

Flight Path Editor (T19)

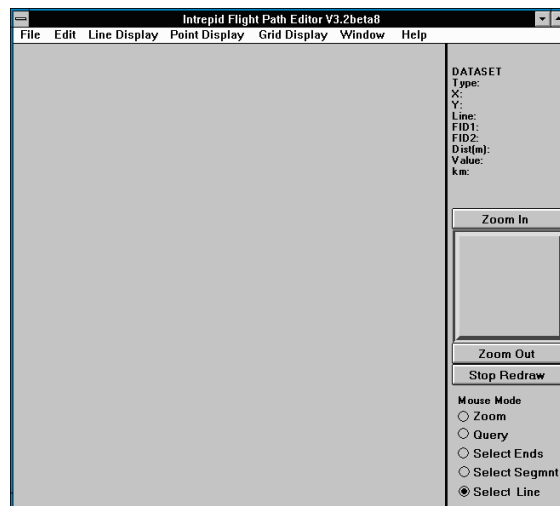
The Flight Path Editor has two functions as an INTREPID tool.

- It provides traverse line path editing facilities which enable you to check the spatial coherence of a survey. You can view and verify different aspects of the dataset including a range of data validation tests. You can delete sections of traverse lines that do not meet your specifications. The Flight Path Editor is a quick and effective tool for checking survey quality.
- It enables you to visualise and superimpose different types of datasets which are spatially coincident, and perform useful functions such as query, and zoom and pan.

The Flight Path Editor tool

>> *To use Flight Path Editor with the INTREPID graphic user interface*

- 1 Choose Flightpath from the Edit menu in the Project Manager, or use the command **fedit.exe**. INTREPID displays the Flight Path Editor Main window.



- 2 If you will be processing a large line dataset and wish to speed up the data display on the screen, or otherwise wish to adjust the display subsampling rate, adjust it using the Display Subsampling option from the Line Display menu. (See [Setting the display subsampling interval](#) for details).
- 3 If you have previously prepared input line dataset specifications for Flight Path Editor, load the corresponding task specification file using Load Options from the File menu. (See [Specifying input and output files](#) for detailed instructions.)

Note that *in interactive mode* INTREPID will only use the input line dataset specifications in a Flight Path Editor task specification file (See [Displaying options and using task specification files](#) for more information). If you do not wish to load any further datasets, go to step 5.

- 4 Specify the dataset(s) that you wish to display or edit. Use Load Line Dataset, Load Point Dataset and/or Load Grid Dataset from the File menu as required. (See [Specifying input and output files](#) for detailed instructions.)

If you are displaying a grid dataset INTREPID will first display it using grey scale.

If you are displaying a point dataset INTREPID will prompt you to specify Z fields for the colour and size of the points displayed.

INTREPID displays the dataset(s) in the Flight Path Editor Main window.

- 5 Examine and/or manipulate the display of the dataset(s) according to your requirements as follows. You may also perform these operations during flight path editing in step 7.
 - If you are displaying a grid dataset, switch between grey scale, pseudocolour and sun angle displays and modify the parameters for these display formats as required using options from the grid display menu (See [Grid dataset display](#) for details).
 - If you are displaying a points dataset, turn colour and size Z data display on and off as required. (See [Point dataset display](#) for details.)
 - If you are editing or displaying a line dataset and wish to examine a Z field during the process, specify the corresponding Z field using Load Z Field For Line Dataset from the File menu. (See [Specifying input and output files](#) for detailed instructions).
 - Zoom (enlarge an area of the display) and/or pan (examine different regions while enlarged) (See [Zooming and panning the display](#) for information).
 - Query points (or distances or pairs of points in a single line of a line dataset) in the dataset display. INTREPID will report information about the point(s) in the Flight Path Editor Main window (See [Querying points](#) for details)
- 6 If you are not editing a line dataset go to step 10.
- 7 Detect the portions of traverse lines that you wish to delete by
 - Viewing the dataset with appropriate display options;
 - Using query operations.

See [Line Dataset display](#) for details.
- 8 Save the results of line data validation tests if required (See [Saving line data validation results](#) for details).
- 9 Set segments and ends of traverse lines to **null** as required. Specify the end or segment and use Delete End/Segment from the Edit menu. See [Deleting segments of traverse lines](#) for details.
- 10 Repeat the data viewing and editing operations (steps 5–9 (or 4–9 including adjusting loaded datasets)) as required.
- 11 If you wish to save the edited data, specify field names for the new X and Y geographic location data using Save Output X and Y Fields from the File menu. INTREPID will save the new X and Y data for your dataset as specified. See [Specifying input and output files](#) for detailed instructions.

- 12** If you wish to record line dataset input and output specifications and the editing operations performed in this session as a task specification (**.job**) file in order to repeat a similar task in batch mode later or for some other reason, use Save Options from the File menu. (See [Specifying input and output files](#) for detailed instructions.)

Note that the Flight Path Editor can only record input and output line dataset field specifications and line editing processes in task specification files. (See [Displaying options and using task specification files](#) for more information).

- 13** If required, repeat steps 2–12, varying the parameters and/or data files as required.
- 14** To exit from Flight Path Editor, choose Quit from the File menu.

Notes:

- You can control the effect of mouse operations in the dataset display area using the Mouse Mode options in the Command area of the Flight Path Editor Main window. See [Mouse mode summary](#) for details.
- To view the current set of traverse line editing specifications choose Report from the Window menu. INTREPID displays the Flight Path Editor Report window. See [Displaying options and using task specification files](#) for details and an example of a set of specifications.
- You can view Help information by choosing options from the Help menu (See [Help](#)).
- You can execute Flight Path Editor line editing tasks as a batch task using a task specification (**.job**) file that you have previously prepared. See [Displaying options and using task specification files](#) for details.

Specifying input and output files

To use Flight Path Editor, you will need to specify the dataset(s) you wish to view. If you wish to examine the Z data from a line dataset during the process, you must also specify the Z field. If you wish to edit a line dataset and save the edited data, specify field names for the new X and Y geographic location data.

INTREPID identifies the X, Y, line number and fiducial fields using dataset aliases. The dataset must have the following aliases, identifying appropriate field files.

Alias	Field File
X	X coordinate (geographic location)
Y	Y coordinate (geographic location)
LineNumber	line number *
FID	fiducial sequence *

* These fields are optional. If you do not specify them, INTREPID will prompt you with an Open dialog box to specify them. If you do not specify them INTREPID will use a default system to create the missing numbers (See [Line, fiducial and point numbers](#) for details).

See "[Vector dataset field aliases](#)" in INTREPID database, file and data structures (R05) for more information about aliases.

Choose the options as required from the File menu.

File	Edit	Line Display	Point Display
Load Line Dataset...			
Load Z Field for Line Dataset...			
Save Output X and Y Fields...			
Save Validation Field...			
Load Point Dataset...			
Load Grid Dataset...			
Load Options...			
Save Options...			
Quit			

In each case INTREPID displays an Open or Save As dialog box. Use the directory and file selector to locate the file you require. (See ["Specifying input and output files" in Introduction to INTREPID \(R02\)](#) for information about specifying files).

Load Line Dataset Use this option to specify the line dataset you wish to examine or edit. INTREPID will open the dataset, locate the X and Y geographic coordinate fields using dataset aliases and display the lines in the Flight Path Editor Main window.

Load Z field for Line Dataset Use this option to specify the Z field that you wish to use for

- The Z data noise profile display (See [Viewing Z data noise](#) for details) or
- The Z data range, Z data gradient or Z data *null* data validation displays. (See [Line data validation](#) for details.)

Save Output X and Y Fields Use this option to save the results of the flight editing process in new X and Y geographic coordinate fields. INTREPID displays separate Save As dialog boxes for the X and Y field files.

If you will be using INTREPID tools that require **X** and **Y** aliases and wish these fields to become the new main X and Y fields for the dataset, edit the aliases accordingly. See ["Editing the dataset aliases" in INTREPID Old Project Manager \(T01\)](#) for detailed instructions.

Save Validation Field Use this option to save a new field in the loaded line dataset containing results of the current line data validation process. See [Saving line data validation results](#) for details.

Load Point Dataset Use this option to specify a point dataset if you wish to display one. If you choose this option INTREPID displays the Load Z Field for Point Size and Load Z Field for Point Colour dialog boxes. Respond to the dialog boxes accordingly. (See [Point dataset display](#) for an explanation of this use of Z fields)

Load Grid Dataset Use this option to specify a grid dataset if you wish to display one. INTREPID displays the dataset using grey scale. You can change the display to pseudocolour or sun angle and set the parameters for each display style. See [Grid dataset display](#) for instructions.

Load Options If you wish to use an existing task specification file to specify the input line dataset, use this option to specify the task specification file required. INTREPID will load the file and use its contents to load the corresponding line dataset. (See [Displaying options and using task specification files](#) for more information).

Save Options If you wish to save the current Flight Path Editor line dataset input and output specifications and the editing operations performed in this session as a task specification file, use this option to specify the filename and save the file. (See [Displaying options and using task specification files](#) for more information).

Changing aliases after using the Flight Path Editor

After the flight path editing process, you will have a new version of the X, Y (geographic location) data. You may wish this data to become the principal X, Y data for the dataset. If so, you will need to assign the X and Y aliases to these fields.

For example, the original **X** and **Y** fields may be called **Xorig** and **Yorig**. After flight path editing, you may have saved the corrected X and Y fields as **Xvalid** and **Yvalid**. In this case you would need to assign the **X** and **Y** aliases to these new fields.

See "[Editing the dataset aliases](#)" in INTREPID Old Project Manager (T01) for detailed instructions.

Line, fiducial and point numbers

If the dataset has a line numbers alias (**LineNumber**), INTREPID uses the line numbers from this field.

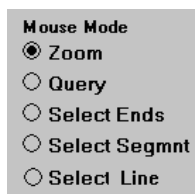
If there is no **LineNumber** alias, INTREPID assigns line numbers to the data groups (lines) as they occur, starting with 0.

If there is a **Fiducial** alias, INTREPID uses the data in the fiducial field.

If there is no **Fiducial** alias, INTREPID assigns fiducial sequence numbers to the points as they occur in the dataset, starting with 0. In this case INTREPID will not be able to detect fiducial sequence interruptions (See [Line data validation](#) for details).

Mouse mode summary

Flight Path Editor has a variety of mouse operations, determined by the mouse mode options located at the bottom of the Main window Command area.



>> *To select a mouse mode*

Select the corresponding Mouse mode option button.

Zoom Using this mode you can define rectangular regions for zooming the data display. See [Zooming and panning the display](#) for details.

Query Using this mode you can click points and drag between pairs of points to obtain information about the data they represent. See [Querying points](#) for details.

Select Ends Using this mode you can specify ends of traverse lines for clipping. See [Deleting the ends of traverse lines](#).

Select Segments Using this mode you can specify segments of traverse lines for clipping. See [Deleting segments of traverse lines](#).

Select Lines Using this mode you can select individual lines. INTREPID displays the current selected line in red. You can observe a selected line's path and extent and delete it if required. See [Deleting traverse lines](#) and [Viewing a single traverse line in red](#) below for further details.

General display controls and options

The Flight Path Editor has a large range of display controls and query operations. We have provided these to enable you to visualise your datasets and, in flight path editing, to assist you with detecting traverse line segments that are unsuitable for inclusion in the dataset.

While using the Flight Path Editor with one or more datasets you can

- Zoom (enlarge parts of the display) and pan (view different regions of the dataset displayed when it has been enlarged)
- View information about points or pairs of points in the display.
- Choose grey scale, pseudocolour or sun angle display for grid datasets (See [Grid dataset display](#)).
- Determine point size and colour according to the values of Z fields in point dataset display (See [Point dataset display](#)).
- Choose from a wide range of line dataset display options (See [Line Dataset display](#)).

Screen redrawing

The Flight Path Editor is designed to work with datasets of unlimited size.

Large datasets require lengthy processing and therefore screen redrawing may take some time. In order to show you the most up to date version of the datasets displayed, INTREPID performs redraws after most operations. The delays caused by these redraws may cause some frustration.

Due to our efforts to minimise screen redraws, INTREPID may fail to redraw the screen occasionally when you do require a redraw.

This section explains how to alleviate screen drawing delays and how to trigger a screen redraw if required.

If screen redrawing is too slow

- Choose Stop Redraw in the Command area if you do not require the current redraw before performing the next Flight Path Editor operation.
- If line dataset redrawing is slow, decrease the display subsampling rate and remain in Zoom mouse mode whenever possible. INTREPID will only redraw the proportion of data points specified by the rate. See [Setting the display subsampling interval](#) for further details about subsampling.
- If you have several datasets loaded (e.g., a line dataset and a point dataset and a grid dataset), consider performing your operations without one or more of the datasets.

If you need to trigger a screen redraw

>> *To trigger a screen redraw*

- Click the pan/zoom indicator square in the Command area or
- Change the size of the Flight Path Editor window slightly by dragging its border.

Zooming and panning the display

You can enlarge and reduce the display (zoom in and out) and view different parts of it (pan).

>> *To zoom in and out (enlarge/reduce) by steps*

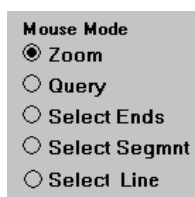
To zoom in (enlarge the display) choose Zoom In in the Command area of the Flight Path Editor Main window. Each time you choose this button, INTREPID will enlarge the display by 25%.

To zoom out (reduce the display) choose Zoom Out in the Command area of the Flight Path Editor Main window. Each time you choose this button, INTREPID will reduce the display by 25%.

You can use these buttons at any time, no matter what mouse mode you have selected.

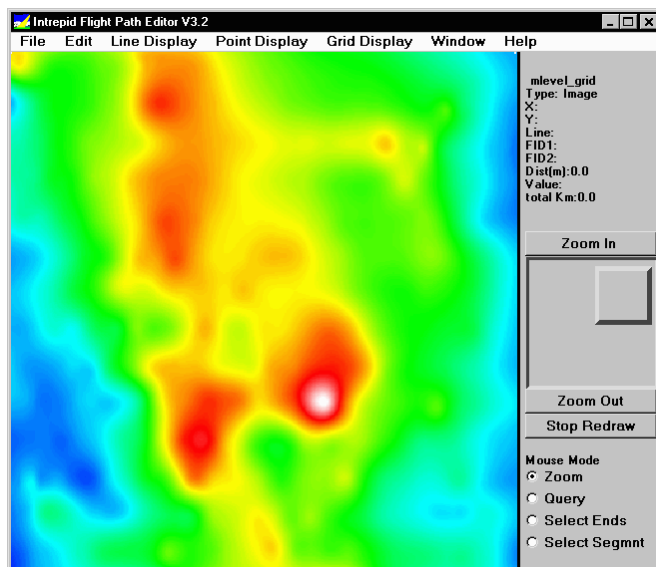
>> *To zoom in on a selected area of the display*

Select Zoom from the Mouse Mode options.



Hold down the left mouse button and drag diagonally (corner to corner) across the area that you wish to enlarge. INTREPID will enlarge the selected region to fill the Data area of the window. If you choose Zoom Out, having used this zooming in process, INTREPID will immediately zoom out to the full dataset display.

The illustration below is the a zoomed-in part of the grid dataset illustrated in section [Grid dataset display](#).



>> To pan a zoomed-in display (view different parts)



The Pan/zoom indicator at the right of the Flight Path Editor Main window in the centre consists of a small square within a larger square. The large square represents the whole display and the small square the part visible on the screen. When you drag the small square to a different part of the large square INTREPID shows the corresponding part of the display.

If you have zoomed out to view the whole display, the small square may occupy the whole of the large square and may therefore not be visible.

You can use the Pan/zoom indicator at any time, no matter what Mouse Mode (Query, Clip Ends, Null Segment, Zoom) you have selected.

Querying points

INTREPID can display information about

- Individual points if you click them in your display or
- Start and finish points if you mouse drag across a section of the display.

This section describes the information obtained while you are using Query mouse mode.

>> To view information about a point or pair of points

```
ebagoola_ST  
Type: Line  
X: 743752.2  
Y: 8419617.7  
Line: 3021  
FID1: 359118  
FID2:  
Dist(m):44.605244  
Value:  
Km:390.42916
```

Choose Query from the Mouse Mode option buttons near the lower left corner of the Flight Path Editor main window. INTREPID displays information in the Status area at the top of the Command area of the Flight Path Editor Main window.

>> To view information about a point

Click it with the left mouse button and view the information in the Status area.

>> To view information about a pair of points

Drag from one point to the other using the left mouse button, then view the information in the Status area.

If INTREPID is displaying a grid without a line dataset, it displays information about the point on the grid that you click.

If INTREPID is displaying a line dataset, it displays information about the nearest point on a line to the click point.

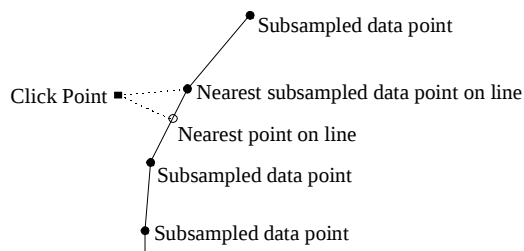
The following definitions, diagram and tables will help to explain the way that Flight Path Editor reports information to you.

The **click point** is the position on the display which you click with the left mouse button.

The **start point** and **finish point** are the mouse button down and mouse button release points when you perform a left mouse button drag across part of the display.

If you consider a traverse line display as a set of line segments joining data points, the **point on a line nearest to the click point** is the point on a line segment nearest to the click point.

The following illustration shows a click point, data points and lines.



The following table describes the information shown in the Status area during **single click** query operations.

Heading	Grid only	Line or Line + Grid (Query Mode)
km	n/a	Survey distance
X, Y	X, Y coordinate of click point	X, Y coordinates of data point nearest to click point
Line	n/a	Line number of data point nearest to click point
FID1	n/a	Fiducial number of data point nearest to click point
FID2	n/a	n/a
Val	Value of grid cell at click point (band 0)	Value of grid cell at click point (if grid dataset displayed) (band 0)
Dist (m)	n/a	Distance from nearest point on a line to nearest line data point

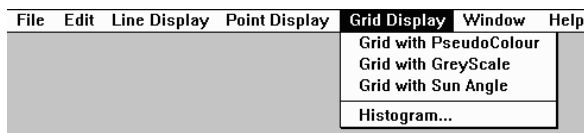
The following table describes the information shown under these headings during **left mouse button drag** query operations

Heading	Grid only	Line or Line + Grid(Query Mode)
km	n/a	Survey distance
X, Y	X, Y coordinates of start point	X, Y coordinates of data point nearest to start point
Line	n/a	Line number of data point nearest to start point
FID 1	n/a	Fiducial number of data point nearest to start point
FID 2	n/a	n/a
Val	Value of grid cell at start point (band 0)	Value of grid cell at start point (if grid dataset displayed) (band 0)
Dist (m)	distance between start point and finish point	Distance from line data point nearest start point to line data point on the same line nearest finish point

Grid dataset display

If you are viewing a grid dataset you can choose pseudocolour, grey scale or sun angle display. INTREPID uses grey scale when it first displays the grid.

Use the options from the Grid display menu to specify your grid display method.



Pseudocolour display

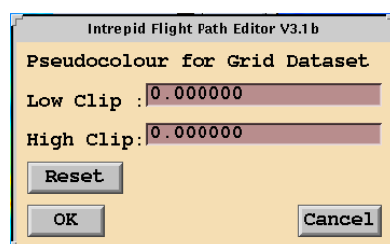
If you choose pseudocolour display without modifying the Low Clip and High Clip parameters INTREPID will apply a fixed range pseudocolour display to your grid. This involves dividing the range of cell values in your grid into equal parts corresponding to pseudocolour values and assigning colours to the cell values accordingly. The 256 basic pseudocolour values are set out in the lookup table **pseudocolour.lut** (See "[Colour Lookup Tables](#)" in INTREPID database, [file and data structures \(R05\)](#) for details).

If you set Low Clip and/or High Clip values INTREPID will assign

- The lowest ranking colour to all grid cells whose value is less than or equal to the Low Clip value.
- The highest ranking colour to all grid cells whose value is greater than or equal to the High Clip value.
- The other colours in the pseudocolour range to other cells in the grid on the basis described above.

>> *To specify pseudocolour display for your grid*

- 1 Choose Grid With Pseudocolour from the Grid Display menu. INTREPID displays the Pseudocolour for Grid Dataset dialog box.

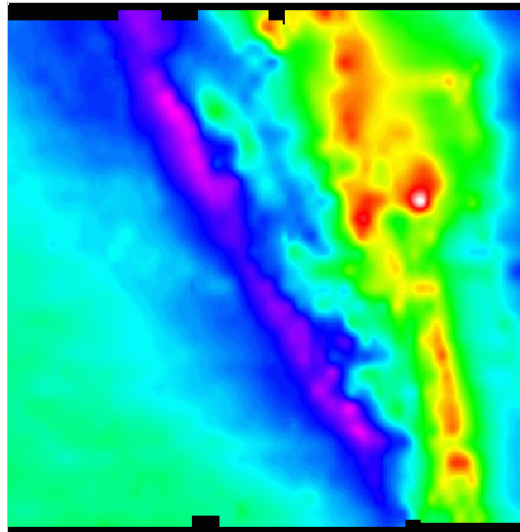


- 2 Specify or reset Low Clip and High Clip values if required

To restore the Low Clip and High Clip values to the minimum and maximum cell values, choose Reset. Otherwise enter the values (in Z units) in the corresponding text boxes.

- 3 Choose OK.

INTREPID displays the grid using pseudocolour.



Grey scale display

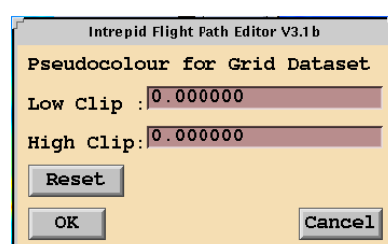
If you choose grey scale display without modifying the Low Clip and High Clip parameters INTREPID will apply a fixed range grey scale display to your grid. This involves dividing the range of cell values in your grid into equal parts corresponding to grey scale values and assigning colours to the cell values accordingly. The 256 basic grey scale values are set out in the lookup table **greyscale.lut** (See "[Colour Lookup Tables](#)" in INTREPID database, file and data structures (R05) for details).

If you set Low Clip and/or High Clip values INTREPID will assign

- The lowest ranking shade to all grid cells whose value is less than or equal to the Low Clip value.
- The highest ranking shade to all grid cells whose value is greater than or equal to the High Clip value.
- The other shades in the grey scale range to other cells in the grid on the basis described above.

>> To specify grey scale display for your grid

- 1 Choose Grid With GreyScale from the Grid Display menu. INTREPID displays the Pseudocolour for Grid Dataset dialog box.



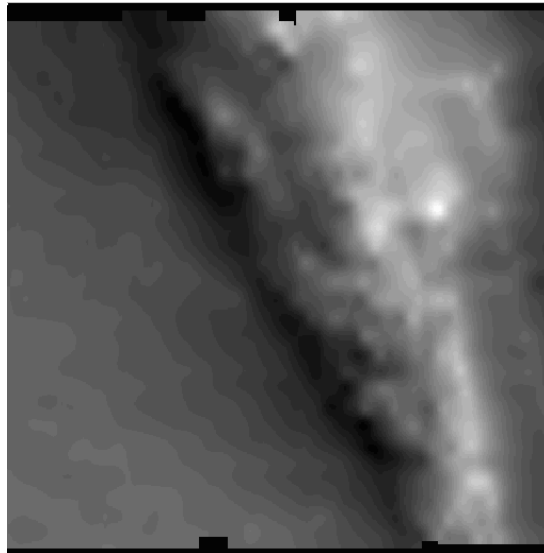
The Low Clip and High Clip text boxes will at first contain the minimum and maximum cell values.

2 Specify or reset Low Clip and High Clip values if required

To restore the Low Clip and High Clip values to the minimum and maximum cell values, choose Reset. Otherwise enter the values (in Z units) in the corresponding text boxes.

3 Choose OK.

INTREPID displays the grid using grey scale.



Sun Angle display

Sun angle display creates the illusion of the sun shining on the image from a chosen angle, creating a system of illuminated areas.

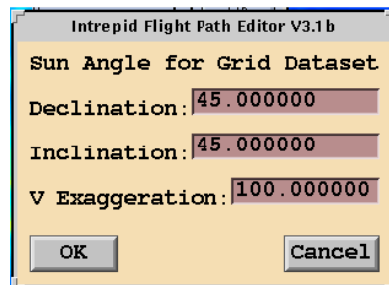
The sun angle effect enables you to visualise the grid in terms of 'hills' and 'valleys'. It interprets a high measurement in a sample as a 'hill' and a low measurement as a 'valley'.

You can use sun angle this even though the measurements in the data may not actually be physical elevation. For example, if the measurements are levels of magnetism, the sun angle display allows you to visualise a 'magnetic topography' where 'hills' are areas of high magnetism, and 'valleys' are areas of low magnetism.

This display mode is useful for highlighting linear trends or breaks in the grid that may be missed in ordinary colour or grey scale coded viewing.

>> *To specify sun angle display for your grid*

- 1 Choose Grid With Sun Angle from the Grid Display menu. INTREPID displays the Sun Angle for Grid Dataset dialog box.



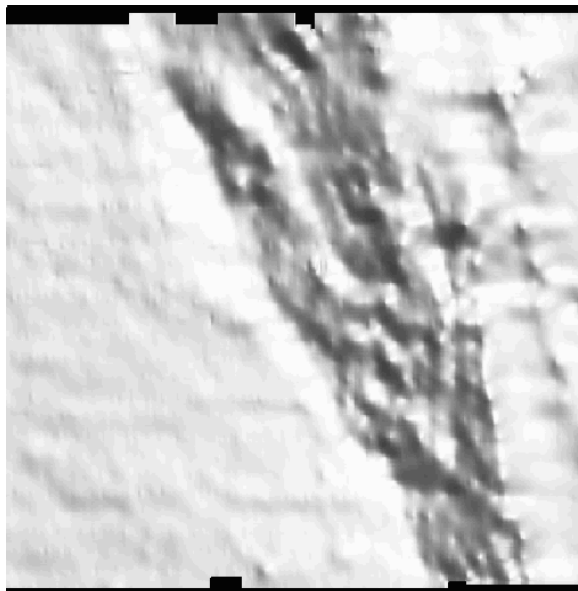
- 2 Specify Declination, Inclination and Vertical Exaggeration as required, then choose OK. INTREPID displays the grid in sun angle format.

Declination is the 'compass' direction of the line from the overhead point to the 'sun'. A declination of 0° means that the 'sun' is North of the overhead point. A declination of 90° means that it is East of the overhead point. -90° means West and +180° or -180° means South. The default declination is 45°

Inclination is the angle of the 'sun' between the horizon and the overhead point. An inclination of 0° means that the 'sun' is on the horizon and an inclination of 90° means that it is at the overhead point. The default inclination is 45°

Vertical Exaggeration is the size of the contrast between high and low values. If you increase the Vertical Exaggeration, the 'hills' will appear higher and the 'valleys' deeper. The default vertical exaggeration is 100.

Here is an illustration of sun angle grid display



Modifying the parameters of the current display format

You can modify the parameters of the current grid display format by choosing its menu option again (or specifying an equalisation histogram).

>> To modify pseudocolour grey scale or sun angle display parameters.

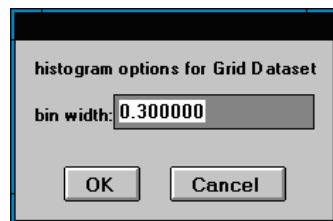
- 1 Choose Grid with Pseudocolour or Grid with Sun Angle accordingly from the Grid Display menu. INTREPID displays the corresponding dialog box.
- 2 Modify the parameters as required and choose OK. INTREPID displays the grid using the modified parameters.

Equalising histogram

If you are using the grey scale or pseudocolour display, you can use an **equalising histogram** to distribute the colours or shades so that each colour or shade has the same area in the display (i.e., the same number of grid cells).

>> To turn on the equalising histogram display

- 1 Ensure that you are displaying the data using grey scale or pseudocolour.
- 2 Choose Histogram from the Grid Display menu. INTREPID displays the Histogram Options for Grid Dataset dialog box.



- 3 Set the Bin Width parameter if required and choose OK. INTREPID will redisplay the grid using the equalising histogram.

Bin width In a piecewise linear histogram the data is grouped in 'bins' according to rank. Each 'bin' contains a fixed number of data items of approximately the same value. The bin width parameter specifies the percentage of the data occupying one 'bin'. The default value of .3 results in about 330 bins. If you increase the bin width, resulting in fewer 'bins', the data will have larger clusters and fewer different colours. If you decrease the bin width, resulting in more 'bins', the data will have smaller clusters and a greater variety of colours.

>> To turn off the equalising histogram display

- 1 Choose Histogram from the Grid Display menu. INTREPID displays the Histogram Options for Grid Dataset dialog box.
- 2 Choose Cancel.
- 3 Click the pan/zoom indicator box or slightly adjust the window size to force a screen redraw.

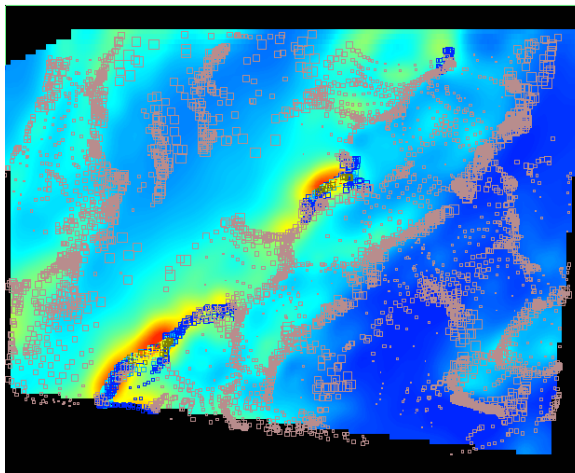
Point dataset display

You can display a point dataset as a set of square markers. INTREPID can vary the size and colour of the markers according to the values in Z fields. Specifically, you can

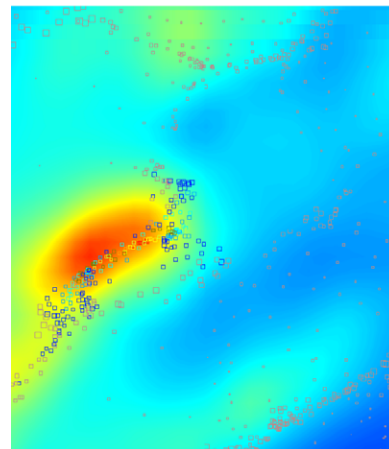
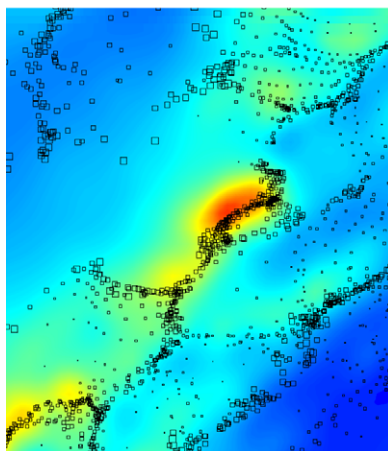
- Select a Z field whose value will determine the size of the point markers in the display, and turn this aspect of the display on and off as required.
- Select a Z field whose value will determine the colour of the point markers in the display, and turn this aspect of the display on and off as required.

In each case INTREPID assigns the sizes or colours according to a fixed range system, where each size or colour has a value range the same size. INTREPID assigns the colours from the **pseudocolour.lut** lookup table (See "[Colour Lookup Tables](#)" in INTREPID database, file and data structures (R05) for more information) INTREPID assigns sizes according to the range of Z values.

The following illustration of a point dataset overlaying a grid is an Euler Deconvolution estimating depth of magnetic sources.



The following illustrations are enlargements of sections of the display above.



When you first specify the point dataset for display using Load Point Dataset from the File menu, as well as prompting you to specify the point dataset, INTREPID will prompt you to specify a Z field to determine point colour and a Z field to determine point size. See [Specifying input and output files](#) for details.

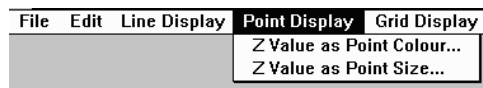
Changing the colour and size Z field selection

>> To specify or respecify the point colour or size Z fields

If you did not specify a Z field for colour or size and now wish to do so, or if you wish to change your field selection, reload the point dataset using Load Point Dataset from the File menu, and specify the colour and size Z fields as required.

>> To turn point colour or size display on or off

Choose the Z Value as Point Colour and/or Z Value as Point Size from the Point Display menu to turn the display on or off. The options will have check marks against them if they are turned on.



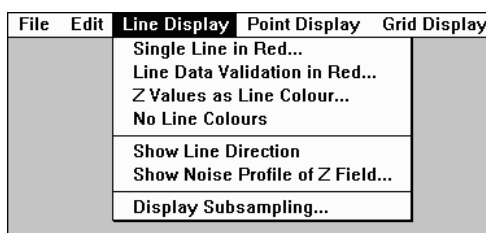
Line Dataset display

The line dataset display has a large range of display options to enable you to both view and edit the dataset. You can

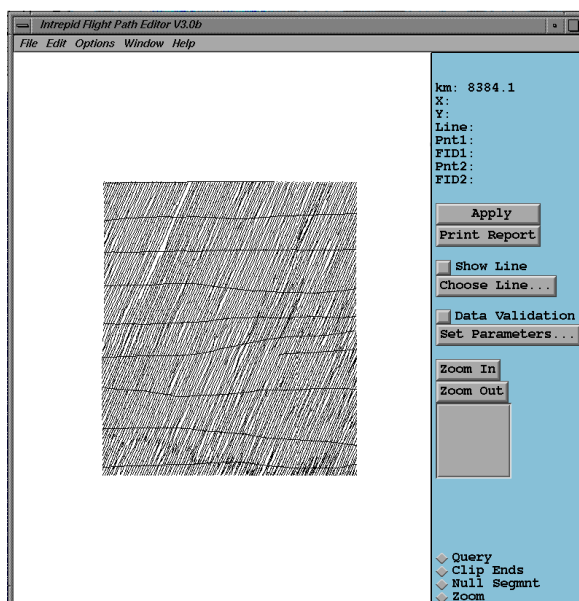
- Determine whether (in Zoom mouse mode) your line dataset display redraws quickly with lower precision or more slowly with full precision by specifying the display subsampling rate. See [Setting the display subsampling interval](#) for details
- View the total traverse line length of the dataset. See [Querying points](#) for details.
- Click any part of any traverse line using the mouse and view (for the nearest data point) the X and Y coordinates, the traverse line number, the number and fiducial number. See [Querying points](#) for details.
- Specify a traverse line by number or click it in the display and view its path. See [Viewing a single traverse line in red](#) for details.
- For a selected Z field, view the traverse line paths with points failing your data validation criteria coloured in red. You can also save a new field in the line dataset containing the data validation results. See [Line data validation](#) for details.
- For a selected Z field, apply fixed range pseudocolour to the lines indicating values of the Z data. See [Showing Z values as line colour](#) for details.
- View markers indicating the directions of the traverse lines. See [Viewing line direction marks](#) for details.
- For a selected Z field, view noise in the field as a profile superimposed on the traverse lines. See [Viewing Z data noise](#) for details.

If you require a Z field for use in the display, specify it using the Load Z Field for Line Dataset option from the File menu (See [Specifying input and output files](#) for details).

You can control most of the line dataset display features using options from the Line Display menu.



The following illustration shows a line dataset as the Flight Path Editor originally displays it.



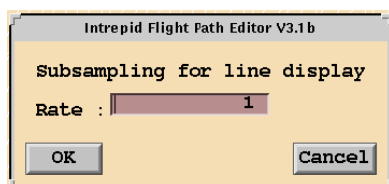
Setting the display subsampling interval

Available in Zoom mouse mode only. Each time you perform an operation or change an option, INTREPID will redraw the screen. For a large line dataset, this may take too long. While you are using Zoom mouse mode you can speed up the display (at the cost of display precision) by reducing the subsampling interval. For example, if you set the subsampling interval to 2, INTREPID will only display every second data point on the screen. The default subsampling interval for Zoom mouse mode is 10.

If you select a mouse mode other than Zoom, the subsampling interval changes to 1. If you return to Zoom mode, the subsampling interval returns to the set value. See [Mouse mode summary](#) for general information about mouse modes.

>> To specify the subsampling interval

- 1 Ensure that you are using Zoom mouse mode.
- 2 Choose Set Subsampling Rate from the Line Display menu. INTREPID displays the Subsampling for Line Display dialog box.



Specify the subsampling interval in the Rate text box and choose OK. INTREPID will redraw the display with the new subsampling interval whenever you are using Zoom mouse mode.

Note: Increasing the value of the Rate parameter means increasing the interval—INTREPID displays fewer data points.

Viewing a single traverse line in red

INTREPID can display the path of an individual traverse line in red. You can specify the traverse line by its number or by clicking it in the display.

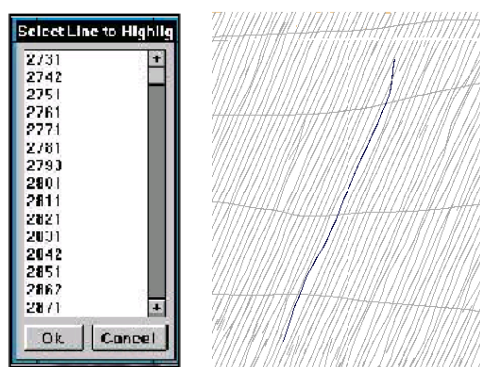
You can delete the selected line (See [Deleting traverse lines](#)).

>> To display an individual traverse line in red using its number

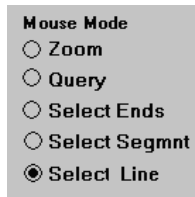
Choose Single Line In Red from the Line Display menu. INTREPID displays the Select Line dialog box.

Choose the line number from the list box and choose OK.

INTREPID displays the traverse line path in red.



>> To display an individual traverse line in red by clicking the line on the screen



- 1 Select Select Line mouse mode
- 2 Click the line you require. INTREPID displays it in red.

>> To display a different traverse line

Repeat the process just described. INTREPID will return the previous line to white and display the new line in red.

>> To cancel single line in red display

Choose No Line Colours from the Line Display menu.

Line data validation

Some of the data from your survey may be unsuitable for your purposes because of faults or because it does not comply with standards that you have set. You can refer to this data as **invalid**. INTREPID has a variety of **data validation** tests available for your data. After applying the criteria you select, INTREPID displays the invalid traverse lines or parts of traverse lines in red.

You can choose from the following criteria. For each criterion, a point will fail (and be coloured red) if the criterion statement is true.

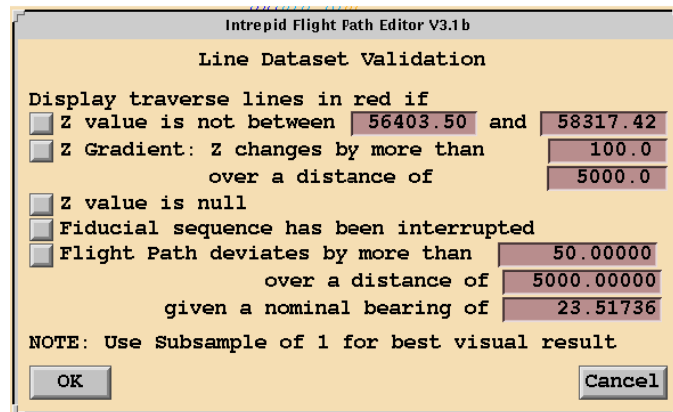
- The Z value at the point is
 - Not within a given range;
 - *Null*;
- The point is within part of the traverse line where
 - The gradient of the Z data is too high (i.e., there is Z data noise);
 - The flight path deviates too far from a given nominal bearing;
 - The fiducial sequence has been interrupted.

You can save line data validation results in a new field in the dataset. INTREPID saves the validation data as 0 for valid (red) and 1 for invalid (red).

>> To apply data validation tests to your data and view the failed data in red,

- 1 If you are using tests which involve a Z field, ensure that you have specified this field. (See [Specifying input and output files](#) for details).

- 2 Choose Line Data Validation In Red from the Line Display menu. INTREPID displays the Data Validation Parameters dialog box



- 3 Turn on the data validation tests and specify the corresponding parameters as required, then choose OK. INTREPID displays the dataset with the traverse line paths or sections of paths that fail the data validation test shown in red (i.e., the data for which the statements in the dialog box are true).
- 4 Adjust the tests as required by repeating steps 2 and 3 above.

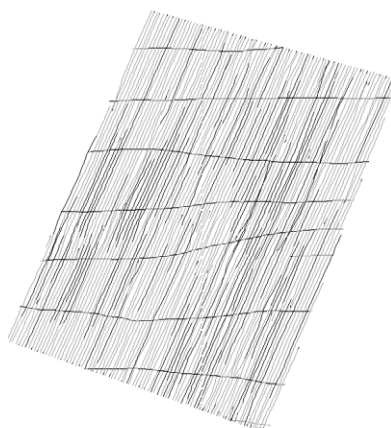
>> To cancel Line Data Validation in red display

Choose No Line Colours from the Line Display menu

Data validation tests and parameters

Here is a detailed description of the data validation tests and parameters.

Z data ranges ('Z value is not between ...') INTREPID will reject (mark in red) points whose Z values are outside the range you specify. Specify lower and upper values of the range of Z values in the corresponding text boxes. The default values are the maximum and minimum values of the Z data. Here is an illustration of the results of a Z data range validation test.



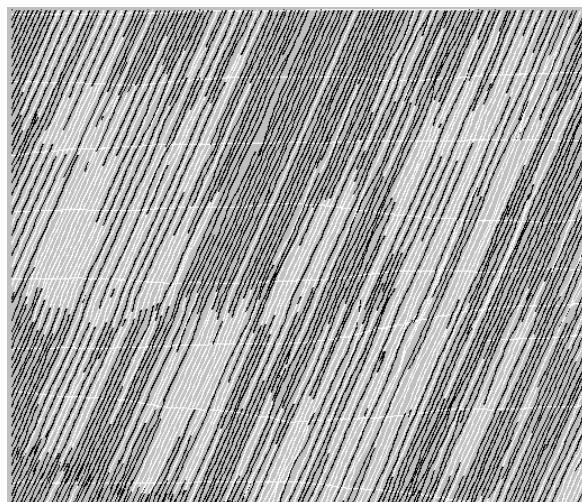
Z value is null If you turn on this check box, INTREPID displays all points in red for which the corresponding Z data value is *null*.

Z gradient is too high (noise) ('Z changes by more than ...') You may wish to eliminate segments of traverse lines whose corresponding Z values are noise or spikes. To identify noise and spikes, locate traverse line segments where Z data is changing rapidly, i.e., where the gradient of the Z data is high.

You may also wish to identify noise in diurnal (base station) data, such as that caused by sun activity. This noise has a much greater wavelength than noise and spikes in your survey data.

Specify a distance over which you wish to measure the gradient, the maximum allowable change (in Z units) over this distance. The default parameters are the recommended settings for detecting magnetic noise in diurnal data—a change of 100 Z units over 5000 distance units.

Flight path deviates too far from nominal bearing ('Flight path deviates by more than ...') You may wish to retain only traverse line data whose direction is close to a specified nominal bearing. Specify a distance over which you wish to test the direction, the maximum allowable deviation (in distance units) over this distance, and the nominal bearing to which valid lines should conform. The default parameters are a deviation of 50 distance units over a distance of 5000 distance units. INTREPID calculates the average strike of the traverse lines and offers this value as the default nominal bearing. Here is an illustration of the results of a traverse line direction validation test.



Fiducial sequence has been interrupted If the fiducial sequence has a discrepancy between a pair of adjacent points, there may be a data fault at this point in the traverse line.

For example,

- In this fiducial sequence corresponding to a set of adjacent points in a line, some numbers have been omitted.

34 35 36 37 38 **45 46 47 48** ...

All points in the traverse line from the point of the interruption (shown in bold) may be invalid.

- In this fiducial sequence, there is a small range where the fiducial sequence is incorrect, but the sequence continues correctly after the interruption.

21 22 23 24 25 26 **543** **544** 29 30 31

In this case, only the points with the incorrect fiducial sequence numbers may be invalid.

If you turn on Fiducial sequence has been interrupted, INTREPID will show all points that are invalid as illustrated in the above examples.

Saving line data validation results

You can record the data validation results in a new dataset field. This field contains the value 1 for invalid data points (red), and 0 for valid (white) data points. You can perform this process as often as you wish with different validation tests, each time specifying a different field name.

>> To save the line data validation results

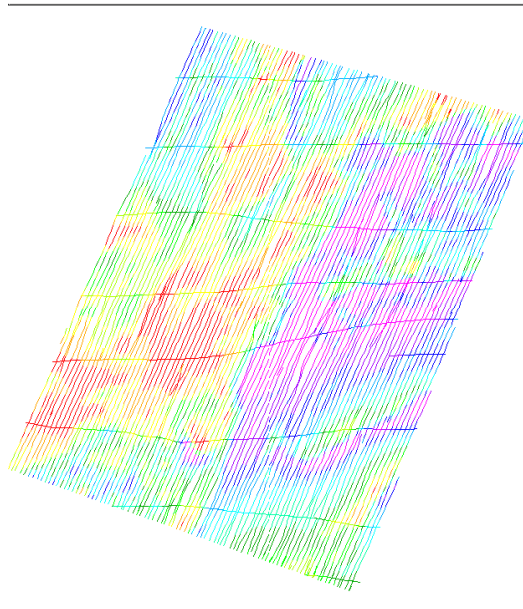
- 1 Specify and display the results of a line data validation test as described above.
- 2 Choose Save Validation Field from the File menu. INTREPID displays a Save As dialog box. Specify the name for the new field and choose OK. (See [Specifying input and output files](#) for detailed instructions.)

Showing Z values as line colour

If you have specified a Z field you can display its values using fixed range pseudocolour. INTREPID will colour the traverse line paths in the display according to the value of the Z field. INTREPID assigns the colours from the **pseudocolour.lut** lookup table (See "[Colour Lookup Tables](#)" in INTREPID database, file and data structures (R05) for more information)

>> To display the Z field as line colour

- 1 Ensure that you have specified a Z field (See [Specifying input and output files](#)).
- 2 Choose Z Value as Line Colour from the Line Display menu. INTREPID displays the line colours accordingly.



>> To turn off Z value as line colour display

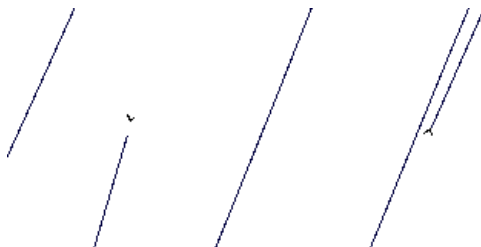
Choose No Line Colours from the Line Display menu.

Viewing line direction marks

You can choose whether to display the direction marks at each end of each traverse line.

>> To turn line direction marks display on or off

Show Line Direction in the Line Display menu controls whether line direction markers are visible. Each time you choose this menu option the marker display turns on or off. When direction marker display is on, the menu option has a check mark.

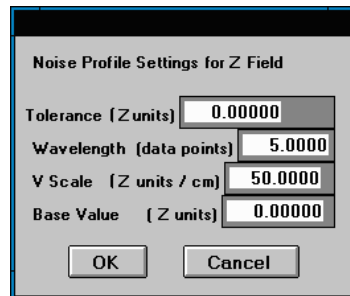


Viewing Z data noise

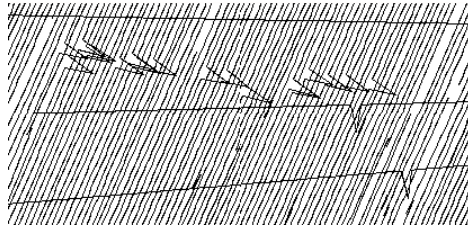
For the Z field that you have selected, you can view a display of Z data that could be regarded as 'noise' or 'spikes'. In this display INTREPID distorts the traverse line paths to create profiles. These profiles portray the noise.

>> To display Z noise profiles

- 1 Choose Show Noise Profile of Z from the Line Display menu. INTREPID displays the Noise Profile Settings for Z Field dialog box.



- 2 Specify the parameters according to your requirements and choose OK. INTREPID displays the Z Noise profiles.



- 3 Adjust the parameters as required by turning off noise profile display, then repeating steps 1 and 2 above.

Tolerance The tolerance is the minimum wave amplitude below which you will not consider an anomaly to be noise or a spike. Specify the tolerance in Z units.

Wavelength The wavelength is the maximum wavelength (number of data points) above which you will not consider an anomaly to be noise or a spike.

Vscale The vertical scale is the relative height of the noise profile display in Z units per display centimetre. INTREPID subtracts the Z data base value before calculating the profile height.

Base Value In the context of noise profile display in the Flight Path Editor, we recommend that you use a base value of 0.

>> To turn off display of the Z noise profile

Choose Show Noise Profile of Z from the Line Display menu. INTREPID will redraw the display without the Z noise profile.

>> To modify the Z noise profile parameters

Turn Z noise profile display off, then on again. When you turn it on INTREPID displays the Z Noise Profiles dialog box again (see above for instructions).

Choose ??

Editing line dataset flight paths

If you wish to 'delete' some data points in your line dataset so that they are not used in further processing of the survey, you can set the X and Y fields for those points to **null**. This disables the points without disturbing the integrity of the data.

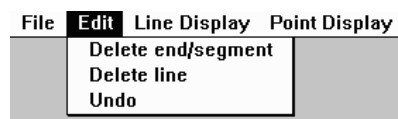
INTREPID cannot use the 'deleted' points for operations such as gridding, but it retains the other data for the points such as line numbers, fiducial numbers, Z data, etc.. For example, if you viewed the Z data using the Histogram tool (See [Histograms \(T08\)](#)), the tool would include the Z values from 'deleted' data points.

You can 'delete' a whole traverse line, all data points from a chosen point to the nearest end of the traverse line, or all of the data points in a line segment that you specify.¹

Deleting traverse lines

>> To delete a traverse line

- 1 Select the line (See [Viewing a single traverse line in red](#) for instructions).



- 2 Choose Delete Line from the Edit menu.

Deleting the ends of traverse lines

This section uses the terms 'click point' and 'nearest subsampled data point'. See [Querying points](#) for an explanation.

You can select the ends of a number of lines for deletion, then delete all of the selected ends with a single Edit menu operation.

To select the second and subsequent line ends for deleting all at once, hold down CTRL when you click them. When you have selected all line ends, choose Delete end/segment from the Edit menu.

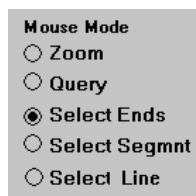
1. Note that in this operation, you are setting the values in the X and Y fields to **null**. In the 'Z data is null' data validation test, INTREPID identifies the points whose Z field value is **null**. If you set parts of lines to **null** using the process described in the current section, the lines will disappear from the display. The only connection between this process and the data validation test is that you may have used some data validation testing to identify lines for removal.

The following table describes the information shown under the headings in the Status area during Delete Ends operations when you click a point in a line dataset display.

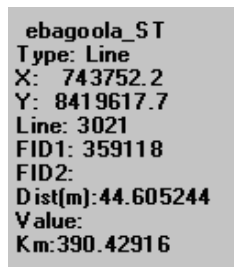
Heading	Line Information(Select Ends Mouse Mode)
km	survey distance
X, Y	X, Y coordinates of data point nearest to click point
Line	Line number of data point nearest to click point
FID1	Fiducial number of data point nearest to click point
FID2	n/a
Value	Value of grid cell at click point (if grid dataset displayed) (band 0)
Dist (m)	Distance from click point to nearest data point

>> *To 'delete' an unwanted end of a traverse line*

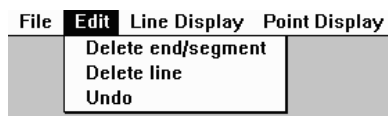
- 1 Choose Select Ends from the Mouse Mode options in the Flight Path Editor Main window.



- 2 Click the starting point from which you wish to 'delete' the traverse line. INTREPID displays information about the point as described in the table above.



- 3 Delete the line end using Delete End/Segment from the Edit menu.



INTREPID will redraw the display without the traverse line end.

Deleting segments of traverse lines

This section uses the terms 'click point' and 'nearest subsampled data point'. See [Querying points](#) for an explanation of these terms.

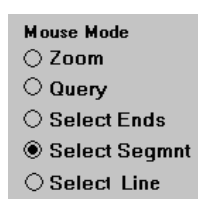
Setting line segments to **null** involves two clicks on a traverse line. In this section we will refer to these as the **first click point** and the **second click point**.

The following table describes the information shown under the headings in the Data Point Information Display area during Null Segment operations when you click a point in a line dataset display.

Heading	Line (Select Segment mode) first click	Line (Select Segment mode) second click
km	Survey distance	
X, Y	X, Y coordinates of data point nearest to first click point	X, Y coordinates of data point nearest to first click point
Line	Line number of data point nearest to first click point	Line number of data point nearest to first click point
FID1	Fiducial number of data point nearest to first click point	Fiducial number of data point nearest to first click point
FID2	n/a	Fiducial number of data point on the same line nearest to second click point
Value	Value of grid cell at first click point (if grid dataset displayed) (band 0)	Value of grid cell at first click point (if grid dataset displayed) (band 0)
Dist (m)	Distance from click point to nearest data point	Distance from click point to nearest data point

>> *To remove segments from traverse lines,*

- 1 Choose Null Segment from the Modes options in the Flight Path Editor Main window.



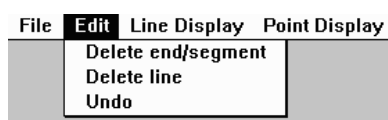
- 2 Click the first point of the segment you wish to remove. INTREPID displays information as described in the table above.

- Click the second point of the segment you wish to remove. INTREPID displays information as described in the table above.

```
ebagoola_S
Type: Line
X: 747679.2
Y: 8417111.7
Line: 2961
FID1: 581254
FID2: 580876
Dist(m):21.897038
Value:
Km:391.37911
```

If you choose further points, INTREPID will use them to replace point 1 and point 2 (FID1 and FID2) alternately.

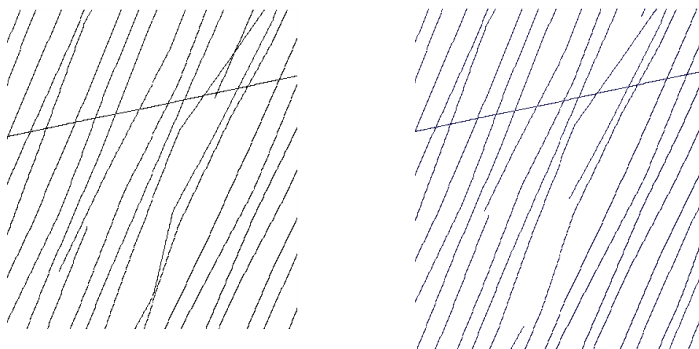
- Delete the line segment using Delete End/Segment from the Edit menu.



INTREPID will redraw the display without the line segment.

Deleting parts of traverse lines—example

The following example shows traverse lines whose ends cross over, traverse lines that pass too close to other traverse lines, and traverse lines whose ends overlap. In the second illustration, these problems have been corrected, leaving a set of traverse lines that is evenly spaced without redundant data from overlapping ends or traverse lines that are too close to each other.

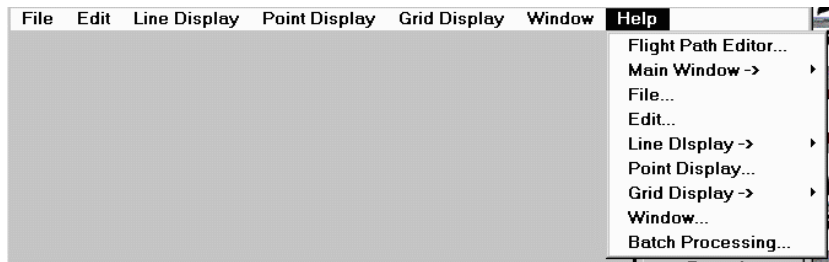


Restoring deleted line ends and/or segments (Undo)

If you remove a traverse line end or segment by mistake, you can restore it using Undo from the Edit menu. You can restore all of the ends and segments 'deleted'. INTREPID will restore them in reverse order with each Undo operation, starting with the end/segment most recently 'deleted'.

Help

You can use the Help menu to display help text on the topics shown in the menu illustration below.



Exit

To exit from Flight Path Editor choose Quit from the file menu.

Displaying options and using task specification files

Displaying options

To display the current line dataset file specifications and a record of any line editing you have performed, choose Report from the Window menu.



INTREPID displays the Flight Path Editor Report window containing this information.

Using task specification files

You can store line dataset file specifications and line editing process specifications for Flight Path Editor in task specification (**.job**) files.

Note:

- *In interactive mode* INTREPID will only use the input line dataset specifications in a Flight Path Editor task specification file.
- The Flight Path Editor tool can only record input and output line dataset field specifications and line editing processes in task specification files.

>> To create a task specification file with the Flight Path Editor tool

- 1 Specify all line dataset files and perform all editing operations.
- 2 Choose Save Options from the File menu. Specify a task specification file (INTREPID will add the extension **.job**) INTREPID will create the file with the settings current at the time of the Save Options operation.

For full instructions on creating and editing task specification files see [INTREPID task specification \(.job\) files \(R06\)](#).

>> To use a task specification file in an interactive Flight Path Editor session

Load the task specification (**.job**) file (File menu, Load Options) (Only line dataset input file specifications will be used).

>> To use a task specification file for a batch mode Flight Path Editor task

Only line dataset loading, editing operations and saving are available.

Type the command **fedit.exe** with the switch **-batch** followed by the name of the task specification file.

For example, if you had a task specification file called **surv329.job** in the current directory you would use the command

```
fedit.exe -batch surv329.job
```

Task specification file example

```
Process Begin
  Name = flightEdit
  Xin = ebagoola_s/x
  Yin = ebagoola_s/y
  Xout = ebagoola_S/x_trim1
  Yout = ebagoola_S/y_trim1
  Parameters Begin
    EditDelta Begin
      EditType = CutEnd
      Line = 30
      Point = 62
    EditDelta End
    EditDelta Begin
      EditType = NullSegment
      Line = 6
      Point1 = 277
      Point2 = 176
    EditDelta End
  Parameters End
Process End
```