Class Grib2Message

source code

Class for accessing data in a GRIB Edition 2 message.

The `Grib2Decode` function returns a list of these class instances, one for each grib message in the file.

When a class instance is created, metadata in the GRIB2 file is decoded and used to set various instance variables.

Instance Methods

	`__init__``(self, **kwargs)` create a Grib2Decode class instance given a GRIB Edition 2 filename.	source code
	`__repr__``(self)`	source code
	`data``(self, fill_value=9.96920996839e+36, masked_array=True, expand=True, order=None)` returns an unpacked data grid.	source code
	`grid``(self)` return lats,lons (in degrees) of grid.	source code
	`latlons``(self)` alias for `grid`	source code

Instance Variables

	`angle_of_pole_rotation` The angle of rotation in degrees about the new polar axis (measured clockwise when looking from the southern to the northern pole) of the coordinate system.
	`bitmap_indicator_flag` flag to indicate whether a bit-map is used (0 for yes, 255 for no).
	`center_wmo_code` 4 character wmo code for originating center.
	`data_representation_template` data representation template from section 5.
	`data_representation_template_number` data representation template number from section 5 (Table 5.0)
	`discipline_code` product discipline code for grib message (Table 0.0).
	`earthRmajor` major (equatorial) earth radius.
	`earthRminor` minor (polar) earth radius.

	grid_definition_info grid definition section information from section 3.
	grid_definition_template grid definition template from section 3.
	grid_definition_template_number grid definition template number from section 3 (Table 3.1).
	gridlength_in_x_direction x (or longitudinal) direction grid length.
	gridlength_in_y_direction y (or latitudinal) direction grid length.
	has_local_use_section True if grib message contains a local use section.
	identification_section data from identification section (section 1).
	latitude_first_gridpoint latitude of first grid point on grid.
	latitude_last_gridpoint latitude of last grid point on grid.
	latitude_of_southern_pole the geographic latitude in degrees of the southern pole of the coordinate system (for rotated lat/lon or gaussian grids).
	longitude_first_gridpoint longitude of first grid point on grid.
	longitude_last_gridpoint longitude of last grid point on grid.
	longitude_of_southern_pole the geographic longitude in degrees of the southern pole of the coordinate system (for rotated lat/lon or gaussian grids).
	missing_value primary missing value (for data_representation_template_numbers 2 and 3).
	missing_value2 secondary missing value (for data_representation_template_numbers 2 and 3).
	number_of_data_points_to_unpack total number of data points in grib message.
	originating_center name of national/international originating center.
	points_in_x_direction number of points in the x (longitudinal) direction.

	points_in_y_direction number of points in the y (latitudinal) direction.
	product_definition_template product definition template from section 4.
	product_definition_template_number product definition template number from section 4 (Table 4.0).
	proj4_ instance variables with this prefix are used to set the map projection parameters for PROJ.4.
	scanmodeflags scanning mode flags from Table 3.4 (Table 3.4).
	shape_of_earth string describing the shape of the earth (e.g.
	spectral_truncation_parameters pentagonal truncation parameters that describe the spherical harmonic truncation (only relevant for grid_definition_template_numbers 50-52).

Properties

	values returns an unpacked data grid.

Method Details

__init__(self, **kwargs) source code

(Constructor)

create a Grib2Decode class instance given a GRIB Edition 2 filename.

(used by `Grib2Decode` function - not directly called by user)

data(self, fill_value=9.96920996839e+36, masked_array=True, expand=True, order=None) source code

returns an unpacked data grid. Can also be accomplished with `values` property.

Parameters:

- **fill_value** - missing or masked data is filled with this value (default 9.9692099683868690e+36).
- **masked_array** - if True, return masked array if there is bitmap for missing or masked data (default True).
- **expand** - if True (default), ECMWF 'reduced' gaussian grids are expanded to regular gaussian grids.
- **order** - if 1, linear interpolation is used for expanding reduced gaussian grids. if 0, nearest neighbor interpolation is used. Default is 0 if grid has missing or bitmapped values, 1 otherwise.

Returns:

data, a float32 numpy regular or masked array with shape (nlats,lons) containing the requested

grid.

grid(self)

source code

return lats,lons (in degrees) of grid. currently can handle reg. lat/lon, global gaussian, mercator, stereographic, lambert conformal, albers equal-area, space-view and azimuthal equidistant grids. `latlons` method does the same thing.

Returns:

`lats,lons`, float32 numpy arrays containing latitudes and longitudes of grid (in degrees).

Instance Variable Details

angle_of_pole_rotation

The angle of rotation in degrees about the new polar axis (measured clockwise when looking from the southern to the northern pole) of the coordinate system. For rotated lat/lon or gaussian grids.

grid_definition_info

grid definition section information from section 3. See `Grib2Encode.addgrid` for details.

has_local_use_section

True if grib message contains a local use section. If True the actual local use section is contained in the `_local_use_section` instance variable, as a raw byte string.

identification_section

data from identification section (section 1). See `Grib2Encode.__init__` for details.

scanmodeflags

scanning mode flags from Table 3.4 (Table 3.4).

- bit 1:

  0 - Points in the first row or column scan in the +i (+x) direction

  1 - Points in the first row or column scan in the -i (-x) direction

- bit 2:

  0 - Points in the first row or column scan in the -j (-y) direction

  1 - Points in the first row or column scan in the +j (+y) direction

- bit 3:

  0 - Adjacent points in the i (x) direction are consecutive (row-major order).

  1 - Adjacent points in the j (y) direction are consecutive (column-major order).

- bit 4:

  0 - All rows scan in the same direction

  1 - Adjacent rows scan in the opposite direction

shape_of_earth

string describing the shape of the earth (e.g. 'Oblate Spheroid', 'Spheroid').

spectral_truncation_parameters

pentagonal truncation parameters that describe the spherical harmonic truncation (only relevant for grid_definition_template_numbers 50-52). For triangular truncation, all three of these numbers are the same.

Property Details

values

returns an unpacked data grid. Can also be accomplished with `values` property.

Get Method:

`data(self, fill_value=9.96920996839e+36, masked_array=True, expand=True, order=None)` - returns an unpacked data grid.

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