

# TNTmips Newsletter — Spatial Statistics

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TNTmips 2015 Development Version includes enhanced and redesigned processes to compute statistics from images, surfaces, and elements in geometric objects (vector, CAD, and shape). Each process allows you to choose the statistics to compute.

## Image Statistics by Geometric Element

Compute raster cell statistics from one or more images for points, lines, or polygons in a geometric object.

- Statistics for all elements of the selected type or only those marked in the View.
- Statistics for individual elements and/or elements grouped by value in an attribute field.
- Compute standard statistics (mean, median, standard deviation, and others) and Gray Level Co-occurrence Matrix texture statistics.
- Save statistics as tables in the input object, as tables in a copy of the object, or as CSV text files.

## Image Statistics for Category Raster

Compute raster cell statistics from one or more images for areas defined by cell value in a category raster (such as a class or feature map raster).

- Compute mean, median, standard deviation, relative standard deviation, relative mean, and others.
- Save statistics as tables in the input object or as CSV text files.

## Raster Combination Statistics

Compute statistics for each cell location from a set of matching raster objects, such as a time-series of biophysical properties such as vegetation index.

- Compute measures of central tendency (mean, median, and mode), dispersion (standard deviation and variance), and others.
- Compute linear regression slope and offset values.
- Process creates an output raster for each selected measure.

## Surface Properties by Geometric Element

Compute surface property statistics from a surface raster for lines or polygons in a geometric object.

- Statistics for all elements of the selected type or only those marked in the View.
- Statistics for individual elements and/or elements grouped by value in an attribute field.
- Compute statistics on elevation, slope, aspect, and other surface properties.
- Compute volumes above and/or below a reference elevation.
- Choose units for elevation, length, slope, area, and volume statistics.
- Save statistics as tables in the input object, as tables in a copy of the object, or as CSV text files.

## Geometric Element Statistics by Polygon

Compute statistics for polygonal areas in a destination geometric object from elements and/or numeric fields in a source geometric object.

- Compute element statistics from points, lines, or polygons: count, length, area, coverage percent.
- Statistics for all destination polygons or only those marked in the View.
- Statistics for individual destination polygons and/or polygons grouped by value in an attribute field.
- Statistics from all source elements of the selected type or only those marked in the View.
- Separate element statistics by value in a designated attribute field.
- Save statistics as tables in the destination object, as tables in a copy of the object, or as CSV text files.

## Polygon Shape Properties

Compute shape metrics for individual polygons in one or more geometric objects.

- Compactness measures: by moment of inertia, iso-perimetric quotient, Reock, convex hull, and others.
- Complexity and circularity.
- Grain shape, orientation angle, elongation, and aspect ratio.
- Save statistics as tables in the input object or as CSV text files.

### Technical Guides on Statistics from Spatial Objects:

[Image Statistics by Geometric Element](#)

[Geometric Element Statistics by Polygon](#)

[Image Statistics for Category Raster](#)

[Polygon Shape Properties](#)

[Surface Properties by Geometric Element](#)