

Release Note 2.3.0

This release note includes updates to view_hdf since the release of User's Guide Version 2.0.

1.0 Main Menu

- (1) “File”: The new “File” menu is shown in [Fig. 1-1](#).

The new options are:

- (a) “Open Previous Files”: The last five files opened will be remembered. A file can be reopened from the list by selecting this option.
- (b) “Add User Defined Module”: This option adds user written IDL procedures to the user defined module list. A maximum of five modules can be added to the list. If five modules are already in the list, the last one will be removed and the latest one will be added to the top of the list.



Fig. 1-1. File Menu

- (c) “Remove User Defined Module”: This option removes a module from the user defined modules list.
- (d) “Export List...”: This option has been extended to support the export of a list of subset data with or without fill data. The options are:
 - (i) “Without Filldata”: Export subset data without fill data values. The option “Without Reference” does not export data for a record if any item in the list has the fill value. The option “With Reference” does not export data for a record if the reference data value is the fill value.
 - (ii) “With Filldata”: Export subset data including those with fill values.
- (e) “Export Tecplot...”: This option has been extended in the same manner as the “Export List...” option.
- (f) “Create an HDF File”: This option writes subset data to a new HDF file. The structure of the new file is same as the original file’s structure. For vdata sets, only one field is written. If the file already exists, that file will be overwritten.

- (g) “Add Data to an HDF File”: This option allows subset data to be written to an HDF file. If the file does not exist, it will be created. If the data set to be written has the same name as a data set already in the file, four options will be given as shown in Fig. 1-2:

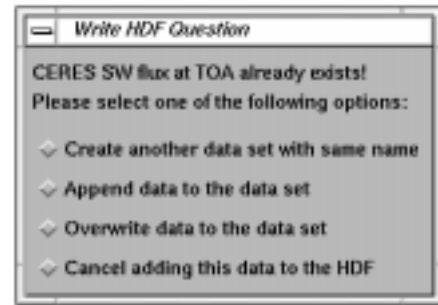


Fig. 1-2. Write HDF Option Menu

- (i) Create another data set with the same name.
- (ii) Append data to the data set.
- (iii) Overwrite data in the data set. The existing data set is overwritten. The start record for the overwrite can be specified.
- (iv) Cancel adding this data to the HDF file.

- (2) “Compute”: The new “Compute” menu is shown in Fig. 1-3. The new options include:

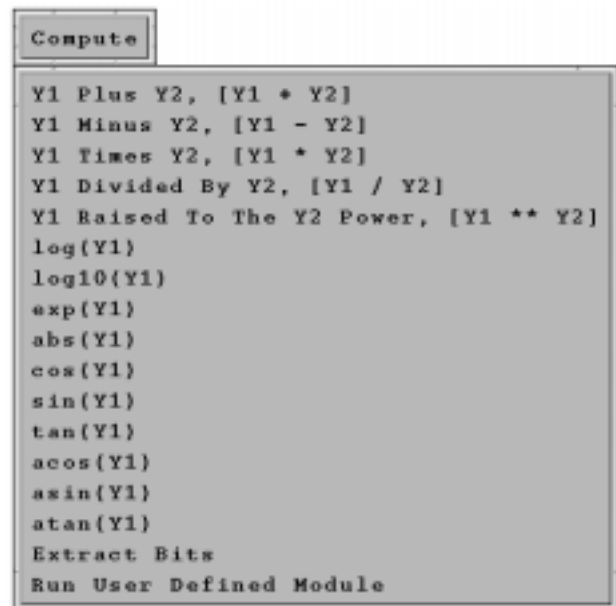


Fig. 1-3. Compute Menu

- (a) “Y1 Raised To The Y2 Power, [Y1 ** Y2]”: This option allows calculation of the square root of Y1 when Y2 is set to 0.5, the square of Y1 when Y2 is set to 2, and the inverse of Y1 when Y2 is set to -1. Y2 can be set to any value. If Y2 is not set to an integer number, all negative values of Y1 are set to the fill value and the result is not calculated.
- (b) “log(Y1)”: Compute the natural logarithm of the Y1 variable.
- (c) “log10(Y1)”: Compute the base 10 logarithm of the Y1 variable.
- (d) “exp(Y1)”: Compute the natural exponential function of the Y1 variable.
- (e) “abs(Y1)”: Compute the absolute value of the Y1 variable.

- (f) “cos(Y1)”: Compute the cosine of the Y1 variable. Set Y2 equal to 0 for Y1 values expressed in units of degrees and set Y2 equal to 1 for Y1 values expressed in radians by selecting the “Constant” option for the Y2 variable. The default for Y2 is 0.
- (g) “sin(Y1)”: Compute the sine of the Y1 variable. See explanation of Y2 in item 2.b.
- (h) “tan(Y1)”: Compute the tangent of the Y1 variable. See explanation of Y2 in item 2.b.
- (i) “acos(Y1)”: Compute the arc cosine of the Y1 variable. The results are in degrees when Y2 is set to 0 and in radians when Y2 is set to 1.
- (j) “asin(Y1)”: Compute the arc sine of the Y1 variable. See explanation of Y2 in item 2.i.
- (k) “atan(Y1)”: Compute the arc tangent of the Y1 variable. See explanation of Y2 in item 2.i.
- (l) “Run User Defined Module”: This option allows the execution of any user defined IDL procedure. Requirements for the procedure are:
 - (i) The first executable line in the procedure must start with “pro”.
 - (ii) The maximum number of arguments is 22. They can be any variables in the Current Subsets list, a constant value, a constant value array, or a string. For a constant array, the elements are separated by commas.
 - (iii) If the procedure has output data to be added to the Current Subsets list, it must be the last argument and it must be an array.

The procedure must be added to the user defined module list by using the option “Add User Defined Module”(see item 1.b), and data sets to be used as parameters must be imported to the Current Subsets list before selecting this option. A window will pop up for selecting the module and additional windows will pop up for selecting parameters, as shown in [Fig. 1-4](#). If the last argument of the procedure is output data, a window for specifying an output variable name will be displayed, followed by a prompt to enter the units for the output variable. The units entry is optional and is used for annotating plots. An additional window will pop up for selecting a reference data field that determines the structure of

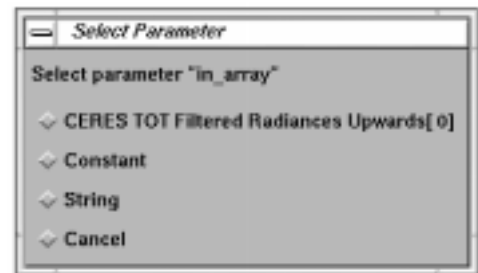


Fig. 1-4. Select Parameter Window

the output data written to the Current Subsets list. The output parameter will be stored in the same type of structure as the reference data field if the two have the same number of data values. If “No Reference” is selected, the output data will be stored in an SDS structure.

- (3) “Axis”: A “Logarithmic Axis” option has been added to this menu. The X, Y, and/or Y1 axes can be specified as logarithmic axes instead of linear axes. The submenu is shown in [Fig. 1-5](#).

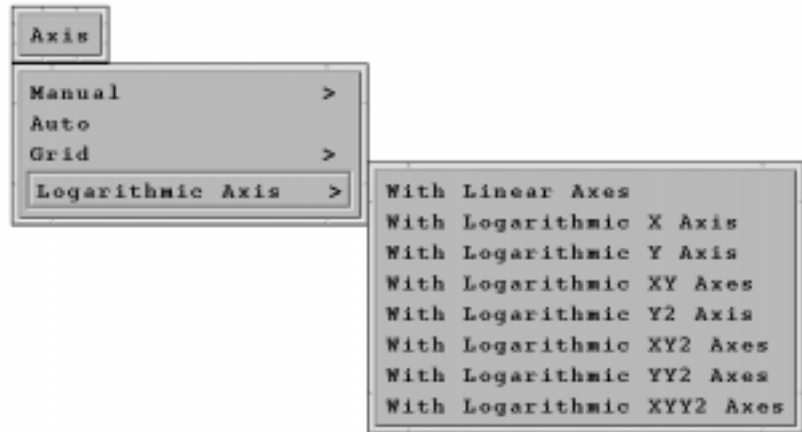


Fig. 1-5. Axis-Logarithmic Axis Submenu

- (4) “Map”: A “Contour Geolocated” function has been added to this menu. See [item \(12\)](#) for a description of this map overplot. Submenu options, as shown in [Fig. 1-6](#), include:

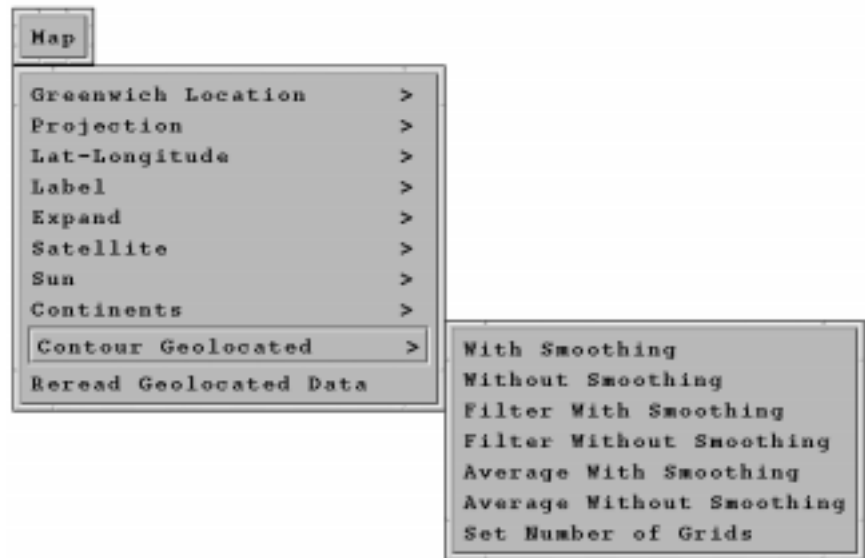


Fig. 1-6. Map-Contour Geolocated Submenu

- (a) “With Smoothing”: Smooth the data set before creating the contour plot.

- (b) “Without Smoothing”: Do not smooth the data set.

- (c) “Filter With Smoothing”: Remove any large triangles returned from the TRIANGULAR function before calling the TRIGRID function. Any triangle whose length is greater than five times the length of the diagonal of the grid size is removed. The data set is smoothed before creating the contour plot.

- (d) “Filter Without Smoothing”: Do not smooth the data set after filtering the triangles which return from TRIANGULAR function. See item 4.c.
 - (e) “Average With Smoothing”: Create gridded data by calculating the mean value of data points in each grid. Smooth the data set before creating the contour plot.
 - (f) “Average Without Smoothing”: Create gridded data by calculating the mean value of data points in each grid. Do not smooth the data set before creating the contour plot.
 - (g) “Set Number of Grids”: Specify the number of grid boxes in each direction. The default is 360 in longitude and 180 in latitude.
- (5) “Style”: Four more options have been added to the list of available symbols. They are “Circle”, “Filled Triangle”, “Filled Square”, and “Filled Circle”.
- (6) “Help”: An “About View_HDF...” option has been added. When this option is selected, the pop-up window shown in Fig. 1-7 is displayed. It includes the view_hdf version number, date of last update, and contact information. Click on the “Done” button to close this window.
- (7) “Current Filename”: An HDF file can be opened by entering the filename in this field. It accepts only a path name or the “*” wildcard character. A window will pop up for selecting the file if more than one file name is matched.
- (8) “Switch File”: Switch between the last five files opened in the same session to select the current working file without opening it again.
- (9) “INPUT”: A “Display Attributes Only” option has been added to the list. This option displays the attributes of the selected variable without importing that data set into Current Subsets field.



Fig. 1-7. About view_hdf Window

2.0 Select Function Menu

The new “Select Function” menu is shown in [Fig. 2-1](#). The new options are:

- (10) “2D Image With Scale”: This option interpolates the data set to fit the size of the view window before displaying data as an image.
- (11) “XY Graph”: The “Select Variable” option has been added to the X variable list. This option allows the selection of any variable from the Current Subsets list for use as the X variable for the plot.
- (12) “Contour Geolocated”: This option creates a filled contour plot on a map projection. The data will be converted into a two-dimensional regular grid before a contour is created.
- (13) “Create Subset”: Two options have been added in the “Pick Additional Criterion” window. The “Inside the range” option includes data within the minimum and maximum values of the criterion variable. The “Outside the range” option includes data less than the minimum value or greater than the maximum value of criterion variable. The default is the former one.
- (14) “Export Data Without Filldata”: This option exports only those subset data values which are less than the fill value.
- (15) “Change Name”: This option allows the name of a variable in the Current Subsets list to be changed. A window will pop up for entering the new variable name. The “Clear” button clears the name field in the window.
- (16) “Change Data Type”: This option allows the data type of a variable in the Current Subsets list to be changed. A window will pop up for selecting the new data type.

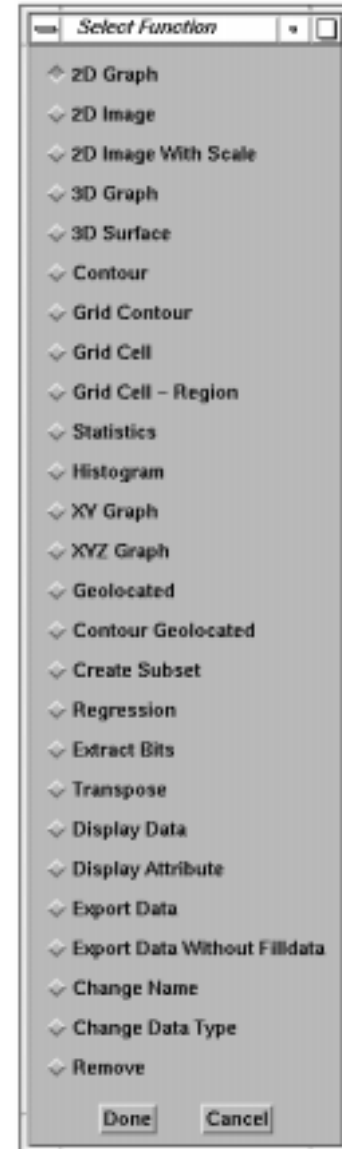


Fig. 2-1. Select Function Menu

3.0 Plot Window Menu

- (17) “Axis”: The graph will be automatically replotted when the axis ranges are changed.

4.0 Miscellaneous Items

- (18) Most of the functions in the C shared library have been rewritten in IDL. However, the C shared library still cannot be eliminated because:
 - (a) Versions of IDL before 5.2 do not support the unsigned integer data type.
 - (b) The IDL vdata functions do not support the string data type.
 - (c) The IDL vdata functions do not provide access to vdata attributes.
 - (d) Some functions for CERES file support are implemented in C.