



June 10th 2026

[Agência Nacional de Águas DEM \(ANADEM\)](#), is a Digital Terrain Model (DTM) for South America which removes the influence of vegetation on elevation values from the [Copernicus GLO-30 DEM](#) (COPDEM) by integrating remote sensing data, cloud computation, and machine learning techniques. ANADEM uses a vegetation bias removal algorithm that was specifically calibrated for South America, incorporating spectral indices from [Landsat-8](#) and [Sentinel-2](#) (EVI, NDMI, MSAVI) combined with [Global Ecosystem Dynamics Investigation](#) (GEDI) lidar data to improve vegetation bias removal in tropical and subtropical environments. The algorithm uses a TreeBoost machine learning model implemented in [Google Earth Engine](#), trained with 50,000 samples per 5°×5° tile (with overlap) and 250 decision trees, allowing a fine-scale adjustment of vegetation bias corrections. ANADEM was validated against [ICESat-2](#) altimetry data.

For more details on this project that produced this dataset, see its associated publication: [ANADEM: A Digital Terrain Model for South America](#)

Disclaimer:

Localized striping or tiling artifacts may occur in limited areas of the ANADEM, particularly in regions with dense vegetation or complex terrain. These artifacts are spatially restricted and are not expected to compromise the overall quality, consistency, or suitability of ANADEM-derived products. In some cases, they may become more visible in visualization products such as hillshade or in highly sensitive terrain derivatives, but they do not affect the general reliability of ANADEM for regional terrain analysis, hydrological applications, or derived products.

Users interested in comparing global DEMs with ANADEM should be aware that differences in pixel size, grid alignment, and projection between datasets can introduce apparent artifacts when performing raster subtraction. To ensure accurate comparisons, we recommend reprojecting and resampling datasets to a common grid prior to differencing.

This data product was generated using machine learning methods. Users are advised to exercise caution and independently verify results before using this product for critical applications, engineering design, or decision-making purposes.

Dataset parameters:

- Type: Raster Digital Terrain Model
- Raster Type: Float32
- Units: meters
- Horizontal Coordinate System: SIRGAS 2000 [EPSG: 4674]
- Vertical Coordinate System: WGS84 Ellipsoid/EGM2008 Geoid [EPSG: 3855]