Guide: Polar Elevation Resources
URL: https://www.pgc.umn.edu/guides/misc/polar-elevation-resources/
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PGC maintains a list of external (non-PGC) polar elevation data resources.

Overview

While PGC provides distinct sets of polar elevation data, stereo-derived DEMs including ArcticDEM and REMA, there are many other elevation resources available.

The list below is non-exhaustive, but is a curated list of repositories and data sets that PGC uses and recommends. PGC does not provide support for using any of these datasets.

> If you are a polar elevation provider and would like to add your organization to this list, we would love to add you! Just send us a message with details.

Elevation Data

opentopography

OpenTopography facilitates efficient access to topography data, tools, and resources to advance our understanding of the Earth's surface, vegetation, and built environment. All NSF-funded high resolution topography datasets, regional and global (10-90 m resolution) and community contributed datasets (small to moderate sized datasets) hosted by OpenTopography are open and free for public access.

Portal URL: https://portal.opentopography.org/datasets

CryoSat Ice and Ocean Data

Polar observation altimetry satellite to determine variations in Earth's continental ice sheets and polar sea ice. Maintained by the European Space Agency (ESA).

Portal URL: https://earth.esa.int/

NASA IceBridge Airborne Topographic Mapper (ATM)

Spot elevation measurements of Arctic and Antarctic sea ice, Greenland, Antarctic Peninsula, and West Antarctic region ice surface collected as part of the Operation IceBridge funded aircraft survey campaigns. Maintained by the NASA Distributed Active Archive Center (DAAC) at National Snow and Ice Data Center (NSIDC).

Portal URL: http://nsidc.org/icebridge/portal/

Ice, Cloud, and land Elevation Satellite / Geoscience Laser Altimeter System (ICESat / GLAS) Data

Elevation data over glaciers, ice sheets, and coastal areas. Maintained by the NASA Distributed Active Archive Center (DAAC) at National Snow and Ice Data Center (NSIDC).

Portal URL: https://nsidc.org/data/icesat/

Ice, Cloud, and land Elevation Satellite-2 (ICESat-2) Data

Continuing first ICESat mission (from 2003-2009) to obtain elevation data over glaciers, ice sheets, and topography around the globe. Maintained by the NASA Distributed Active Archive Center (DAAC) at National Snow and Ice Data Center (NSIDC).

Portal URL: https://nsidc.org/data/icesat-2/

Alaska Elevation Portal

Various elevation datasets over Alaska including LiDAR, hillshades, DEM, DSM, DTM, point cloud and more. Maintained by the Alaska Division of Geological and Geophysical Surveys.

Portal URL: https://elevation.alaska.gov/

Interferometric Synthetic Aperture Radar (IFSAR) – Alaska

Elevation products generated from Interferometric Synthetic Aperture Radar (IFSAR) data in 2010-2012 for Alaska include Digital Surface Models (DSM) and Digital Terrain Models (DTM). Maintained by the USGS Earth Resources Observation and Science (EROS) Center.

Portal URL: https://www.usgs.gov/centers/eros/science/usgs-eros-archive-digital-elevation-interferometric-synthetic-aperture-radar

Canadian Digital Elevation Model (CDEM)

Complete coverage of the entire Canadian landmass from multiple resources acquired by provinces, territories, remotely sensed imagery, and more. Derived products such as slope, shaded relief and color shaded relief maps can be generated on demand. Maintained by the Government of Canada.

Portal URL: https://open.canada.ca/data/en/dataset/

High Resolution Digital Elevation Model (HRDEM) CanElevation Series

Complete coverage of the Canadian landmass is gradually implemented. Includes terrain and surface models with varied derived products such as slope, aspect, shaded relief, etc. maps. Maintained by the Government of Canada.

Portal URL: https://open.canada.ca/data/en/dataset/

Greenland Ice Mapping Project Digital Elevation Model (GIMP)

Enhanced resolution digital elevation model for the Greenland Ice Sheet by combining ASTER and SPOT 5 DEMs over ice sheet periphery and margin with AVHRR photoclinometry for interior and far north. Data was calibrated to mean elevations from the Geoscience Laser Altimeter System (GLAS) that flew on the Ice, Cloud, and land Elevation (ICESat) satellite. Maintained by the NASA Distributed Active Archive Center (DAAC) at National Snow and Ice Data Center (NSIDC).

Portal URL: https://nsidc.org/data/measures/gimp

RADARSAT Antarctic Mapping Project (RAMP) Digital Elevation Model

Complete topographic data coverage of all of Antarctica derived from satellite radar altimetry, airborne radar surveys, Antarctic Digital Database (Version 2), and large-scale topographic maps from USGS and the Australian Antarctic Division. Maintained by the NASA National Snow and Ice Data Center (NSIDC).

Portal URL: https://nsidc.org/data/NSIDC-0082/versions/2

Cryospheric Elevation Data (Non-Polar)

High Mountain Asia Digital Elevation Model

Optically derived digital elevation models created using the Surface Extraction from TIN-based Searchspace Minimization (SETSM) software. Maintained by the NASA Distributed Active Archive Center (DAAC) at National Snow and Ice Data Center (NSIDC).

Portal URL: https://nsidc.org/data/highmountainasia/

Shuttle Radar Topography Mission (SRTM)

Mid-latitude coverage, all land areas between 60º north and 56° south, using radar interferometry technique. Maintained by the USGS EROS Data Center.

Portal URL: https://www.usgs.gov/centers/eros/science/usgs-eros-archive-digital-elevation-srtm-mission

TanDEM-X Digital Elevation Model

The TanDEM-X DEM represents a digital surface model (not bare earth) and covers all of Earth's land surfaces, from pole to pole. It was generated from two almost identical satellites flying in close formation. TanDEM-X is free of charge but exclusively granted for scientific use. Commercial users must purchase a separate license. Maintained by Earth Observation Center (EOC) of the German Aerospace Center (DLR).

Portal URL: https://geoservice.dlr.de/web/dataguide/tdm90/