

HE5View Users Guide

HE5View Version 5.0

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Abstract

HE5View is a file viewing tool developed for the ECS project for the examination and verification of HDF-EOS Version 5.x data files. This tool enables the user of EOS data products to view the contents of HDF-EOS files and individual objects by being able to read and display all metadata fields and data objects appropriately. Supported record types for viewing and display capability include Swath, Grid, and Point objects in table, image and text format. Attributes and annotations can also be viewed. HE5View users will not see the underlying HDF5 structures but will be prompted for which parts of the HDF-EOS structure they wish to view.

The HE5View application is able to convert HDF-EOS data files to a particular type, ASCII and binary, for storage on a user's disk space so that the user can then make further use of analysis and visualization tools already available in commercial public domain systems. HE5View is then able to open and provide the means for ingesting HDF-EOS files into other software systems.

Keywords: HE5View, HDFEOS, HDF, images, point, swath, grid

1. Introduction

1.1 Identification

The HE5View User's Guide for the ECS Project was prepared under the Earth Observing System Data and Information System (EOSDIS) Core System (ECS), Contract (NAS5-60000).

1.2 Scope

This document is intended for use by anyone who wished to verify or inspect EOS data products written as HDF-EOS Version 5.x. Users of this document will include EOS instrument team science software developers and data product designers, DAAC personnel, and end users of EOS data products, i.e. scientists and researchers.

1.3 Purpose and Objectives

This document will serve as a user's guide for the HE5View data verification tool, developed for ECS. The reader should have an understanding of the user interface and the functionality provided with the tool. A cursory understanding of HDF5 and HDF-EOS data structures is recommended, but not required.

Information on HDF-EOS Version 5.x can be found in The HDF-EOS Users Guide for the ECS Project. Information on HDF5 can be found in The NCSA HDF5 User's Guide.

1.4 Status and Schedule

1.5 Document Organization

This document is organized as follows:

- Section 1 Introduction - Presents Scope and Purpose of this document

- Section 2 Related Documentation

- Section 3 Overview of HE5View - Background and design features of the tool

- Section 4 Installation and Maintenance - Information on obtaining the tool, supported platforms, user help

- Section 5 HE5View User Interface

2. Related Documentation

2.1 Parent Documents

The following document is the parent from which this document's scope and content derive:

- 423-41-03 Goddard Space Flight Center, EOSDIS Core System Contract Data Requirements Document, Data Item Description No. 311
- 423-41-03 Goddard Space Flight Center, EOSDIS Core System Contract Data Requirements Document, Data Item Description No. 609

2.2 Related Documents

The following documents are directly applicable to this requirement's specification:

- 333-CD-003-001 SDP Toolkit Users Guide for the ECS Project
- 170-TP-001-001 HDF-EOS Users Guide for the ECS Project
- none University of Illinois, An Introduction to HDF5
- none University of Illinois, NCSA HDF5 User's Guide
- none University of Illinois, NCSA HDF5 Reference Manual
- none University of Illinois, NCSA HDF5 Application Developer's Guide

3. Overview of HDF and HDF-EOS

3.1 Introduction

Prior to discussing HE5View, it is helpful to provide an overview of the data formats which the tool is designed: namely HDF5.

The Hierarchical Data Format (HDF) has been selected by the Earth Observing System (EOS) Data and Information System, Core System (ECS) Project as the format for EOS standard product distribution. HDF is a general scientific data format, which supports raster, text, array and table type structures. The files are self-describing and portable to most Unix systems. HDF data structures are implemented with a software interface supplied by the National Center for Supercomputing Applications (NCSA). See NCSA HDF User's Guide and references. HDF has been extended by the ECS Project to focus conventions for writing EOS data products. These extensions, called HDF-EOS, are described below.

HE5View has been designed to supply the user with the capability of opening and inspecting the contents of an HDF-EOS data file using HDF5. The tool will provide producers and users of EOS data the ability to navigate through HDF-EOS files, display metadata, file directory information, and data in table and/or image form.

3.2 HDF and HDF-EOS File Formats

3.2.1 Overview

Most of the NCSA defined datatypes map well to EOS datatypes. Examples include raster images, multi-dimensional arrays, and text blocks. There are other EOS datatypes, however, that do not map directly to NCSA datatypes, particularly in the case of geolocated datatypes. Examples include projected grids, satellite swaths, and field campaign or point data.

An HDF5 file consists of a directory, and records pointed to by that directory. Each directory entry consists of fields for the record type (TAG), a unique ID number (REF), and a location and size of the record pointed to. All locations in the HDF file are in byte locations from the beginning of the file. All record sizes are also specified in bytes.

Supported record types include images, multidimensional arrays, text, tables (known in HDF as Vdatas), and so on. One record type, known as Vgroup, lets the user group a series of records into a larger structure, similar to disk directories.

To bridge the gap between the needs of EOS data products and the capabilities of HDF, the ECS Project has developed extensions of HDF, which standardize the conventions for writing HDF files, and are called HDF-EOS. These extensions facilitate the creation of Grid, Point, and Swath data structures. The software interface for the HDF-EOS implementation is very similar

to the HDF interface. See HDF-EOS Users Guide for the ECS Project [170-TP-001-001] and references.

The Point interface is designed to support data that has associated geolocations information, but is not organized in any well defined spatial or temporal way. The Swath interface is tailored to support time-ordered data such as satellite swaths (which consist of a time-ordered series of scanlines), or profilers (which consist of a time-ordered series of profiles). The Grid interface is designed to support data that has been stored in a rectilinear array based on a well defined and explicitly supported projection.

3.2.2 Structure of an HDF-EOS File

An HDF-EOS file is any valid HDF5 file (i.e. any file created by the NCSA HDF library), that contains a family of global attributes called “coremetada.X”, where “X” is a sequence number beginning at 0 and running as high as 9. Optional data objects which may appear in an HDF-EOS file include, another family of global attributes called “archivemetadada.X” and any number of Point, Swath, and/or Grid data structures. The existence of Point, Swath, or Grid structures in an HDF-EOS file implies the existene of another family of global attributes called “StructMetadata.X”. These terms are defined below.

Core Metadata

Core Metadata represent information which will be used to populate searchable tables within the structure. These metadata, which are defined in DID 311, are contained in the “coremetadada.X” (X=0,...,n) family of global attributes within an HDF-EOS file. The syntax of these metadata is compliant with the Object Description Language (ODL). Tools for formatting, accessing and writing core metadata are provided in the ECS Science Data Processing (SDP) Toolkit.

Archive Metadata

Archive metadata represent information that, by definition, will not be searchable. It contains whatever information the file creator considers useful to be in the file, but which will not be directly accessible for the system. These metadata are also accessed via SDP Toolkit calls and are written in ODL syntax into the “archivemetadada.X”, (X=0,...,n) family of global attributes.

Structural Metadata

Structural metadata describe the contents and structure of an HDF-EOS file. These metadata are present in the file only if the HDF-EOS library has been invoked to create a Grid, Point, or Swath structure. These metadata are stored in the “StructMetadata.X” family of global attributes and are created and maintained by the HDF-EOS library. These metadata are not intended to be directly accessed by data producers or users. Therefore, all access to these metadata should be via appropriate function calls in the HDF-EOS library.

Point Structure

Point structures are implemented in HDF-EOS files as a hierarchy of Vgroups containing several Vdatas, i.e. tables. All Vgroups and Vdatas that are part of any Point structure carry the class “POINT”. Each level of data within a Point structure is implemented as a single Vdata, with each data field being named field in the Vdata.

The following limitations apply to Point structures and should be kept in mind by EOSView users:

- The reserved field names for special purpose geolocation fields are “Longitude”, “Latitude”, “Colatitude”, and “Time” (case sensitive). These fields are subject to the following requirements:

Field Name	Data Type	Format
Longitude	float32 or float64	Decimal degrees on the range [-180.0, 180.0]
Latitude	float32 or float64	Decimal degrees on the range [-90.0, 90.0]
Colatitude	float32 or float64	Decimal degrees on the range [0.0, 180.0]
Time	float64	TAI93 (seconds until(-)/since(+) midnight 1/1/93)

- Fields may only be one-dimensional.
- Up to 8 levels may exist in a Point structure.

Swath Structure

Swath structures are implemented as a hierarchy of Vgroups containing a number of Vdatas and/or SDSs, i.e. tables and multi-dimensional arrays. All Vgroups and Vdatas that are part of any Swath structure carry the class “SWATH”. Each one-dimensional field is implemented as a named field within its own Vdata. One-dimensional fields that are the same length, are merged into “communal” Vdatas, with each data field occupying one field in the Vdata.

Each multi-dimensional field is implemented as an SDS. Three dimensional fields which share the same dimensionality, dimension sizes, and data type and which are specifically allowed by the calling program are merged into communal SDSs with three dimensions. Two-dimensional arrays are merged as if they were three-dimensional arrays with a first dimension of size 1. No merging is performed on fields with more than three dimensions, on fields with an unlimited dimension, or on compressed fields.

The following limitations apply to Swath structures:

- The reserved field names for special purpose geolocation fields are “Longitude”, “Latitude”, “Colatitude”, and “Time” (case sensitive). These fields are subject to the following requirements:

Field Name	Data Type	Format
Longitude	float32 or float64	Decimal degrees on the range [-180.0, 180.0]
Latitude	float32 or float64	Decimal degrees on the range [-90.0, 90.0]
Colatitude	float32 or float64	Decimal degrees on the range [0.0, 180.0]
Time	float64	TAI93 (seconds until(-)/since(+) midnight 1/1/93)

These fields may be one- or two-dimensional

- Non-reserved fields may have up to 8 dimensions.
- An “unlimited” dimension must be the first dimension (in C-order).
- For all multi-dimensional fields in scan- or profile-oriented Swaths, the dimension representing the “along track” dimension must precede the dimension representing scan or profile dimension(s).
- Compression is selectable at the field level within a Swath. All HDF-supported compression methods are available through the HDF-EOS library. Specifying compression on a field prevents merging.

Note: HE5View users need not be concerned whether a file has been compressed internally or not. The tool will uncompress the file automatically.

Grid Structure

Grid structures are implemented as a hierarchy of Vgroups containing several SDSs. All Vgroups that are part of any Grid structure carry the class “GRID”. Each data field within a Grid structure is implemented as a single SDS. Merging is done the same way for Grid data fields as for multi-dimensional Swath data fields.

The following limitations apply to Grid structures:

- Fields may have from 2 to 8 dimensions.
- Compression is selectable at the field level within a Grid. All HDF-supported compression methods are available through the HDF-EOS library. Specifying compression on a field prevents merging.

Note: HE5View users need not be concerned whether a file has been compressed internally or not. The tool will uncompress the file automatically.

4. Environment, Installation and Maintenance

4.1 Introduction

HE5View is designed to be a stand-alone tool for accessing HDF-EOS Version 5.x files. The installation instructions are described below.

4.2 Download Instructions

Downloading HE5View can be accomplished by using an ftp session. The address is:

```
ftp edhs1.gsfc.nasa.gov
```

```
Name: anonymous
```

```
Password: <your e-mail address>
```

```
ftp>quote site group sdptk
```

```
ftp> quote site gpass ecs-tkit
```

```
ftp>cd hdfeos5/tools/HE5View
```

A README file will also be provided in this directory.

```
ftp>get README
```

This file will answer many questions you have about running HE5View.

Change to the he5view directory that matches your hardware.

```
sgi/
```

```
solaris2.5/
```

```
dec/
```

```
hp/
```

Once in the directory set type to i, download the files, and exit.

```
ftp>bin
```

```
ftp>mget *
```

```
ftp>bye
```

The following files will be downloaded:

HE5View (executable)

he5view.csc (hypertext on-line help file)

he5view.uid (user interface description file)

eosview.dat (IDL commands file)

Start HE5View by typing 'HE5view' at the command prompt. If the environment variables described in Section 4.3.4 are not set, the current working directory must contain the four HE5View files.

4.3 Notes

4.3.1 Approved Platforms

HE5View was built and tested in a multi-platform environment. The list of approved platforms, which includes information about operating system is given in Table 4-1. The platforms should run Motif 1.2 window manager.

Table 4-1. Operating Systems

Platform	OS	Version
Sun Sparc	Solaris	2.5.1
DEC	OSF/1	4.0
HP	HP-UX	10.20
SGI	IRIX	6.2

4.3.2 Interfaces and Data Types

HE5View exchanges data of various types through internal interfaces within ECS:

- IDL for graphics
- XVT for GUI builder
- links with the HDF5 compile time library

4.3.3 Tunable Parameters

The following attributes can be modified through the standard .Xdefaults file:

- focus policy (mouse pointer)
- icon geometry (size and location)
- fonts
- colors

4.3.4 Environment Variables

Table 4-2 lists the environment variables for HE5View. These variables are optional.

Table 4-2. Environment Variables

Required By	Environment Variable	Description or Valid Ranges
HE5View	UIDPATH	location of the he5view.uid file that contains a description of GUI objects
HE5View	EOSVIEWHELPPDIR	location of he5view.csc (hypertext on-line help file) and eosview.dat file (idl commands)
HE5View	ECS_HOME	directory for File Selection dialog to begin

4.3.5 Special Constraints

HE5View will read only HDF-EOS Version 5.x formatted files.

4.3.6 Command Line Interface

HE5View has no command line argument interface.

4.4 User Feedback Mechanism

The mechanism for handling user feedback, documentation and software discrepancies, and bug reports follows:

- 1) The following account at the ECS Landover facility has been set up for user response: pgstlkit@eos.hitc.com
- 2) Users will e-mail problem reports and comments to the above account. A receipt will be returned to the sender. Responses will be prioritized based on the severity of the problem and the available resources. Simple bug fixes will be turned around sooner, while requested functional enhancements will be placed in a recommended requirements data base (RRDB) and handled more formally.
- 3) In order to help expedite responses, we request the following information be supplied with problem reports:

Name:

Date:

EOS Affiliation (DAAC, Instrument, Earth Science Data and Information System (ESDIS), etc.):

Phone No:

Computing Platform:

Operating System (including version):

Problem Description:

5. HE5View User Interface

5.1 Introduction

HE5View is a custom HDF-EOS Version 5.x file verification tool. It displays the contents of HDF-EOS Version 5.x files. Individual objects can be selected for display. Displays include datasets in tables, pseudo-color images of datasets, attributes, and annotations.

HE5View has a unique interface for handling HDF-EOS data structures. The Swath/Grid/Point interface uses only HDF-EOS Version 5.x library calls. The HE5View operator will not see the underlying HDF5 structures but will be prompted for which parts of the structure they wish to view.

HE5View is used to perform the operator functions listed in Table 5-1.

**Table 5-1. Common ECS Operator Functions Performed with HE5View
(1 of 2)**

Operating Function	Command/Script or GUI	Description	When and Why to Use
Swath/Point/Grid interface (HDF-EOS)	File Contents Display window for swath, point and grid files	View HDF-EOS objects at a high level (i.e., data types cannot be broken down)	To view segments of data in terms of swath, a point on the earth, and grid (e.g., lat/long) data
Display of Field data in table	data table	Displays a one or two dimensional list of data in a scrollable list	To view/compare associated numbers

**Table 5-1. Common ECS Operator Functions Performed with EOSView
(2 of 2)**

Operating Function	Command/Script or GUI	Description	When and Why to Use
Pseudo-color display of field data	Image Display Window	<ul style="list-style-type: none"> • Converts data into a visual image • multiple zoom features in image display available • pan feature available multiple palettes available 	To view the pseudo-color image of a field data table
Display text objects	Text (Attributes) Window	Describes the types of data strings for an individual object or for an entire file	To look at factors when doing computations (e.g., longitude/latitude)
Hypertext help	On-line Help	On-line help is available from all menu bars	to help in the navigation and use of HE5View
Plot Field Data	HE5View surface/contour plot window	Surface or contour plot of field data	To view plots of field data tables

5.2 Quick Start Using HE5View and GUI Overview

This section presents an orientation of HE5View.

5.2.1 Invoke HE5View

HE5View can be started from the UNIX command line by typing the command:

HE5View

5.2.2 HE5View Main Screen

The HE5View Main Window (shown in Figure 5-1) displays the current version of HE5View and date.

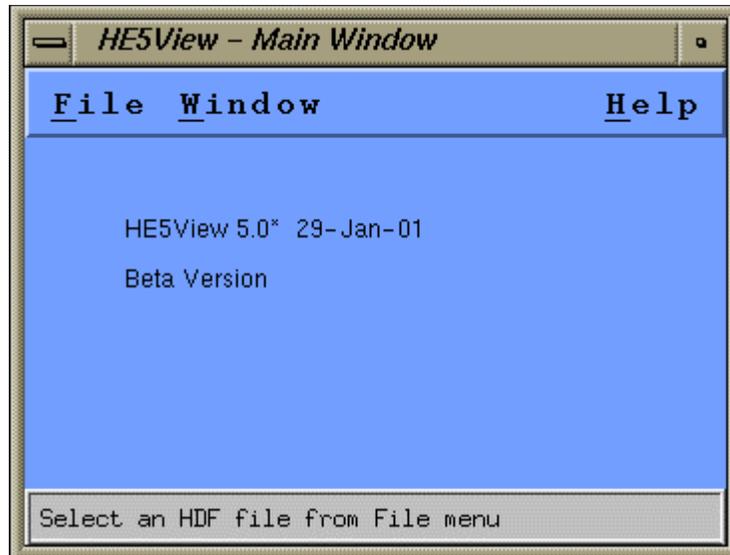


Figure 5-1. HE5View Main Screen

From the **F**ile pulldown menu, the operator can select Open or Exit.

- **Open** -- This will cause a file selection dialog to appear (shown in Figure 5-2)
- **Exit** – Exits HE5View

From the **W**indow pulldown menu, the operator can select an HE5View window and have the focus change to that window as long as it is currently open. This feature is described in Section 5.2.35 “Window Pulldown Menu.”

From the **H**elp pulldown menu, the operator can select help on context, on help, on window, keys, contents, index and version. This feature is described in Section 5.2.37 “Help Pulldown Menu.”

5.2.3 HE5View File Selection Dialog

Selecting **Open** from the HE5View File pulldown menu will bring up the File Selection Dialog shown in Figure 5-2. This is a standard file selection dialog box that lets the operator search through directories and select an HDF-EOS Version 5.x file.

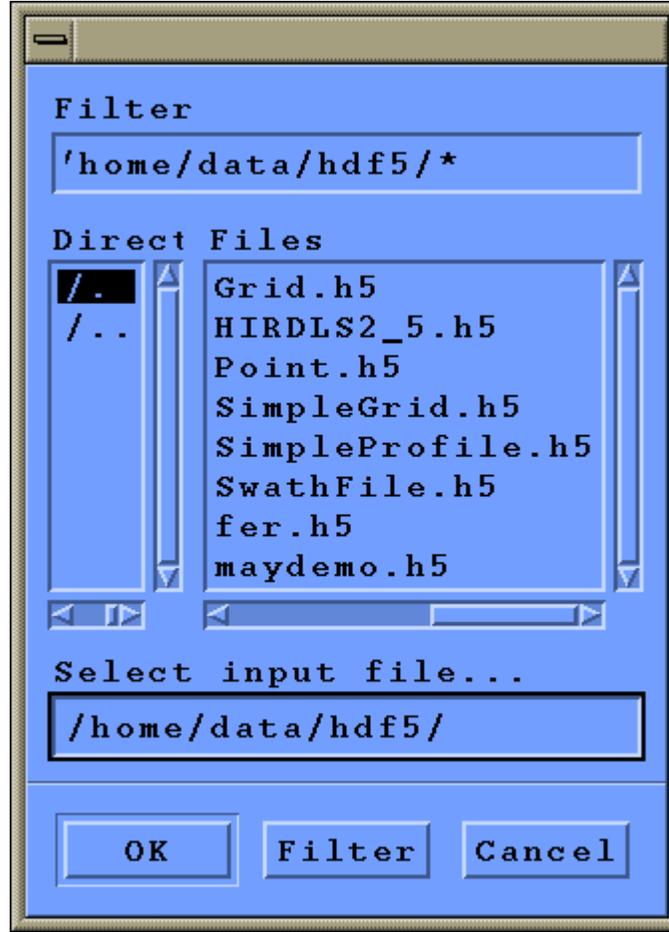


Figure 5-2. File Selection Dialog

Table 5-2 describes the File Selection fields.

Table 5-2. HE5View File Selection Field Description

Field Name	Data Type	Size	Entry	Description
Filter	system generated (editable)	unlimited	required	displays file selection parameters to filter the directories
Directories	selection	unlimited	required	displays a list of directories
Files	selection	unlimited	required	displays a list of files to select from

Select Input File	system generated (editable)	unlimited	required	displays the filename selection
-------------------	-----------------------------	-----------	----------	---------------------------------

In addition, the following pushbuttons are provided:

- **OK** – opens the specified file
- **Filter** – filters through the directories in layers until the desired directory/file is displayed
- **Cancel** – closes the file selection dialog

5.2.4 File Contents Display Pop-up

Once the HDF-EOS Version 5.x file has been selected, the File Contents Pop-up (see Figure 5-3) for that file will appear. This is a scrollable window with the following menu items:

- The **F**ile pulldown menu (described in Section 5.2.34) provides additional information about a file and provides a way to close the file.
- From the **W**indow pulldown menu, the operator can select an H5EView window and have the focus change to that window as long as it is currently open. This feature is described in Section 5.2.35 “Window Pulldown Menu.”
- From the **A**tttributes pulldown menu (described in Section 5.2.36), the operator can view the global attributes for the selected HDF-EOS Version 5.x file.
- From the **H**elp pulldown menu (described in Section 5.2.37), the operator can select help on context, on help, on window, keys, contents, index and version.

To select an HDF-EOS Version 5.x object simply double-click on the object that is displayed in the scrollable window. Objects can be Grid, Swath, or Point data. Each of these objects are described in the following sections.

5.2.5 HE5View Grid Select GUI

In this example, the Grid.h5 was selected from the File Selection dialog, bringing up the GridFile.hdf File Contents Display shown in Figure 5-3.

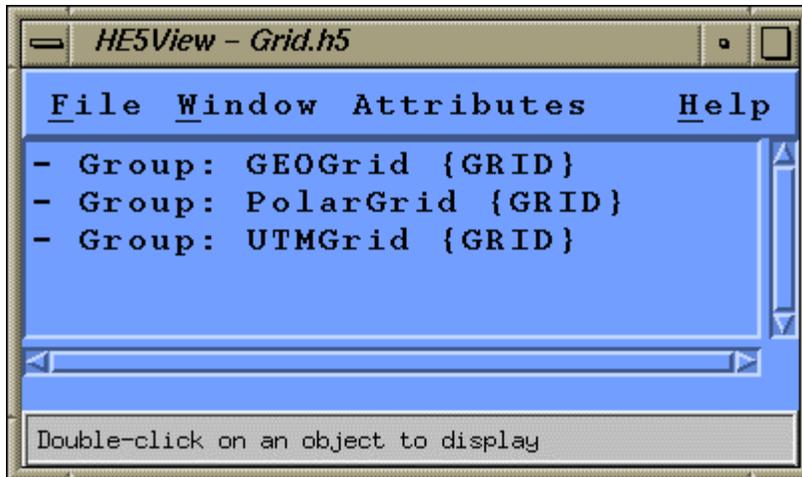


Figure 5-3. Grid File Contents Display Pop-up

Double-clicking on a selection (in this case, the object *Group: UTMGrid {GRID}* was selected) brings up the Grid Select Pop-up shown in Figure 5-4.

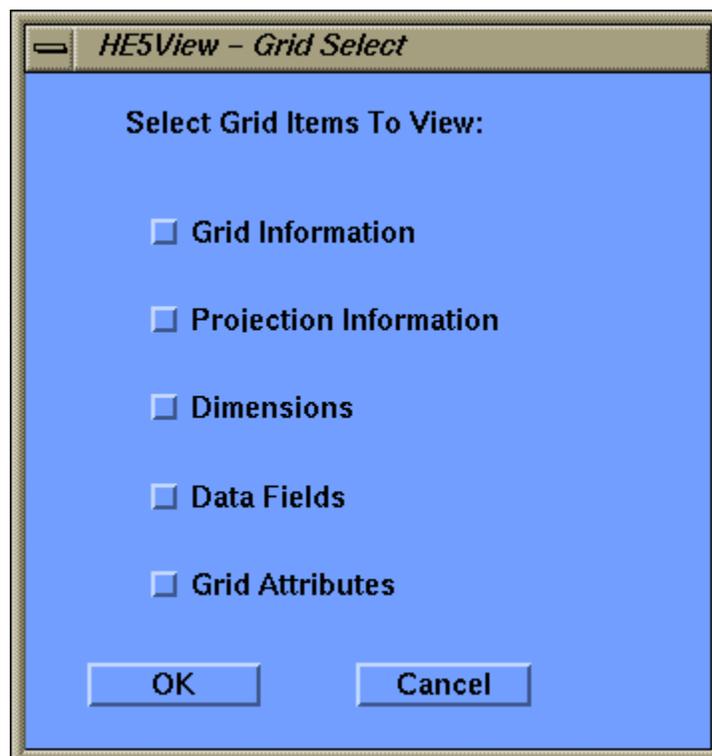


Figure 5-4. Grid Select Pop-up

All of the following options are available for selection: Grid Information, Projection Information, Dimensions, Data Fields, and Grid Attributes. Selecting **OK** will bring up windows for all the items selected. Clicking on **Cancel** will return the operator to File Contents Window. Assuming that all the items have been selected, the following windows will appear:

5.2.6 Grid Information Dialog

To view a summary of a selected Grid object, click on the Grid Information checkbox. The Grid Information dialog pop-up (shown in Figure 5-5) displays information about the selected grid such as X-Dimension value, Y-Dimension value, Upper Left Point values, and Lower Right Point values.

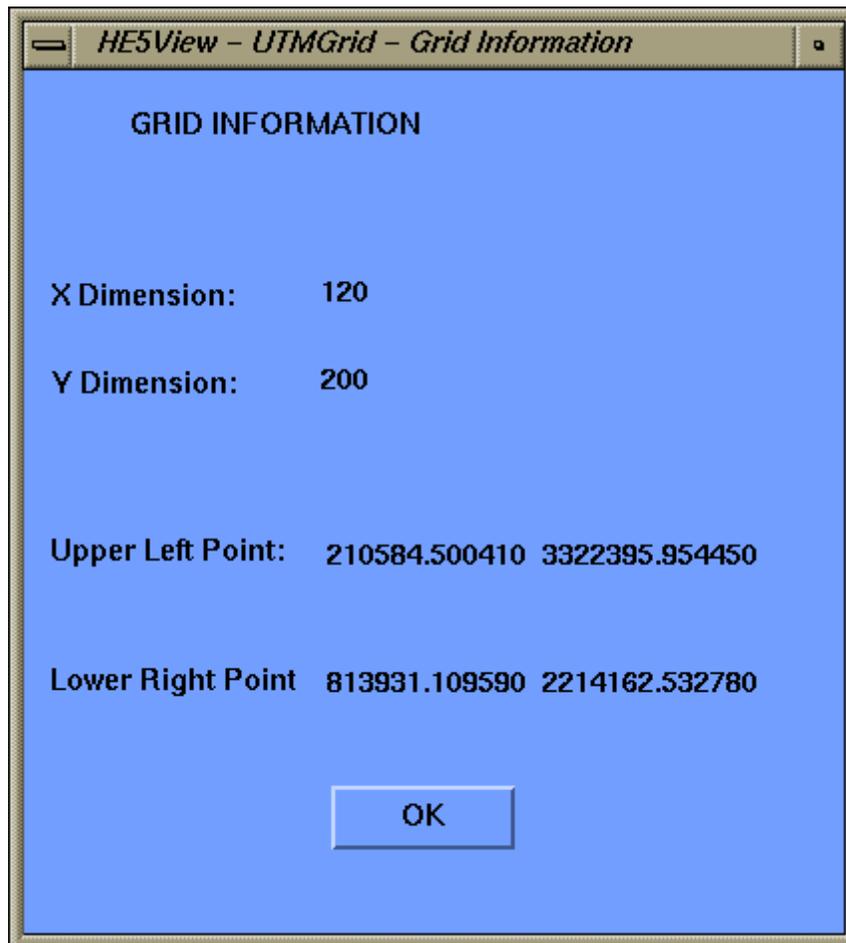


Figure 5-5. Grid Information Dialog Pop-up

This window can be closed by pressing the **OK** button.

5.2.7 Projection Information

To view the Projection Information of the selected Grid object, click on the Projection Information checkbox in the HE5View - Grid Select window and press the **OK** button. This will cause the HE5View - Grid Projection Information pop-up shown in Figure 5-6 to appear.

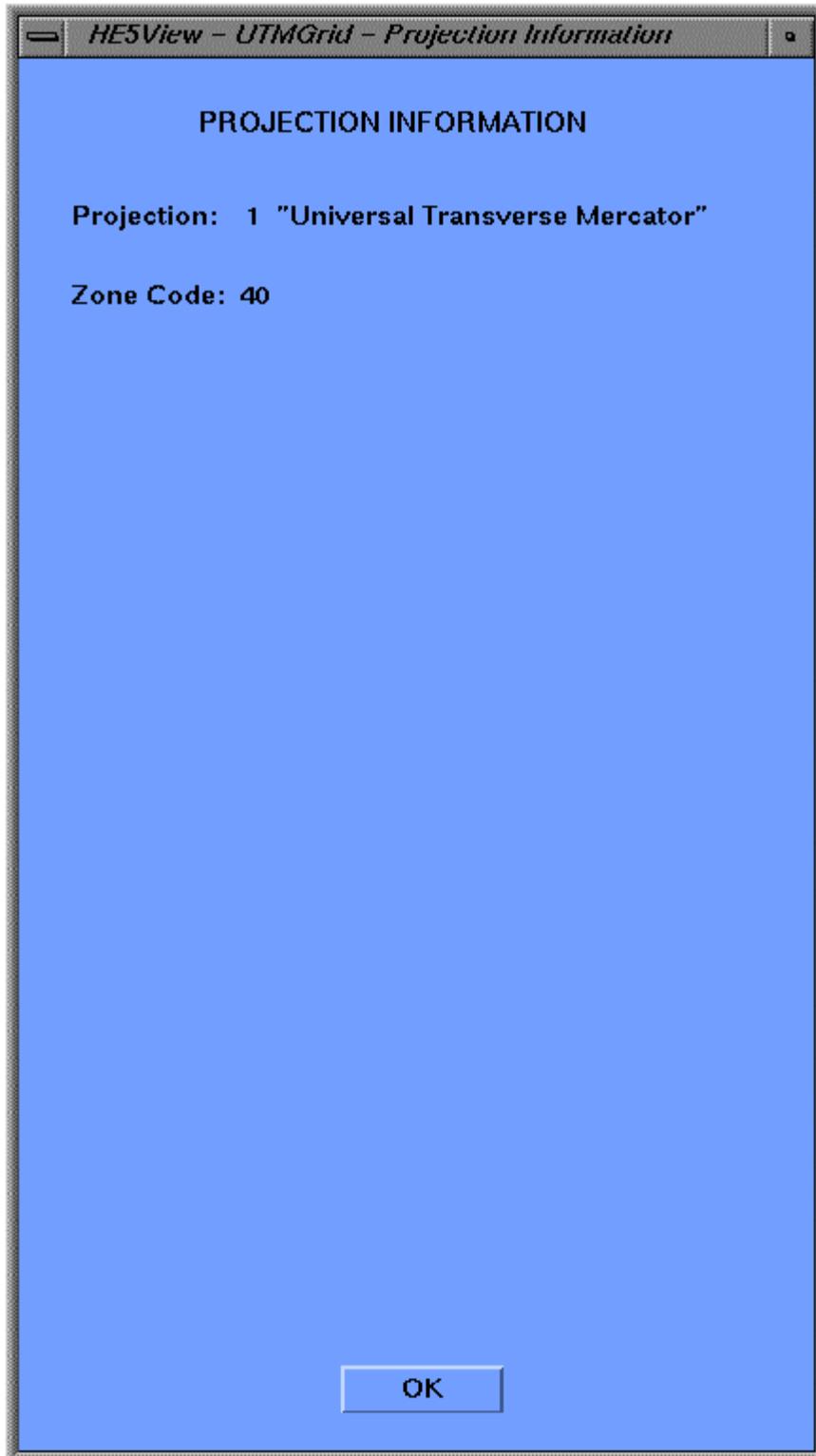


Figure 5-6. Projection Information Pop-up

The Projection Information pop-up displays information about the projection of the selected grid in a dialog box. The first item displayed is the Projection itself. If the projection is Universal Transverse Mercator, the next item is displayed in the Zone Code. For any other projection the next items displayed are the thirteen (13) Projection Parameters. This window can be closed by pressing the **OK** button.

5.2.8 Swath/Grid Dimensions

To view the dimensions of the selected Grid object, click on the Dimensions checkbox in the HE5View - Grid Select pop-up and press the **OK** button. This will cause the EOSView - Grid Dimensions window (shown in Figure 5-7) to appear.



Figure 5-7. Grid Dimensions Pop-up

This window lists Dimension Names and Sizes for the selected Grid in table form in a scrollable window. The items listed are non-selectable and are for display/verification purposes only. See section 5.2.38 for a description of saving the contents of the window to an ASCII file.

This window is identical for displaying both Grid and Swath Dimensions.

5.2.9 Swath/Grid Data Fields

To view the Data Fields of the selected Grid object simply click on the Data Fields checkbox in the HE5View - Grid Select pop-up and press the **OK** button. This will cause the HE5View - Grid Data Fields window (shown in Figure 5-8) to appear. See section 5.2.38 for a description of saving the contents of the window to an ASCII file.

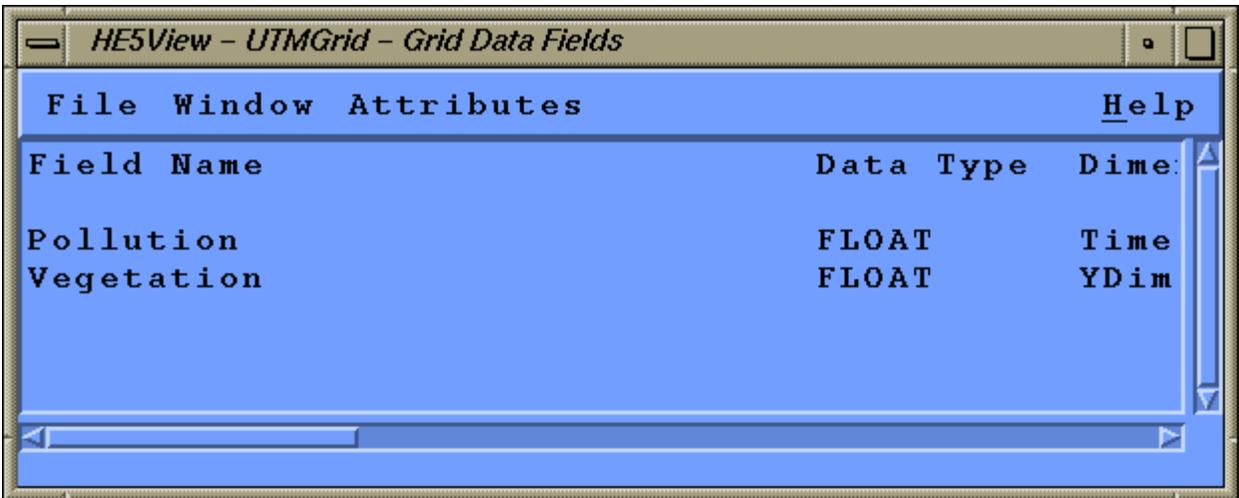


Figure 5-8. Grid Data Fields Pop-up

To view a slice of the Grid Geolocation/Data Field data, move the pointer over the object and double click the left mouse button. This will cause the HE5View - Start/Stride/Edge pop-up (shown in Figure 5-9) to appear. To view the group level attributes the user may select **Attributes – Data Fields...** from the Data Fields Pop-up. A description of the attribute display is provided in Section 5.2.36 Attributes Pulldown.

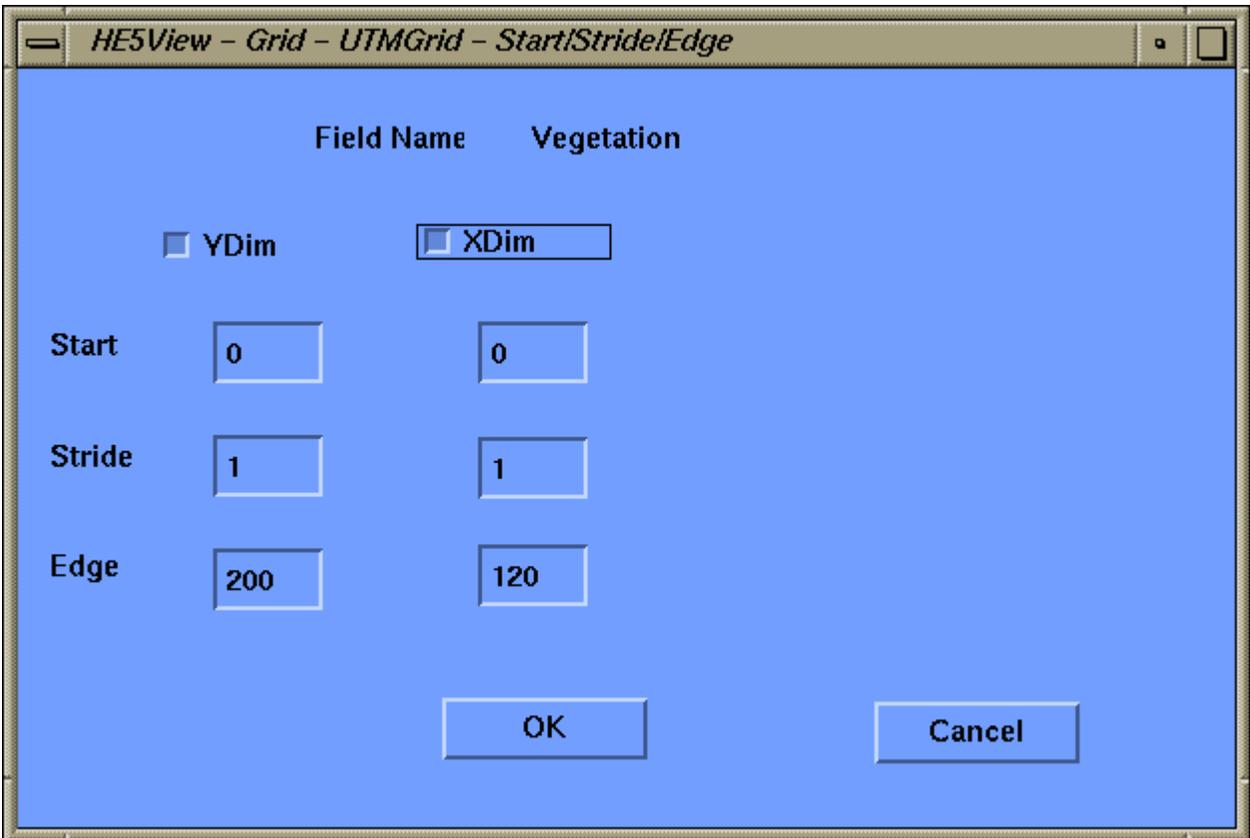


Figure 5-9. Start/Stride/Edge Pop-up

Table 5-3 describes the Start/Stride/Edge pop-up fields.

Table 5-3. Start/Stride/Edge Pop-up Field Description

Field Name	Data Type	Size	Entry	Description
Start	Integer	N/A	required	Start for grid geolocation/data field data
Stride	Integer	N/A	required	Stride for grid geolocation/data field data
Edge	Integer	N/A	required	Edge for grid geolocation/data field data

This pop-up displays the Start, Stride, and Edge values for each dimension (there may be up to eight). The start value for each dimension may be edited but the stride and edge values may only be edited for the selected dimensions. This is a way of subsampling the data desired. A dimension may be selected by clicking on the check box next to the dimension name. A maximum of two dimensions may be selected. Once the operator has entered the desired data the **OK** button may be pressed and the selected dimension data will be displayed in the HE5View - Grid Table. For more information on a Table, building a pseudo-color image, and the Min/Max Values Pop-up, see Section 5.2.10. The operator may cancel all actions by pressing the **Cancel** button.

Note that if an input error occurs, a warning dialog (Figure 5-10) will appear, displaying the dimension name that is in error and a size total. The operator must meet the criteria in the formula displayed in the warning dialog. Click OK to return to the Start/Stride/Edge Window to re-enter the correct values.



Figure 5-10. Warning Dialog

5.2.10 Table

Selecting **OK** from the Start/Stride/Edge window brings up a table window as shown in Figure 5-11. The table window will display a 1 or 2 dimensional list of the data. The window is sizable and contains horizontal and vertical scrollbars.

The **File** pulldown menu contains the following items, as shown in figure 5-11:

- **Make Image** - This will create a pseudo-color image of the selected table. Selecting this option causes the Min/Max Values Pop-up to appear (figure 5-13).

- **Plot** - if the table has been created from a Swath/Grid geolocation/data field the operator has the option of converting the table to a surface or contour plot as shown in figure 5-18.
- **Statistics** – HE5View has basic statistical capabilities for table data. An numerical table will have the minimum, maximum and average for the entire table displayed in the HE5View - Stats window (see figure 5-22). For a table created from Point level data the same stats will be calculated for each column of data (field of Point level). The HE5View stats window displays the name, min, max, and average values of a table. The name corresponds to the name of the Swath, Grid, or Point field name. The data is not editable and non-selectable. Hitting the “Ok” button will close the HE5View Stats Window.
- **Jump To** – This option allows the operator to jump to a specific row in a table. Selecting this option causes the Jump To Dialog to appear (figure 5-23). The user may enter the desired row number. Once the OK button is pressed the desired row number will appear in the first row of the table. See section 5.219 for a description of the Jump To... option.
- **Save** - This option allows the operator to save the table in either ASCII or binary format. Once the operator has selected ASCII or binary from the cascading menu the HE5View File Save Dialog is displayed (see figure 5-24). This window is similar to the HE5View File Open Dialog. HE5View will only save tables to a new file, therefore, a unique file name must be entered in the “Save as:” text field.
- **Close Window** - Closes the table window.

The **Attributes** pulldown menu contains the following items, as shown in figure 5-11:

- **Field...** - This will cause the local attributes to be displayed for this field. Selecting this option causes the Attributes Text Display to appear (figure 5-11). A description of the attributes display is provided in Section 5.2.11.

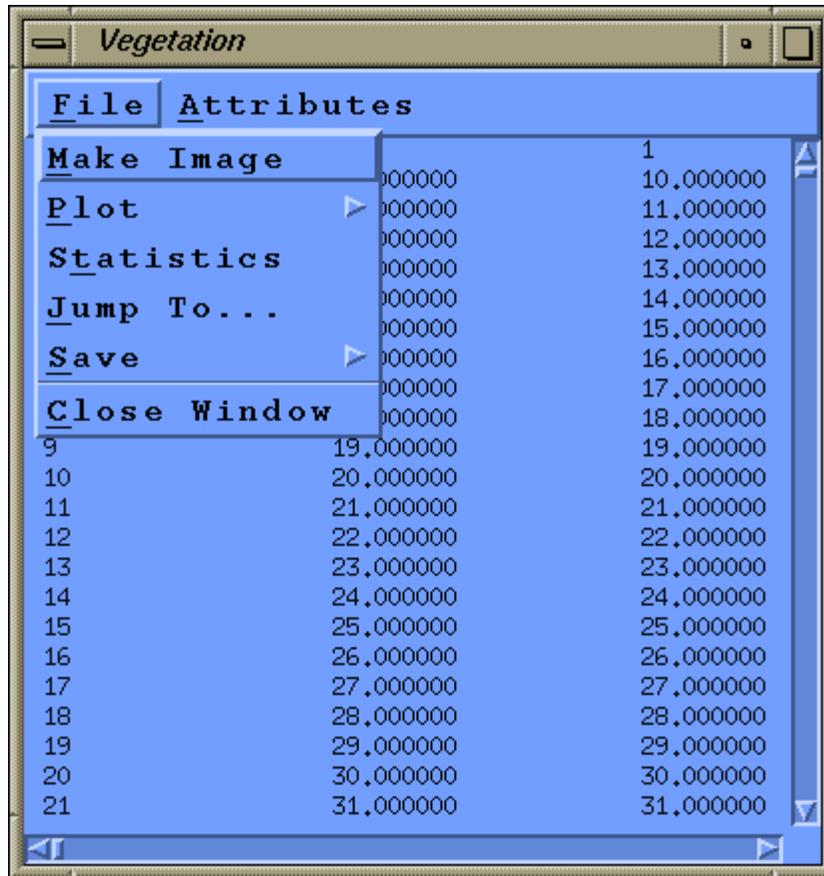


Figure 5-11. HE5View Table Pop-up

5.2.11 Swath/Grid/Point Attributes

Clicking on the Grid Attributes checkbox in the HE5View Grid Select Pop-up brings up the Attributes Text Display shown in Figure 5-12.

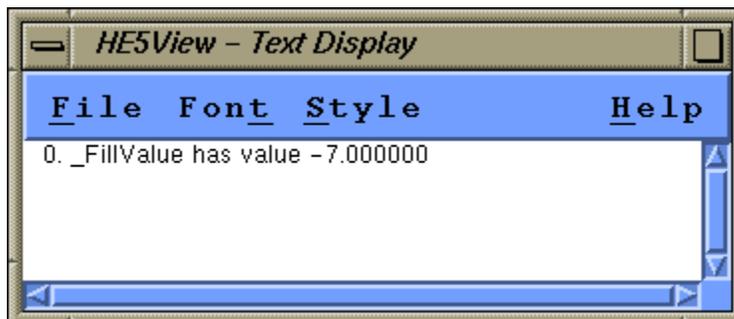


Figure 5-12. Attributes Text Display Pop-up

This display shows the attributes associated with a particular dataset. The text display can be closed from the **F**ile pulldown menu, the text can be modified using the **F**ont and **S**tyle pulldown menus, and additional help can be obtained from the **H**elp pulldown menu (see Section 5.2.37 “Help Pulldown Menu.”)

5.2.12 Make Image From Table Data

A pseudo-color image can be built from the data displayed in the Table. The image can be created by selecting **F**ile - **M**ake Image from the menu bar of the HE5View - Table Pop-up. Selecting this option causes the Min/Max Values window to appear as shown in Figure 5-13. Table 5-4 describes the fields of the Min/Max Values Pop-up.

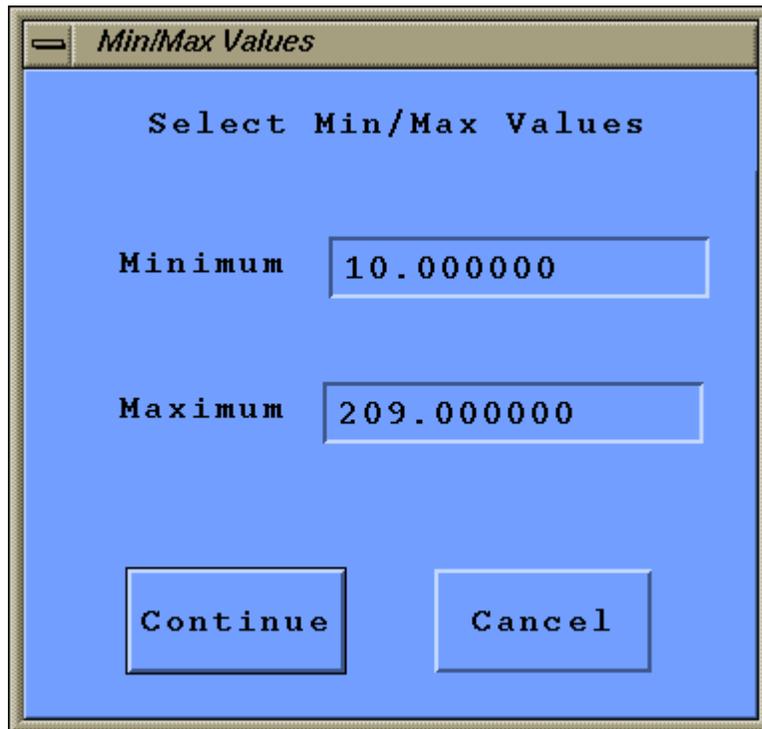


Figure 5-13. Min/Max Values Pop-up

Table 5-4. Min/Max Values Window Field Description

Field Name	Data Type	Size	Entry	Description
Minimum Value	integer or float (depending upon original data values)	N/A	required	Min value used for the image (field size is limited by the values that first appear when the window opens)
Maximum Value	Integer or float (depending upon original data values)	N/A	required	Max value used for the image (field size is limited by the values that first appear when the window opens)

From the Min/Max Values Window, the operator has the opportunity to enter the minimum and maximum values used for the image. Pressing the **Continue** button will cause the HE5View - Image Display Pop-up to appear (shown in Figure 5-14). The operator may cancel all actions by pressing the **Cancel** button.

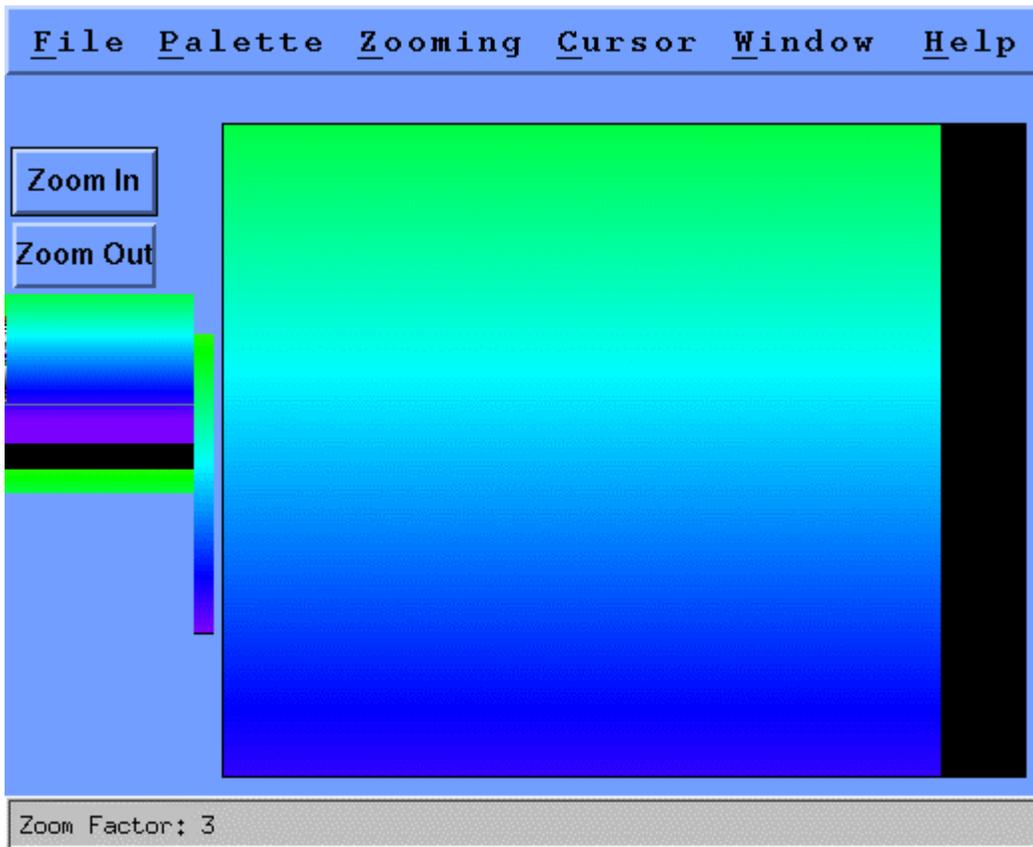


Figure 5-14. Image Display Pop-up

5.2.13 Image Display

The Image Display pop-up has the following pulldown menu options: File, Palette, Zooming, Cursor, Window, and Help.

- Inside the **File** menu option, the Overlay option is active only if the image has been created from a grid table. The Overlay option allows the operator to have lat/lon lines drawn over the image or the operator may have an icon displayed at a point on the grid image. See section 5.2.14 which describes the HE5View lat/lon window for symbols and cursor positioning. Selecting the Close option exits the Image Display Window.
- The **Palette** pulldown menu allows the operator to select colors from the following types of palettes for comparison: Default, Greyscale, Antarctica, Rainbow, and World Colors. The first palette option is "Default" which is the current default palette used by X-Windows. The second palette option is "Greyscale" which will be a black and white version of the image being displayed. The next three options are "Antarctica", "Rainbow" and "World Colors." These three palettes are provided as part of H5EView. Selecting one of these three palettes will cause the current image to use that palette
- The **Zooming** pulldown menu allows the operator to select from two zoom methods: Bilinear Interpolation and Nearest Neighbor. Bilinear Interpolation uses interpolation to calculate the probable color during an expansion/compression event; it gives a much smoother image during zooming. The second is Nearest Neighbor which uses sub-sampling or super sampling to determine probable color, e.g., two red pixels are now four red pixels during expansion.
- The **Cursor** pulldown menu allows the operator to set the cursor at a specified position. The first is "X-Y Position". The Operator will be prompted for an X-Y location and the cursor will be positioned at that location. In HE5View, position 0,0 is the lower left corner (see section 5.2.15, which describes the HE5View - x-y cursor window). If the image has been created from a grid table, the operator may enter a lat/lon position and the cursor will be positioned to that location. See section 5.2.14 which describes the "HE5View - lat/lon window (used for symbols and cursor positioning). If the image has been created from a swath table the operator may position the cursor at the selected scan line. The cursor will be placed at the beginning of the scanline. See section 5.2.16 which describes the HE5View Scanline Cursor Window.
- The **Window** option lists in a pull-down menu all windows which are currently open. See Section 5.2.35 "Window Pulldown Menu."
- **Help** – see Section 5.2.37 "Help Pulldown Menu."

The Image Display also has the following pushbuttons: Zoom In and Zoom Out. It also has a panning feature as described below.

- **Zoom In** and **Zoom Out** pushbuttons -- pressing the Zoom In button will cause the image to be zoomed in and re-drawn in the image window. Pressing the Zoom Out button will cause the image to be zoomed out until it returns to original size. The zoom factor

will be displayed in the bottom left corner of the HE5View - Image Display Window on the status bar.

- **Pan Window** -- If the operator has zoomed in on an image, the operator may pan around the image by holding down the left mouse button while the cursor is in the postage stamp size image and moving it around. The cursor will be outlined by a box which indicates the portion of the image being displayed in the full size image window.

The Image Display Pop-up also has cursor tracking capabilities. Placing the cursor on the image and holding the left mouse button will cause the cursor position (in x-y coordinates) to be displayed on the right side of the status bar. If the image has been created from a grid table the cursor position will be displayed in lat/lon coordinates on the right side of the status bar.

5.2.14 Lat/Lon Symbol Pop-up

The HE5View Lat/Lon Symbol/Cursor pop-up (figure 5-15) allows the operator to enter the desired coordinate pair in one of two ways. Degrees-minutes-seconds (DMS radio button) allows the operator to type in the degrees (Deg), minutes (Min), and seconds (Sec) for the latitude and the longitude. The second method is by entering degrees (DEG radio button) in the degrees text fields. In either case the operator may switch between North (N), South (S), and East(E), West (W) by using the list buttons to the right of the text entry fields. For both entry methods, hitting the “Ok” button will cause the cursor to be positioned or a symbol drawn at the desired location. Hitting the “Cancel” button will cancel the operation.

Lat/Lon Symbol Window

Enter symbol position:

Method

- DMS
- DEG

	Deg	Min	Sec		
Lat	<input type="text"/>	<input type="text"/>	<input type="text"/>	N	▼
Lon	<input type="text"/>	<input type="text"/>	<input type="text"/>	E	▼

Degrees

Lat: N ▼

Lon: E ▼

OK Cancel

Figure 5-15. Lat/Lon Symbol Pop-up

Table 5-5 describes the parameters in the Lat/Lon Symbol Window.

Table 5-5. Lat/Lon Symbol Window Field Description

Field Name	Data Type	Size	Entry	Description
Lat (DMS)	float	N/A	required	Latitude (if DEG is selected)
Lon (DMS)	float	N/A	required	Longitude (if DEG is selected)
Lat/Lon (Deg)	float	N/A	required	Degrees of Latitude/Longitude (if DMS is selected)
Lat/Lon(Min)	float	N/A	required	Minutes of Latitude/Longitude (if DMS is selected)
Lat/Lon(Sec)	float	N/A	required	Seconds of Latitude/Longitude (if DMS is selected)

5.2.15 X-Y Cursor Window

The operator may enter the X-Y coordinates to have the cursor positioned by using the HE5View X-Y Cursor Pop-up (figure 5-16). The operator may enter the desired X-Y location in the corresponding X-Y text field. The X-Y limits are placed to the right of the text fields. Hitting the “Ok” button will cause the cursor to be placed at the desired location in the image. Hitting the “Cancel” button will cancel the operation.

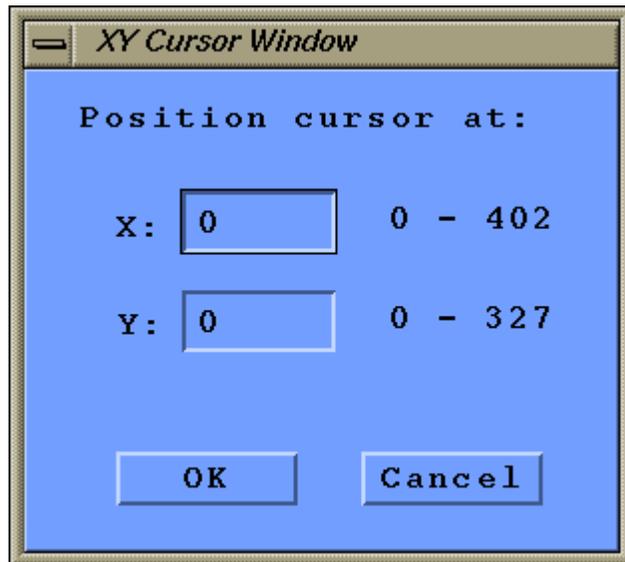


Figure 5-16. X-Y Cursor Pop-up

Table 5-6 describes the parameters in the X-Y Cursor Pop-up.

Table 5-6. X-Y Cursor Window Field Description

Field Name	Data Type	Size	Entry	Description
X:	integer	N/A	required	X horizontal coordinate (max accepted value is listed to the right of the text field)
Y:	integer	N/A	required	Y vertical coordinate (max accepted value is listed to the right of the text field)

5.2.16 ScanLine Cursor Window

If the image was created from a Swath table the operator may position the cursor to the beginning of the scanline by using the HE5View - ScanLine Cursor Pop-up (figure 5-17). Moving the slider left and right will cause the scanline value below the slider to decrease and increase, respectively. Once the desired scanline is achieved, hitting the “Ok” button will cause the cursor to be placed at the beginning of the scanline. Hitting the “Cancel” button will cancel the operation.

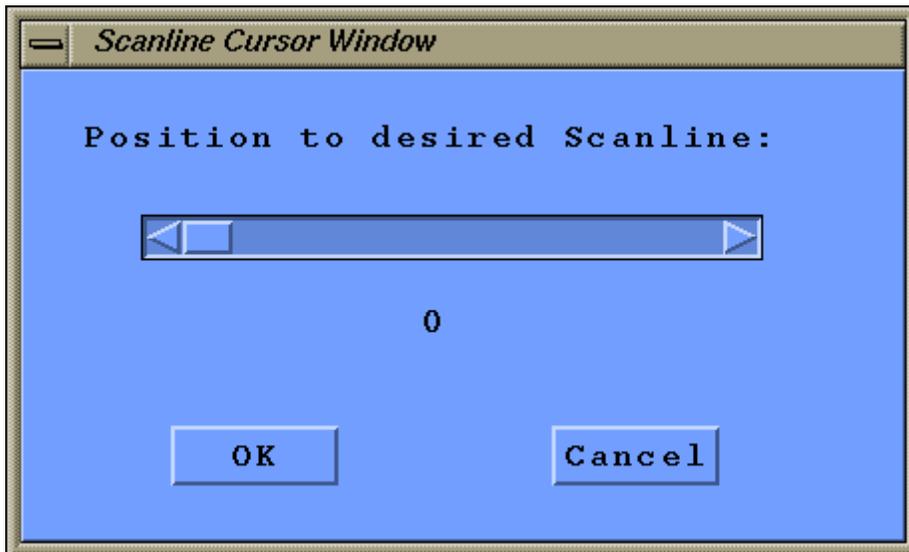


Figure 5-17. Scanline Cursor Pop-up

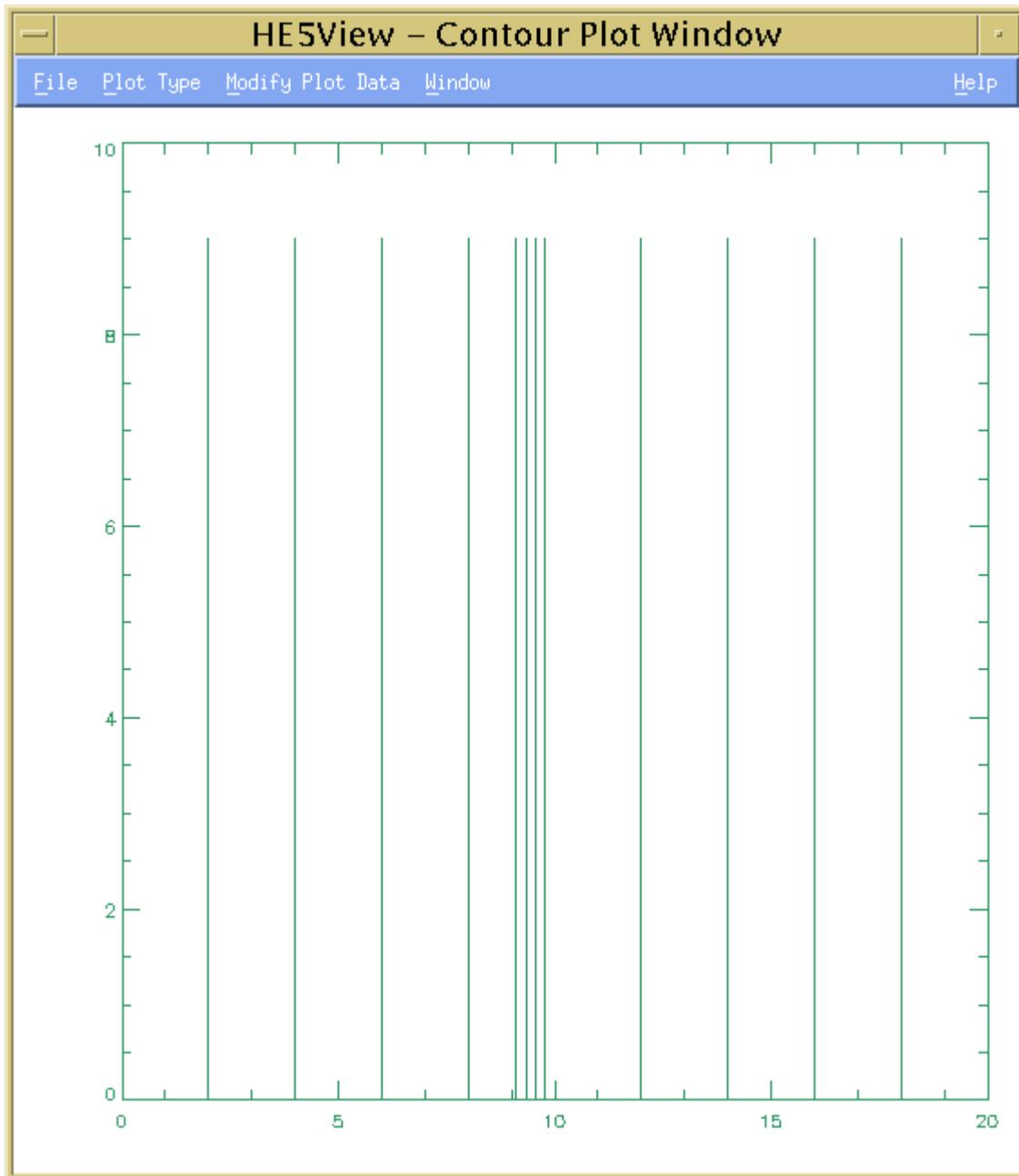


Figure 5-18. HE5View Contour Plot Pop-up

5.2.17 Surface/Contour Plot

The HE5View Contour/Surface Display will display a surface or contour plot of the selected numeric table. The window contains a menubar and can be resized. The plot may be displayed

by selecting either **File – Plot – Contour** or **File – Plot – Surface** from the HE5View table display window (see section 5.2.10).

- The **File** menubar option contains only one option. Selecting **Close** will close the surface/contour plot window.
- The **Plot Type** menubar options acts as a toggle between the surface and contour plots. If the current plot being displayed is a contour plot then the option listed will be **Surface Plot**. If the current plot being displayed is a surface plot then the option listed will be **Contour Plot**. Selecting this option will cause a new window to appear with the selected plot.
- The **Modify Plot Data** menubar option allows the user to modify the plots based on three criteria. The user may modify a plot by excluding a range of data, excluding up to three individual values, or plotting between a minimum and maximum value.
- The **Window** option lists in a pull-down menu all windows which are currently open. See Section 5.2.35 “Window Pulldown Menu.”

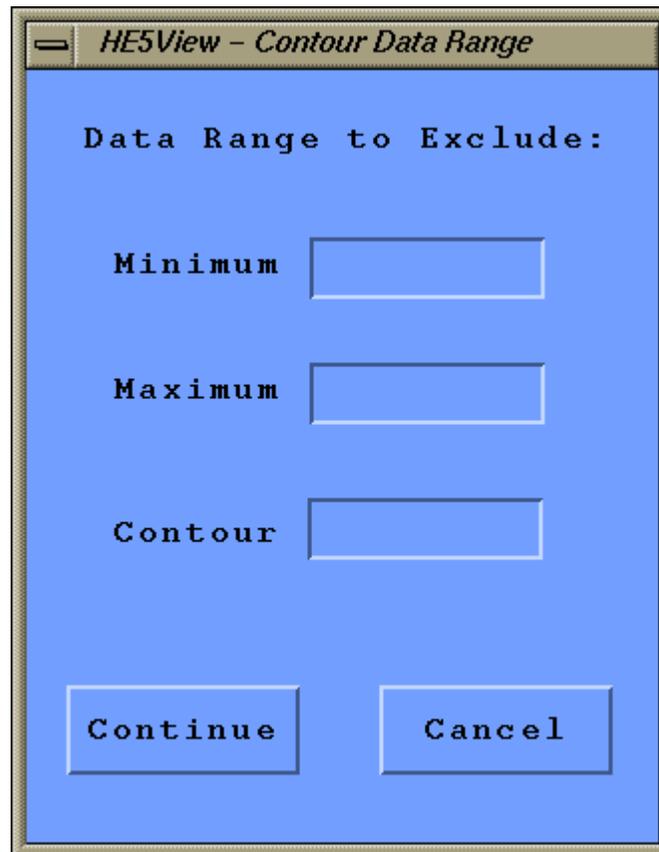


Figure 5-19. Contour/Surface Data Range Pop-up

The option **Data Range to Exclude** listed under the **Modify Plot Data** menubar option will cause the Contour/Surface Data Range window to appear (figure 5-19). The user can select a range of data to exclude from the plot by entering the minimum value to exclude in the Minimum Value text field and the maximum value to exclude in the Maximum Value text field. The user can select the number of contour levels desired by entering the number in the Contour Levels text field. Entering data in the Contour Levels text field is optional. The Contour Levels text fields will only appear in the Data Range Pop-up if the plot was a contour plot. Pressing the **Continue** button will cause a new plot to be drawn without the data range entered. Pressing the **Cancel** button closes the window with no further action.

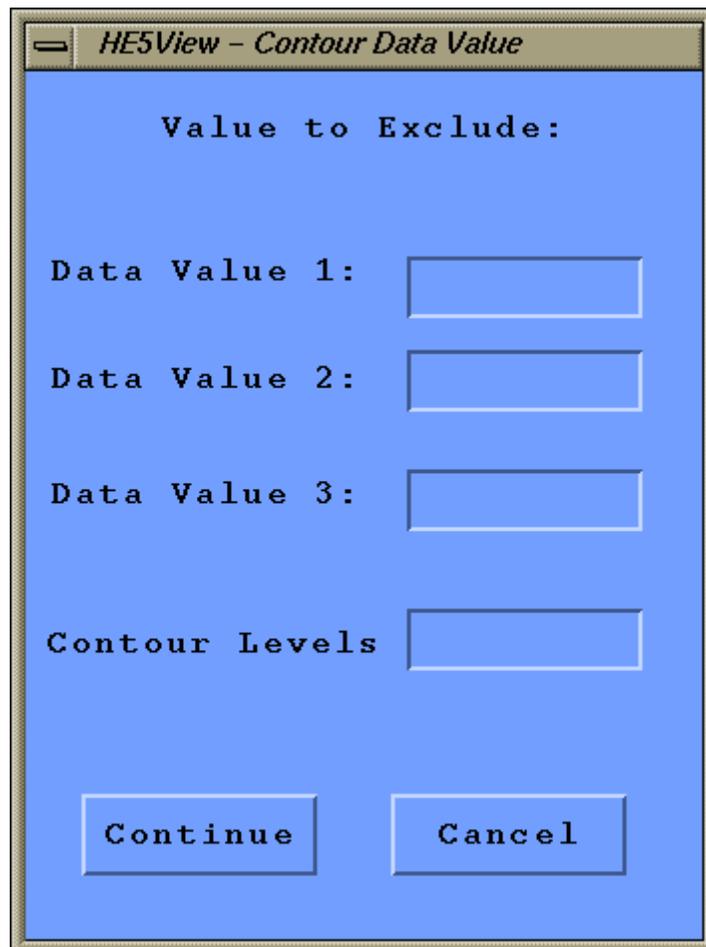


Figure 5-20. Contour/Surface Data Value Pop-up

The option **Data Value** listed under the **Modify Plot Data** menubar option will cause the Contour/Surface Data Value window to appear (figure 5-20). The user can enter up to three values that will not be plotted. The first value should be entered in the Data Value 1 text field, the second value should be entered in the Data Value 2 text field, and the third value should be entered in the Data Value 3 text field. The user can select the number of contour levels desired by entering the number in the Contour Levels text field. Entering data in the Contour Levels text field is optional. The Contour Levels text fields will only appear in the Data Range Pop-up if the plot was a contour plot. Pressing the **Continue** button will cause a new plot to be drawn without the selected data values. Pressing the **Cancel** button closes the window with no further action.

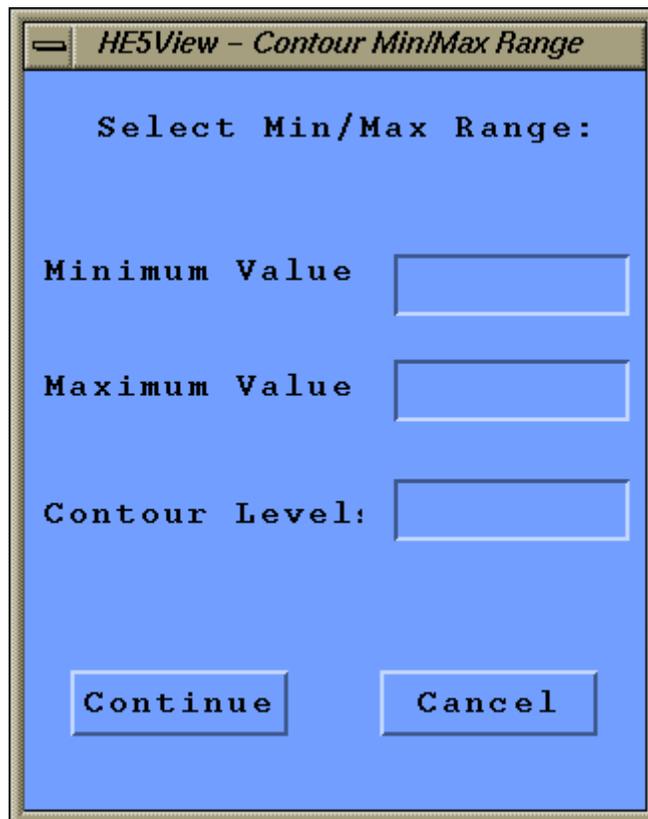


Figure 5-21. Contour/Surface Min/Max Range Pop-up

The option **Min - Max Range** listed under the **Modify Plot Data** menubar option will cause the Contour/Surface Min/Max Range window to appear (figure 5-21). The user can enter a range of values that is desired to be plotted. All values less than the minimum value and greater than the maximum value will not be plotted. The minimum value to be plotted may be entered in the

Minimum Value text field. The maximum value to be plotted may be entered in the Maximum Value text field. The user can select the number of contour levels desired by entering the number in the Contour Levels text field. Entering data in the Contour Levels text field is optional. The Contour Levels text fields will only appear in the Data Range Pop-up if the plot was a contour plot. Pressing the **Continue** button will cause a new plot to be drawn using the data range entered. Pressing the **Cancel** button closes the window with no further action.

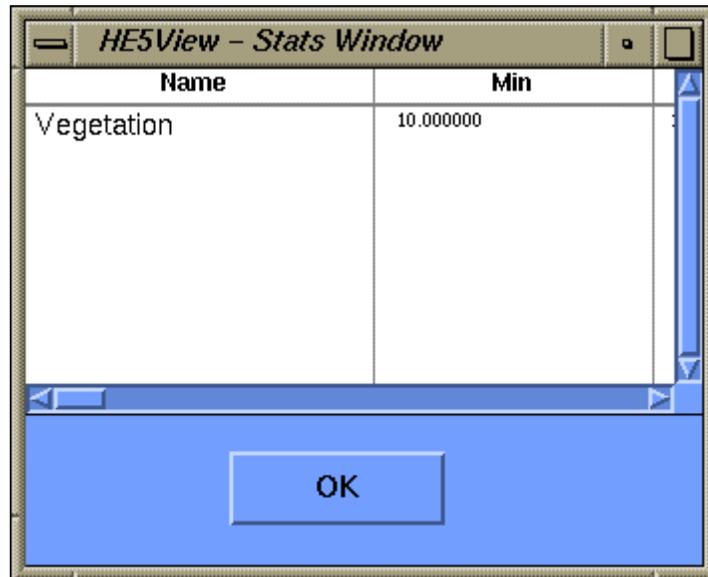


Figure 5-22. HE5View Stats Pop-up

5.2.18 Statistics Pop-up

The HE5View Statistics Pop-up window (figure 5-22) will list the minimum value, maximum value and average value in a table. For a table created from HDF-EOS field data the values will be taken from the entire table. No statistics will be calculated for character data. To close this window press the **OK** button.

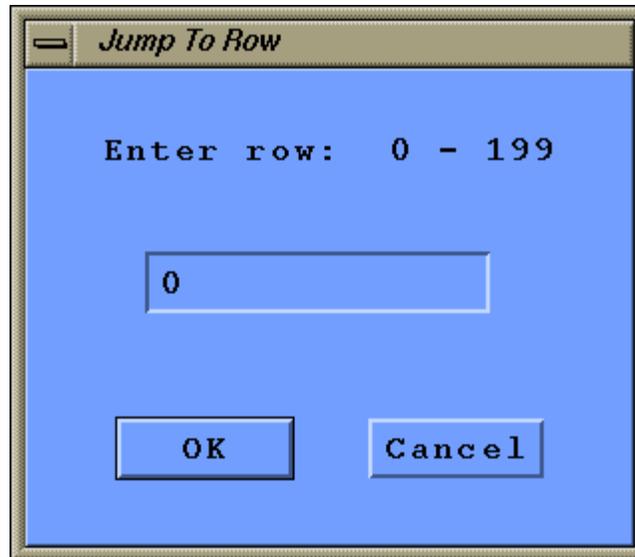


Figure 5-23. Jump To Dialog

5.2.19 Jump To Dialog

The user may jump to a specific row number in a table by selecting the **Jump To...** option. Selecting this option will cause the Jump To Dialog (Figure 5-23) to appear. This dialog will accept integer input in the range listed in the text field preceded with "Enter row number..." Pressing the "OK" button will cause the table to jump to the selected row number. Pressing the "Cancel" button will close the Jump To Dialog with no action being taken on the table.

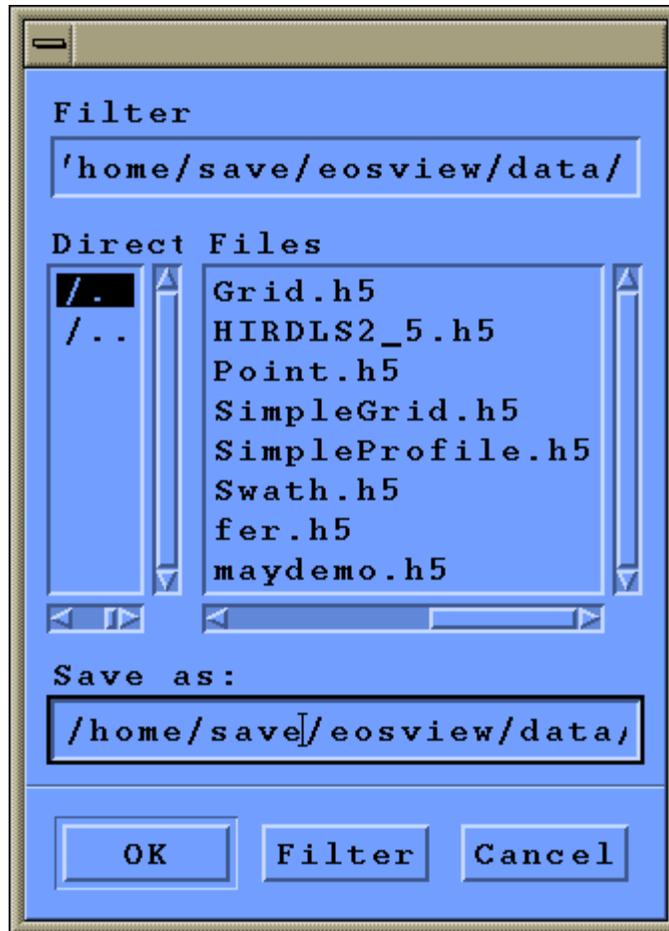


Figure 5-24. File Save Dialog

5.2.20 File Save Dialog

The user may save a table in HE5View in one of two ways. The table may be saved in either an ASCII format or it may be saved as a binary file. Selecting the save option will cause the File Save Dialog to appear. The user may then enter the name of the file that is desired to save the table into. HE5View will only save the table to a new file.

Table 5-7 describes the File Save fields.

Table 5-7. HE5View File Save Field Description

Field Name	Data Type	Size	Entry	Description
Filter	system generated (editable)	unlimited	required	displays file selection parameters to filter the directories
Directories	selection	unlimited	required	displays a list of directories
Files	selection	unlimited	required	displays a list of files
Save As	system generated (editable)	unlimited	required	displays the filename selection - user may enter to new filename in this field

In addition, the following pushbuttons are provided:

- **OK** – saves to the specified file
- **Filter** – filters through the directories in layers until the desired directory is displayed
- **Cancel** – closes the file save dialog

5.2.21 HE5View Swath Select

In this example, the SwathFile.hdf file was selected from the File Selection dialog, bringing up the File Contents Pop-up shown in Figure 5-25.

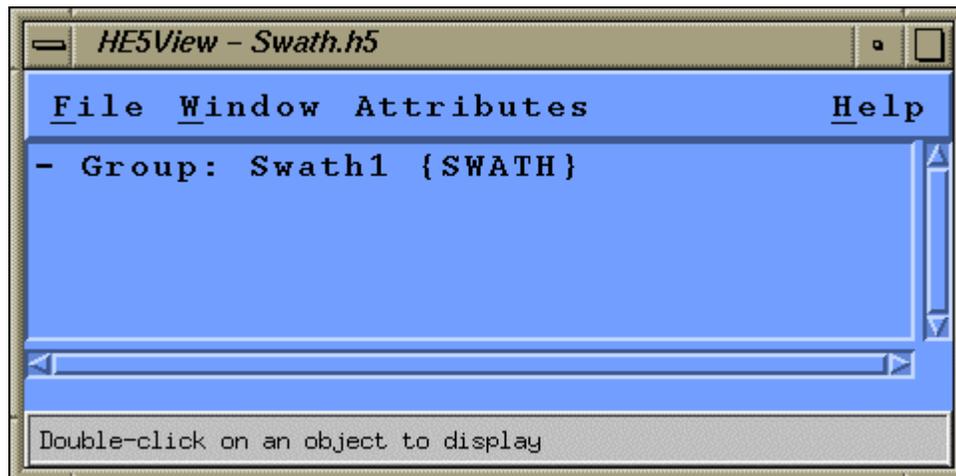


Figure 5-25. SwathFile File Select Pop-up

Double clicking on an item in the File Select window brings up the Swath Select Pop-up shown in Figure 5-26.

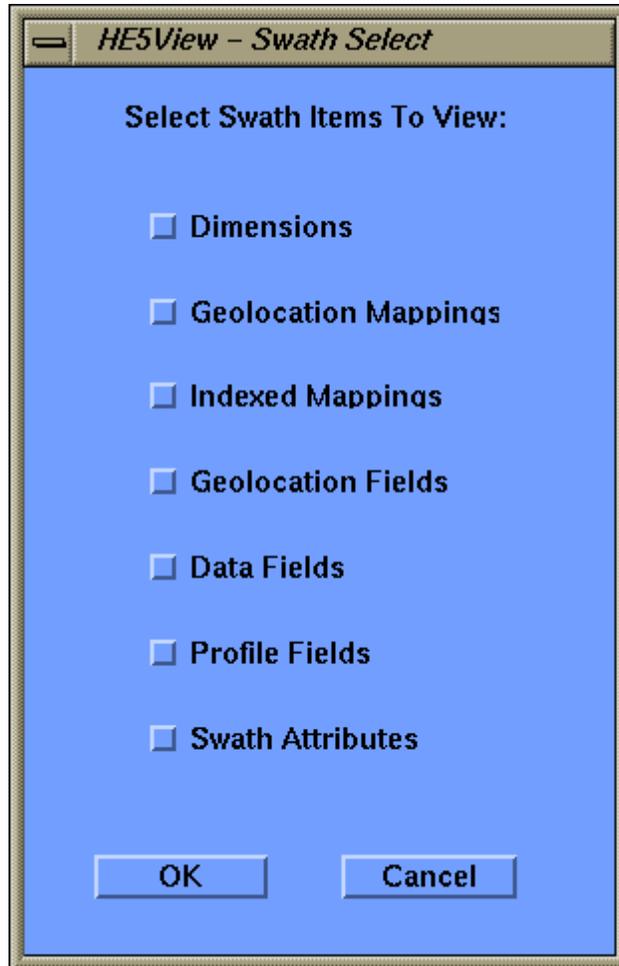


Figure 5-26. Swath Selection Pop-up

As many options as desired can be selected from the following list: Dimensions, Geolocation Mappings, Indexed Mappings, Geolocation Fields, Data Fields, Profile Fields, and Attributes. Selecting OK will bring up windows for all the items selected. Clicking on Cancel will close the Swath Selection Pop-up with no action being taken. Assuming that all the items have been selected, the following windows will appear.

5.2.22 Swath Dimensions

To view the dimensions of the selected Swath object, click on the Dimensions checkbox in the HE5View - Swath Select pop-up and press the OK button. This will cause the HE5View - Swath Dimensions pop-up to appear. This window lists the Dimension Names and Sizes for the selected Swath in a table form in a scrollable window. The items listed are non-selectable and are for display/verification purposes only. This window is similar to the Grid file dimensions window described in Section 5.2.9 “Swath/Grid Dimensions.”

5.2.23 Swath Geolocation Mappings

To view the Geolocation Mappings of the selected Swath object, click on the Geolocation Mappings checkbox in the HE5View - Swath Select pop-up and press the OK button. This will cause the HE5View - Swath Geolocation Mappings window (shown in Figure 5-27) to appear.

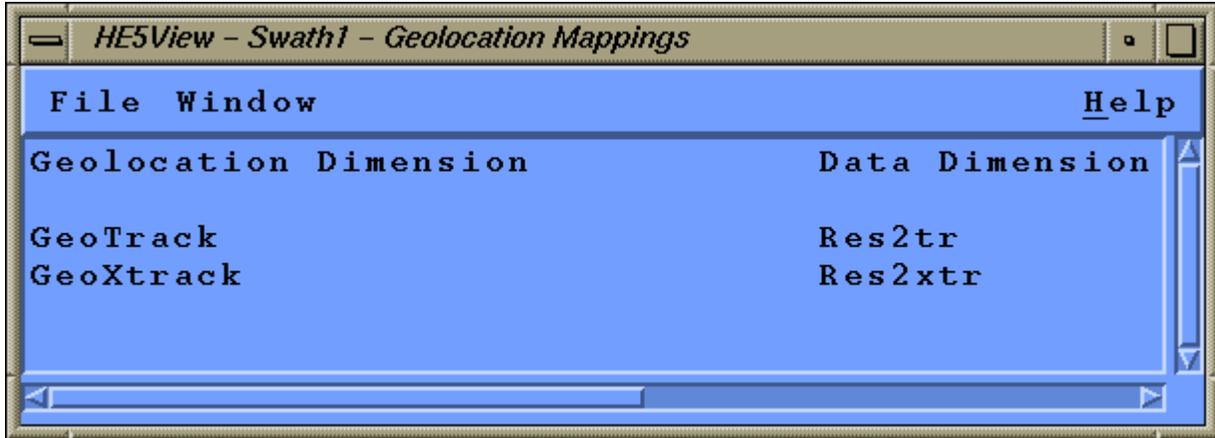


Figure 5-27. Swath Geolocation Mappings Pop-up

This window lists the Geolocation Dimensions, Data Dimensions, Offsets, and Increments for the selected Swath in a table form in a scrollable window. The items listed are non-selectable and are for display/verification purposes only. See section 5.2.38 for a description of saving the contents of the window to an ASCII file.

5.2.24 Swath Indexed Mappings

To view the Indexed Mappings of the selected Swath object, click on the Indexed Mappings checkbox in the HE5View - Swath Select pop-up and press the OK button. This will cause the HE5View - Swath Indexed Mappings pop-up (shown in Figure 5-28) to appear.

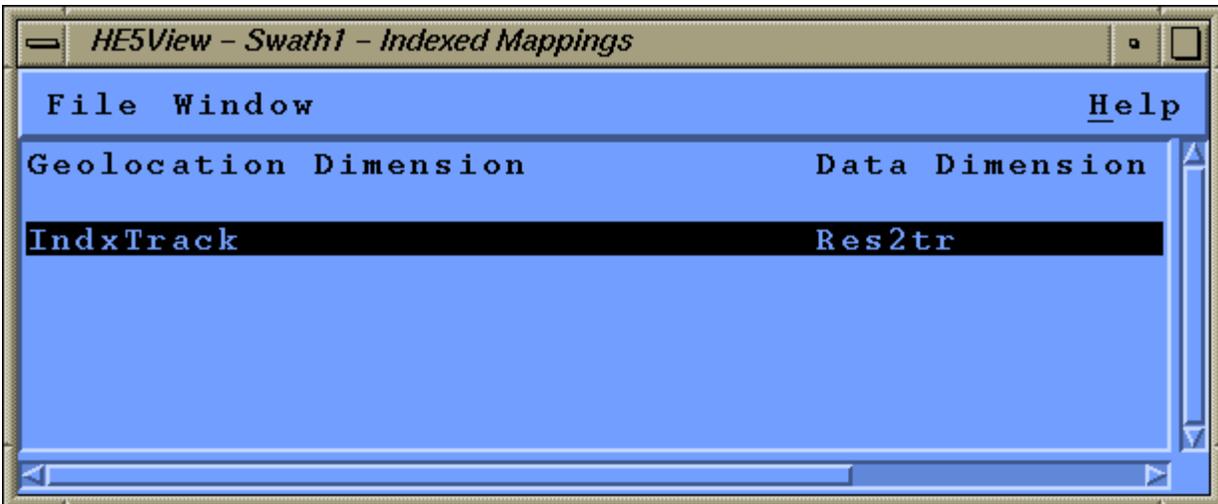


Figure 5-28. Swath Indexed Mappings Pop-up

Viewing the size of the mapping may be performed by moving the pointer over the object and double clicking the left mouse button. This will cause the HE5View - Indexed Mapping Sizes pop-up (shown in Figure 5-29) to appear. See section 5.2.38 for a description of saving the contents of the window to an ASCII file.

Geo Index	Data Index
0	0
1	1
2	3
3	6
4	7
5	8
6	11
7	12
8	14
9	24
10	32
11	39

Figure 5-29. Index Mapping Sizes Pop-up

This window lists the Geolocation Indices and Data Indices for the selected Swath in a table form in a scrollable window. The items listed are non-selectable and are for display/verification purposes only. The window can be closed by selecting “Close” from the File menu. See section 5.2.38 for a description of saving the contents of the window to an ASCII file.

5.2.25 Swath Geolocation Fields

To view the Geolocation Fields of the selected Swath object, click on the Geolocation Fields checkbox in the HE5View - Swath Select pop-up and press the OK button. This will cause the HE5View - Swath Geolocation Fields window (shown in Figure 5-30) to appear.

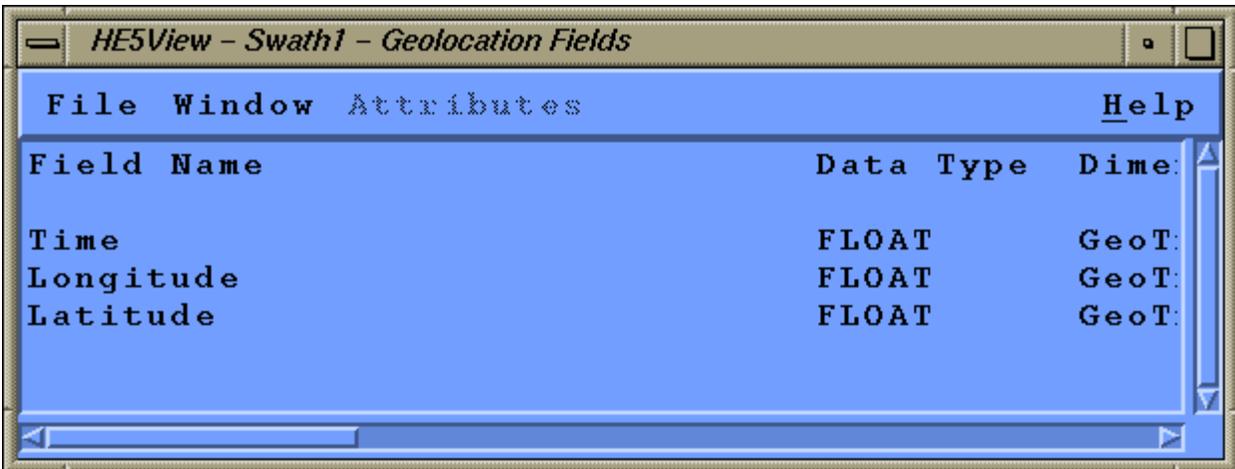


Figure 5-30. HE5View Geolocation Fields Pop-up

Selecting a Swath Geolocation to view a slice of the data may be performed by moving the pointer over the object and double clicking the left mouse button. This will cause the HE5View - Start/Stride/Edge pop-up to appear. This window lists the Start, Stride, and Edge values for each dimension listed. This window is similar to the Grid file Start/Stride/Edge window described in Section 5.2.12 “Make Image From Table Data.” See section 5.2.38 for a description of saving the contents of the window to an ASCII file.

5.2.26 Swath Data Fields

To view the Data Fields of the selected Swath object, click on the Data Fields checkbox in the HE5View - Swath Select pop-up and press the OK button. This will cause the HE5View - Swath Data Fields pop-up to appear. This window is similar to the Grid file data fields window described in Section 5.2.19 “Swath/Grid Data Fields.” See section 5.2.38 for a description of saving the contents of the window to an ASCII file.

5.2.27 Swath Attributes

To view the attributes of the selected Swath object, click on the Attributes checkbox in the HE5View - Swath Select window and press the OK button. This window is similar to the Grid file attributes pop-up described in Section 5.2.11 “Swath/Grid/Point Attributes.”

5.2.28 Profile Fields

The profile fields interface is not complete with this version of HE5View.

5.2.29 Point Files

In this example, selecting PointFile.h5 from the File Select dialog brings up the File Contents pop-up shown in Figure 5-31.

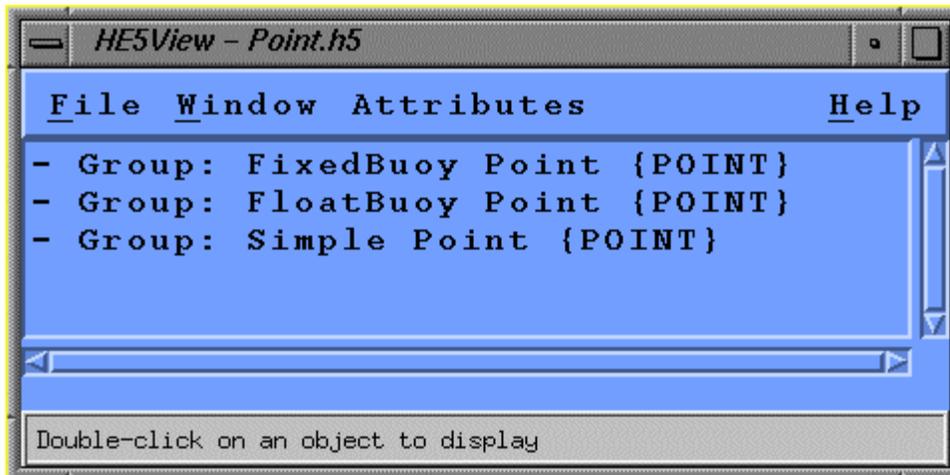


Figure 5-31. PointFile File Contents Pop-up

Double-clicking on an item in the PointFile pop-up (in this example, the *Group: FixedBuoy Point {POINT}* object is selected) opens the Point Select Pop-up shown in Figure 5-32.

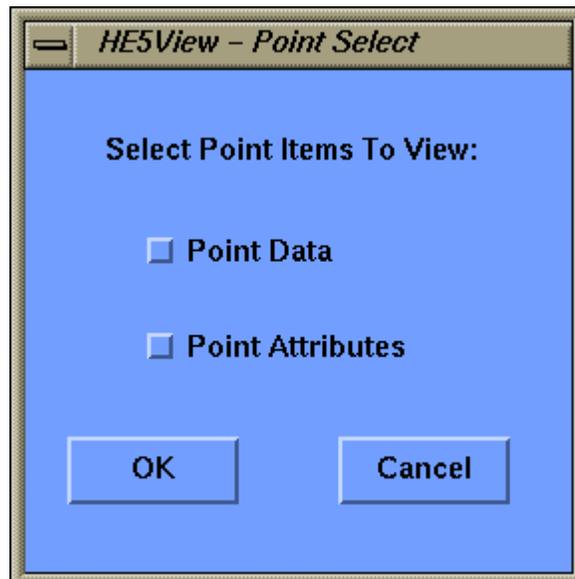


Figure 5-32. Point Select Pop-up

Either Point Data, Attributes or both options can be selected. Clicking on OK will open the corresponding windows for the options selected. Clicking on Cancel will close the Point Select

Pop-up with no action being taken. Assuming both items have been selected, the windows as described below will appear.

5.2.30 Point Data

To view the Point Data of the selected Point object, simply click on the Point Data checkbox in the HE5View - Point Select window and press the OK button. This will cause the HE5View-Point Level Info pop-up to appear as shown in Figure 5-33.

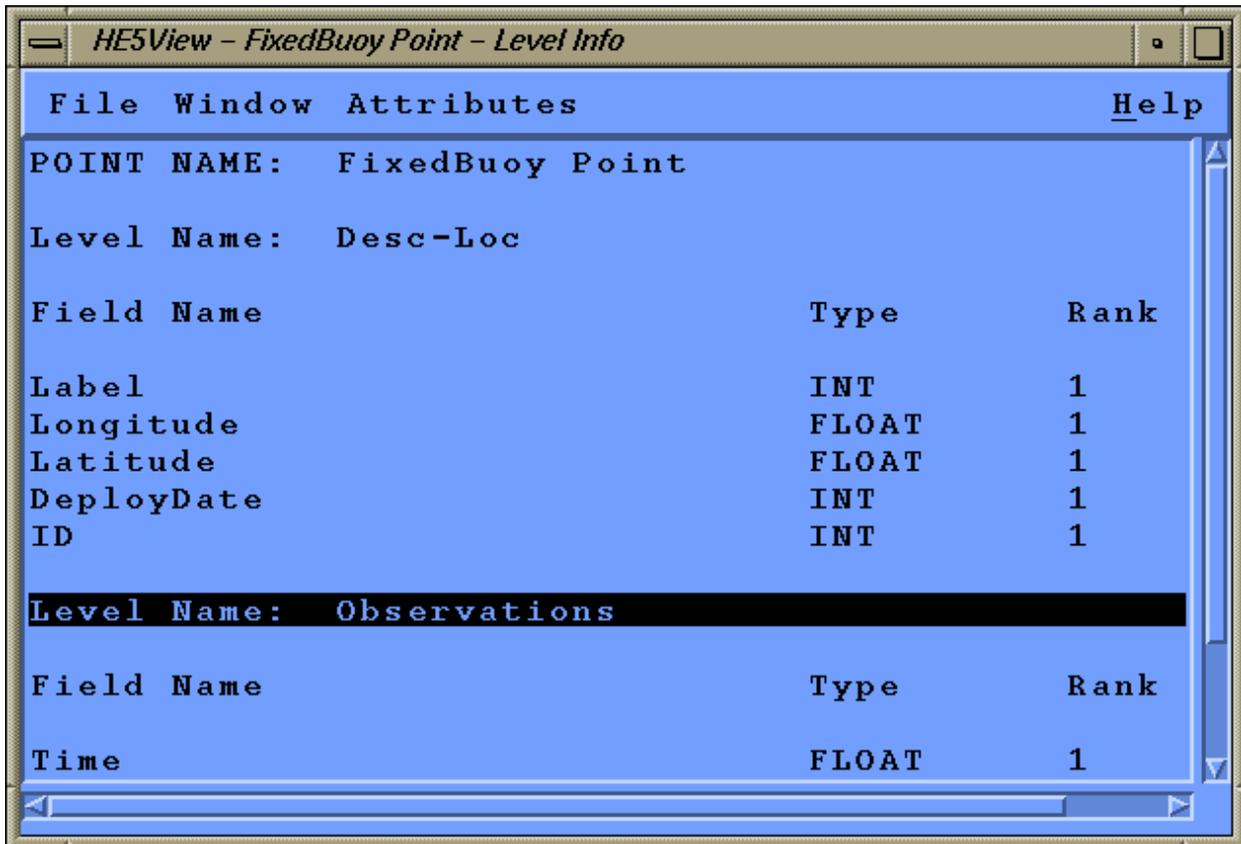


Figure 5-33. Point File Level Information Pop-up

Double-clicking on any **Level Name** will bring up the Point field select pop-up, shown in figure 5-34. See section 5.2.38 for a description of saving the contents of the window to an ASCII file.

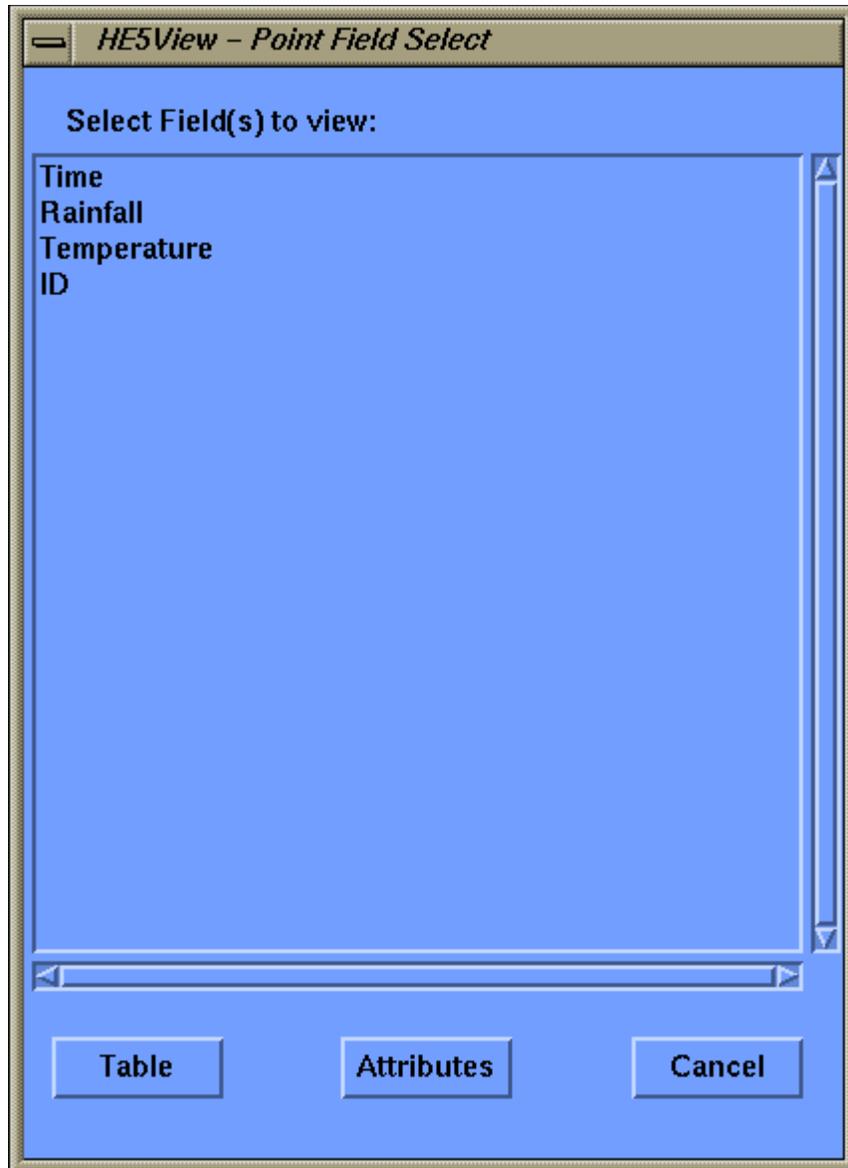


Figure 5-34. HE5View - Point Field Select Pop-up

Table button - Once the operator has selected the fields desired, pressing the table button will cause the Point data to appear in a table.

Attributes button - The operator may select and display the group level attributes for the selected Point. A description of the attribute display is provided in section 5.2.36. (see figure 5-38).

Cancel button - Cancels all actions

The operator may select as many fields as desired. Fields with multiple dimensions will appear in a table by themselves. All fields selected that contain one dimension will appear in the same table. The table title will list the names of the fields displayed in the order of display. Upon selecting the desired fields and pressing the **Table** button will cause the Point Data Table Pop-Up to appear (Figure 5-35).

<u>F</u> ile		
	Time	Rainfall
0	83422000,000000	18,486168
1	83555918,700000	18,490160
2	83726878,200000	18,495255
3	83842994,700000	18,498714
4	84013712,300000	18,503803
5	84063571,300000	18,505289
6	84245234,100000	18,510702
7	84251741,000000	18,510897
8	84412971,800000	18,515701
9	84419483,000000	18,515896
10	84452408,000000	18,516876
11	84623981,300000	18,521990
12	84655020,800000	18,522915
13	84736992,500000	18,525358
14	84835587,200000	18,528297
15	84915081,100000	18,530666
16	84970587,000000	18,532320
17	85058206,400000	18,534931
18	85076367,600000	18,535473
19	85111729,500000	18,536526

Figure 5-35. Point Data Table Pop-Up

5.2.31 Point Data Table

To close this window select Close from the file pulldown menu.

5.2.32 Point Attributes

To view the attributes of the selected Point Select object, click on the Attributes checkbox in the HE5w - Point Select window and press the OK button. This window is similar to the Grid file attributes pop-up described in Section 5.2.11 “Swath/Grid/Point Attributes.”

5.2.33 Pulldown Menus

The File Contents Displays all have a common pulldown menu structure with the following options: File, Options, Window, Atttributes, and Help. These are described in the sections below.

5.2.34 File Pulldown Menu

The File pulldown menu consists of the following options: File Info, Save, and Close. The Close pulldown menu will close the File Contents Display Pop-up and all windows derived from the window. The Save feature is described in section 5.2.38 “Save Pulldown Menu.” The File Info pulldown menu selection allows the operator to bring up information on the number of Swath objects and Grid objects in the file and is shown in an information dialog in Figure 5-36.

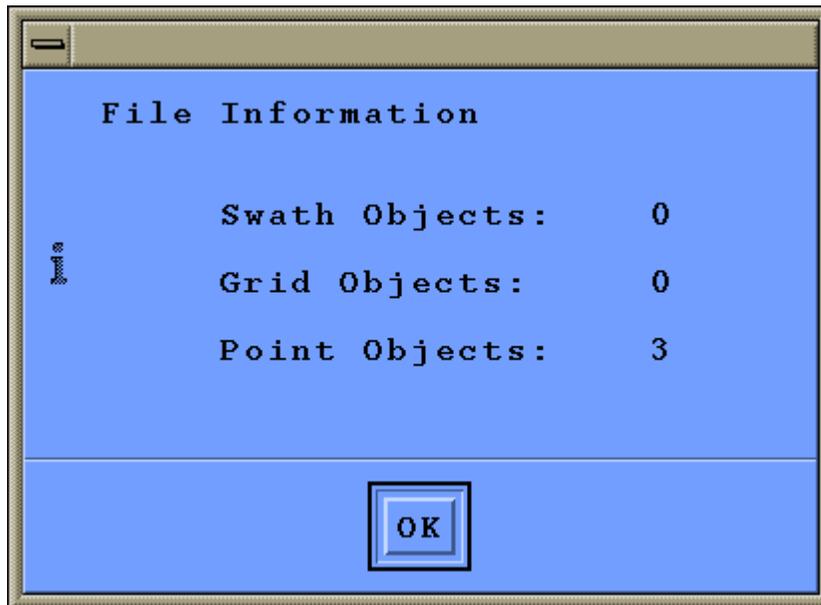


Figure 5-36. File Information Dialog

Clicking the **OK** button closes the File Information Dialog.

5.2.35 Window Pulldown Menu

The Window pulldown menu lists all windows which are currently open. Any window selected from this list will be shuffled to the top. Figure 5-37 shows the Window pulldown menu provided when the HE5View Main Window, Point.h5 and Swath.h5 files are open.

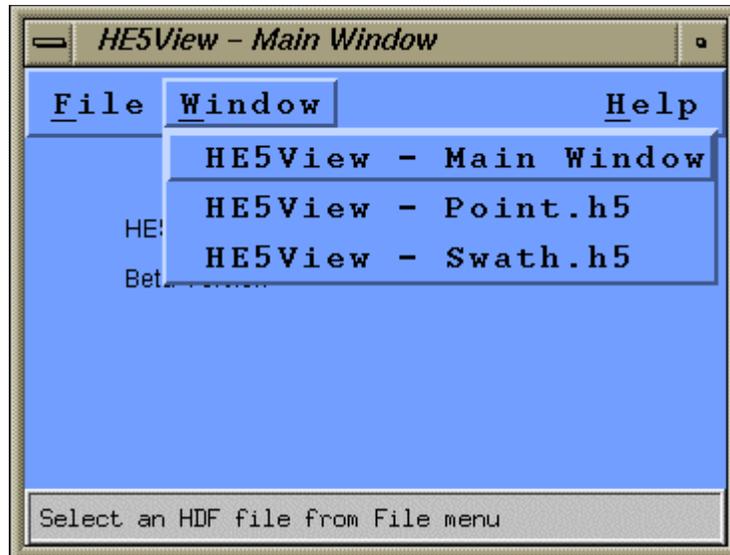


Figure 5-37. HE5View Main Screen Showing Window Pulldown Menu

The Window pulldown menu provides the same function on all other screens on which it appears.

5.2.36 Attributes Pulldown Menu

The Attributes option contains one pull-down menu item "HDF-EOS...." which brings up a text file window (shown in Figure 5-38) with a list of attributes (e.g., parameters, values, version numbers) for the entire file or brings up a dialog which states that there are no attributes available.

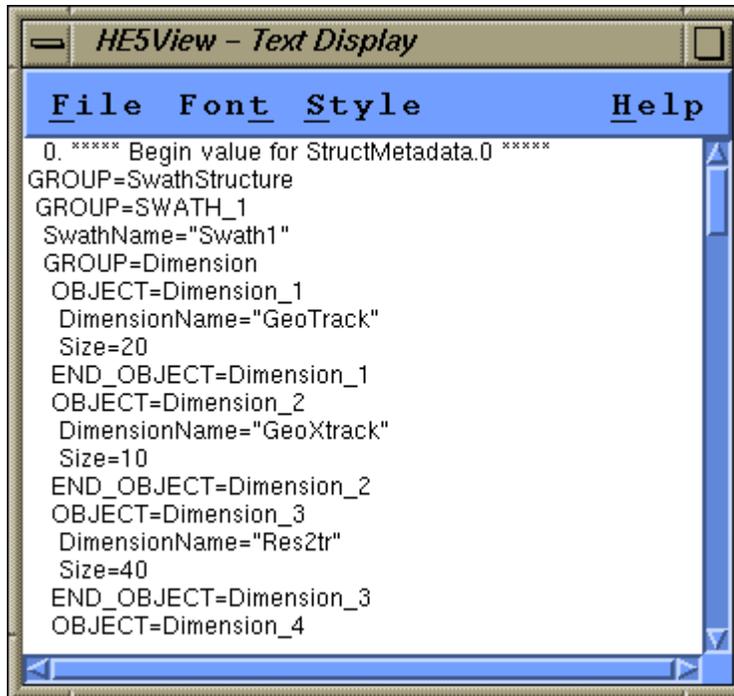


Figure 5-38. Text Display Pop-up

From the text window, the operator can do the following using the pull-down menus:

- **F**ile – exit the window
- **F**ont – select from a list of fonts (e.g., courier, Helvetica). A box showing what the text looks like based on the selection is provided.
- **S**tyle – select from a list of styles (e.g., normal, bold, italic) and point sizes (e.g., 8 pt, 10 pt.)
- **H**elp – see Section 5.2.37 “Help Pulldown Menu.”

5.2.37 Help Pulldown Menu

The Help option contains a pulldown menu with the following selections: help on context, on help, on window, keys, contents, index and version.

Help On Context – turns the mouse pointer into a “?” which can be clicked on an area of interest, bringing up help text for that item.

Help On Help – tells the operator how to use the HE5View on-line help feature (see Figure 5-39) to help understand how to navigate through the Help system using the on-line hypertext system.

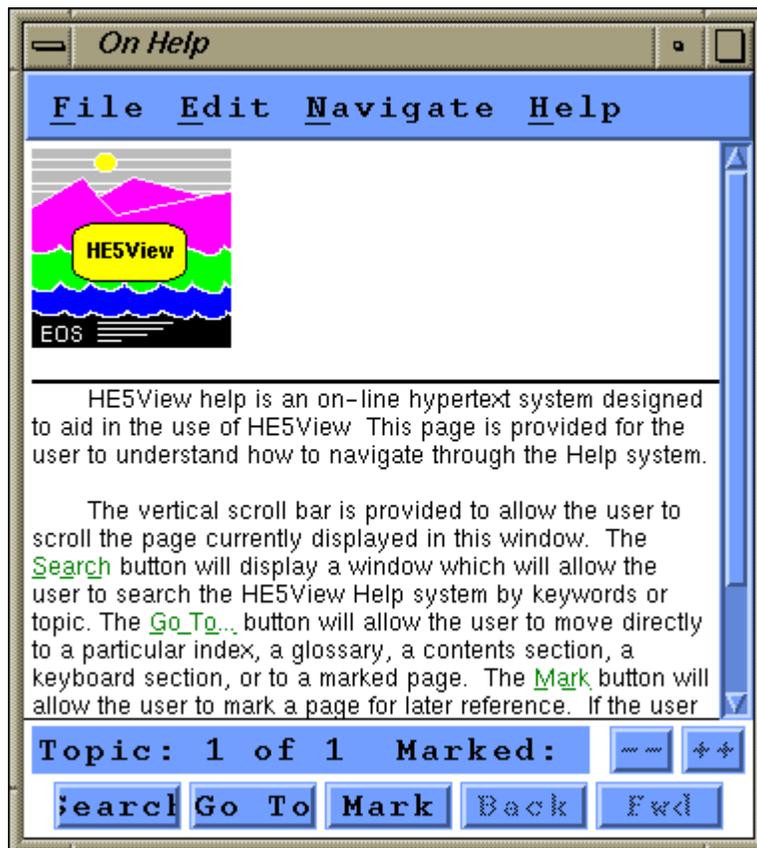


Figure 5-39. HE5View On Help Pop-up

- **File** – allows the operator to exit the On Help window. Print and Print Setup are not available.
- **Edit** – allows the operator to Copy, Copy Part of a Topic, or Copy as Wrapped

- **Navigate** – allows the operator to search for a topic, go to a specified topic, bookmark items of interest, go forward and back to a topic (these items are available in the form of pushbuttons at the bottom of the screen), and view a previous or next topic.
- **Help** – provides help on how to use help and “about help” (not functional).

The On Help window provides the following pushbuttons:

- The "**Search...**" button provides a way to search the HE5View Help system in one of two ways. The operator may select to search by Topic in which case a list of topics will be displayed for the operator to choose from or the operator may select search by Keyword in which case the operator will be presented with a list of keywords from which to choose.
- The "**Go To...**" button allows the operator to move to one of five topics:
 1. Index - the help described in the Help - Index selection from the menu bar.
 2. Glossary - a defined glossary of selectable terms common to HE5View.
 3. the help described in the Help - Contents selection from the menu bar.
 4. the help described in the Help - On Keys selection from the menu bar.
 5. any marked page (see below).
- The "**Mark**" button allows the operator to mark a page. Once the page is marked the page appears in a list box in the "Topic Go to Dialog" box. The marked page may then be selected and immediately recalled. The "Mark" button will appear as "Unmark" when viewing a marked page.
- The "**Unmark**" button allows the operator to unmark a marked page. If the operator is currently viewing a marked page an "X" appears in the check box labeled "Marked:." Pressing the "Unmark" button will cause the "X" to disappear and the page will not appear in the list box of the "Topic Goto Dialog."
- The "**Back**" button will return the operator to the previously viewed page. The operator should think of the help system as a book. The back button will only appear sensitized if the previously viewed page would be logically backward from the point of current view.
- The "**Forward**" button will move the operator to the last forward page viewed. The operator should think of the help system as a book. The forward button will only appear sensitized if the previously viewed page would have a page number greater than the page being currently viewed.

Help On Window

The Help On Window is the same as the Help On Index Window shown below.

Help On Keys

When Help On Key is selected from the Help pulldown menu, the following message will appear in a Keys Window: “HE5View uses no special keys to traverse through the program. To navigate through HE5View simply use the mouse and click on the options that are desired.”

Help On Contents

The Help On Contents window tells the operator that HE5View is a tool written to assist operators view the contents of HDF files and that it is capable of displaying the contents of files containing HDF-EOS data. More help can be obtained by selecting the topic desired (see figure 5-40).

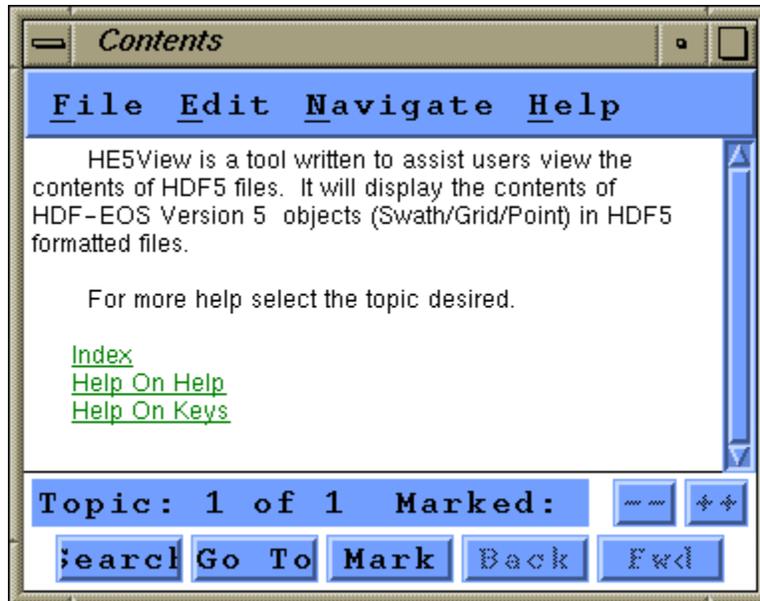


Figure 5-40. Help On Contents Pop-up

Help On Index

Selecting Help On Index brings up the Index window shown in Figure 5-41. This pop-up presents a list of each HE5View window and a list of hypertext help items.

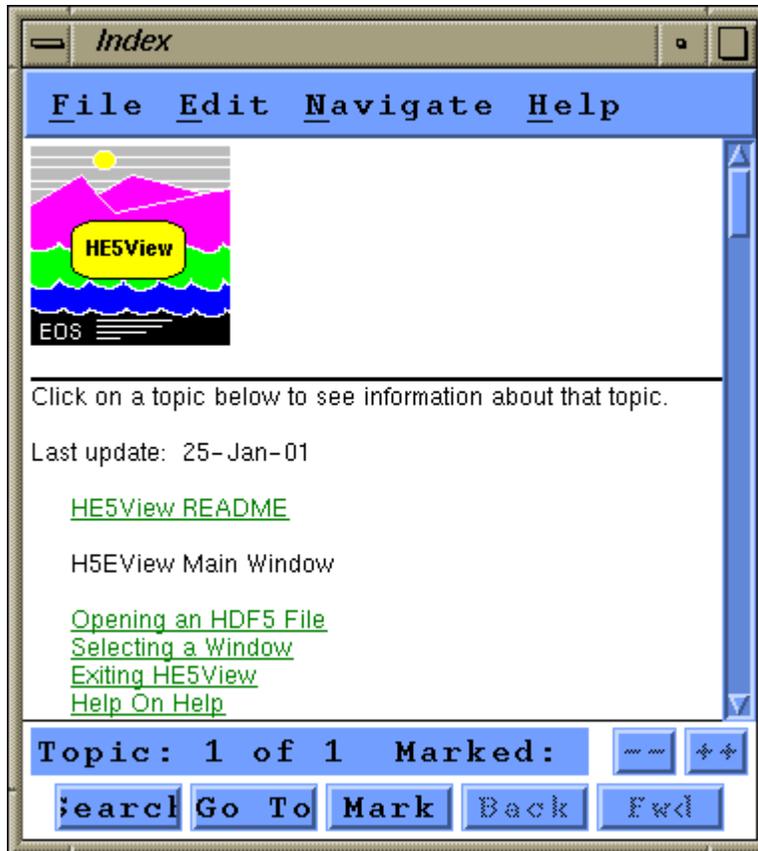


Figure 5-41. Help On Index Pop-up

Help On Version

Selecting Help On Version from the Help pulldown menu brings up the dialog shown in Figure 5-42.



Figure 5-42. Help On Version Dialog

Clicking on the Help button takes the operator to the Help on Contents screen (figure 5-40). Click on Cancel to close the dialog.

5.2.38 Save Pulldown Menu

The Save option allows the user to save the contents listed in the window to an ASCII file. Selecting the Save option will display the File Save Dialog (Figure 5-24). Upon entering a unique file name the contents of the window will be saved to an ASCII file exactly as they are listed in the window. This Save option is different from the HE5View table save option (described in section 5.2.20) in that there is no option to save in binary format. This option exists in HE5View windows which incorporates a scrollable text list as the main window function.