



# DEM Update - NTHMP

University of Colorado, Cooperative Institute for Research in Environmental Sciences / NOAA's National Centers for Environmental Information

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NOAA Satellite and Information Service | National Centers for Environmental Information





# DEM Development At NCEI

The DEM team at NCEI is currently developing DEMs to support individual coastal States as part of the NTHMP's efforts to improve community preparedness and hazard mitigation. Migration to a tiled schema occurring through DEM work under COASTAL Act funding.

Priorities are based on:

- ***NOAA forecast modeling requirements***
- ***State modeling needs***
- ***Data availability***

# DEM Development - Status

## NTHMP CY19

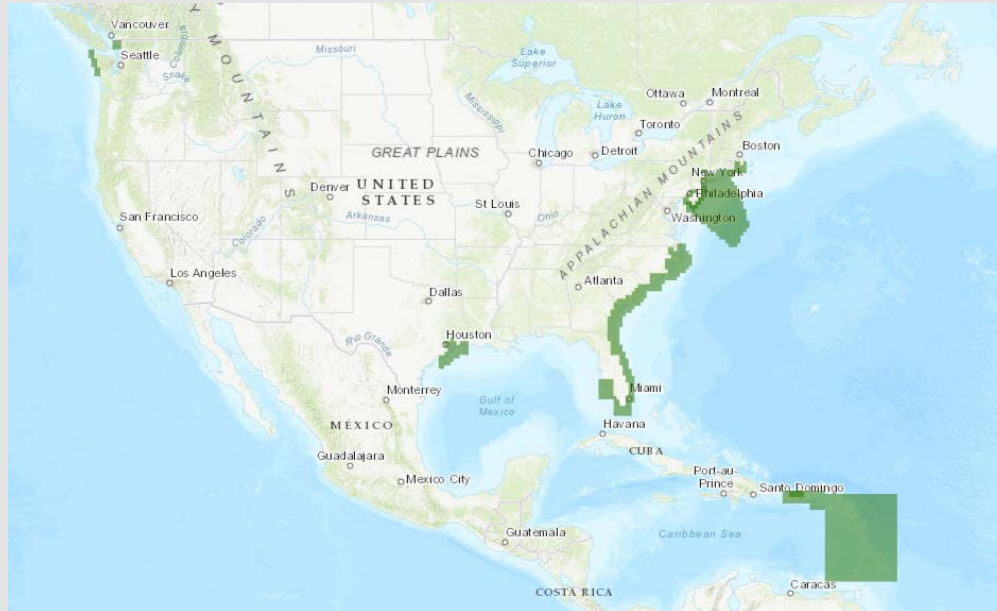
- Port Graham / Nawalek, AK
- Craig / Klawock, AK
- Tillamook County, OR (in progress)
- Western WA coastal tiles update (pending data availability)

## COASTAL Act funded

- SE Atlantic
- Antilles (regional) / PR-USVI

## COASTAL Act FY20 scheduled

- Florida Panhandle and AL/MS
- Chesapeake
- Louisiana
- Texas Update





# DEM Development

The DEM team at NCEI uses custom scripts that make use of free open-source software such as GDAL, MB-System, GMT, LASTools\*, VDatum, etc.

examples:

- **Data Processing:**
  - *Custom scripts making use of LASTools which is highly efficient with large datasets (lidar), VDatum for tidal, orthometric, and ellipsoidal transformations, GDAL for format conversions and custom processing.*
- **DEM Building:**
  - *GMT and MB-System are used to generate final DEM products.*
  - *Eastern inland boundaries for tiles defined by Cat 4/5 maximum of maximum (MOM) storm surge. Western inland boundaries options?*



# Tiled DEM updating

## Rapid updating of tiled DEMs

Benefit of tiling schema is quicker updating.

- **Tiled DEMs allow for rapid updates when new data becomes available.**
- **Updates only to tiles that contain new data.**
- **No need to rebuild entire DEMs when new data becomes available.**
- **More consistent DEM products over time.**



# DEM Access

## NCEI

*DEMs tiled and non-tiled in netCDF format.*

NCEI Thredds Catalog -  
<https://www.ngdc.noaa.gov/thredds/dem/Catalog.html>

## NOAA's Office for Coastal Management (OCM)

*Tiled DEMs with delivery options for custom extract, datums, and formats.*

Map Viewer and Custom Extract -  
<https://coast.noaa.gov/dataviewer/#/>

or bulk download and ftp access -  
[https://coast.noaa.gov/htdata/raster2/elevation/NCEI\\_third\\_Topobathy\\_2014\\_8580/](https://coast.noaa.gov/htdata/raster2/elevation/NCEI_third_Topobathy_2014_8580/)

[https://coast.noaa.gov/htdata/raster2/elevation/NCEI\\_ninth\\_Topobathy\\_2014\\_8483/](https://coast.noaa.gov/htdata/raster2/elevation/NCEI_ninth_Topobathy_2014_8483/)

# Tiled DEM Access

**Tiled Data Access Update** - NCEI tiled DEMs are available from NOAA/OCM's Data Access Viewer. This enables download options for data format and ROI specific selection.

The screenshot displays the NOAA Data Access Viewer interface. At the top, there are navigation tabs for 'IMAGERY', 'LAND COVER', and 'ELEVATION', with 'ELEVATION' currently selected. A search bar on the left allows users to search by address, latitude/longitude, or extent. The main map area shows a grayscale topographic map of the United States, with a yellow rectangular bounding box highlighting the coastal region. Labels on the map include 'CANADA', 'UNITED STATES', 'MEXICO', 'Gulf of Mexico', 'CUBA', 'Caribbean Sea', and 'COSTA RICA'. A legend in the bottom left corner shows a blue square for 'Pacific Ocean' and a black square for 'Land'. On the right side, there are filters for 'Filter by Provider' and 'Sort Results'. Below these, a search result is displayed: '2014 NOAA NCEI ninth arc second Topobathy DEM: Coastal US' by 'NOAA NCEI', with a size of '134.52 GB' and a 'BULK DOWNLOAD' option.



# International Efforts

- **USAID DEM development** - NCEI DEMs for selected sites in Jamaica and Belize supporting the Tsunami Program.
- **Ocean Networks Canada (ONC) DEM workshop** - A second follow up workshop scheduled for September and October 2019.

## Questions?