

What Is Data Aggregation?

Data aggregation is a mathematical process for reducing the number of points in a file. Different methods are available to process an original point file but the underlying goal is to spatially group and statistically merge points which are in close proximity to produce a new “reduced” point file. This not only results in a fewer number of points but also creates a more uniform distribution of points and point values.

Vertical Mapper presents two options for data aggregation.

Simple Point Aggregation is designed for quick aggregation of data where it is not necessary to keep track of the spatial or mathematical properties of the aggregation process at each point; i.e., knowing the average of the aggregated points is sufficient.

Point Aggregation With Statistics is a more sophisticated process that tracks the statistical parameters associated with each aggregated point (e.g., standard deviation or coefficient of variation). This technique can also produce a region file displaying the actual circular or square-cell region used to gather and aggregate points. Statistical information is attached as attributes to both the new point file and to the region file.

It is not always necessary to aggregate a data file, however, there are many times when it is appropriate. The following is a list of common reasons for aggregating data.

2. There are multiple values at a given location.
3. Data is too erratic and an average of the data would represent an appropriate estimate of these values.
4. The sum of the data in a given area is required.
5. The location of the data is not particularly precise therefore determining a representative value at an “average” location is acceptable.
6. The original data set has too many points to permit efficient processing. The amount of data could be substantially reduced without adversely affecting the accuracy of any operation.
7. Values are required that are representative of specific spacing or area criteria applied over the entire mapped area (most applicable to the “square cell” method).

Vertical Mapper employs four techniques to aggregate data, three of which are accessed from the *Point Aggregation With Statistics* command.

- Simple Point
- Forward Stepping
- Cluster Density
- Square Cell

Each technique is described in the following section. When using any of these techniques *Vertical Mapper* will create a new file containing the aggregated points and leave the original point file unaltered. For an instructional lesson on *Data Aggregation* refer to Lesson 2 of the *Installation and Tutorials* manual.