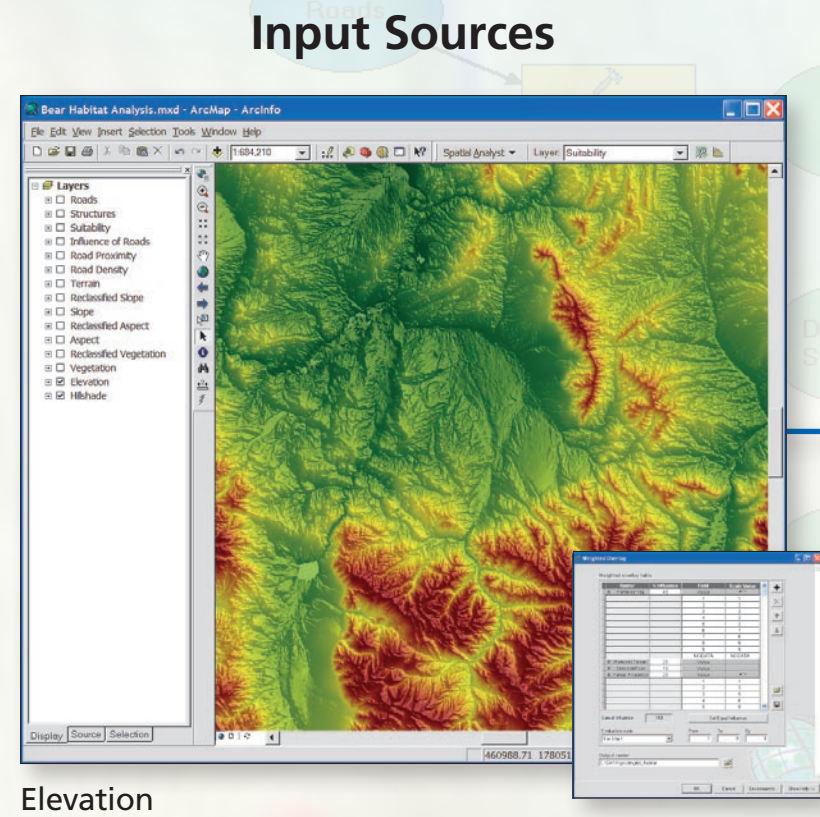
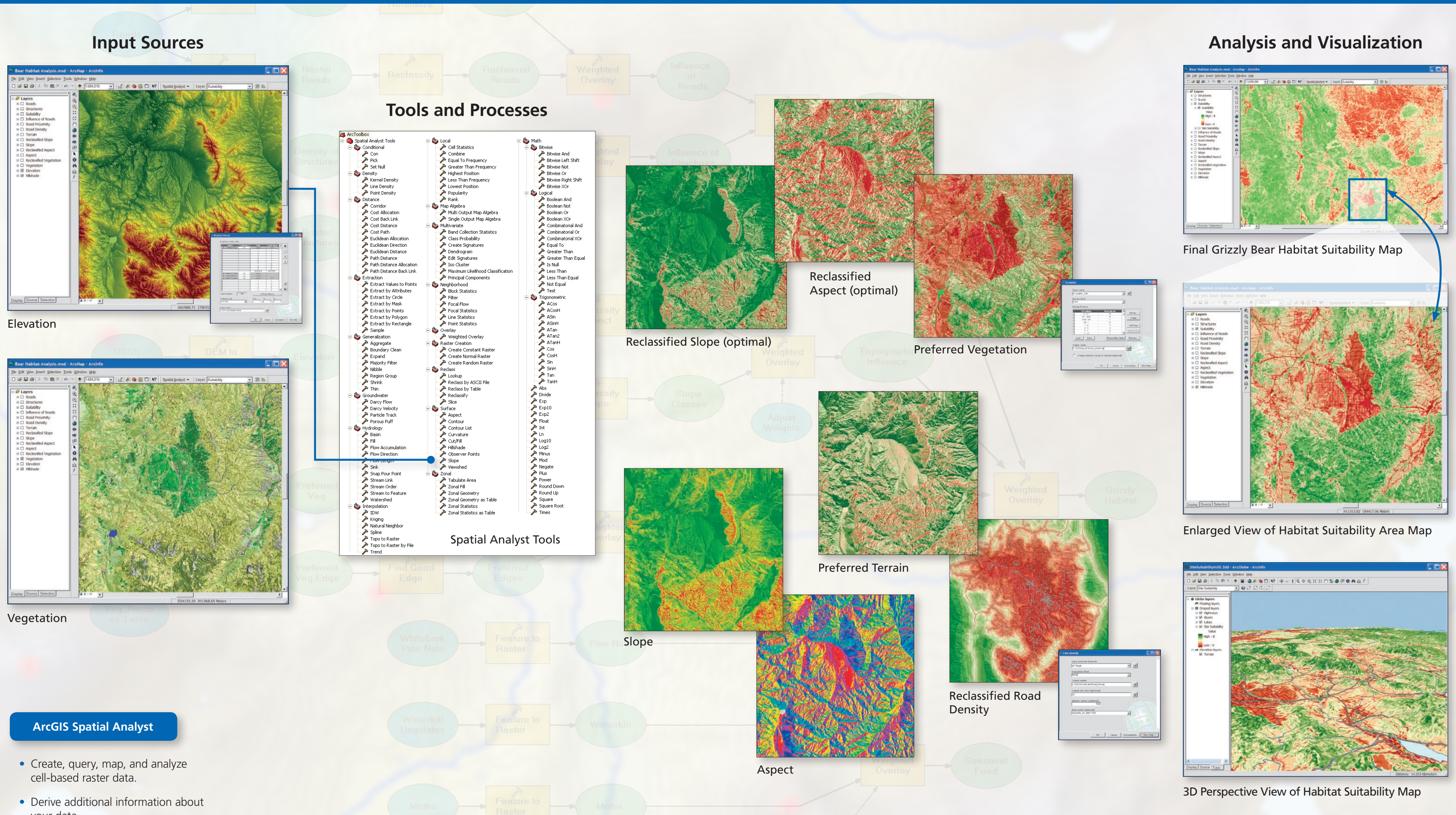
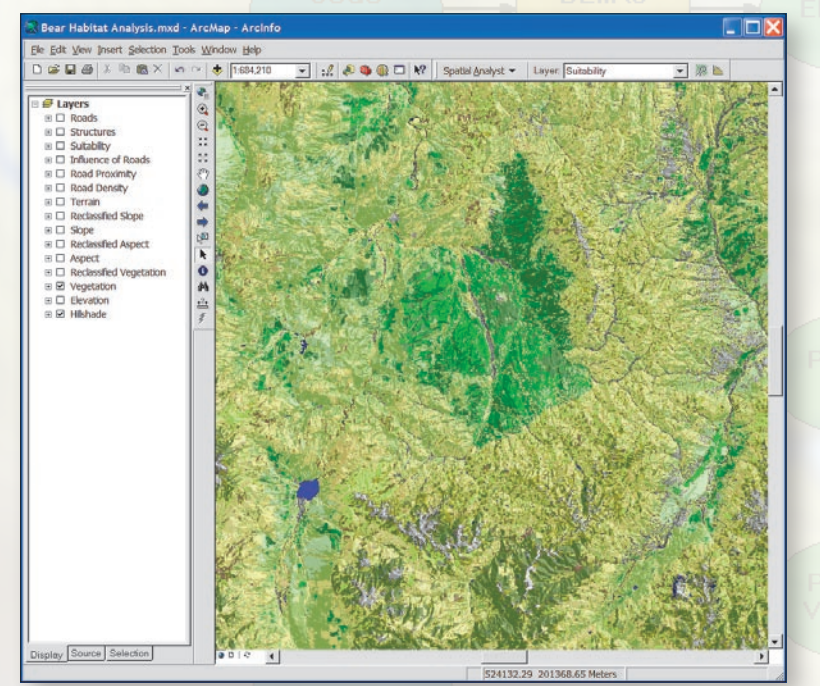


ArcGIS® Spatial Analyst

Habitat Suitability Analysis



Elevation



Vegetation



Spatial Analyst Tools

ArcGIS Spatial Analyst

- Create, query, map, and analyze cell-based raster data.
- Derive additional information about your data.
- Find suitable locations based on multiple attributes.
- Calculate complex terrain attributes.
- Perform distance and cost of travel analyses.
- Create surfaces using interpolation tools (IDW, Spline, Kriging).

This poster illustrates the common use of ArcGIS® Spatial Analyst to find suitable locations by ranking a landscape into categories of high and low desirability via a process known as weighted overlay modeling.

In this example, suitability or site selection modeling was used to find a suitable habitat for grizzly bears. The same process can be applied to many other types of spatial problems such as finding the best location for a new store, deciding where to purchase a home, or determining the best route for a proposed road.

Applying analysis tools to input data creates new information such as density of roads or slope of a DEM. Combining different data, such as density in units of roads per square kilometer and slope in units of degrees, requires a common measurement scale to assess the likelihood that a grizzly bear would prefer a particular location.

These derived datasets are reclassified into categories of interest to the problem being solved. We know bears prefer to be away from roads, so data is reclassified into several categories of varying road density and proximity.

Using the Weighted Overlay tool, weights are assigned to each category for each dataset representing bear habitat suitability. Vegetation types, such as whitebark pine, moist grasses, and berry patches, are assigned a "most preferred" weight value of 9, and areas with very dense roads are assigned a "least preferred" weight value of 1. In addition, the Weighted Overlay tool is also used to assign a percentage of influence to each input dataset. For example, vegetation can be assigned higher importance than proximity to roads.

With the powerful Weighted Overlay tool, parameters of a suitability model such as this can be easily set and changed in a single dialog window, allowing the user to test many different scenarios.

Data and modeling guidelines are provided courtesy of the Craighead Environmental Research Institute (www.grizzlybear.org).

ArcGIS Spatial Analyst

To request a trial version, visit www.esri.com/spatialanalyst.

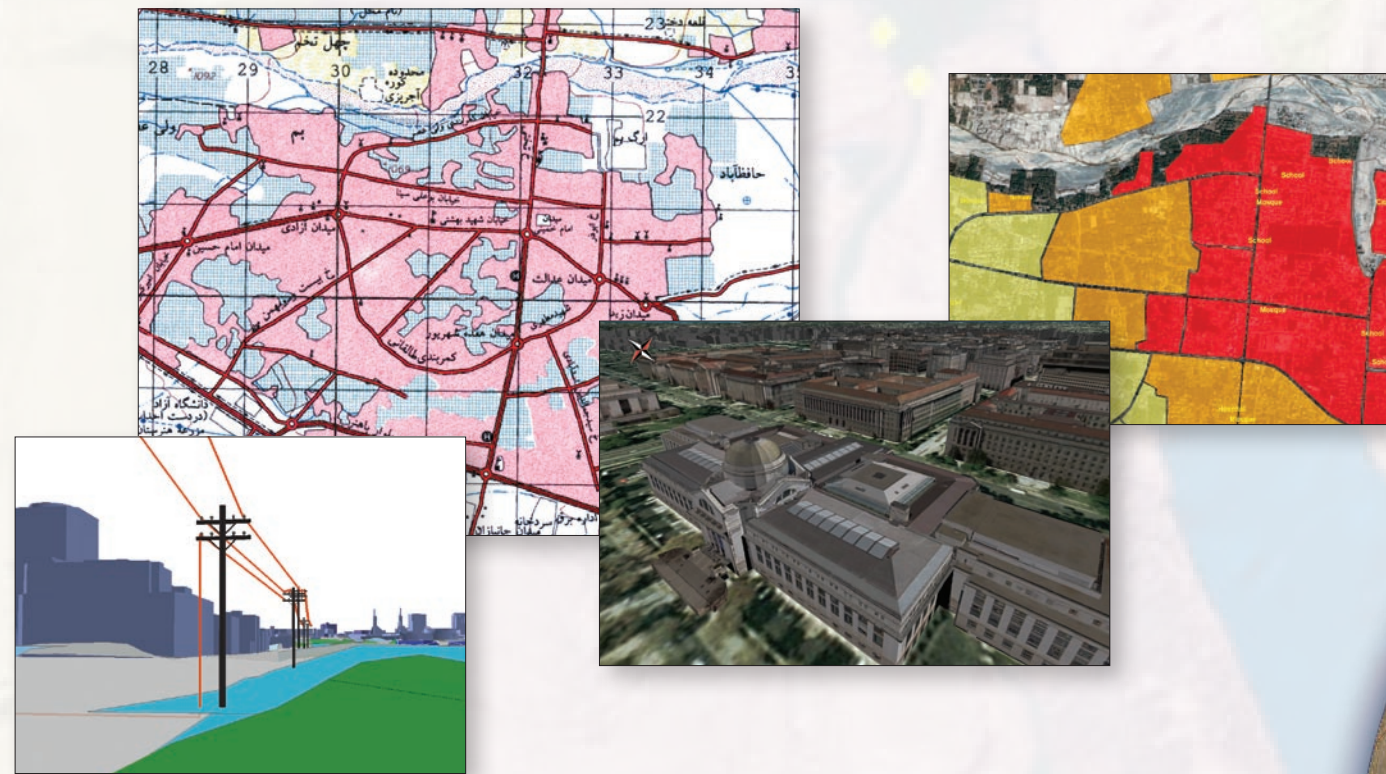


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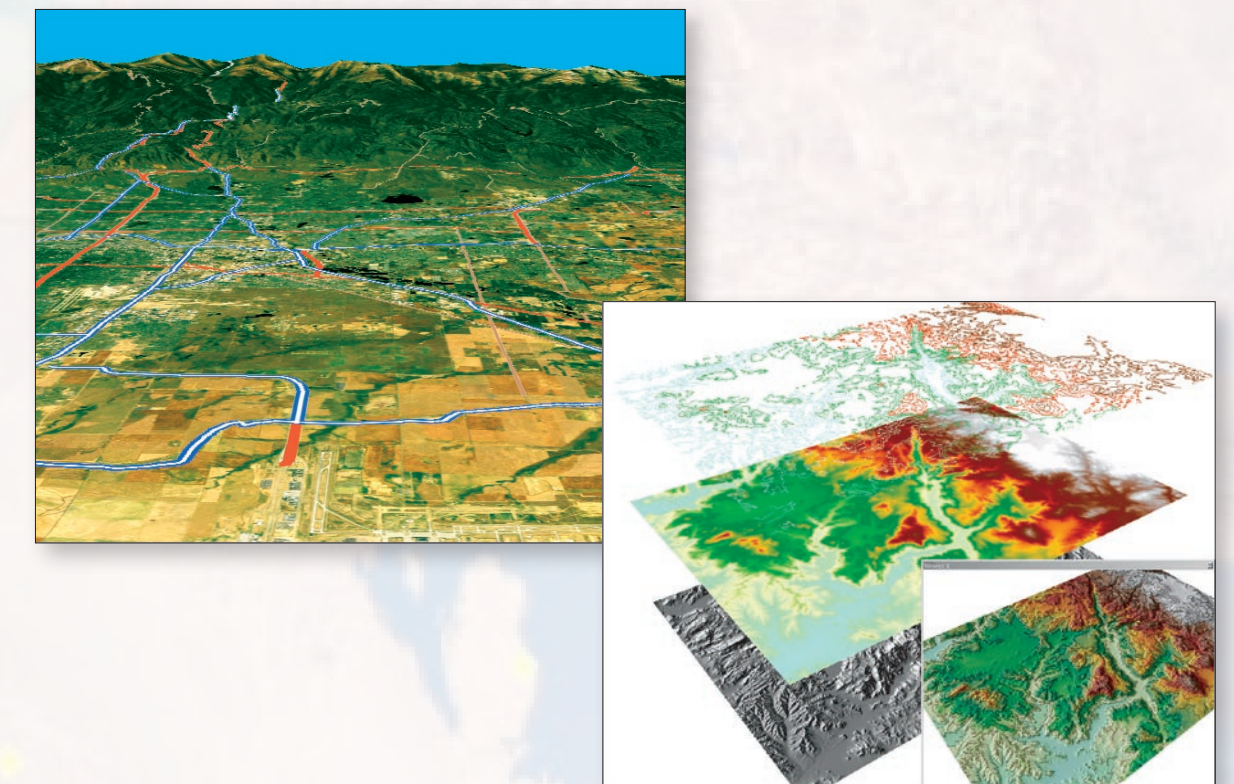
ArcGIS® 3D Analyst™

Analyze Your Data in a Realistic Perspective

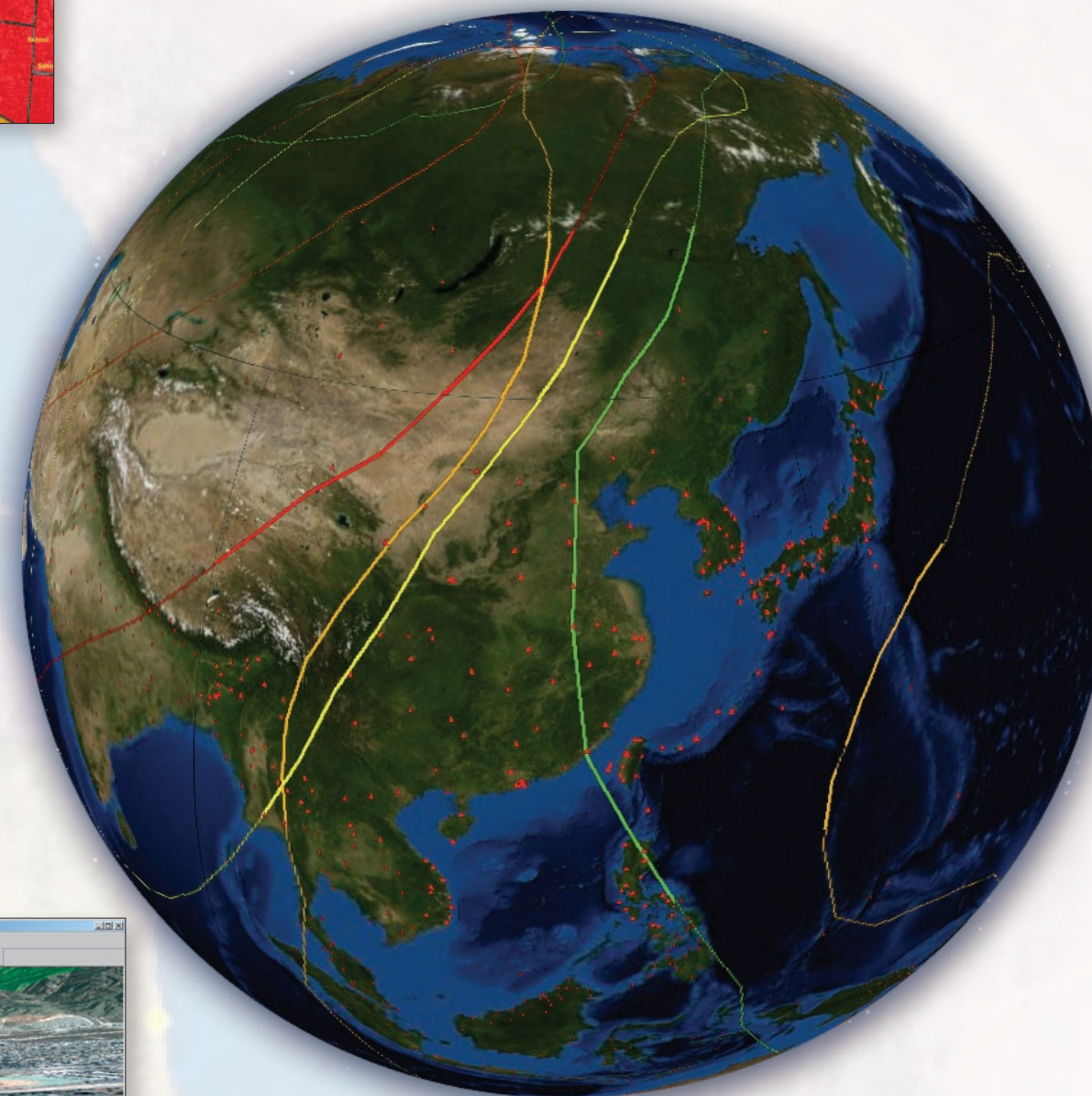
Visualization and Navigation



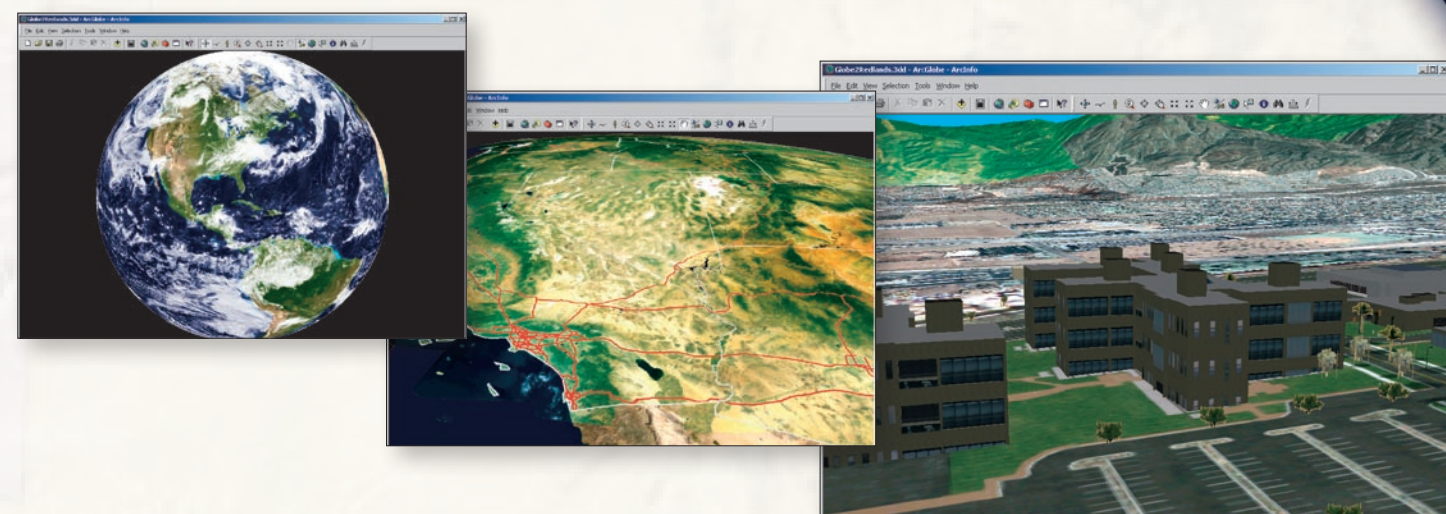
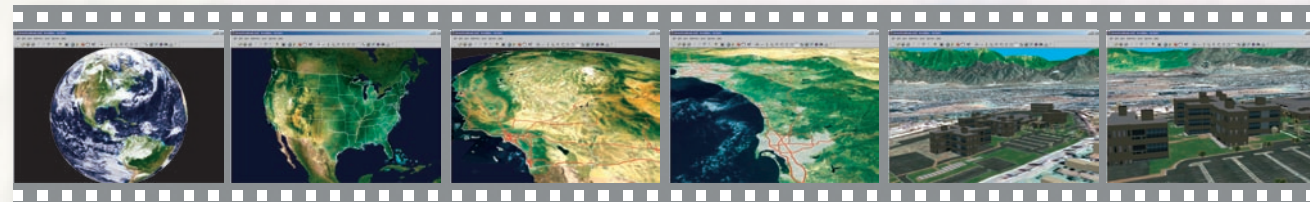
Surface Creation



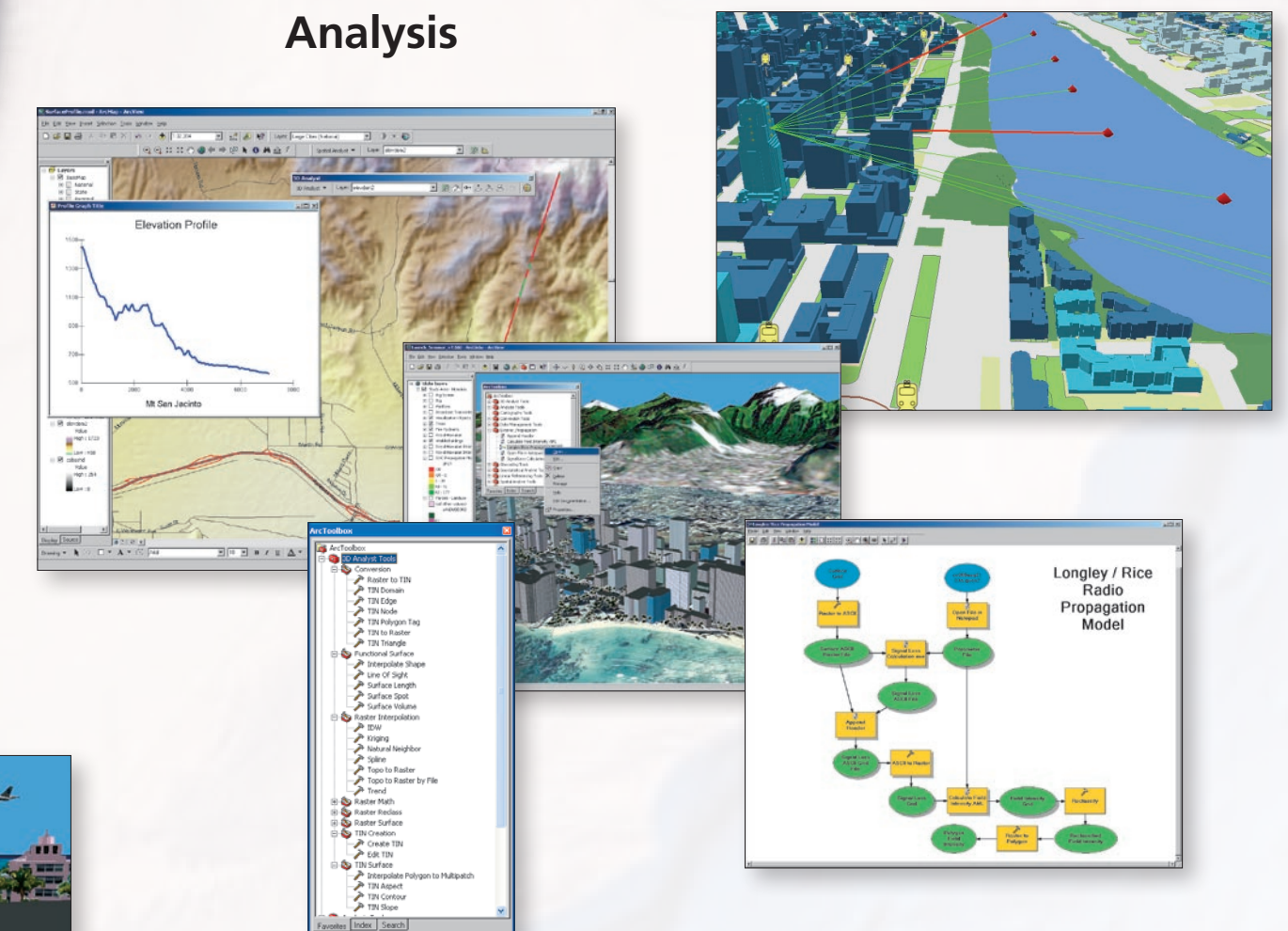
Whole Earth Visualization



Fly-through Animation



Analysis



3D Symbology



ArcGIS 3D Analyst

- View data from a global to local perspective.
- Navigate and manage terabytes of data seamlessly.
- Easily integrate raster, vector, terrain, and image datasets.
- Extrude two-dimensional representations to three dimensions.
- Perform viewshed and line-of-sight analyses, spot height interpolation, profiling, and steepest path determination.
- Construct models via ModelBuilder™ and analyze results in three dimensions.
- Add three-dimensional symbology and texture to enhance scientific visualizations.
- Create user-defined, photo-realistic fly-through animations.

ArcGIS 3D Analyst

To request a trial version, visit www.esri.com/3danalyst.