

Memorandum to SAOs 14/09/2016

Pan-Arctic Digital Elevation Map (Pan-Arctic DEM)

BACKGROUND:

The Iqaluit Declaration 2015 and the CAFF 2015-2017 Work Plan in the SAO Report to Ministers identified encouragement of a Digital Elevation Map (DEM) for the Arctic, or Pan-Arctic DEM, as an activity under the U.S. Arctic Council Chairmanship. The CAFF Work Plan states that work will be undertaken with the Arctic Spatial Data Infrastructure (Arctic SDI) with the U.S. as lead and the U.S. Geological Survey (USGS) serving as the lead U.S. agency (the US currently Chairs the Arctic SDI as well).

STATUS AUGUST 2016:

- 2nd Pan-Arctic DEM Workshop, St. Paul, Minnesota, USA
 - Elevation and mapping experts from the Arctic nations and representatives from the Polar Geospatial Center (PGC) and other participating parties attended the second Pan-Arctic DEM Workshop held at PGC on the University of Minnesota campus in St. Paul, Minnesota, USA in April, 2016. Representatives from all Arctic nations except Russia were in attendance.
 - Participants reviewed PGC's technical processes for generating and delivering a 2-meter resolution elevation dataset for the entire Arctic by summer 2017. Evaluations of sample data were reviewed. Proposed public delivery mechanisms were demonstrated. Discussions were held regarding PGC development of an Arctic-wide mosaic product. Potential timelines for completion and delivery of the dataset were discussed, but no formal delivery schedule was provided. Collection of the required source imagery appeared nearly complete for the entire Arctic, and processing algorithms were pronounced as stable.
- [Arctic SDI Board Decision and Position Paper](#)
 - At the Arctic SDI Board Meeting in June 2016, workshop attendees reported their findings and based on these an Arctic SDI position paper endorsing the PGC ArcticDEM product as a first generation solution to the Pan-Arctic DEM Initiative. The position paper notes that endorsement does not constitute it as an authorized elevation dataset from Arctic SDI or any individual Arctic nation, but acknowledges that PGC's ArcticDEM will be a huge first step providing an invaluable support tool for many science applications. Continued work will be required of Arctic nations to deliver and maintain nationally authorized elevation data products into the future.
 - Caveats in the position paper explain that source imagery and some control data used in development of the product are proprietary. Also, PGC has yet to formally release any portion of the dataset to the public, so the Arctic SDI endorsement is based on proposed data characteristics and delivery mechanisms. As such, Arctic SDI is waiting on a formal delivery before declaring a final position regarding the data and delivery mechanisms.
 - The PGC ArcticDEM, as presented, meets the Arctic Council criteria for a first generation product.

INITIATIVES

- Arctic nations have supported improvement of the product by providing support data and data evaluations. Arctic nations can continue to work with PGC and provide support data.
- Arctic SDI nations will evaluate final PGC data and delivery mechanisms once data are formally released. Based on these evaluations, Arctic SDI will consider next steps for potential delivery of an authorized, authoritative Arctic SDI elevation product after final PGC results are confirmed.
- Arctic SDI has tentatively scheduled a third Pan-Arctic Elevation workshop for fall of 2017 following formal delivery and subsequent evaluation of PGC's ArcticDEM product. This workshop will consider next steps for the Arctic SDI nations to advance Arctic elevation data development and distribution.

FURTHER INFORMATION

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