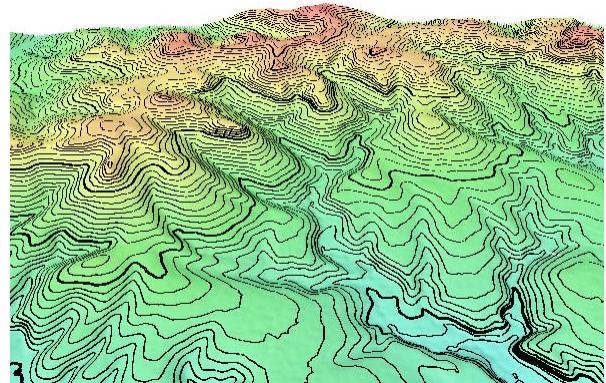


Surface Modeling

TNTmips



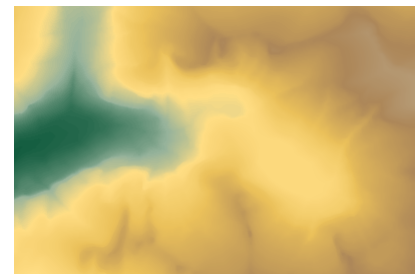
The **Surface Modeling** process allows you to construct and transform representations of natural terrains and mathematical surfaces from the 3D information you provide. The Surface Fitting, Contouring, and Triangulation operations allow you to produce Digital Elevation Model rasters (DEMs), contour lines, and triangulated irregular networks (TINs), respectively. The input for each operation can be any one of the terrain representations described above or 3D point data. Elevation values can be read directly from the 3D object or assigned by query from any numeric field in its attribute database. The process provides fast, efficient processing of even very large datasets.



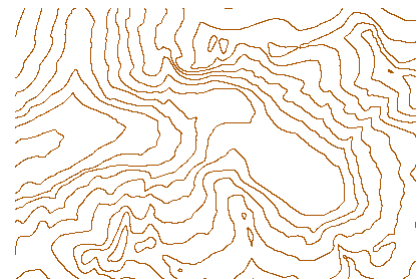
Contour lines with 5-meter interval produced from a LIDAR DEM with 5-meter cell size.

Surface Modeling Highlights:

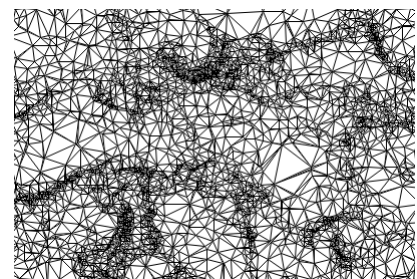
- Construct a DEM from contour lines, a TIN, point data, or database records containing 3D coordinates
- Assign elevations for the DEM by query from any numeric database field associated with the input data
- Efficiently process datasets with thousands of points or contour lines to produce large, detailed DEMs
- Choose from many interpolation methods for surface fitting such as Minimum Curvature, Inverse Distance, Profiles, and Polynomial
- Use geostatistics to fit a surface to your point data via the Kriging method
- Choose the cell size and numeric type for the DEM
- Create contour lines from a DEM or TIN using Linear or Iterative Thresholding methods
- Fast, efficient contouring of even very large DEMs
- Produce smoother contour lines using optional smoothing and resampling of the DEM
- Create a TIN from a DEM, contour lines, or point data
- Use breaklines to create “hard” TIN edges that are preserved in the event of further changes in the TIN structure
- Use polygon breaklines to limit the extents of the TIN
- Use optimization settings to constrain the density and detail of the TIN
- Bidirectional surface fitting specially tailored for geophysical data acquired along parallel transect lines



DEM



Contours



Triangulated Irregular Network (TIN)

For more information see: [Technical Guides on Surface Modeling](#) and [Surface Modeling tutorial](#) at the MicroImages website.