Documentation for the Shuttle Radar Topography Mission (SRTM) Water Body Data Files

The SRTM Water Body Data files are a by-product of the data editing performed by the National Geospatial-Intelligence Agency (NGA) to produce the finished SRTM Digital Terrain Elevation Data Level 2 (DTED® 2). In accordance with the DTED® 2 specification, the terrain elevation data have been edited to portray water bodies that meet minimum capture criteria. Ocean, lake and river shorelines were identified and delineated. Lake elevations were set to a constant value. Ocean elevations were set to zero. Rivers were stepped down monotonically to maintain proper flow. After this processing was done, the shorelines from the one arc second (approx. 30-meter) DTED® 2 were saved as vectors in ESRI 3-D Shapefile format.

In most cases, two orthorectified image mosaics (one for ascending passes and one for descending passes) at a one arc second resolution were available for identifying water bodies and delineating shorelines in each 1°x1° cell. These were used as the primary source for water body editing. The guiding principle for this editing was that water must be depicted as it was in February 2000 at the time of the shuttle flight. A Landcover water layer and medium-scale maps and charts were used as supplemental data sources, generally as supporting evidence for water identified in the image mosaics. Since the Landcover water layer was derived mostly from Landsat 5 data collected a decade earlier than the Shuttle mission and the map sources had similar currency problems, there were significant seasonal and temporal differences between the depiction of water in the ancillary sources and the actual extent of water bodies in February 2000 in many instances. In rare cases, where the SRTM image mosaics were missing or unusable, Landcover was used to delineate the water in the SRTM cells. The DTED® header records for those cells are documented accordingly.

Two documents are provided to describe the details of the data editing and the SRTM Water Body Data files:

a. SRTM Water Body Data Product Specific Guidance (version 2.0, Mar. 12, 2003).

b. SRTM Data Editing Rules (version 2.0, March 12, 2003).

A third document is referenced with a website link in the “Product Specific Guidance”. This is a March 1998 ESRI White Paper titled “ESRI Shapefile Technical Description.”

The files contained on the SRTM Water Body Data CD or DVD are organized as follows:

There are 12,229 zipped (*.zip) files, which contain the entire SRTM Water Body Data (SWBD) set. Only those DTED® cells that contained water have a corresponding SWBD shape file. Each zipped file is named according to the southwest corner of the 1°x1° SRTM DTED® 2 cell. Each zipped SWBD file actually has three pertinent files imbedded in the file structure. The common unzipped file structure is as follows:

<filename>.dbf
<filename>.shp
<filename>.shx

The <filename> identifies the southwest corner coordinates of the cell, represented as ‘HxxxVyyc’, where ‘Hxxx’ is the longitude, ‘Vyy’ is the latitude and ‘c’ denotes the continental delivery from the Jet Propulsion Laboratory with which the water body is associated. H is either ‘E’ or ‘W’ and ‘xxx’ takes on a value between 000 and 180. Similarly, V is either ‘N’ or ‘S’ and ‘yy” takes on a value between 00 and 90. The continental codes and the number of zipped files for each continental region are:

a = Australia (888)
e = Eurasia (5,388)
f = Africa (1,809)
i = Islands (141)
n = North America (2,268)
s = South America (1,735).