./Ozone

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BDBP/MakeTier1Databases.dpr [Programs]

[Top] [Programs]

NAME

    MakeTier1Databases.dpr

PURPOSE

Runs a multiple-linear regression with the available monthly mean, zonal mean
data to create a gap-free data set. This data set is a combination of different
basis function contributions.

DESCRIPTION

The program runs a multiple-linear regression with the available monthly mean,
zonal mean data to create a gap-free data set. This data set is a combination of
different basis function contributions. Depending on the combination of the
different basis function contributions, the different Tiers of the data set
are created.

AUTHOR

Birgit Hassler, CIRES / NOAA ESRL CSD

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REVISION HISTORY

6/16/2014 Initial Version prepared for NCDC.

BDBP/gb_xysignal.pas [Programs]

[Top] [Programs]

NAME

gb_xysignal.pas

PURPOSE

Defines a class which is used to and XY data series. It is a
general form of the TVertProfile object defined in gb_profile.pas.

DESCRIPTION

This unit defines a class which is used to and XY data series. It is a
general form of the TVertProfile object defined in gb_profile.pas.

AUTHOR

Birgit Hassler, CIRES / NOAA ESRL CSD

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REVISION HISTORY

6/19/2014 Initial Version prepared for NCDC.

BDBP/gb_TripletArray.pas [Programs]

[Top] [Programs]

NAME

gb_TripletArray.pas

PURPOSE

Defines a class which stores data values with their uncertainty, a time stamp
and some information about the data.

DESCRIPTION

This unit defines a class which stores data values with their uncertainty, a
time stamp and some information about the data.

AUTHOR

Birgit Hassler, CIRES / NOAA ESRL CSD

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REVISION HISTORY

6/19/2014 Initial Version prepared for NCDC.

BDBP/gb_TMeasurementSet.pas [Programs]

[ ] [Programs]

NAME

gb_TMeasurementSet.pas

PURPOSE

Provides definitions and routines that are necessary to read and write to the BDBP database.

DESCRIPTION

This unit Provides definitions and routines that are necessary to read and write to the BDBP database.

AUTHOR

Birgit Hassler, CIRES / NOAA ESRL CSD

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REVISION HISTORY

6/16/2014 Initial Version prepared for NCDC.

BDBP/gb_synopticglobal.pas [Programs]

[ ] [Programs]

NAME

gb_synopticglobal.pas

PURPOSE

Defines a class which stores global synoptic data over a user specified area and at user specified latitude and longitude resolution.

DESCRIPTION

This unit defines a class which stores global synoptic data over a user
specified area and at user specified latitude and longitude resolution. The
user specificies whether the data are stored at word precision (2 bytes),
in which case prescribed scaling and offset values are used to convert the
word values to single precision values, or at single (4 byte) precision.

AUTHOR

Birgit Hassler, CIRES / NOAA ESRL CSD

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REVISION HISTORY

6/19/2014 Initial Version prepared for NCDC.

BDBP/gb_strings.pas [Programs]

[Top] [Programs]

NAME

gb_strings.pas

PURPOSE

Provides fundamental string manipulation routines that are not provided by
Delphi.

DESCRIPTION

This unit provides fundamental string manipulation routines that are not provided by
Delphi.

AUTHOR

Birgit Hassler, CIRES / NOAA ESRL CSD

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REVISION HISTORY

6/16/2014 Initial Version prepared for NCDC.

BDBP/gb_SpatioTemporalBiasCorrector.pas [Programs]

[Top] [Programs]

NAME

gb_SpatioTemporalBiasCorrector.pas

PURPOSE

Deals with the spatial and temporal correction of the individual data points while calculating the monthly mean zonal mean.

DESCRIPTION

This unit deals with the spatial and temporal correction of the individual data points while calculating the monthly mean zonal mean.

AUTHOR

Birgit Hassler, CIRES / NOAA ESRL CSD

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REVISION HISTORY

6/16/2014 Initial Version prepared for NCDC.

BDBP/gb_RegressionBasisFunction.pas [Programs]

[Top] [Programs]

NAME

gb_RegressionBasisFunction.pas

PURPOSE

Deals with all the technical aspects of handling and providing basis functions for a regression model.

DESCRIPTION

This unit deals with all the technical aspects of handling and providing basis functions for a regression model.

AUTHOR

Birgit Hassler, CIRES / NOAA ESRL CSD

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REVISION HISTORY

6/16/2014 Initial Version prepared for NCDC.

BDBP/gb_ncepncar.pas [Programs]

[Top] [Programs]

NAME

gb_ncepncar.pas

PURPOSE

Defines an object which manages global grid data for the NCEP/NCAR reanalysis project.

DESCRIPTION

This unit defines an object which manages global grid data for the NCEP/NCAR reanalysis project.

AUTHOR

Birgit Hassler, CIRES / NOAA ESRL CSD

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REVISION HISTORY

6/19/2014 Initial Version prepared for NCDC.

BDBP/gb_merctoms.pas [Programs]

[Top] [Programs]

NAME

gb_merctoms.pas

PURPOSE

Is specifically designed to manipulate and display TOMS data.

DESCRIPTION

This unit defines a class descendent from the TMercator class defined in
the gb_mercator unit. This class is specifically designed to manipulate
and display TOMS data. The display methods that it makes use of are
defined by the TMercator class.

AUTHOR

Birgit Hassler, CIRES / NOAA ESRL CSD

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REVISION HISTORY

6/19/2014 Initial Version prepared for NCDC.

BDBP/gb_mercator.pas [Programs]

[Top] [Programs]

NAME

    gb_mercator.pas

PURPOSE

    Defines a class descendent from the T2DDoubleArray class defined
    in the gb_array unit which is used for manipulation of geographic data on
    a mercator projection.

DESCRIPTION

    This unit defines a class descendent from the T2DDoubleArray class defined
    in the gb_array unit which is used for manipulation of geographic data on
    a mercator projection. The class's methods allow the creation of a geo
    graphic coordinate system and the extraction of data from the grid.
    Various mathematical and physical methods are also defined such as calcul-
    ating the area of any cell, calculating average values within any geo-
    graphic area etc.

AUTHOR

    Birgit Hassler, CIRES / NOAA ESRL CSD

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REVISION HISTORY

    6/19/2014 Initial Version prepared for NCDC.

BDBP/gb_math.pas [Programs]

[Top] [Programs]

NAME

    gb_math.pas

PURPOSE

    Holds all mathematical routines and functions which are not part
    of the standard Delphi maths routines.

DESCRIPTION

    This unit holds all mathematical routines and functions which are not part
    of the standard Delphi maths routines. The unit makes no use of
    other units and is given a priority of zero.

AUTHOR

    Birgit Hassler, CIRES / NOAA ESRL CSD

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REVISION HISTORY

    6/19/2014 Initial Version prepared for NCDC.

BDBP/gb_LeastSquaresRegression.pas [Programs]

[Top] [Programs]

NAME

    gb_LeastSquaresRegression.pas

PURPOSE

    Defines a least squares regression analysis class.

DESCRIPTION

    This unit defines a least squares regression analysis class.

AUTHOR

    Birgit Hassler, CIRES / NOAA ESRL CSD

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REVISION HISTORY

6/16/2014 Initial Version prepared for NCDC.

BDBP/gb_grib.pas [Programs]

[Top] [Programs]

NAME

gb_grib.pas

PURPOSE

Defines an object which manages grib files.

DESCRIPTION

This unit defines an object which manages grib files.

AUTHOR

Birgit Hassler, CIRES / NOAA ESRL CSD

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REVISION HISTORY

6/19/2014 Initial Version prepared for NCDC.

BDBP/gb_GlobalSynopticStack.pas [Programs]

[Top] [Programs]

NAME

`gb_GlobalSynopticStack.pas`

PURPOSE

Defines and handles a four dimensional synoptic data object.

DESCRIPTION

This unit defines and handles a four dimensional synoptic data object.

AUTHOR

Birgit Hassler, CIRES / NOAA ESRL CSD

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REVISION HISTORY

6/19/2014 Initial Version prepared for NCDC.

BDBP/gb_GeneralConstantsAndTypes.pas [Programs]

[Top] [Programs]

NAME

`gb_GeneralConstantsAndTypes.pas`

PURPOSE

Defines some constants and structures for use when calculating monthly mean values
out of the BDBP database.

DESCRIPTION

This unit defines some constants and structures for use when calculating monthly
mean values out of the BDBP database.

AUTHOR

Birgit Hassler, CIRES / NOAA ESRL CSD

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REVISION HISTORY

6/16/2014 Initial Version prepared for NCDC.

BDBP/gb_g2binary.pas [Programs]

[Top] [Programs]

NAME

gb_g2binary.pas

PURPOSE

Defines a class for managing time series of data at a range of
temporal resolutions, including random time steps.

DESCRIPTION

This unit defines a class for managing time series of data at a range of
temporal resolutions, including random time steps.

AUTHOR

Birgit Hassler, CIRES / NOAA ESRL CSD

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REVISION HISTORY

6/19/2014 Initial Version prepared for NCDC.

BDBP/gb_g1means.pas [Programs]

[Top] [Programs]

NAME

gb_g1means.pas

PURPOSE

Handles all the calculations of mean, maximum, minimum, total values from
data that is stored in g1binary format.

DESCRIPTION

This unit handles all the calculations of mean, maximum, minimum, total values from
data that is stored in g1binary format.

AUTHOR

Birgit Hassler, CIRES / NOAA ESRL CSD

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6/19/2014 Initial Version prepared for NCDC.

BDBP/gb_g1binary.pas [Programs]

[Top] [Programs]

NAME

gb_g1binary.pas

PURPOSE

Defines an object which manages generic version 1 binary location data
files. The files make provision for storing location data of up to 32767
readings per day in compressed data files.

DESCRIPTION

This unit defines an object which manages generic version 1 binary location data
files. The files make provision for storing location data of up to 32767
readings per day in compressed data files.

AUTHOR

Birgit Hassler, CIRES / NOAA ESRL CSD

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REVISION HISTORY

6/19/2014 Initial Version prepared for NCDC.

BDBP/gb_files.pas [Programs]

[[Top](#)] [Programs]

NAME

gb_files.pas

PURPOSE

Holds a number of functions and procedures that are used in file manipulation.

DESCRIPTION

This unit holds a number of functions and procedures that are used in file
manipulation.

AUTHOR

Birgit Hassler, CIRES / NOAA ESRL CSD

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REVISION HISTORY

6/16/2014 Initial Version prepared for NCDC.

BDBP/gb_excelutils.pas [Programs]

[Top] [Programs]

NAME

gb_excelutils.pas

PURPOSE

Deals with reading in data from Excel files.

DESCRIPTION

This unit deals with reading in data from Excel files.

AUTHOR

Birgit Hassler, CIRES / NOAA ESRL CSD

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REVISION HISTORY

6/16/2014 Initial Version prepared for NCDC.

BDBP/gb_EESCServer.pas [Programs]

[Top] [Programs]

NAME

gb_EESCServer.pas

PURPOSE

Deals with all aspects of providing a flexible EESC basis function for a multiple linear regression model.

DESCRIPTION

This unit deals with all aspects of providing a flexible EESC basis function for a multiple linear regression model.

AUTHOR

Birgit Hassler, CIRES / NOAA ESRL CSD

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REVISION HISTORY

6/16/2014 Initial Version prepared for NCDC.

BDBP/gb_dialogutils.pas [Programs]

[Top] [Programs]

NAME

gb_dialogutils.pas

PURPOSE

Provides routines for saving dialog form settings to file, reading them from a file etc.

DESCRIPTION

This unit provides routines for saving dialog form settings to file, reading them from a file etc.

AUTHOR

Birgit Hassler, CIRES / NOAA ESRL CSD

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REVISION HISTORY

6/19/2014 Initial Version prepared for NCDC.

BDBP/gb_DelphiNetCDF.pas [Programs]

[[Top](#)] [Programs]

NAME

gb_DelphiNetCDF.pas

PURPOSE

Handles all actions for writing to and reading from netCDF files.

DESCRIPTION

This unit handles all actions for writing to and reading from netCDF files.

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Birgit Hassler, CIRES / NOAA ESRL CSD

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REVISION HISTORY

6/19/2014 Initial Version prepared for NCDC.

BDBP/gb_datetime.pas [Programs]

[Top] [Programs]

NAME

gb_datetime.pas

PURPOSE

Defines a number of routines for manipulating dates and times.

DESCRIPTION

This unit defines a number of routines for manipulating dates and times.

AUTHOR

Birgit Hassler, CIRES / NOAA ESRL CSD

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REVISION HISTORY

6/16/2014 Initial Version prepared for NCDC.

BDBP/gb_BasisFunctions.pas [Programs]

[Top] [Programs]

NAME

gb_BasisFunctions.pas

PURPOSE

Contains all subroutines that deal with preparing, reading and handling the basis
functions for the multiple linear regression model.

DESCRIPTION

The unit contains all subroutines that deal with preparing, reading and handling the basis functions for the multiple linear regression model.

AUTHOR

Birgit Hassler, CIRES / NOAA ESRL CSD

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REVISION HISTORY

6/16/2014 Initial Version prepared for NCDC.

BDBP/gb_AutocorrelationModel.pas [Programs]

[Top] [Programs]

NAME

gb_AutocorrelationModel.pas

PURPOSE

Deals with all aspects of an autocorrelation model that is needed for a multiple linear regression model.

DESCRIPTION

This unit deals with all aspects of an autocorrelation model that is needed for a multiple linear regression model.

AUTHOR

Birgit Hassler, CIRES / NOAA ESRL CSD

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REVISION HISTORY

6/16/2014 Initial Version prepared for NCDC.

BDBP/gb_astro.pas [Programs]

[Top] [Programs]

NAME

gb_astro.pas

PURPOSE

Holds routines for the calculation of various astronomical values
which are not provided by any delphi units.

DESCRIPTION

This unit hold routines for the calculation of various astronomical values
which are not provided by any delphi units. Some of these routines were
obtained from: Iqbal M., An introduction to Solar Radiation, Academic
Press, 1983.

AUTHOR

Birgit Hassler, CIRES / NOAA ESRL CSD

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REVISION HISTORY

6/16/2014 Initial Version prepared for NCDC.

BDBP/gb_array.pas [Programs]

[Top] [Programs]

NAME

gb_array.pas

PURPOSE

Defines a data storage class which can be used much like an array.

DESCRIPTION

This unit defines a data storage class which can be used much like an
array. The size of the array is limited only by the free disk space. The
class defined in this unit implements a single dimensional array, leaving
multidimension implementation to descendent objects. Any data type can be
stored in the array object. The maximum amount of heap memory that can be
used by the object is specified by the calling program. If the object's
data array(s) can be stored on the heap without exceeding this amount, the
object uses this approach otherwise a temporary storage file is created
and pages of memory are swapped to and from disk. The size of the data
which the object manages is specified in the initialisation. The object
also defines two methods for rapidly writing and reading data to and from files.

AUTHOR

Birgit Hassler, CIRES / NOAA ESRL CSD

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REVISION HISTORY

6/16/2014 Initial Version prepared for NCDC.

BDBP/gb_4Dsynoptic.pas [Programs]

[Top] [Programs]

NAME

gb_4Dsynoptic.pas

PURPOSE

Defines a class which manages synoptic data fields, typically geophysical data
as a function of latitude and longitude, on one or more levels and at one or
more times. The levels and times need not be evenly spaced.

DESCRIPTION

This unit defines a class which manages synoptic data fields, typically geophysical data as a function of latitude and longitude, on one or more levels and at one or more times. The levels and times need not be evenly spaced. The object does not need a destructor since the ancestors destructor calls the Clear method which is all that is required to clean up the resourecs used.

AUTHOR

Birgit Hassler, CIRES / NOAA ESRL CSD

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REVISION HISTORY

6/19/2014 Initial Version prepared for NCDC.

BDBP/CalculateMonthlyMeans.dpr [Programs]

[Top] [Programs]

NAME

CalculateMonthlyMeans.dpr

PURPOSE

Calculates monthly mean ozone values out of several different ozone sources that are taken from the BDBP Database.

DESCRIPTION

The program calculates monthly mean ozone values out of several different ozone sources that are taken from the BDBP Database, from 1978 to 2006. Minimum data points to calculate a monthly mean is set to 6, and the width of the latitude bands is set to 5 degrees.

AUTHOR

Birgit Hassler, CIRES / NOAA ESRL CSD

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REVISION HISTORY

6/16/2014 Initial Version prepared for NCDC.

Generated from ./Delphi_code_v2/ with ROBODoc V4.99.41 on Thu Jun 19 2014 16:13:46