

SRTM Water Body Data Product Specific Guidance ***(v.2.0, March 12, 2003)***

1. Purpose

This document provides a description of the content, format and accuracy specifications of the Shuttle Radar Topography Mission Water Body Data (SWBD).

2. Applicable Documents

- 2.1. Data Format. SWBD will conform to ESRI Shapefile format. Reference **ESRI Shapefile Technical Description, *An ESRI White Paper – July 1998*** for specific file format information (<http://www.esri.com/library/whitepapers/pdfs/shapefile.pdf>).
2. SRTM Edit Rules. Reference, SRTM Data Editing Rules, Version 2.0 for specific water body inclusion rules.
- 2.3. MIL-STD-2401 (01/11/94) - DoD Standard Practice, World Geodetic System (WGS 84)

3. Requirements

The following sections provide specific SWBD requirements. All horizontal measurement requirements are listed below in meters, however the actual requirements shall be based on the approximation that each DTED -2 post is 30m x 30m.

3.1. Format. SWBD will be produced in ESRI Shapefile format.

3.1.1. File Prefix Naming Convention. SWBD Shapefiles shall be named using an 8-character coding convention defined below. The leading (leftmost) 7 characters denote the southwest origin of the file. The eighth character denotes the continental delivery from the Jet Propulsion Laboratory with which the water body is associated. All characters in the filename shall be lowercase.

Filename: hxxxvyy

where

- h= e or w (longitude)
- xxx = degrees longitude
- v = n or s (latitude)
- yy = degrees latitude

c = n= North America
= s= South America
= a= Australia
= e= Eurasia
= f = Africa
= l = Islands

Example: e020n10f

Thus the full eight-character file prefix name will reflect the southwest corner and continent reference.

3.1.2. Feature Attribute Code. SWBD will be attributed with a character attribute value. The attribute values are supplied in section 3.6 of this document and will be five characters in length. The name of this attribute will be specified as "FACC_code" in the Shape file.

3.2. Tiling. SWBD tile size will be equal to 1 degree x 1 degree. The southwest corner coordinates of each 1 degree x 1 degree cell shall coincide with whole latitude and longitude values.

3.3. Data Content and Data Source. The features comprising these data are derived from a combination of SRTM Orthorectified Image Mosaics (OIM) and Landcover water masks. Elevation information is derived from SRTM DTED 2. SWBD shall be produced as 3-dimensional, area features, attributed with standard NIMA Feature and Attribute Coding Catalogue codes. All point elevations shall be exactly equal to the nearest corresponding DTED -2 post elevation.

3.4. Datum

3.4.1. Horizontal Datum. The horizontal datum shall be the World Geodetic System 1984 (WGS84).

3.4.2. Vertical Datum. The vertical datum shall be Mean Sea Level, as determined by the WGS84 Earth Gravitational Model 1996 (EGM 96) geoid.

3.5. Accuracy

3.5.1. Absolute Horizontal Accuracy. The absolute horizontal accuracy requirement for SWBD is equivalent to SRTM DTED 2 (20 m circular error, 90% confidence).

3.5.2. Absolute Vertical Accuracy. The absolute vertical accuracy requirement for SWBD is equivalent to SRTM DTED 2 (16 m linear error, 90% confidence).

3.6. Dimensions. The dimensions of features depicted in this product shall be in conformance with the following inclusion conditions and attribute values:

3.6.1. Coastal (Ocean) Water Area Feature

3.6.1.1. Ocean elevation shall be equal to 0.

3.6.1.2. Feature and Attribute Coding Catalogue (FACC) code = BA040.

3.6.1.3. Islands with a medial axis length greater than 300 meters shall be depicted. Smaller islands (down to 14,400 m²) shall be depicted if 10 percent or more of the elevations of the island are greater than 15 meters above the surrounding water.

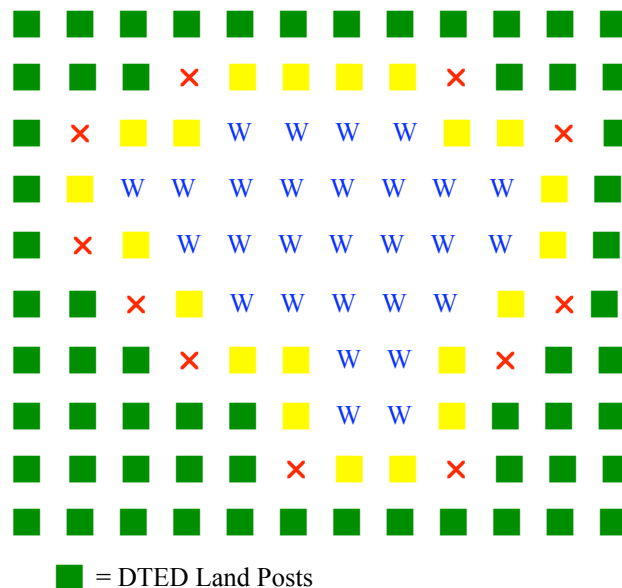
3.6.2. Lake Area Feature

3.6.2.1. Lakes greater than a 600-meter minimum length and 183-meter minimum width requirement shall be depicted. Lake inlets (arms) shall be depicted until the inlet/arm reaches a width of 90m.

3.6.2.2. Lakes will be sized by calculating the length of the medial axis; width will be calculated perpendicular to the medial axis.

3.6.2.3. Lakes are portrayed at a single elevation value.

4. Lake shoreline will be maintained such that it is at least one (1) meter higher than the lake elevation; containment will include maintaining this relationship with DTED posts diagonally adjacent to lakes. See figure 1.



- W = DTED Lake Posts
- = DTED Land Posts (Lake Shoreline)
- × = DTED Land “Diagonal” Posts

Figure 1.

3.6.2.5. Lake FACC code = BH080.

3.6.2.6. Islands with a medial axis length greater than 300 meters shall be depicted. Smaller islands (down to 14,400m²) shall be depicted if 10 percent or more of the elevations of the island are greater than 15 meters above the surrounding water.

3.6.3. Double Line Drain (River) Area Feature

3.6.3.1. Sustained-length, beginning and ending length/width requirements are defined such that double line drain edits are not required unless the sustained length/width requirements stated below are met.

3.6.3.2. Double line drain depiction begins as the river width exceeds 183 m for a length of 600 m or more. Double line drain depiction ends when the width of the river becomes 90 m or less and does not widen back to > 90 m within 1 km downstream.

3.6.3.3. Double line drain elevation will be portrayed as a series of “stepped down” elevations that maintain proper water-to-land relationship. Double line drain water elevation increments will allow the water to “flow” downhill in a logical manner accurately portraying the surrounding relief gradient, and must maintain the land-to-water shoreline relationship (i.e. land is one meter higher than water and containment is maintained with diagonal DTED posts). See figure 1.

3.6.3.4. Double Line Drain (River) FACC code = BH140.

3.6.3.5. SWBD vectors representing two forks of the same drain may be represented as adjoining closed polygons. There should be no overlap in the polygons.

3.6.3.6. Islands with a medial axis length greater than 300 meters shall be depicted. Smaller islands (down to 14,400m²) shall be depicted if 10 percent or more of the elevations of the island are greater than 15 meters above the surrounding water.

4. Security Classification

The security classification of the data and this document are unclassified.