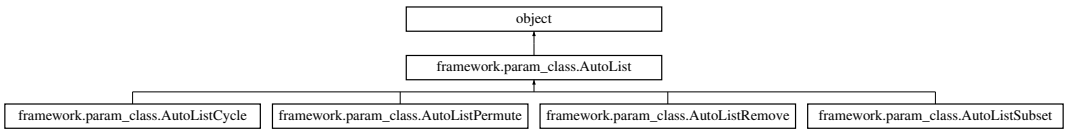
Chapter 5

Class Documentation

5.1 framework.param_class.AutoList Class Reference

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

Inheritance diagram for 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 list when being perturbed.
- def reset (self)

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

5.1.1 Constructor & Destructor Documentation

5.1.1.1 def framework.param_class.AutoList.__init__ (*self, val_list*)

Parameters

val_list	List of parameters

5.1.2 Member Function Documentation

5.1.2.1 def framework.param_class.AutoList.__call__ (*self*)

Returns

Current list

5.1.2.2 def framework.param_class.AutoList.__getitem__ (*self, ii*)

Parameters

ii	Index of item to be retrieved

Returns

Item at index ii

5.1.2.3 def framework.param_class.AutoList.__len__ (*self*)

Returns

Number of elements in the list

5.1.2.4 def framework.param_class.AutoList.__setitem__ (*self, ii, val*)

Parameters

ii	Index of list to be set
val	Input value

5.1.2.5 def framework.param_class.AutoList.__str__ (*self*)

Returns

String containing all parmaters in list

5.1.2.6 def framework.param_class.AutoList.perturb (*self*)

5.1.2.7 def framework.param_class.AutoList.val (*self*)

Returns

List of current parameters

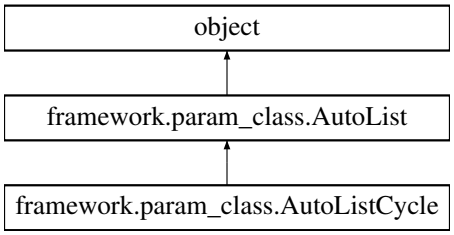
The documentation for this class was generated from the following file:

- framework/param_class.py

5.2 framework.param_class.AutoListCycle Class Reference

Cycles through a list of list selections.

Inheritance diagram for 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)

Public Attributes

- **list_val_list**
- **val_list**
- **index**

5.2.1 Constructor & Destructor Documentation

5.2.1.1 def framework.param_class.AutoListCycle.__init__ (*self, list_val_list*)

Parameters

list_val_list	List of different lists to cycle through

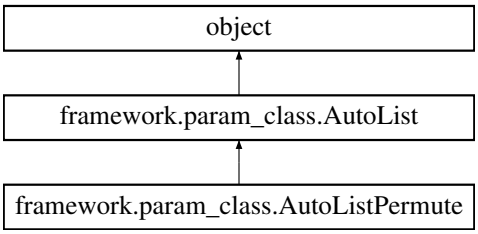
The documentation for this class was generated from the following file:

- framework/param_class.py

5.3 framework.param_class.AutoListPermute Class Reference

A perturber that permutes a list.

Inheritance diagram for framework.param_class.AutoListPermute:



Public Member Functions

- def perturb (self)

  Randomly permutes the initial list.

Additional Inherited Members

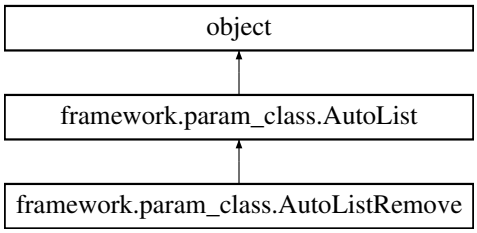
The documentation for this class was generated from the following file:

- framework/param_class.py

5.4 framework.param_class.AutoListRemove Class Reference

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

Inheritance diagram for 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.

Public Attributes

- **n**
- **val_list**

5.4.1 Constructor & Destructor Documentation

5.4.1.1 def framework.param_class.AutoListRemove.__init__ (*self, val_list*)

Parameters

val_list	Initial list of parameters.

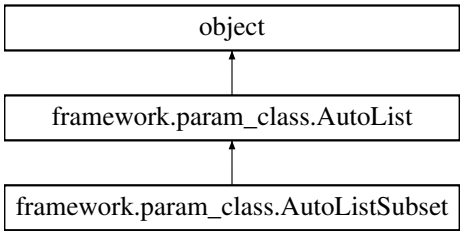
The documentation for this class was generated from the following file:

- framework/param_class.py

5.5 framework.param_class.AutoListSubset Class Reference

A list perturber that creates random subsets of a list.

Inheritance diagram for framework.param_class.AutoListSubset:



Public Member Functions

- def perturb (self)

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

Public Attributes

- **val_list**

5.5.1 Detailed Description

List can be empty.

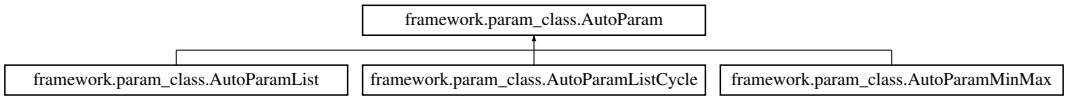
The documentation for this class was generated from the following file:

- framework/param_class.py

5.6 framework.param_class.AutoParam Class Reference

Defines a tunable parameter class inherited by specific subclasses.

Inheritance diagram for 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**

5.6.1 Detailed Description

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

5.6.2 Constructor & Destructor Documentation

5.6.2.1 def framework.param_class.AutoParam.__init__ (*self, val_init*)

Parameters

val_init	Value for parameter

5.6.3 Member Function Documentation

5.6.3.1 def framework.param_class.AutoParam.__call__ (*self*)

Returns

Current value of the parameter

5.6.3.2 def framework.param_class.AutoParam.__str__ (*self*)

Returns

String of current value

5.6.3.3 def framework.param_class.AutoParam.perturb (*self*)

This class doesn't change the value.

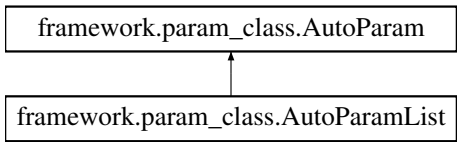
The documentation for this class was generated from the following file:

- framework/param_class.py

5.7 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 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.

Public Attributes

- **val**
- **val_init**
- **val_list**

5.7.1 Constructor & Destructor Documentation

5.7.1.1 def framework.param_class.AutoParamList.__init__ (*self, val_init, val_list*)

Parameters

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

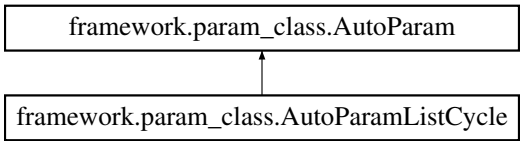
The documentation for this class was generated from the following file:

- framework/param_class.py

5.8 framework.param_class.AutoParamListCycle Class Reference

Cycles through a list of paramters.

Inheritance diagram for 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.

Public Attributes

- **val**
- **val_list**
- **current_index**

5.8.1 Constructor & Destructor Documentation

5.8.1.1 def framework.param_class.AutoParamListCycle.__init__ (*self, val_list*)

Parameters

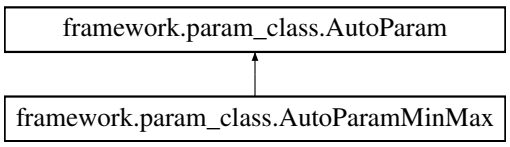
val_list	List of possible variants for the parameter

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

- framework/param_class.py

5.9 framework.param_class.AutoParamMinMax Class Reference

Inheritance diagram for 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)

Public Attributes

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

5.9.1 Constructor & Destructor Documentation

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

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.

5.9.2 Member Function Documentation

5.9.2.1 def framework.param_class.AutoParamMinMax.perturb (*self*)

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

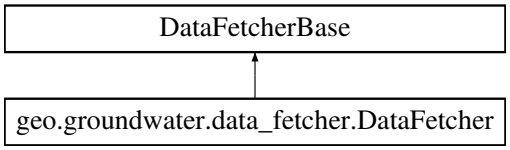
The documentation for this class was generated from the following file:

- framework/param_class.py

5.10 geo.groundwater.DataFetcher Class Reference

Generates Data Wrappers of groundwater measurements taken in California.

Inheritance diagram for geo.groundwater.DataFetcher:



Public Member Functions

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

  Construct a Ground Water Data Fetcher.
- def output (self)

  Generate Groundwater Data Wrapper.
- def __str__ (self)

  String representation of data fetcher.
- def **getStationMetadata** ()

Public Attributes

- **meta_data**
- **start_date**
- **end_date**
- **ap_paramList**
- **cutoff**
- **adjust_heights**

5.10.1 Constructor & Destructor Documentation

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

Parameters

ap_paramList[station_list]	List of stations (Optional)
start_date	Starting date (defualt: None)
end_date	Ending date (default: None)

5.10.2 Member Function Documentation

5.10.2.1 def geo.groundwater.DataFetcher.__str__ (*self*)

Returns

string describing data fetcher

5.10.2.2 def geo.groundwater.DataFetcher.output (*self*)

Returns

Groundwater Data Wrapper

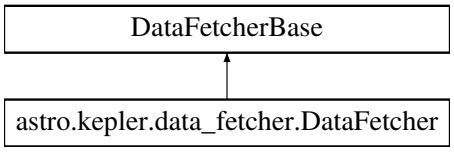
The documentation for this class was generated from the following file:

- geo/groundwater/data_fetcher.py

5.11 astro.kepler.DataFetcher Class Reference

Data Fetcher for Kepler light curve data.

Inheritance diagram for astro.kepler.DataFetcher:



Public Member Functions

- def __init__ (self, ap_paramList, normalize=False, drop_on_quality=False, filter_window=None, quarter_↩ list=None)

  Initialize Kepler Data Fetcher.
- def output (self)

  Output kepler data wrapper.

Public Attributes

- **normalize**
- **drop_on_quality**
- **filter_window**
- **quarter_list**

5.11.1 Constructor & Destructor Documentation

5.11.1.1 def astro.kepler.DataFetcher.__init__ (*self, ap_paramList, normalize =* `False`*, drop_on_quality =* `False`*, filter_window =* `None`*, quarter_list =* `None`)

Parameters

ap_paramList[kepler_id_list]	List of kepler id's
normalize	Normalize the PDCSAP_FLUX
drop_on_quality	Drop data if SAP_QUALITY != 0
filter_window	Size of window used when removing systematic offsets.
quarter_list	List of quarters (0-17)

5.11.2 Member Function Documentation

5.11.2.1 def astro.kepler.DataFetcher.output (*self*)

Returns

DataWrapper

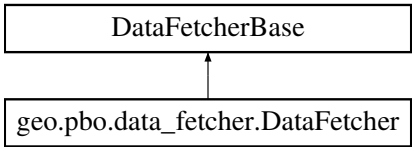
The documentation for this class was generated from the following file:

- astro/kepler/data_fetcher.py

5.12 geo.pbo.DataFetcher Class Reference

data_type = "pbo" or "snow" for now the parameters list must include: 1) region of interest window (for generating stations list) 2) stabilization area (for running stabilization)

Inheritance diagram for geo.pbo.DataFetcher:



Public Member Functions

- def __init__ (self, start_time, end_time, lat_range, lon_range, ap_paramList, mdyratio=.5, epFlag=0, stabFlag=1)

  Initialize a DataFetcher.
- def **setStationList** (self, station_list)
- def stationCheck (self)

  Generates a list of stations within site radius.
- def stabilize (self)

  Select data from sites within site radius for later use in stabilization.
- def rawData (self)

  Select data from sites within site radius to be returned without stabilization.
- def **getInfo** (self)
- def output (self)

  Generate PBO Data Wrapper.
- def __str__ (self)

  print the parameter values
- def getStationMetadata ()

  Read in the metadata and convert to dictionary.
- def **getMetadata** (self)

Public Attributes

- **start_time**
- **end_time**
- **ap_paramList**
- **geospace**
- **station_list**
- **mdyratio**
- **epFlag**
- **stabFlag**
- **meta_data**
- **smSet_all**
- **smHdr_all**

5.12.1 Constructor & Destructor Documentation

5.12.1.1 def geo.pbo.DataFetcher.__init__ (*self, start_time, end_time, lat_range, lon_range, ap_paramList, mdyratio* = .5, *epFlag* = 0, *stabFlag* = 1)

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"
lat_range	Latitude range used to select stabilization sites
lon_range	Longitude range used to select stabilization sites ap_paramList[radius]: Site radius to search around (km)
ap_paramList[geo_point]	Tuple containing lat and lon coordinates

5.12.2 Member Function Documentation

5.12.2.1 def geo.pbo.DataFetcher.__str__ (*self*)

Returns

String representation of Data Fetcher

5.12.2.2 def geo.pbo.DataFetcher.getStationMetadata ( )

Returns

dictionary of PBO metadata

5.12.2.3 def geo.pbo.DataFetcher.output (*self*)

Returns

PBO Data Wrapper

5.12.2.4 def geo.pbo.DataFetcher.stationCheck (*self*)

Returns

List of stations within site radius

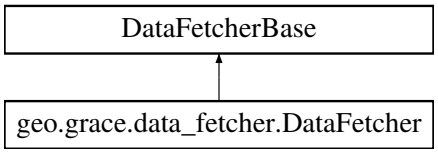
The documentation for this class was generated from the following file:

- geo/pbo/data_fetcher.py

5.13 geo.grace.DataFetcher Class Reference

Data Fetcher for GRACE data.

Inheritance diagram for geo.grace.DataFetcher:



Public Member Functions

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

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

  Create data wrapper of grace data for specified geopoint.
- def __str__ (self)

  String representation of data fetcher.

Public Attributes

- **start_date**
- **end_date**
- **resample**

5.13.1 Constructor & Destructor Documentation

5.13.1.1 def geo.grace.DataFetcher.__init__ (*self, ap_paramList, start_date =* `None`, *end_date =* `None`, *resample =* `True`)

Parameters

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

5.13.2 Member Function Documentation

5.13.2.1 def geo.grace.DataFetcher.__str__ (*self*)

Returns

String listing the name and geopoint of data fetcher

5.13.2.2 def geo.grace.DataFetcher.output (*self*)

Returns

Grace Data Wrapper

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

- geo/grace/data_fetcher.py

5.14 framework.data_class.DataFetcherBase Class Reference

Base class for all data fetchers.

Public Member Functions

- def __init__ (self, ap_paramList=[])
  Initialize data fetcher with parameter list.
- def output (self)
  Output data wrapper.
- def perturb (self)
  choose other random value for all parameters
- def reset (self)
  set all parameters to initial value
- def __str__ (self)
  Generate string description.
- def getMetadata (self)
  Return metadata about Data Fetcher.

Public Attributes

- **ap_paramList**

5.14.1 Constructor & Destructor Documentation

5.14.1.1 def framework.data_class.DataFetcherBase.__init__ (*self, ap_paramList =* [])

Parameters

ap_paramList	List of parameters

5.14.2 Member Function Documentation

5.14.2.1 def framework.data_class.DataFetcherBase.getMetadata (*self*)

Returns

metadata of object.

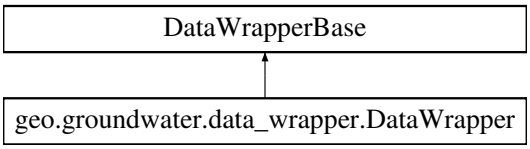
The documentation for this class was generated from the following file:

- framework/data_class.py

5.15 geo.groundwater.DataWrapper Class Reference

Wraps GroundWater Data.

Inheritance diagram for geo.groundwater.DataWrapper:



Public Member Functions

- def __init__ (self, obj_wrap, meta_data)
  Creates Ground Water Data Wrapper.
- def info (self)
  Get the ground water metadata.
- def getIndices (self)
  Get the indices of the data.
- def getIterator (self)
  Get an iterator to access the ground water data.

Public Attributes

- **meta_data**

5.15.1 Constructor & Destructor Documentation

5.15.1.1 def geo.groundwater.DataWrapper.__init__ (*self, obj_wrap, meta_data*)

Parameters

obj_wrap	Groundwater data to wrap
meta_data	Groundwater meta data

5.15.2 Member Function Documentation

5.15.2.1 def geo.groundwater.DataWrapper.getIndices (*self*)

Returns

(station_list, 'Water Depth')

5.15.2.2 def geo.groundwater.DataWrapper.getIterator (*self*)

Returns

Iterator to the data (label, data, error)

5.15.2.3 def geo.groundwater.DataWrapper.info (*self*)

Returns

meta_data

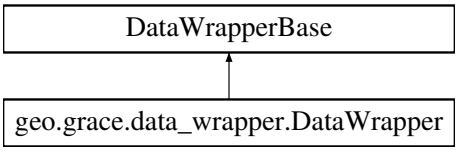
The documentation for this class was generated from the following file:

- geo/groundwater/data_wrapper.py

5.16 geo.grace.DataWrapper Class Reference

Class used to wrap Grace data.

Inheritance diagram for geo.grace.DataWrapper:



Public Member Functions

- def getIterator (self)
  Retrieve an iterator to the data.

5.16.1 Member Function Documentation

5.16.1.1 def geo.grace.DataWrapper.getIterator (*self*)

Returns

Iterator to the GRACE yield

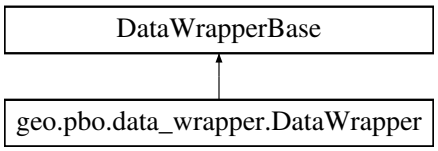
The documentation for this class was generated from the following file:

- geo/grace/data_wrapper.py

5.17 geo.pbo.DataWrapper Class Reference

Class used to wrap PBO Data.

Inheritance diagram for geo.pbo.DataWrapper:



Public Member Functions

- def __init__ (self, obj_wrap, geo_poi, info_dict)
  Initialize DataWrapper.
- def info (self)
  Retrieve stored data metadata.
- def getIterator (self)
  Get an iterator to the data.
- def getIndices (self)
  Get the indicies of the data.

Public Attributes

- **geo_point**
- **info_dict**

5.17.1 Constructor & Destructor Documentation

5.17.1.1 def geo.pbo.DataWrapper.__init__ (*self, obj_wrap, geo_poi, info_dict*)

Parameters

obj_wrap	Data to be wrapped
lp_stations	list perturber containing station list
geo_poi	Geographic point of interenst

5.17.2 Member Function Documentation

5.17.2.1 def geo.pbo.DataWrapper.getIndices (*self*)

Returns

(station_list, ('dN', 'dE', 'dU'))

5.17.2.2 def geo.pbo.DataWrapper.getIterator (*self*)

Returns

Iterator that will cycle over ('dN', 'dE', 'dU') for each station

5.17.2.3 def geo.pbo.DataWrapper.info (*self*)

Returns

Stored data metadata

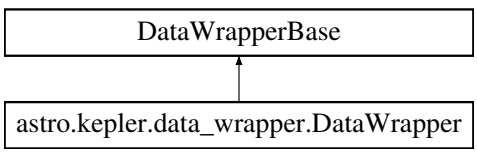
The documentation for this class was generated from the following file:

- geo/pbo/data_wrapper.py

5.18 astro.kepler.DataWrapper Class Reference

Data wrapper for kepler light curve data.

Inheritance diagram for astro.kepler.DataWrapper:



Public Member Functions

- def getIterator (self)

  Retrieve an iterator to the data.

5.18.1 Member Function Documentation

5.18.1.1 def astro.kepler.DataWrapper.getIterator (*self*)

Returns

Iterator to the Kepler Data (label, data, error)

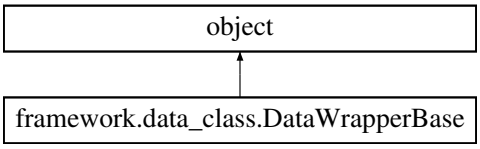
The documentation for this class was generated from the following file:

- astro/kepler/data_wrapper.py

5.19 framework.data_class.DataWrapperBase Class Reference

Base class for wrapping data for use in DiscoveryPipeline.

Inheritance diagram for framework.data_class.DataWrapperBase:



Public Member Functions

- def __init__ (self, obj_wrap, run_id=-1)

  Construct object 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)

  Passes a result to the data wrapper to be stored.
- def reset (self)

  Reset data back to original state.
- def getIterator (self)

  Get an iterator to the data.
- def getIndices (self)

  Get indices of the data.

Public Attributes

- **data**
- **results**
- **constants**
- **run_id**

5.19.1 Detailed Description

5.19.2 Constructor & Destructor Documentation

5.19.2.1 def framework.data_class.DataWrapperBase.__init__ (*self, obj_wrap, run_id =* `-1`)

Parameters

obj_wrap	Data to be wrapped
run_id	ID of the run

5.19.3 Member Function Documentation

5.19.3.1 def framework.data_class.DataWrapperBase.get (*self*)

Returns

Stored data

5.19.3.2 def framework.data_class.DataWrapperBase.getResults (*self*)

Returns

store results

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

- framework/data_class.py

5.20 utilities.map_util.Planet Class Reference

A class for storing variables about a planetary body.

Public Member Functions

- def **__init__** (self, name)
- def **get_lateraldist_array** (self, ppd)

Public Attributes

- **a**
- **b**
- **e_sq**
- **equator_1deg**
- **avg_radius**

5.20.1 Detailed Description

name: The name of the planetary body

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

- utilities/map_util.py

Index

__call__
    framework::param_class::AutoList, 10
    framework::param_class::AutoParam, 15
__getitem__
    framework::param_class::AutoList, 10
__init__
    astro::kepler::data_fetcher::DataFetcher, 20
    framework::data_class::DataFetcherBase, 25
    framework::data_class::DataWrapperBase, 31
    framework::param_class::AutoList, 10
    framework::param_class::AutoListCycle, 11
    framework::param_class::AutoListRemove, 13
    framework::param_class::AutoParam, 14
    framework::param_class::AutoParamList, 16
    framework::param_class::AutoParamListCycle, 17
    framework::param_class::AutoParamMinMax, 17
    geo::grace::data_fetcher::DataFetcher, 24
    geo::groundwater::data_fetcher::DataFetcher, 19
    geo::groundwater::data_wrapper::DataWrapper, 26
    geo::pbo::data_fetcher::DataFetcher, 22
    geo::pbo::data_wrapper::DataWrapper, 28
__len__
    framework::param_class::AutoList, 10
__setitem__
    framework::param_class::AutoList, 10
__str__
    framework::param_class::AutoList, 11
    framework::param_class::AutoParam, 15
    geo::grace::data_fetcher::DataFetcher, 24
    geo::groundwater::data_fetcher::DataFetcher, 19
    geo::pbo::data_fetcher::DataFetcher, 23

AlgoParam, 7
astro.kepler.DataFetcher, 19
astro.kepler.DataWrapper, 29
astro::kepler::data_fetcher::DataFetcher
    __init__, 20
    output, 20
astro::kepler::data_wrapper::DataWrapper
    getIterator, 30

data_util, 7
DataClass, 7

framework.data_class.DataFetcherBase, 25
framework.data_class.DataWrapperBase, 30
framework.param_class.AutoList, 9
framework.param_class.AutoListCycle, 11
framework.param_class.AutoListPermute, 12
framework.param_class.AutoListRemove, 12
framework.param_class.AutoListSubset, 13
framework.param_class.AutoParam, 14
framework.param_class.AutoParamList, 15
framework.param_class.AutoParamListCycle, 16
framework.param_class.AutoParamMinMax, 17
framework::data_class::DataFetcherBase
    __init__, 25
    getMetadata, 26
framework::data_class::DataWrapperBase
    __init__, 31
    get, 31
    getResults, 31
framework::param_class::AutoList
    __call__, 10
    __getitem__, 10
    __init__, 10
    __len__, 10
    __setitem__, 10
    __str__, 11
    perturb, 11
    val, 11
framework::param_class::AutoListCycle
    __init__, 11
framework::param_class::AutoListRemove
    __init__, 13
framework::param_class::AutoParam
    __call__, 15
    __init__, 14
    __str__, 15
    perturb, 15
framework::param_class::AutoParamList
    __init__, 16
framework::param_class::AutoParamListCycle
    __init__, 17
framework::param_class::AutoParamMinMax
    __init__, 17
    perturb, 18

GRACE, 7
geo.grace.DataFetcher, 24
geo.grace.DataWrapper, 27
geo.groundwater.DataFetcher, 18

geo.groundwater.DataWrapper, 26
geo.pbo.DataFetcher, 21
geo.pbo.DataWrapper, 28
geo::grace::data_fetcher::DataFetcher
    __init__, 24
    __str__, 24
    output, 25
geo::grace::data_wrapper::DataWrapper
    getIterator, 28
geo::groundwater::data_fetcher::DataFetcher
    __init__, 19
    __str__, 19
    output, 19
geo::groundwater::data_wrapper::DataWrapper
    __init__, 26
    getIndices, 27
    getIterator, 27
    info, 27
geo::pbo::data_fetcher::DataFetcher
    __init__, 22
    __str__, 23
    getStationMetadata, 23
    output, 23
    stationCheck, 23
geo::pbo::data_wrapper::DataWrapper
    __init__, 28
    getIndices, 29
    getIterator, 29
    info, 29
get
    framework::data_class::DataWrapperBase, 31
getIndices
    geo::groundwater::data_wrapper::DataWrapper, 27
    geo::pbo::data_wrapper::DataWrapper, 29
getIterator
    astro::kepler::data_wrapper::DataWrapper, 30
    geo::grace::data_wrapper::DataWrapper, 28
    geo::groundwater::data_wrapper::DataWrapper, 27
    geo::pbo::data_wrapper::DataWrapper, 29
getMetadata
    framework::data_class::DataFetcherBase, 26
getResults
    framework::data_class::DataWrapperBase, 31
getStationMetadata
    geo::pbo::data_fetcher::DataFetcher, 23
Groundwater, 7

info
    geo::groundwater::data_wrapper::DataWrapper, 27
    geo::pbo::data_wrapper::DataWrapper, 29

Kepler, 7

map_util, 8

output
    astro::kepler::data_fetcher::DataFetcher, 20
    geo::grace::data_fetcher::DataFetcher, 25
    geo::groundwater::data_fetcher::DataFetcher, 19
    geo::pbo::data_fetcher::DataFetcher, 23

PBO, 8
pbo_util, 8
perturb
    framework::param_class::AutoList, 11
    framework::param_class::AutoParam, 15
    framework::param_class::AutoParamMinMax, 18

stationCheck
    geo::pbo::data_fetcher::DataFetcher, 23

trend_util, 8

utilities.map_util.Planet, 31

val
    framework::param_class::AutoList, 11