

Simple Point Aggregation

Simple Point Aggregation is a useful method for quickly grouping points that could be virtually coincident or that could be separated by relatively large gaps. For example, when collecting soil samples it is often necessary to take several samples at each sample site. When creating a surface of this data the user may wish to first average all of the samples taken at each site before proceeding with the surface creation. It may also be desirable to aggregate data that has poor reproducibility over a large area to provide a more smoothing or averaging effect.

The *Simple Point Aggregation* routine is also used as a preliminary data smoothing technique for TIN creation in the Triangulation With Smoothing interpolation method, for natural neighbourhood region creation in the Natural Neighbour interpolation method, and in Kriging interpolation. Here, highly variable data points spaced closely together can be aggregated and new values calculated using a statistical expression. For example, if two points are very closely spaced, even a small difference in Z-value will cause a steep slope to be generated between them. This slope affects the interpolated surface for a significant distance beyond the two points creating unwanted rises and dips.

Simple aggregation uses a coincident point distance value for spatially aggregating points. This means the user will specify how close together points will have to be before they are considered coincident. The result of a Simple Point Aggregation is shown in the Figures 12.1 and 12.2.

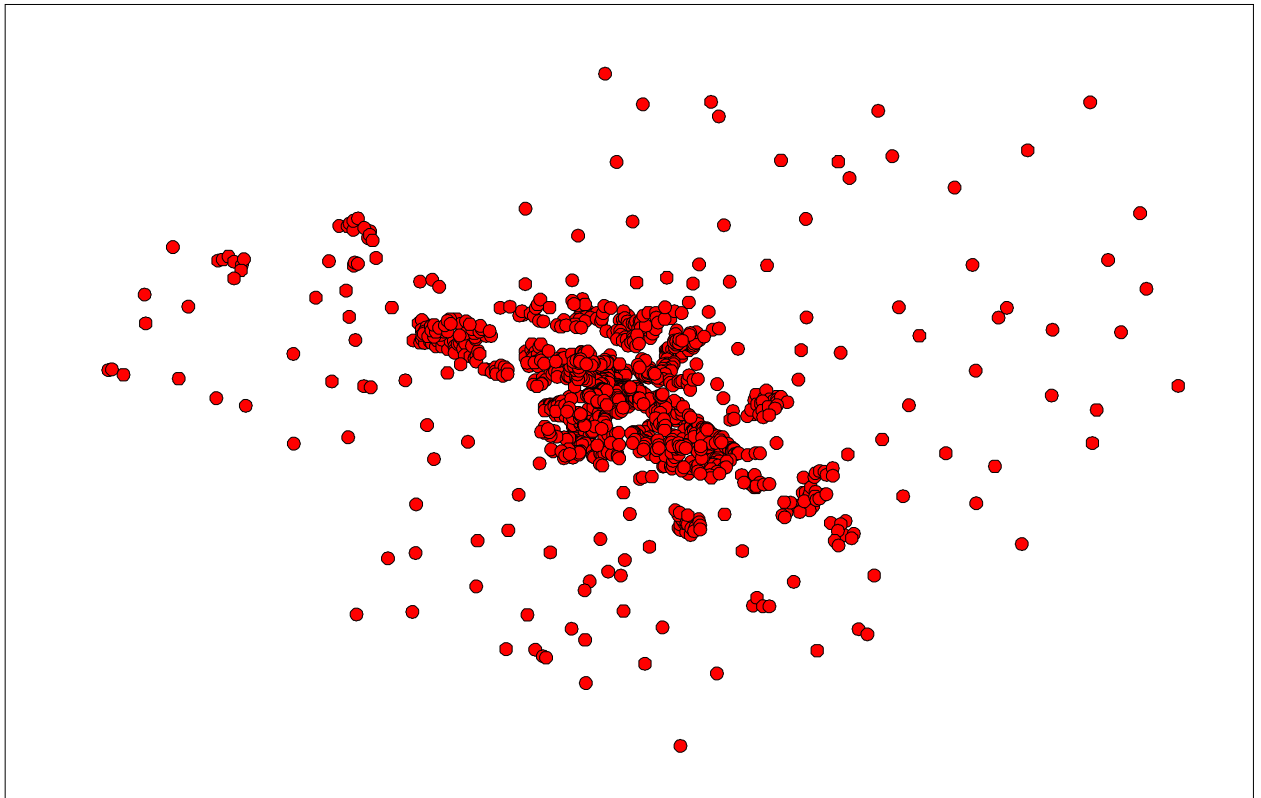


Figure 12.1. Original distribution of points

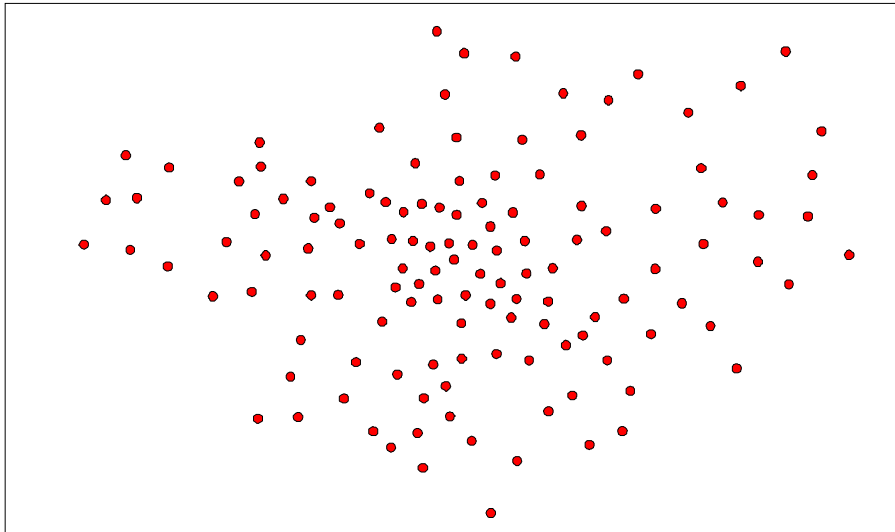
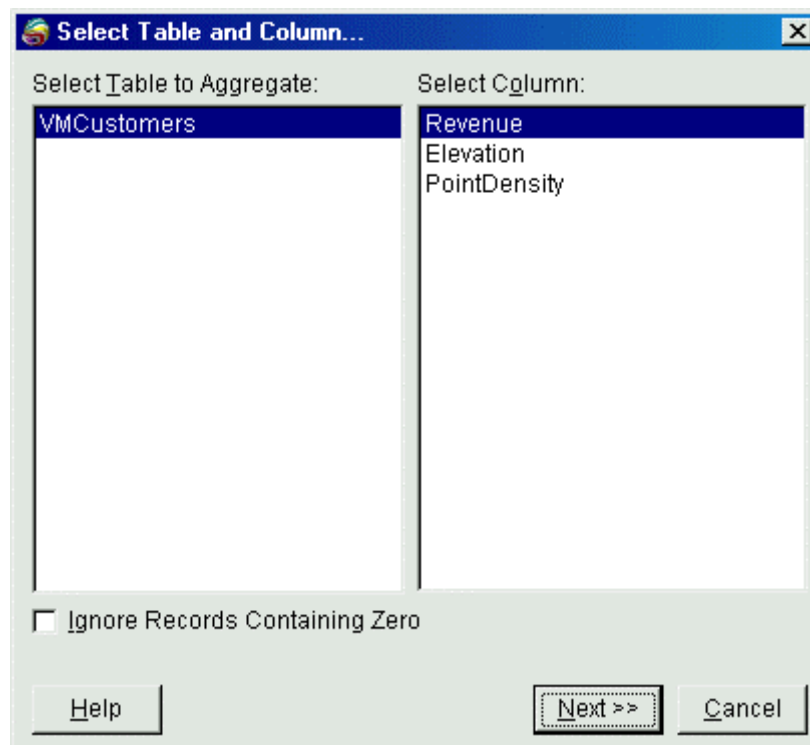


Figure 12.2. Resulting distribution of points after Simple Point Aggregation

To access the **Simple Point Aggregation** command from the *Vertical Mapper* pull-down menu, choose the command *Data Aggregation > Simple Point Aggregation*.



- From the **Select Tables and Column** dialogue box, select the point table to aggregate from the list of open MapInfo tables and select the column that contains the data to be transferred to the new aggregated file. Check **Ignore Records Containing Zero** to include only non-zero records. Once

this dialogue has been completed, choose the *Next* >> button.

Aggregation Technique and Distance

Min X: 484,248.80
Max X: 517,622.08
Min Y: 4,993,615.32
Max Y: 5,009,233.94
Units: m
Min Z: 60.00
Max Z: 8,055.02

Averaging Technique

Minimum Value
 Average Value
 Maximum Value
 Median Value
 Average of Min & Max Values
 Sum of Values

Mean Distance Between Points: 487.98
Coincident Point Distance: 48.80
Filename: C:\MapInfo\Wm2\Tutorial\Revenue_simpleAgg.tab
Browse

Help << Back Finish Cancel

- The **Aggregation Technique and Distance** dialogue box is used to set both spatial and statistical aggregation parameters. The left side of the dialogue summarizes the spatial characteristics of the point file including the file extents, the Z-value range, and the coordinate system units. The right side of the dialogue contains settings that control the statistical processing of the passed values.
 - 1 The most important setting is **Coincident Point Distance**, defined as the minimum distance between two points before they are considered coincident. The default value is set to be 10 percent of the mean distance between the data points and is measured in coordinate system units. Choose a small or zero distance to treat points in the data set which are very closely spaced or which overlie each other. As the distance setting becomes greater, the number of points found within each area will correspondingly increase.
 - 2 The **Averaging Technique** refers to one of six statistical methods available for dealing with the Z-value data of the aggregated points.
 - a) **Minimum Value:** The minimum value is the lowest value of all values within the “same point” distance of the aggregated coordinate.
 - b) **Average Value:** The average value is obtained by averaging all valid points within the “same point” distance of the aggregated coordinate.
 - c) **Maximum Value:** The maximum value is the highest value of all values within the “same point” distance of the aggregated coordinate.
 - d) **Median Value:** The median value is the middle value of all points within the “same

point” distance of the aggregated coordinate. If there are an even number of points, the median value is the average of the two middle values.

- e) ***Average of Min & Max Values:*** This value is the average between the minimum and maximum values of all points within the “same point” distance of the aggregated coordinate.
- f) ***Sum of Values:*** The sum of values method determines the aggregated value by summing all values of valid points within the “same point” distance of the aggregated coordinate.

Tip: New points are geographically placed at the geometric centre of the original group unless the Minimum value or the Maximum value is selected, in which case the new point is placed directly overlying the site.