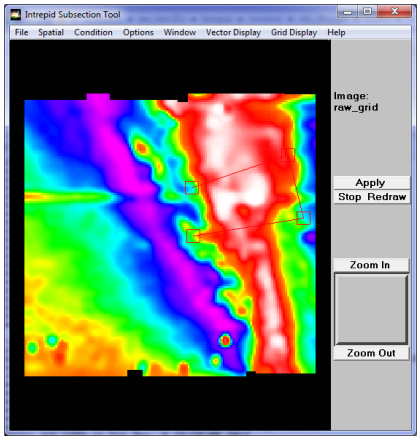
Managing INTREPID datasets (G06)

Top

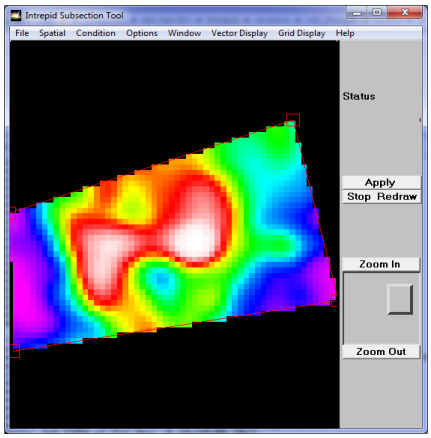
INTREPID has a fully integrated set of dataset management features enabling you to conveniently manipulate and configure your data.

You will use the INTREPID Project Manager, Projection Conversion tool and Subsection tool to rename, copy, move, convert from grid back to lines and delete a dataset, perform a projection conversion, create a dataset subsection and define a polygon dataset.

For an introduction to the Project Manager, see Locating datasets, viewing, statistics, launching tools (G02). For more details about the three tools in this chapter, see INTREPID Project Manager (T02), Datum and Projection Utility (T13) and Subsections of datasets (T21).



Defining a subsection



The resulting dataset

Overview

The tools you will use in this guided tour help you manage geophysical datasets. They can

- Copy, append, move and rename datasets,
- Perform projection and datum conversion on datasets,
- Create subsections of datasets using both spatial and mathematical criteria.
- The tools use the underlying IO API which is a virtual abstraction of required functionality, and so many formats for the data, and all the supported Data types, including vector and tensor, are supported.

For an introduction to the Project Manager, see Locating datasets, viewing, statistics, launching tools (G02). For more details about the three tools in this chapter, see INTREPID Project Manager (T02), Datum and Projection Utility (T13) and Subsections of datasets (T21).

The Project Manager tool provides INTREPID dataset management functions.

As well as launching tools and examining datasets, you can use the Project Manager to rename, move and copy INTREPID datasets.

The INTREPID Projection Conversion tool

This tool enables you to change a dataset from one geographic co-ordinate system to another. INTREPID supports an extensive list of Datums and Projections. In the case of a vector dataset, a projection conversion operation creates an additional set of X and Y co-ordinate fields. These can be designated the 'active' dataset co-ordinates by assigning them to the X and Y aliases.

Note on projections

Projections are vendor-specific or based on standards. Examples of projections:

Vendor-specific	Standards-based
ERMapper ESRI Geosoft MapInfo	EPSG POSC ISO
GoCAD	

INTREPID examines the way datums and projections are specified and, if possible, automatically corrects to an equivalent ISO-style coordinate system. Converting 3D data using the vertical datum is also available for some situations.

The INTREPID Subsection tool

The Subsection tool enables you to create a new dataset that is a subset of an existing dataset. You can define the subsection using one or more of the following methods.

- Create a polygon dataset (subsection region) using the mouse to define points on the screen;
- Load an existing polygon dataset;
- Define the coordinates of a rectangular region;
- Specify a conditional statement for including or excluding data;
- Resample the data at a different sampling rate (e.g., every tenth sample of a line dataset).

Context of this guided tour

In the context of your data processing cycle, this tour represents data maintenance and data dissemination tasks that could be required at any stage.

Should you complete this guided tour?

This guided tour is intended for introductory level users. It contains full detailed instructions. The tour covers important INTREPID data management operations. You can omit this guided tour if you feel that you do not need to know details of managing INTREPID datasets, converting projections or creating subsections of datasets.

Sample data

Location of sample data for Guided Tours

We provide two complete sets of sample datasets, one in INTREPID format and one in *Geosoft* format. INTREPID works equally well with both formats. When you want to open a dataset, navigate to the directory containing the required data format.

Where ***install_path*** is the path of your INTREPID installation, the project directories for the *Guided Tours* sample data are ***install_path*\sample_data\guided_tours\intrepid_datasets** and ***install_path*\sample_data\guided_tours\geosoft_datasets**.

For example, if INTREPID is installed in
C:\Program Files\Intrepid\Intrepid4.5.nnn,
then you can find the INTREPID format sample data at
C:\Program Files\Intrepid\Intrepid4.5.nnn\sample_data\guided_tours\intrepid_datasets

This is the default location for the sample data. If you have installed INTREPID normally, the data resides there. If you have installed INTREPID elsewhere, the exercises will work just as well. Just use the appropriate pathnames.

For more information about installing the sample data, see "Sample datasets—installing, locating, naming" in INTREPID Guided Tours Introduction (G01)

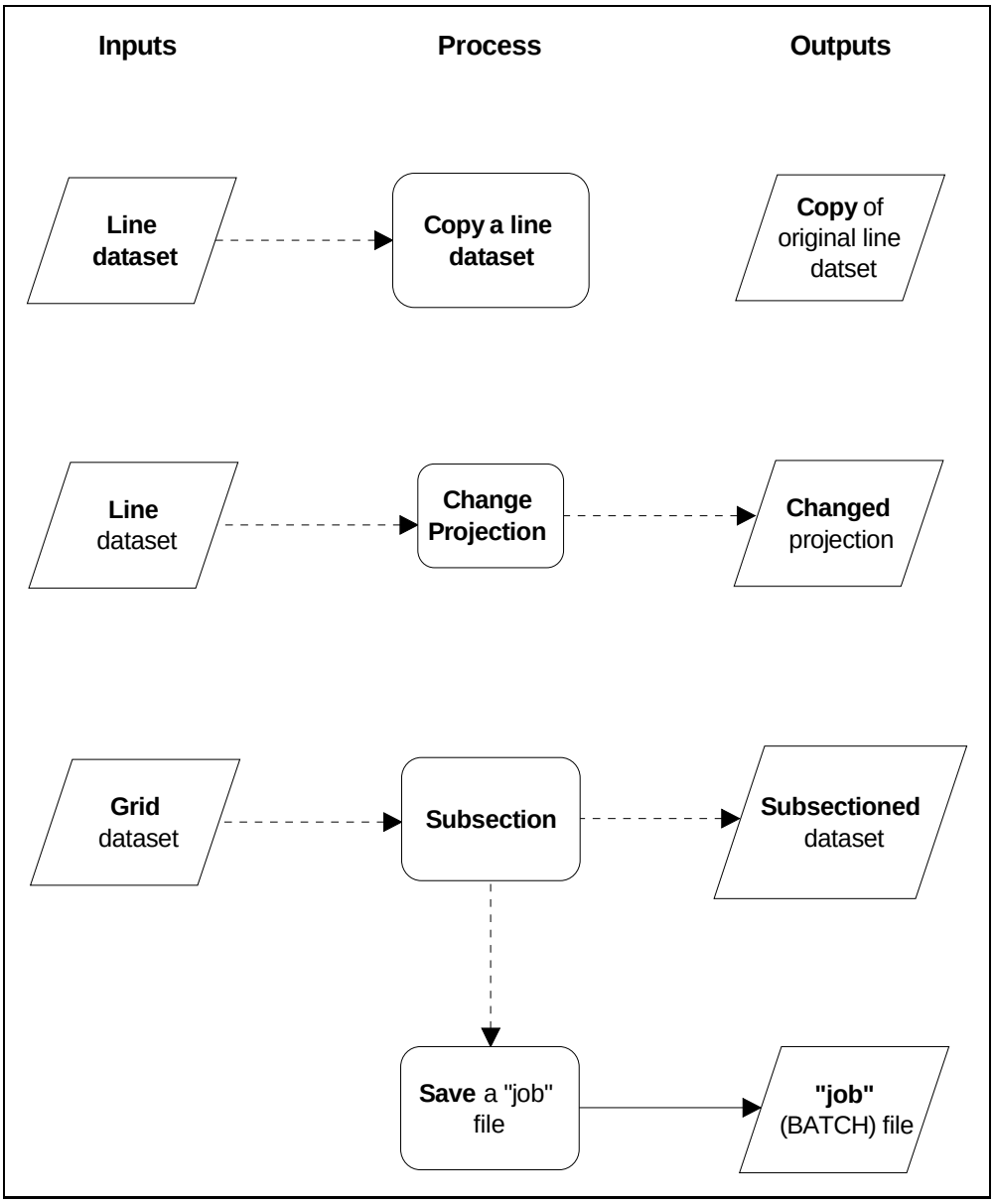
For a more detailed description of INTREPID datasets, see Introduction to the INTREPID database (G20). For even more detail, see INTREPID database, file and data structures (R05).

Location of sample data for CookBooks

Right next to the Guided tours data, is a rich set of more exotic geophysics datasets and grids, already prepared for the cookbook training sessions. A casual user might also gain some trial and error insights into the capbilities of the software, just by testing the Project Manger's ability to preview and describe the attributes of each of the cookbook datasets.

What you will do

Flowchart Summary



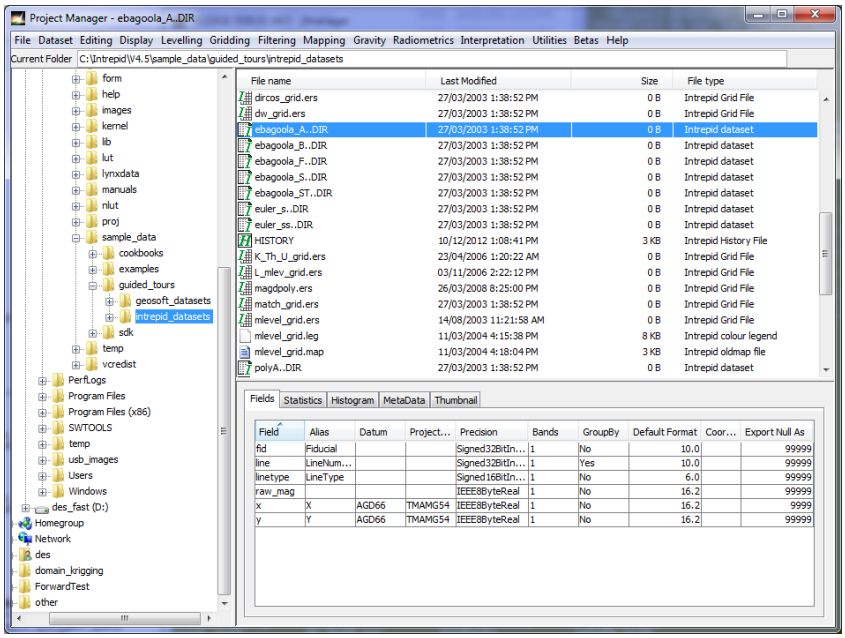
Steps to follow

Copying datasets

Navigate to the project directory

1 *Start the Project Manager. Navigate to the directory* ***`install_path`*****`\sample_data\guided_tours\intrepid_datasets`** *and select the* **`ebagoola_A`** *line dataset.*

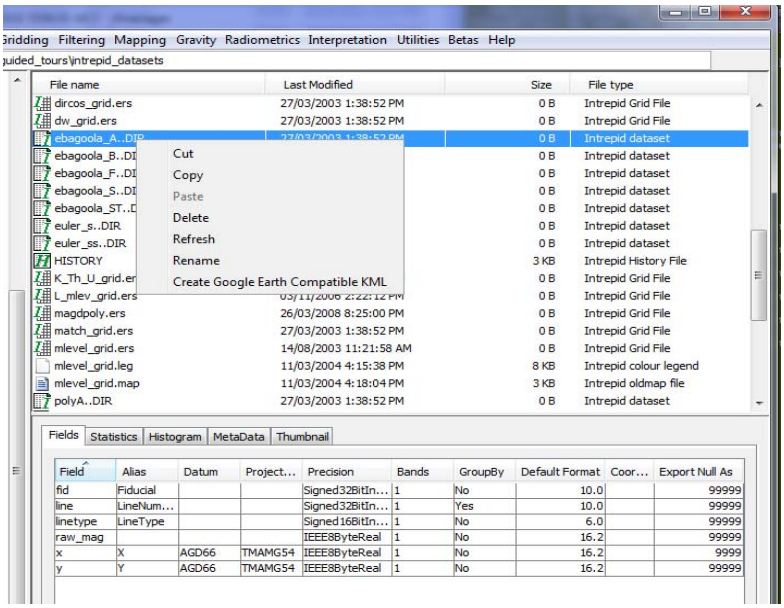
See Locating datasets, viewing, statistics, launching tools (G02) for instructions about navigating to different directories. Select (click) **`ebagoola_A`** in the **Filename** panel.



Copy a dataset

2 *Make a copy of the* **`ebagoola_A`** *line dataset.*

Click the right hand mouse button. INTREPID displays a sub-menu, with a selection of options. Select (click) on the **Copy** option. Using the directory tree on the left hand side of the Project Manager, navigate to the directory above ***`install_path`*****`\sample_data\guided_tours\intrepid_datasets.`** In the **Filename** panel, click the right hand mouse button. Select (click) on the **Paste** option. INTREPID will create a copy of the **`ebagoola_A`** line dataset in the current directory.



3 *Rename the copy of the* **ebagoola_A** *line dataset.*

Select (click) the **ebagoola_A** dataset that you have just copied. Click the right hand mouse button. Select the **Rename** option. Position the cursor on the file text and rename the dataset to **ebagoola_AA.** Press Enter. INTREPID will rename the dataset.

4 *Delete the copy of the* **ebagoola_A** *line dataset.*

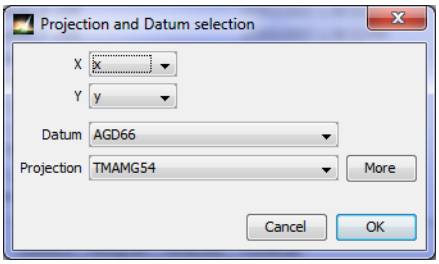
Select (click) the dataset that you have just renamed. Click the right hand mouse button. Select the **Delete** option. INTREPID will request confirmation of the action. Click **Yes**, and INTREPID will delete the dataset.

Geolocation

You can specify the datum and projection that currently applies to dataset using the **Project Manager**. For a vector dataset you can also specify which fields are the **X** and **Y** geolocatioons fields. The geolocation fields of a dataset are the ones with the aliases **X** and **Y**.

Geolocate a dataset1

5 Select **ebagoola_A** and the **Fields** tab. Right click a field with alias **X** or **Y** and select the **Projection and Datum Selection** dialog. You could use this to select different fields for the **X** and **Y** (geolocation) aliases and a different datum and projection for the dataset if you wanted.



Using the Project Manager you can specify alternative sets of geolocation fields each with their own datums and projections. See "Datum and projection for alternative geolocation fields" in INTREPID Project Manager (T02).

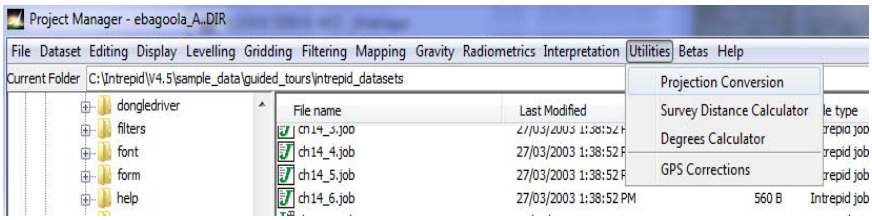
Projection Conversion

You can transform your data to a different datum or projection (or both) using the Projection Conversion tool

Launch the Projection Conversion tool

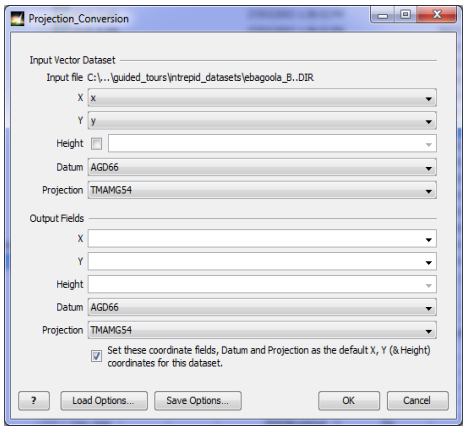
6 *Navigate to the* ***install_path*****\sample_data\guided_tours\intrepid_datasets** *directory, then launch the Projection Conversion tool.*

Make sure the current directory in the Project Manager is ***install_path*****\sample_data\guided_tours\intrepid_datasets**. Choose **Projection Conversion** from the **Utility** menu.



7 *Select the input dataset that you wish to transform.*

INTREPID will launch a file chooser for the Projection Conversion Tool. Select the **`ebagoola_B`** dataset and click **Open**. INTREPID will launch the Projection Conversion tool.



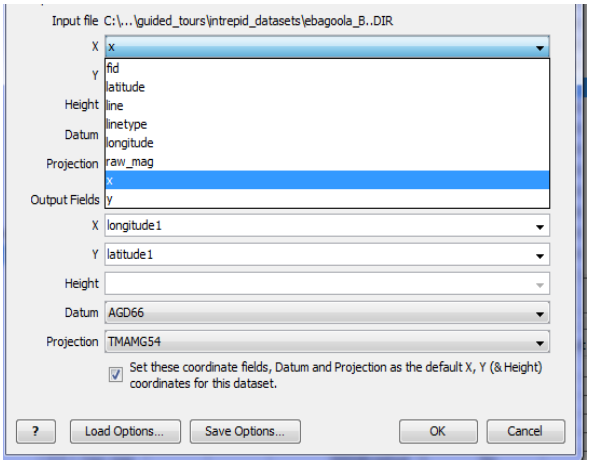
JOB

You can specify the input, output and parameters for the Projection Conversion process in this guided tour using the job file **`ch09_1.job`**. *If you wish, load it into the Projection Conversion tool as described in "Task specification (job) file short cuts" in INTREPID Guided Tours Introduction (G01), then go to Step 7. At V5.0, you also have the GOOGLE protobuf task files available for this action.*

Load the dataset to be processed

8 *Specify the fields* **`x`** *and* **`y`** *from the line dataset* **`ebagoola_B`** *as the input for the projection conversion.*

By default INTREPID will choose the input X and Y fields to be the ones that are presently defined as X and Y aliases. (You can check the present Alias definitions by highlighting the dataset in the **Filename** panel of the Project Manager). If you wish to select a different set of X and Y fields as input, click the **DropDown arrow** on the right hand side of the tool. INTREPID will display the **Projection and Datum selection** box, which will allow you to select an alternative set of input fields.



Specify output geographic location fields

9 *Specify* **`longitude1`** *and* **`latitude1`** *as the output X and Y coordinate fields.*

10 *Under* ***Output Fields****, type* ***longitude1*** *for the X output and* ***latitude1*** *for the Y output.*

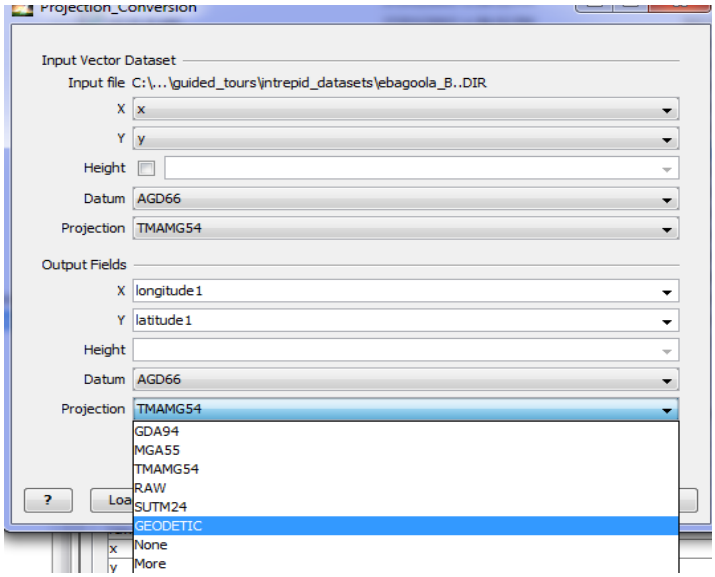
Specify output projection[[sp]]

11 *Specify the Output Datum and Projection.*

Use the arrows located on the right hand side of the tool to activate the pull-down menus which contains lists of available Datums and Projections in INTREPID.

By default the input Datum is assigned to the output Datum. In this example, leave the output Datum as **AGD66**.

For the output Projection, select **Geodetic** from the Projection list.



Apply the projection conversion process

12 *Perform the projection conversion.*

Choose **OK**. A message will appear informing you when the process is completed.

Choose **OK** to quit the tool.

Locate the dataset using the new latitude and longitude fields

13 *(Optional: Locating the* **ebagoola_B** *dataset on the Earth:) Use the Project Manager to determine the latitude and longitude range for the* **ebagoola_B** *line dataset.*

In the **Project Manager** window, highlight the **ebagoola_B** dataset to display the list of fields. You can always use function key F5 for an updated view if required. Click on the **Statistics** tab then the **Thumbnail** tab. The statistics for the **latitude** and **longitude** fields (solution fields we have provided which are identical to **latitude1** and **longitude1**) are always refreshed on a seperate thread, if requiring an update. Observe their minimum and maximum values. You can then pinpoint the dataset in an atlas if this interests you. The *Ebagoola* dataset is located in Cape York Peninsula, North Queensland, Australia.

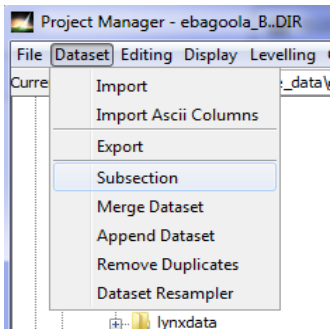
Creating a subsection of a dataset using a loaded polygon; Saving a task specification (job) file.

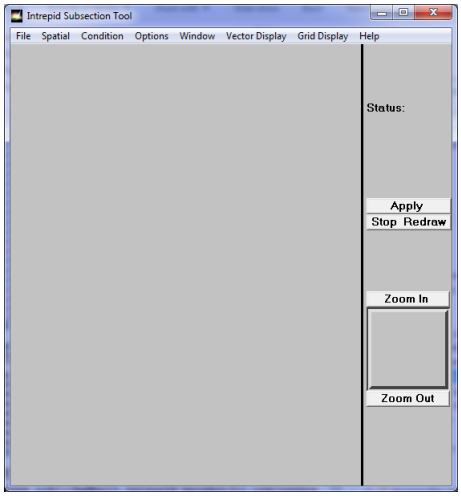
Launch the Subsection tool

14 *Navigate to the directory* ***`install_path`*****`\sample_data\guided_tours\intrepid_datasets`** *in the Project Manager. Launch the Subsection tool.*

Make sure the current directory in the Project Manager is ***`install_path`*****`\sample_data\guided_tours\intrepid_datasets`**. From the **Dataset** menu choose **Subsection**. INTREPID will launch the Subsection Tool.

In this case, no dataset has been pre-selected before choosing this tool.



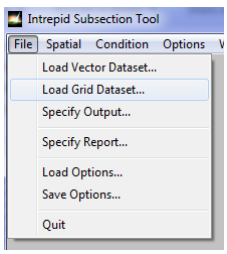


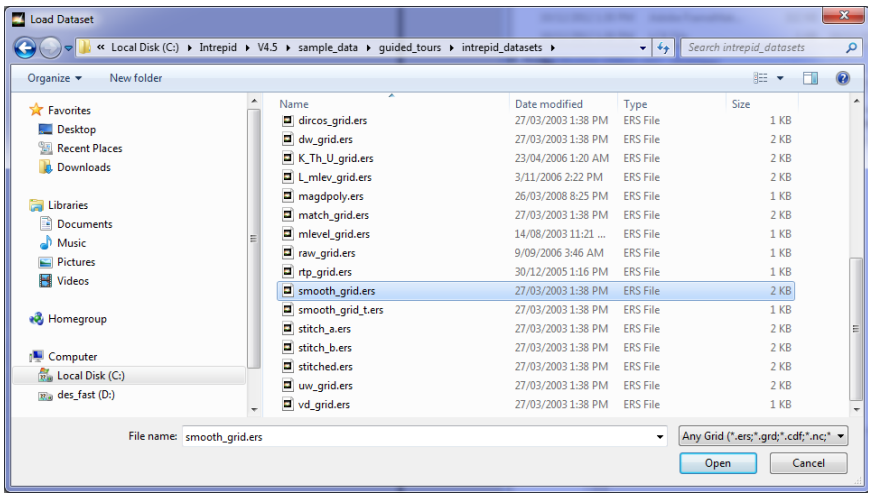
You can specify the input, output and parameters for the Subsection process in this guided tour using the job file **`ch09_2.job`**. *If you wish, load it into the Subsection tool as described in "Task specification (job) file short cuts" in INTREPID Guided Tours Introduction (G01) then go to Step 13.*

Load the input dataset

15 *Specify the* **`smooth_grid`** *grid dataset as the input dataset.*

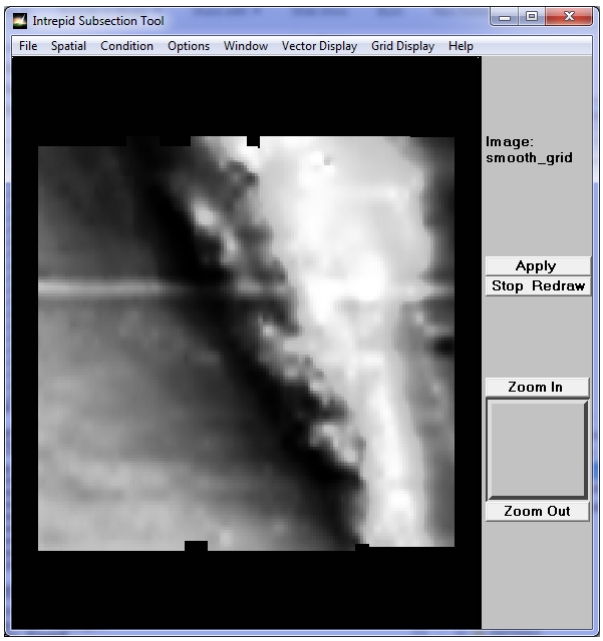
From the **File** menu choose **Load Grid Dataset**. INTREPID displays the **Load Dataset** dialog box. Select the **`smooth_grid`** grid dataset





Choose **Open**.

INTREPID displays the dataset in greyscale in the **Subsection Tool** window.

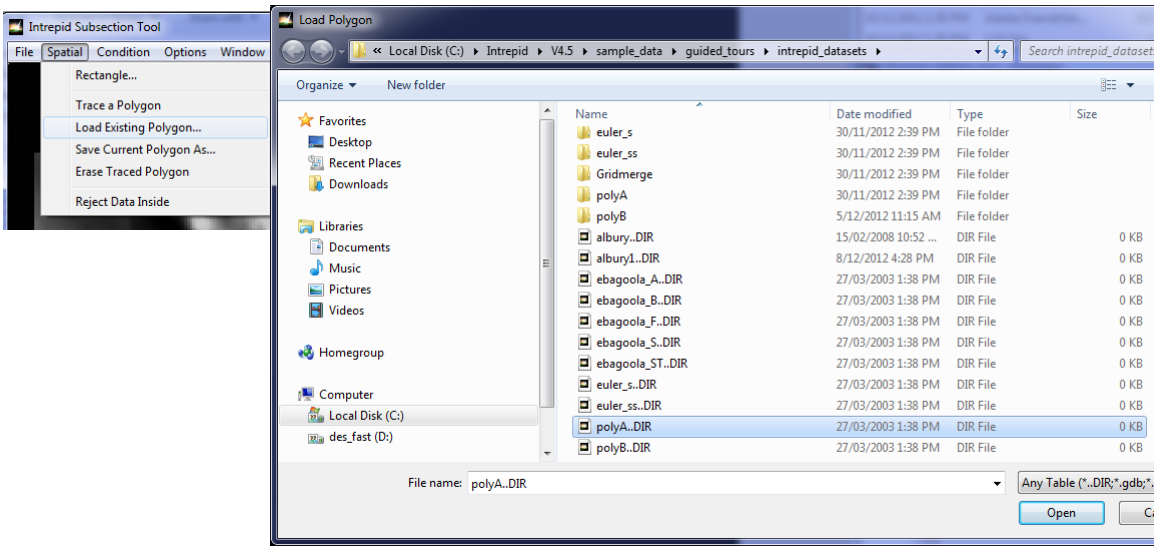


Open

Load the polygon for the subsection

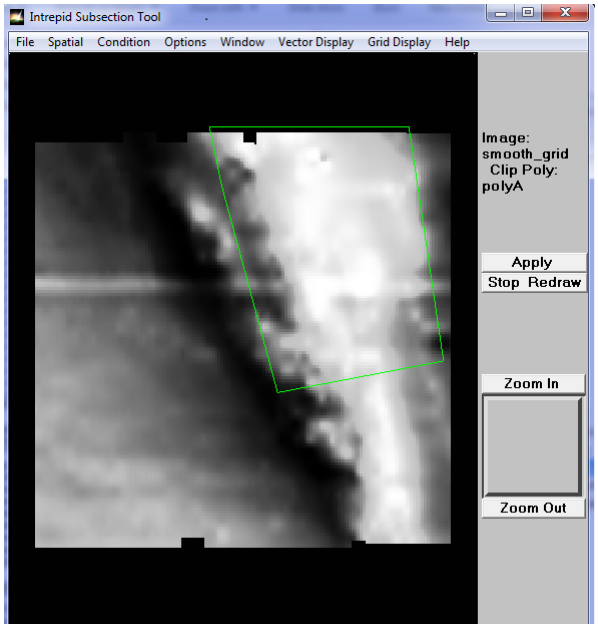
16 *Load the polygon dataset* **`polyA`** *to define the region for the subsection.*

From the **Spatial** menu choose **Load Existing Polygon**. INTREPID displays the **Load Polygon** dialog box. Select the **`polyA`** polygon dataset (**`polyA..DIR`** *if you are using Windows*).



Choose **Open**.

INTREPID displays the grid dataset with the polygon overlaid.

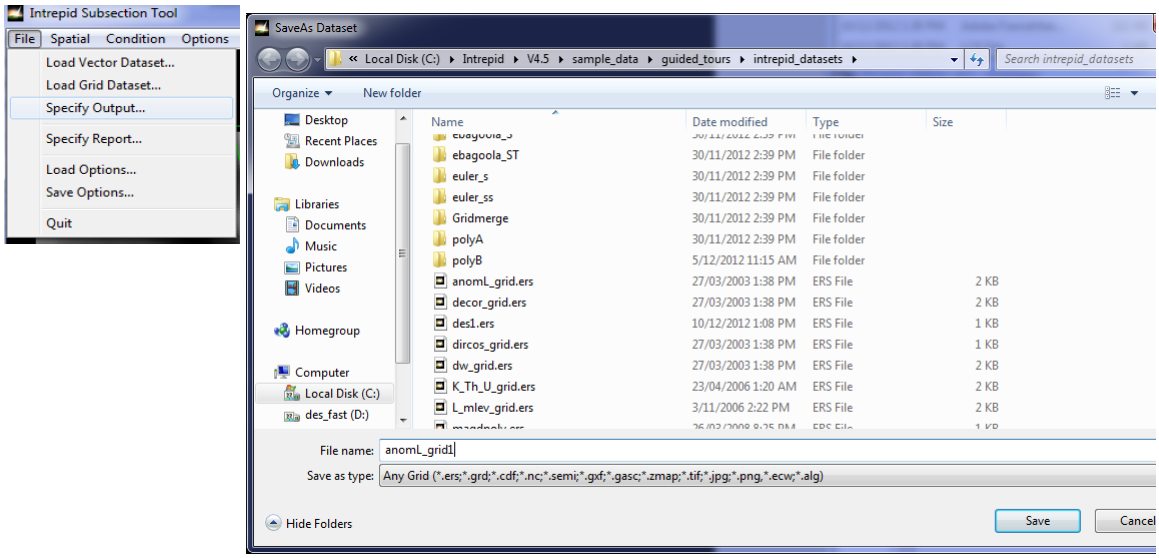


Specify the output dataset

17 *Specify* **anomL_grid1** *as the subsection output grid dataset*

From the **File** menu choose **Specify Output**. INTREPID displays the **Save As Dataset** dialog box. Ensure that the current directory is ***install_path*\sample_data\guided_tours\intrepid_datasets**. Type **anomL_grid1** in the **File Name** text box. This will be the name of your output grid dataset.

If you want to output a grid in a different format other than INTREPID, you must add the correct extension to the grid name. For example, if you want a Geosoft grid you must type **anomL_grid1.grd** in the **File Name** text box.



Choose **Save**.

Apply the Subsection process

18 *Perform the subsection process.*

Choose **Apply**. INTREPID will create the new dataset and display it in the **Subsection tool** window. Two things happen a. the Subset Complete pop-up, which you dismiss,

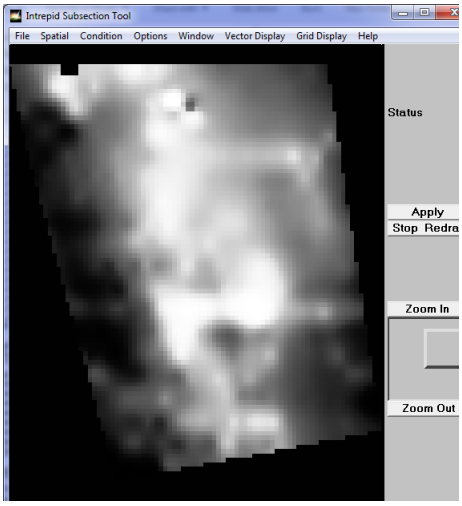
and b. The formal record in a text report file, with date time and all the options selected, also pops up in an editor window.

```
************************************************
  Intrepid Subsection v4.5.0 HEAD for Windows (x64) by BUSTER Build 0
  Start processing - 10/12/2012 13:43:37
 ************************************************


 About to do a subsection to output
 ----------------------------------------

Starting from grid C:/Intrepid/V4.5/sample_data/guided_tours/intrepid_datasets/smooth_grid.ers and
subsectioning
Clip data to polygon C:/Intrepid/V4.5/sample_data/guided_tours/intrepid_datasets/polyA..DIR IO
 No Logical thinning of output
 No Subsample of output samples
 Shrink output to minimum required      : 1
 Do not Split any line data that crosses polygon boundaries and re-emerges
Output grid C:/Intrepid/V4.5/sample_data/guided_tours/intrepid_datasets/anomL_grid1.ers

  ************************************************
   End   processing - 10/12/2012 13:43:38, Log = subset.rpt
  ************************************************
```



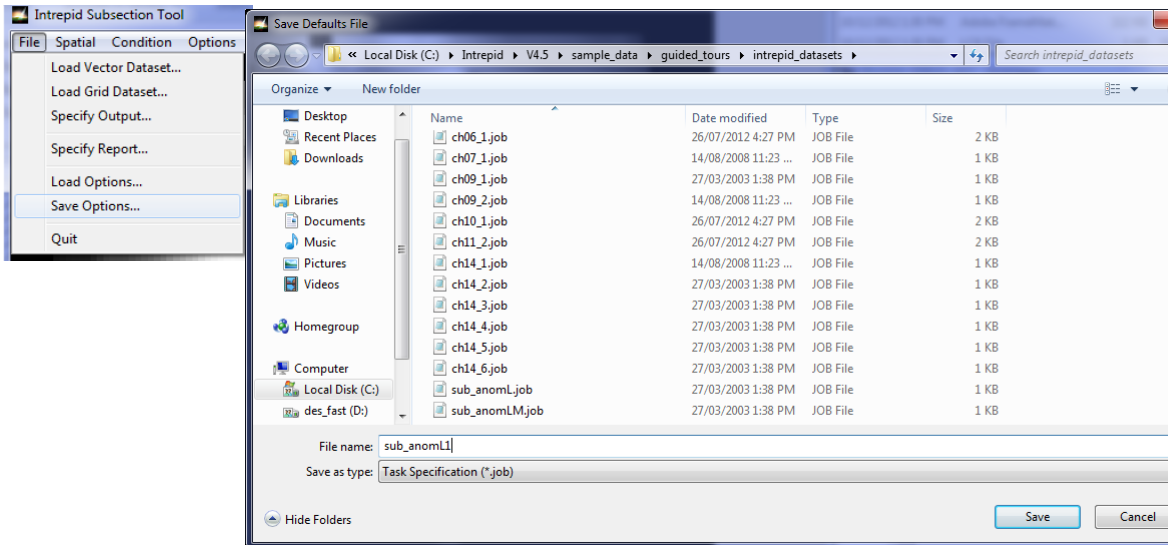
Tip: *You can also create a subsection by defining your own polygon on the screen, specifying dimensions of a rectangular 'clip box', using a mathematical conditional statement, or specifying a different data sampling rate (e.g., every second cell of a grid)*

Save a task specification (job) file

19 *(Optional: Saving a job file) Save a job file for the task just completed. Name the file* **`sub_anomL1.job`**.

You will use this job file. See INTREPID batch processing (G19).

From the **File** menu choose **Save Options**. INTREPID displays the **Save Defaults File** dialog box. Ensure that the current directory is ***`install_path`*`\sample_data\guided_tours\intrepid_datasets`**. Type **`sub_anomL1`** in the **File Name** text box. This will be the name of your job file. You don't need to type the **`.job`** notation. INTREPID will insert it automatically.

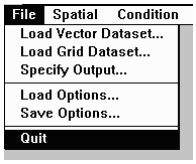


Choose **Save**. INTREPID will save the job file.

Exit

20 *Exit from the Subsection tool.*

From the **File** menu choose **Quit**.



Examining your new dataset

View the output dataset

21 *(Optional:) View your new subsection dataset using the Project Manager thumbnail, Windows Visualisation Tool or the UNIX Visualisation tool.* Refer to Visualisation tools(G05)for instructions. View the grid dataset **`anomL_grid`** (a solution dataset we have provided which is identical to **`anomL_grid1`**).

Key points for this guided tour

In this guided tour you have:

- Copied, renamed and deleted a dataset
- Performed a projection conversion
- Created a subsection of a dataset by loading an existing polygon dataset.

Frequently Asked Questions

Q : Can the Subsection tool create subsections of line, point and grid datasets?

A : Yes.

Q : Does the Subsection tool offer more than just spatial subsectioning?

A : Yes. Subsection provides a complete range of conditional operators. For instance, you can create a subsection according to a rule such as **`raw_mag > 1992`**. *You can also create a subsection of a vector dataset by subsampling (e.g., using every 5th data point).*

Q : Can I add my own projections and 'datums'?

A : Yes. INTREPID already supports a very wide range of projections and datums. The specifications are stored in text files using a simple language. You can create your own projection and/or datum specification (or edit an existing one) using any text editor.

Q : Does INTREPID support local projections?

A : Yes. You can specify your local projection and datum using the simple INTREPID projection and datum language and use it with your data.

Q : Do INTREPID Datums and Projections adhere to a set of standards?

A : Yes. INTREPID supports the POSC standard, which is the most comprehensive and internationally acknowledged source of co-ordinate systems.