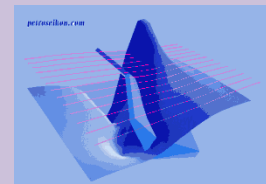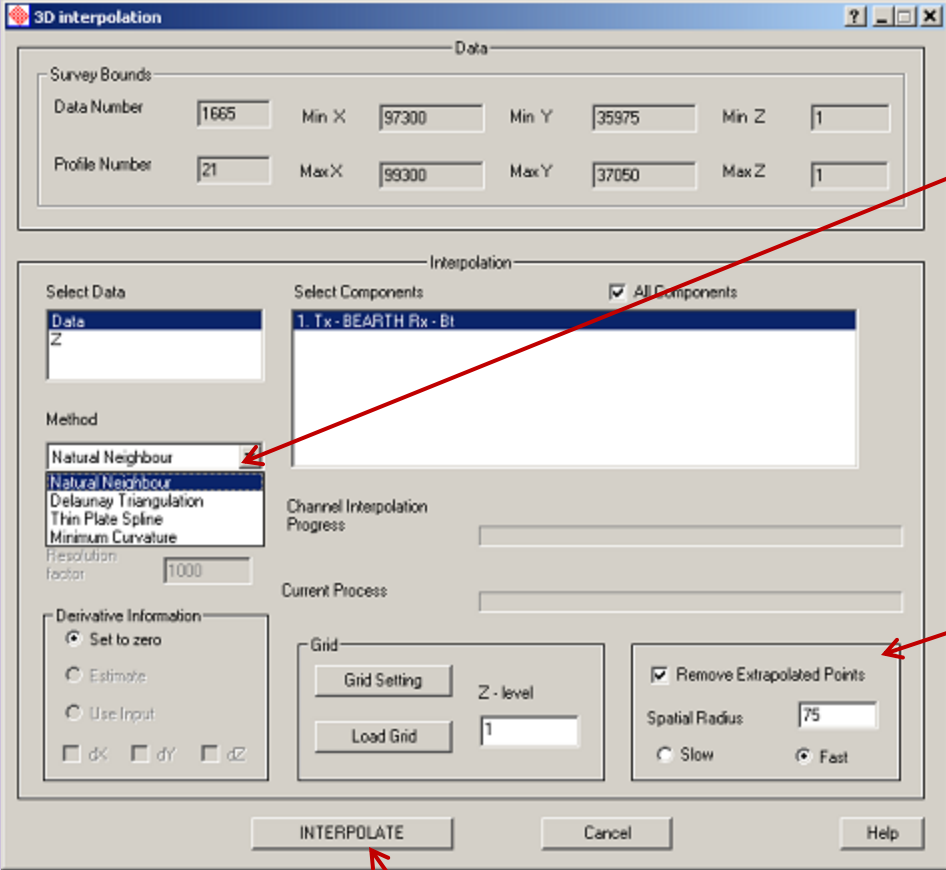# Fourier Filtering For Potential Fields

Gridding

Start by clicking the **Gridding** button on the toolbar

Four different interpolation methods are generally available to choose from. A fifth method is available for surveys with varying height.

Points can be removed from the grid if the nearest actual point is farther than the value entered for the "Spatial Radius"

Click **INTERPOLATE** once the settings are correct and a grid data set will be attached to your survey
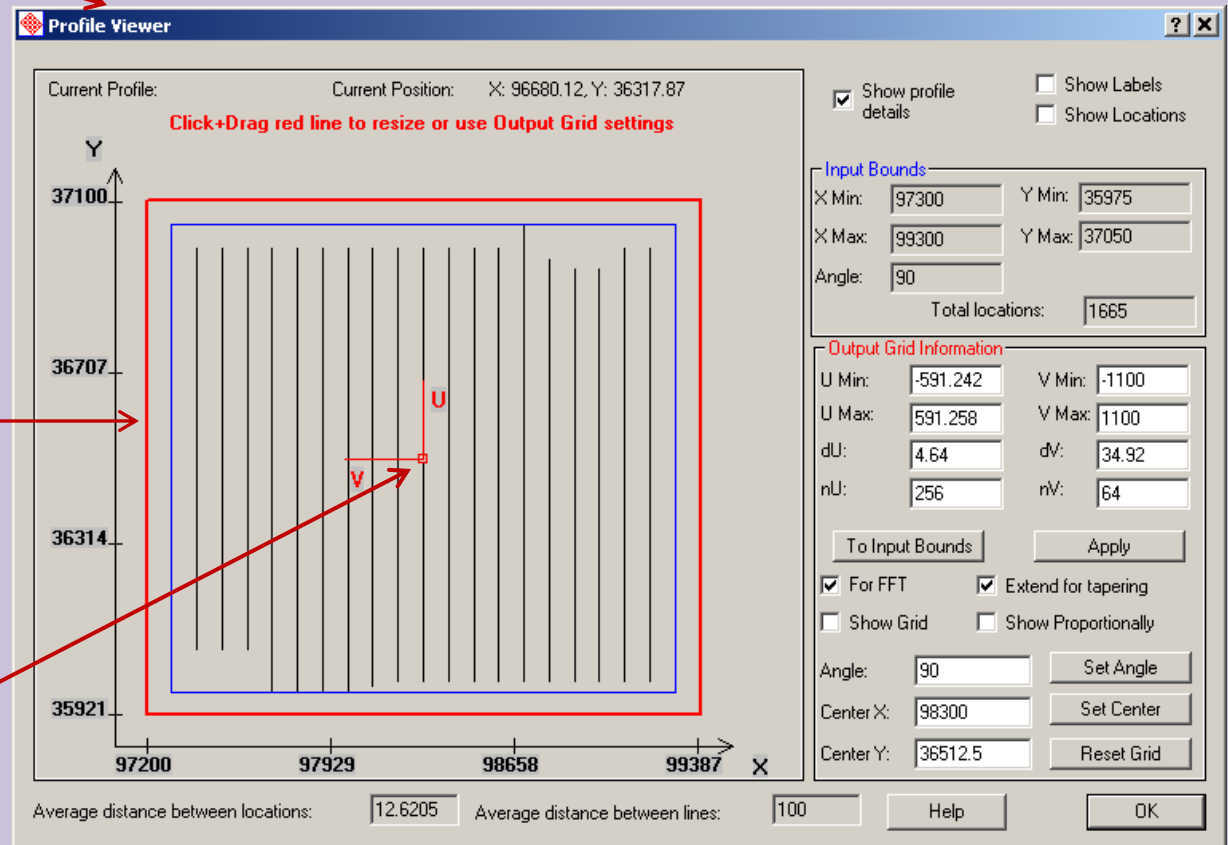
2

Gridding

Click the "Grid Setting" button to specify the properties of your grid on the "Profile Viewer" window
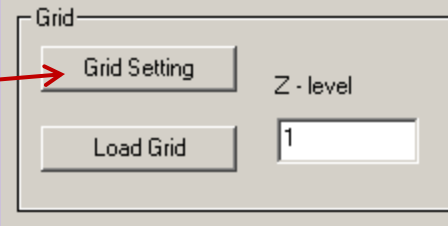
The input data area is outlined in blue.

The output grid is outlined in red and it can be resized by dragging the border you want to move

Display of U and V direction

Gridding

Output grid limits can be modified here

To Input Bounds makes the output grid the same size as the input area

Grid Spacing

Grid Dimensions

The output grid cannot be used with the FFT tool unless the **For FFT** checkbox is selected. The grid dimensions will be changed to the nearest power of 2.

Select **Extend for tapering** to define the output grid size to be slightly larger than the input data area

Output Grid Information

U Min:	-591.242	V Min:	-1100
U Max:	591.258	V Max:	1100
dU:	4.64	dV:	34.92
nU:	256	nV:	64

To Input Bounds   Apply

☑ For FFT   ☑ Extend for tapering

☐ Show Grid   ☐ Show Proportionally

Angle: 90   Set Angle

Center X: 98300   Set Center
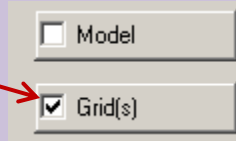
Center Y: 36512.5   Reset Grid

Grid Angle

Grid Center

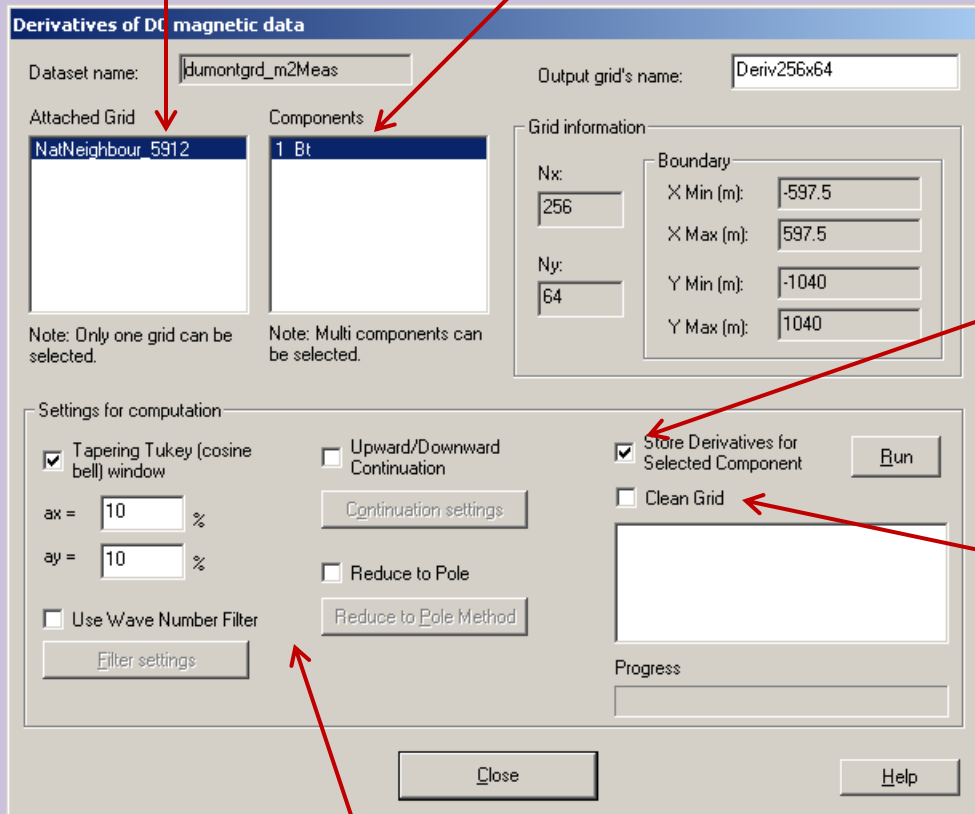Click **Reset Grid** to undo any changes you have made

4

FFT

A checkbox on the **Grid** button indicates there is a grid attached to the selected data set

☐ Model
☑ Grid(s)

Derivatives can be calculated by using the FFT tool. Clicking its toolbar button launches the interface below.

Select the grid that has the data you want to process

Select the components to be processed

Derivatives of DC magnetic data

Dataset name: dumontgrd_m2Meas

Output grid's name: Deriv256x64

Attached Grid
NatNeighbour_5912

Note: Only one grid can be selected.

Components
1 Bt

Note: Multi components can be selected.

Grid information

Nx:
256

Ny:
64

Boundary
X Min (m): -597.5
X Max (m): 597.5
Y Min (m): -1040
Y Max (m): 1040

Ensure this checkbox is selected if you want to save derivatives to the database

Settings for computation

☑ Tapering Tukey (cosine bell) window

ax = 10 %
ay = 10 %

☐ Use Wave Number Filter
Filter settings

☐ Upward/Downward Continuation
Continuation settings

☐ Reduce to Pole
Reduce to Pole Method

☑ Store Derivatives for Selected Component

☐ Clean Grid

Progress

Run

Close   Help

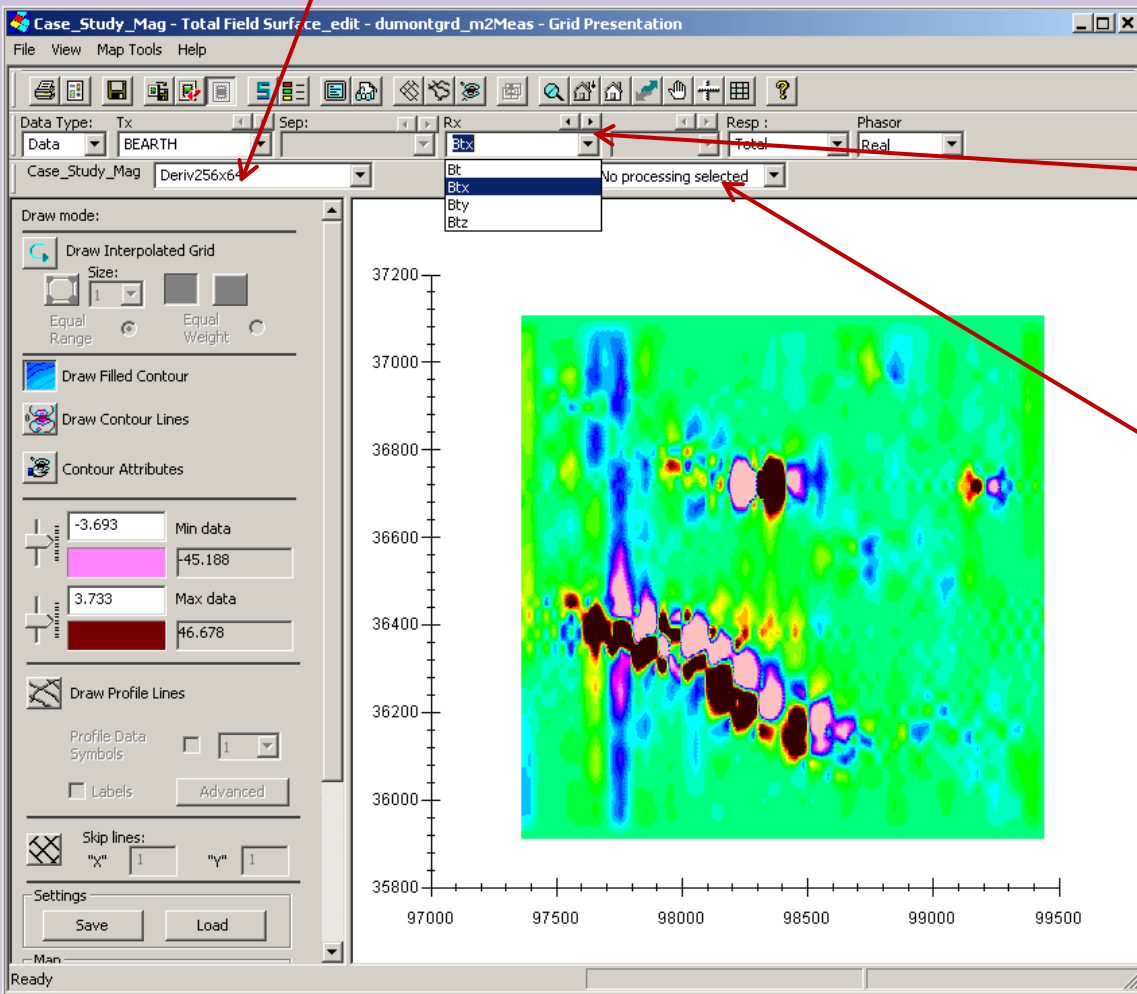Select **Clean Grid** to remove grid points that are far away from an actual location

Four groups of settings are available

5

View Data

Look at the resulting grids by clicking the **Grid Presentation** button on the toolbar

Choose from the grids attached to the current data set

Total field or derivatives can be selected here

Display of analytic signal or horizontal analytic signal can be selected

Grid Export

Click the **Grid** button on the main database window to view information about the grids and perform certain operations

☐ Model

☑ Grid(s)

Click **Export Grid** to transform your grid data into a profile data set so your data can be used in other tools such as the 2D plotter and 3D inversion

Grids can also be exported to QCTool, Geosoft or generic ASCII files

Grid Information

Grid Data Set(s)

NatNeighbour_872
Deriv32x64

Data Created: 3/12/2021 12:38:08

Grid Data Set
Deriv32x64   Change Name

ID: 2442   Delete Grid

Related to:
Project   Case_Study_Mag
Survey   Total Field Surface
Data Set   dumontgrd_m2Meas
Data Set   Measured
Domain Type: Static

Grid Data Set Information

Orthogonal local dimensions:

	Min	Max	N ptn	delta
U	-1000.000...	1000.000...	32	64.516129
V	-537.5000...	537.500000	64	17.063492
Z	1.000000	1.000000	1	0.000000

Data Type:
Data

Statistics

Centroid of Grid
X: 98300
Y: 36512.5
Z: 1

Counterclockwise orientation of local U-axis w.r.t. to global X-vector (degree):
0

Components:
1. Tx - BEARTH
   Rx - BTotal

2. Tx - BEARTH
   Rx - BTotalx

3. Tx - BEARTH
   Rx - BTotaly

4. Tx - BEARTH
   Rx - BTotalz

Remove Extrapolated Points   Difference of grids   Export Grid

Exit

Help

Grid Export to Profile Data Set

Select the **Derivatives via FFT** checkbox to indicate the x and y derivatives should be switched if the profiles are chosen to be along the v direction

When exporting to a profile data set, you may choose whether your profile will use the **Centroid of Grid** indicated or not when determining the output coordinates of the grid

Profile lines can be oriented along the u direction or v direction

Specify if you would like coordinates included with no associated data