## Miscellaneous
Managing Raster Null Cells

There are a variety of reasons that some cells in the rectangular area of a raster may have no value, or no valid data. Rasters produced by mosaicking or resampling with reorientation may not have input values for all output cells. Additionally, some data you acquire may have "holes," such as SRTM data (see the color plate entitled *Sample Geospatial Script: Patch Holes in SRTM DEMs*). A "null value" is used when a raster cell does not contain valid data. The TNT products handle null cells in two ways: as a single assigned null value defined in the raster header or by using a null mask. A null mask is a highly compressed, binary raster that indicates whether a cell value is valid (1) or not valid (0). A null mask is necessary when multiple cell values may be null, such as in a lossy compressed raster, in a mosaic of rasters with different null values, and other similar situations. Null masks are automatically created by a number of processes that create new raster objects, such as Mosaic, Extract, and Resample and Reproject, and automatically used during display.
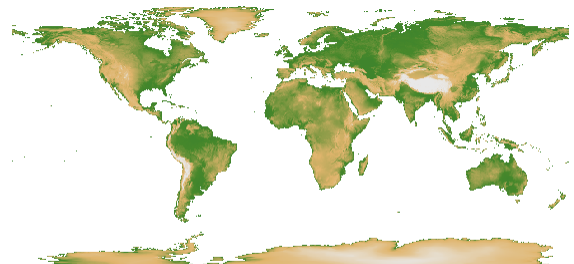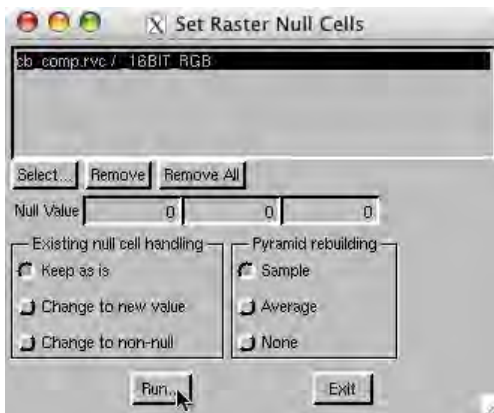

land elevation raster mosaic with null areas transparent
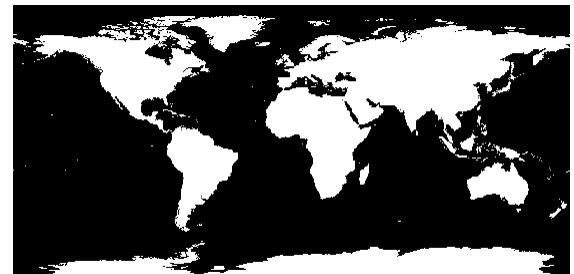
null mask generated by mosaic for land elevation areas

Whether a raster's "no data" cells are handled by a single null value or a null mask, TNTmips provides a process to manage null values. The Set Raster Null Cells process (Process/Raster/Utilities/Set Null Cells) lets you set a null value for a raster that does not have one, change the null value for a raster that does have one, add to the cell values specified as null, specify how to handle pre-existing null values, and regenerate pyramid tiers when needed.

The methods for handling existing null cells include:

- **Keep as is.** This option keeps the value of the initial null cells unchanged. The value(s) you enter in the Null Value field(s) will also be designated as null. A null mask will be generated if the raster initially has cells with the previously specified null value. The original raster is unchanged.

- **Change to new value.** This option changes the value of existing null cells to the value you enter. It also designates that other cells with this new value are null. Since all null cells are represented by the same value after this change, a null mask is not necessary. Since cell values are changing, new pyramids must be built. This option is not available for rasters in external formats or for internal raster objects with JPEG2000 or lossy compression. If you choose this option for a raster with a null mask, the null mask will be deleted because it is no longer necessary.

- **Change to non-null.** This option negates the null status of existing null cells and designates cells with the new value as null. This option is not readily reversible if the raster's null cells were defined by a null mask representing more than one cell value. You are asked to confirm this choice before proceeding (see window at right). If you choose this option for a raster with a null mask, the null mask will be deleted because it is no longer needed.
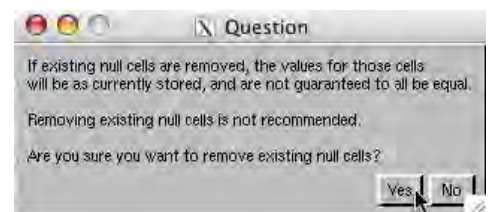
Some raster formats, such as JPEG2000 compressed (*.jp2) and TIFF files, do not support null values. However, null value information can be stored in the link file (*.rlk) made when these external raster types are selected directly. Pyramids for TIFF files, which do not have an internal pyramid structure as JP2 files do, can also be stored in the link file when generated by this process.