# The Interpolation Wizard

Creating .GRD files using interpolation in *Vertical Mapper* involves the use of an Interpolation Wizard. It streamlines the process and allows users to make better decisions in choosing an interpolator that will best deal with their particular data sets. The Wizard is initiated from the main *Vertical Mapper* pull-down menu using the *Vertical Mapper > Create Grid > Interpolation* command.
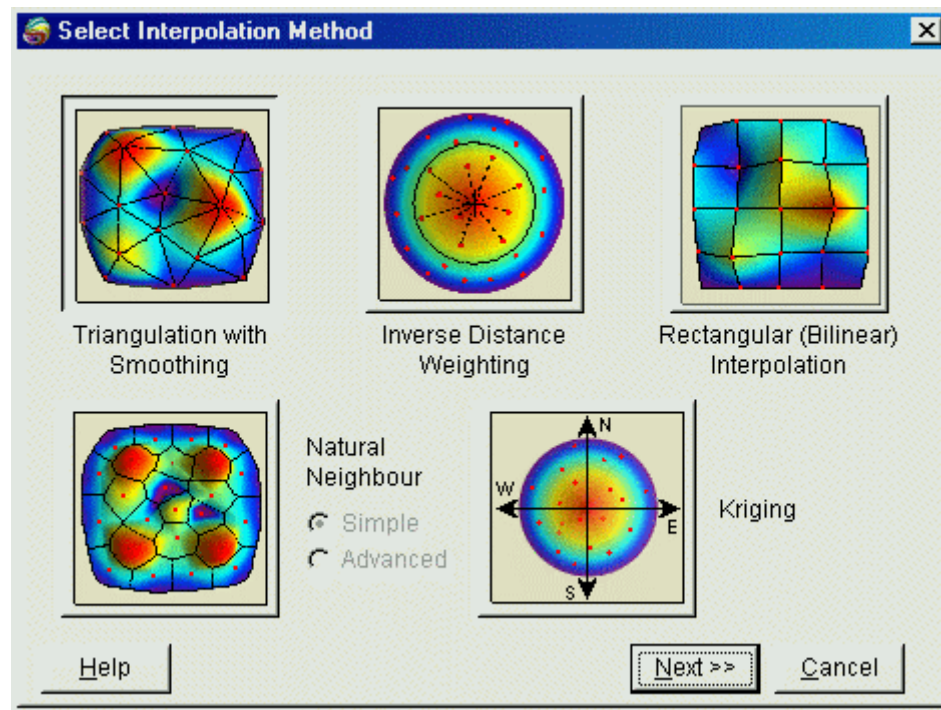
- From the *Select Interpolation Method* dialogue, choose one of the five interpolation techniques supported by *Vertical Mapper*. The graphical icon associated with each method is designed to illustrate the manner in which each technique deals with the original point data in estimating a new series of grid values.

Triangulation with Smoothing
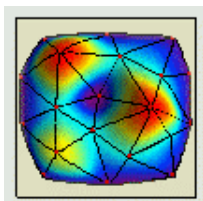
Original data points are joined by a network of lines to build a mesh of triangular faces (the TIN), which is used to represent the original data surface. New grid values are then estimated according to the slope of the TIN surface at the nearest points.
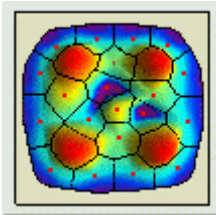
Inverse Distance Weighting

Original data points lying within a prescribed radius of a new grid node are
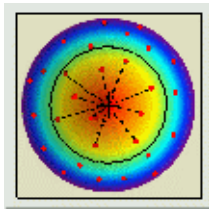
prescribed radius of a new grid node are weighted according to their distance from the node and then averaged to calculate the new grid cell value.

Natural Neighbour

A network of natural neighbourhood regions (Voronoi diagram) is built using the original data set. This creates an area of influence for each data point that is used to assign new values to overlying grid cells.

Rectangular
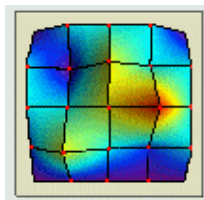
Original data points are joined by a network of lines to build a rectilinear mesh. New grid values are estimated using the slopes of the double linear (bilinear) framework formed by the nearest four points.

Kriging
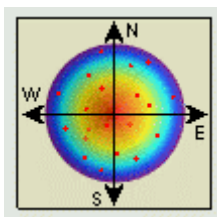
A geostatistical interpolation technique that considers both the distance and the degree of variation between known data points when estimating values in unknown areas. Graphing tools are included that help users understand and model the directional (e.g., north-south, east-west) trends of their data.

- Selecting the *Next* button after selecting the desired interpolation method brings the user to the *Select Table and Column* dialogue that is common to all interpolation paths.
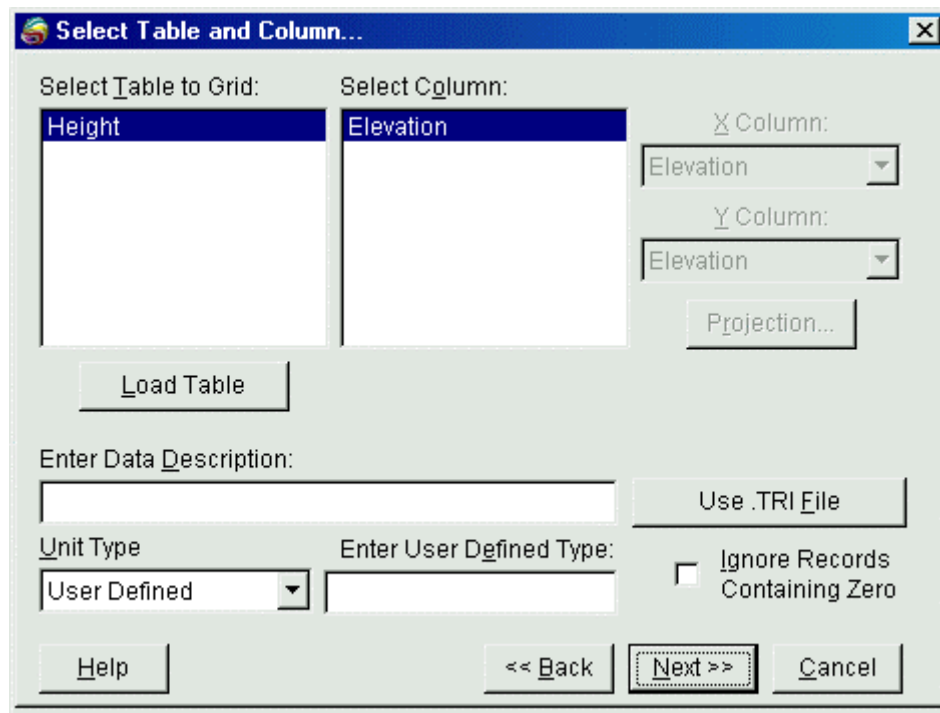
1   From the **Select Table to Grid** list, choose the appropriate MapInfo table of points that contains the data to be gridded. From the **Select Column** list, choose the column that contains the attribute values.

2   There is also an option to use an unmapped MapInfo data file (an X,Y,Z file) that has not been converted to a vector point table using the *Create Points* command in MapInfo. Here, the user may choose the columns containing the X and Y coordinates for each point as well as the coordinate system (projection) of the location data. This is useful for data files containing an excessively large number of records (in the millions) where it would add considerably to the processing time to first create vector points in MapInfo. This feature extracts the X and Y location information for the data directly from the column entry for use in the interpolation calculations.

3   Use the **Enter Data Description** field to type an annotation up to 31 characters, which is carried as a header in the grid file. In the **Unit Type** field, select the appropriate unit of measurement of the Z-value from the drop-down list or, if user-defined, **Enter User Defined Type** in that field.

1.   Check **Ignore Records Containing Zero** to include only non-zero records.

- Once this dialogue has been completed, choose the **Next** button. The following dialogues are specific to each of the five interpolation techniques and will be discussed separately.