SERVICIOS HIDROGIS

GEOHIDROLOGÍA - SISTEMAS DE INFORMACIÓN GEOGRÁFICA

FACT SHEET

Seamless 90 Meters Digital Elevation Model for Mexico

The terrain model developed for Mexico is based on the Shuttle Radar Topography Mission Elevation (SRTM) data collected by the Endeavour spacecraft in 2000. For this model the elevation data in DTED Level 1 format were used as distributed by the US Geological Survey. These data have a cell spacing of three arcseconds (aprox. 87 meters) and are referenced to the WGS84 horizontal datum and to the EGM96 geoid. Elevations are with respect to the reflective surface which may be man-made features, vegetation, or the bare surface of the planet. The DTED data are known in the GIS community as the "finished" SRTM data. Compared to the research level "unfinished" data in HGT format they underwent a number of improvements: Water bodies and lakes of more than 600 meters length were depicted, flattened out and set to a constant height. The ocean elevation was set to 0 meters. Islands are represented in the data whenever their axis is longer than 300 meters or their relief is greater than 15 meters. Spikes and wells in the data were detected and voided out. Small voids of less than 16 cells were filled by interpolation.

However, large voids were left in the data resulting in nodata areas of occasionally significant extension. In the area of Mexico covered by this model voids were found in those parts of the country that exhibit significant changes of relief over short distances, like in the steep canyons of the Sierra Madre Occidental in Northwestern Mexico or the Sierra de Chiapas. The largest nodata area lies in the south of Chihuahua state close to Sinaloa and Sonora states and covers an area of approximately 3000 km^2.

The Mexico DEM was enhanced in several ways. The DTED data were merged into one seamless DEM. Voids and nodata areas were filled with existing elevation data rather than by interpolation, resulting in a more realistic model in voids of great extent. However, resolution in the affected areas is reduced to 1 km^2.

The DEM is projected in Decimal Degrees. It is compatible to the majority of vector data available for Mexico as published by the INEGI (National Institute of Statistics, Geography, and Informatics of Mexico) as well as to the data of the Digital Chart of the World.

The Seamless 90 Meters Digital Elevation Model for Mexico is of exceptional detail especially in the lowlands and in the coastal areas of the country. The Gulf Coast of Mexico and its lagoons as well as islands are depicted with great accuracy. The DEM also preserves a very high level of detail in the mountainous regions and in the Transmexican Volvanic Belt. The DEM is one of the most detailed digital elevation models available for Mexico covering the whole country in one seamless and accurately projected DEM.

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Projection Parameters of the Seamless 90 Meters Digital Elevation Model for Mexico

Cell Size:	**0.001**	**Data Type:**	**Integer**
Number of Rows:	**24239**	**Number of Values:**	**5415**
Number of Columns:	**40192**	**Attribute Data (bytes):**	**8**

BOUNDARY		**STATISTICS**	
Xmin:	**-119.266**	**Minimum Value:**	**-85.000**
Xmax:	**-85.772**	**Maximum Value:**	**5581.000**
Ymin:	**12.996**	**Mean:**	**634.487**
Ymax:	**33.195**	**Standard Deviation**	**760.624**

COORDINATE SYSTEM DESCRIPTION

Projection:	**GEOGRAPHIC**
Datum:	**WGS84**
Zunits:	**METERS**
Units:	**DECIMAL DEGREES**
Spheroid:	**WGS84**

System Requirements:

Arc/Info 7 or higher with GRID Extension or
ArcGIS 8 or higher with Spatial Analyst Extension or
Arcview 3.2 or higher with Spatial Analyst Extension

Pentium III or higher processor
512 MB of RAM (1 GB recommended)
5 GB of available hard disk space
128 MB graphics card (256 MB recommended)

Information:

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Extent of the Seamless 90 Meters Digital Elevation Model for Mexico