

# Combining Regions

In the TNT products a *region* is a simple geometric object that outlines a geographic area of interest. Regions can be used in many TNT processes to define the area in which spatial data should be viewed or processed. You can create regions from your spatial objects in a number of ways, such as from a set of marked polygons, from buffer zones around marked elements, or from a range of cell values in a raster object, among many others (see the Tutorial booklet entitled *Using Regions*).

Regions created from spatial objects you are displaying are listed on the Region tabbed panel in the GeoToolbox window (see illustration to the right). The tree-control list on this panel automatically includes entries for each group or layer in the view (corresponding to regions outlining their spatial extents). If you have marked elements in any geometric object (vector, shape, or CAD), the list also includes entries for the active (last-marked) element and the set of marked elements (see the Technical Guides entitled *GeoToolbox: Regions from Group, Layer, and View Extents* and *GeoToolbox: Use Active/Marked Elements for Measurement, Sketch, and Profile Generation*). Any regions you have created manually by other methods or opened from a saved region object are shown under the User-Defined heading.

If the list includes more than one region, you can perform logical combinations of listed regions to create new regions. The available operations are Union (logical OR), Intersect (logical AND), Exclusive Union (XOR), and Subtract; examples of each are illustrated below. Select a combination operation by pressing the corresponding icon button on the left side of the Regions panel. When a combination operation is selected, a checkbox appears to the left of each region entry in the list. Turn on the checkboxes for the desired regions, then press the Combine icon button to create the new region. Only two regions can be combined at a time in the Exclusive Union and Subtract operations, whereas Union and Intersect allow you to choose more than one input region. In the Subtract operation, the order in which you choose the regions determines the result: the region you choose second is subtracted from the one you choose first. Each region produced by a combine operation is also automatically shown in the Regions list. Any region in the list can be saved at any time using the Save icon button.

