

# ASTGTM v002

## ASTER Global Digital Elevation Model

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## Description

The ASTER Global Digital Elevation Model (ASTGTM) was developed jointly by the U.S. National Aeronautics and Space Administration (NASA) and Japan's Ministry of Economy, Trade, and Industry (METI).

ASTER is capable of collecting in-track stereo using nadir- and aft-looking near infrared cameras. Since 2001, these stereo pairs have been used to produce single-scene (60 kilometers by 60 kilometers) digital elevation models (DEM) having vertical root mean square error (RMSE) accuracies generally between 10 and 25 meters.

The methodology used by Japan's Sensor Information Laboratory Corporation (SILC) to produce the ASTER GDEM involves automated processing of the entire [ASTER Level 1A](#) archive. Stereo-correlation is used to produce over one million individual scene-based ASTER DEMs, to which cloud masking is applied to remove cloudy pixels. All cloud-screened DEMs are stacked and residual bad values and outliers are removed. Selected data are averaged to create final pixel values, and residual anomalies are corrected before partitioning the data into 1 degree by 1 degree tiles.

The ASTER GDEM covers land surfaces between 83°N and 83°S and is comprised of 22,702 tiles. Tiles that contain at least 0.01% land area are included. The ASTER GDEM is distributed as Geographic Tagged Image File Format (GeoTIFF) files with geographic coordinates (latitude, longitude). The data are posted on a 1 arc second (approximately 30 meters at the equator) grid and referenced to the 1984 World Geodetic System (WGS84)/1996 Earth Gravitational Model (EGM96) geoid.

While the ASTER GDEM Version 002 benefits from substantial improvements over ASTER GDEM Version 001, users are nonetheless advised that the products still may contain anomalies and artifacts that will reduce its usability for certain applications because they can introduce large elevation errors on local scales. The data are provided "as is" and neither NASA nor METI/ERSDAC will be responsible for any damages resulting from use of the data.

The generation and basic characteristics of the ASTER GDEM were summarized in a [presentation](#) by Tetsushi Tachikawa, et al., at the 2011 Institute of Electrical and Electronics Engineers (IEEE) International Geoscience and Remote Sensing Symposium (IGARSS).

ASTER GDEM data are subject to redistribution and citation policies. See [Data Citation and Policies](#) for more information.

## Characteristics

Collection and Granule



Collection		Granule	
Characteristic	Description	Characteristic	Description
Collection	Terra ASTER	Number of Science Dataset (SDS) Layers	2
DOI	10.5067/ASTER/ASTGTM.002	Columns/Rows	3601 x 3601
File Size	~12 MB	Pixel Size	30 meter
Temporal Resolution	Multi-Year		
Temporal Extent	1999-12-18 to 2011-02-28		
Spatial Extent	Global		
Coordinate System	Geographic Latitude and Longitude		
Datum	WGS84/EGM96		
File Format	GeoTIFF		
Geographic Dimensions	1 degree lat x 1 degree lon		

Layers



Product Quality



Known Issues



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