

Please provide the following information, and submit to the NOAA DM Plan Repository.

Reference to Master DM Plan (if applicable)

As stated in Section IV, Requirement 1.3, DM Plans may be hierarchical. If this DM Plan inherits provisions from a higher-level DM Plan already submitted to the Repository, then this more-specific Plan only needs to provide information that differs from what was provided in the Master DM Plan.

URL of higher-level DM Plan (if any) as submitted to DM Plan Repository:

1. General Description of Data to be Managed**1.1. Name of the Data, data collection Project, or data-producing Program:**

2019 AK DGGS Lidar: Utqiagvik - Atqasuk, Alaska

1.2. Summary description of the data:

Lidar-derived elevation data for the Utqiagvik-Atqasuk region, Alaska, collected August 2019, Raw Data File 2022-10, provides classified point cloud, digital terrain model (DTM), surface model (DSM), and intensity model data for the communities of Utqiagvik and Atqasuk and surrounding areas. The data were collected in support of the Alaska Strategic Transportation and Resources (ASTAR) program for the purpose of investigating the potential for future road infrastructure connecting the communities. Aerial lidar data were collected between August 19 and 23, 2019, and subsequently processed using a suite of geospatial processing software. These products are released as a Raw Data File with an open end-user license. All files can be downloaded from the Alaska Division of Geological & Geophysical Surveys website (<http://doi.org/10.14509/30870>).

The NOAA Office for Coastal Management (OCM) downloaded this data set from this AK DGGS site:

<https://elevation.alaska.gov/>

These files were processed to the NOAA Digital Coast Data Access Viewer (DAV) and AWS S3. The total number of files downloaded and processed was 2128.

During processing, NOAA OCM noted that there are lidar points on structures that are classified as ground.

In addition to the lidar point data, the bare earth Digital Elevation Model (DEM) data at a 1 meter grid spacing, created from the lidar point data are also available from the NOAA Digital Coast. Links to these data are provided in the URL section of this metadata record.

1.3. Is this a one-time data collection, or an ongoing series of measurements?

One-time data collection

1.4. Actual or planned temporal coverage of the data:

2019-08-19 to 2019-08-23

1.5. Actual or planned geographic coverage of the data:

W: -157.730747, E: -156.233342, N: 71.345557, S: 70.479988

1.6. Type(s) of data:

(e.g., digital numeric data, imagery, photographs, video, audio, database, tabular data, etc.)

Model (digital)

1.7. Data collection method(s):

(e.g., satellite, airplane, unmanned aerial system, radar, weather station, moored buoy, research vessel, autonomous underwater vehicle, animal tagging, manual surveys, enforcement activities, numerical model, etc.)

1.8. If data are from a NOAA Observing System of Record, indicate name of system:**1.8.1. If data are from another observing system, please specify:****2. Point of Contact for this Data Management Plan (author or maintainer)****2.1. Name:**

NOAA Office for Coastal Management (NOAA/OCM)

2.2. Title:

Metadata Contact

2.3. Affiliation or facility:

NOAA Office for Coastal Management (NOAA/OCM)

2.4. E-mail address:

coastal.info@noaa.gov

2.5. Phone number:

(843) 740-1202

3. Responsible Party for Data Management

Program Managers, or their designee, shall be responsible for assuring the proper management of the data produced by their Program. Please indicate the responsible party below.

3.1. Name:**3.2. Title:**

Data Steward

4. Resources

Programs must identify resources within their own budget for managing the data they produce.

4.1. Have resources for management of these data been identified?

4.2. Approximate percentage of the budget for these data devoted to data management (specify percentage or "unknown"):

5. Data Lineage and Quality

NOAA has issued Information Quality Guidelines for ensuring and maximizing the quality, objectivity, utility, and integrity of information which it disseminates.

5.1. Processing workflow of the data from collection or acquisition to making it publicly accessible

(describe or provide URL of description):

Lineage Statement:

Data were collected by the Alaska Division of Geological and Geophysical Surveys (AK DGGs). OCM downloaded the data from the Alaska DGGs Elevation Portal and processed the data to be available for custom download from the NOAA Digital Coast Data Access Viewer (DAV) and for bulk download from AWS S3.

Process Steps:

- 2019-09-23 00:00:00 - Aerial photogrammetric survey - DGGs used a Riegl VUX1-LR laser scanner integrated with a global navigation satellite system (GNSS) and Northrop Grumman LN-200C inertial measurement unit (IMU). The lidar integration system was designed by Phoenix LiDAR Systems. The sensor can collect up to 820,000 points per second over a distance of 150 m. This survey was flown with a pulse refresh rate of 400,000 pulses per second, at a scan rate between 80 and 220 lines per second. This survey was flown with an average elevation of 200 m above ground level and a ground speed of approximately 30 m/s with a fixed-wing configuration, using a Cessna 180. The scan angle was set from 80 to 280 degrees. The total area surveyed was approximately 1,595 km². Aerial lidar was collected between August 19 and 23, 2019. Seven flightlines collected on the evening of August 22 yielded too large a file for our software to process and the points from those lines are not represented in our final product.
- 2018-09-01 00:00:00 - Ground survey - Ground survey points from an UMIAQ, LLC, collection in September 2018, were used as control and checkpoint data for this dataset. These survey data were originally gathered in support of a USGS 3DEP funded lidar project, headed by Quantum Spatial (now NV5 Geospatial).
- 2022-01-01 00:00:00 - Photogrammetric dataset processing - Point data were processed in SDCimport software for initial filtering and multiple-time-around (MTA) disambiguation. MTA errors, corrected in this process, are the result of imprecise interpretations of received pulse time intervals and occur more frequently with higher pulse refresh rates. Inertial Measurement Unit (IMU) and Global Navigation Satellite System (GNSS) data were processed in Inertial Explorer

and used to integrate flightline information with the point cloud in Spatial Explorer software. The point data were calibrated at an incrementally precise scale of sensor movement and behavior, incorporating sensor velocity, roll, pitch, and yaw fluctuations throughout the survey. Points were classified in accordance with American Society for Photogrammetry and Remote Sensing (ASPRS) 2014 guidelines, using macros designed in Terrasolid software. Once classified, points underwent a geometric transformation and were converted from ellipsoidal heights to GEOID12B (Alaska) orthometric heights. Raster products were derived from the point cloud using ArcGIS Pro. The DTM was interpolated from all ground class returns using a TIN-based method. The DSM was likewise interpolated from only the first return points. An intensity image was also produced in ArcGIS Pro, using closest-to-mean binning.

- 2022-10-12 00:00:00 - The NOAA Office for Coastal Management (OCM) downloaded 2128 laz files from the Alaska DGGS Elevation Portal at: <https://elevation.alaska.gov/>. The files were in UTM Zone 4 NAD83 (2011), meters coordinates and were in NAVD88 (Geoid12b) elevations in meters. The point classifications were: 1 - Unclassified, 2 - Ground, 3 - Low Vegetation, 4 - Medium Vegetation, 7 - Low Noise, and 8 - Model Key Point. During the review, OCM noted that there were oddly placed artifact points that were classified as 8 - Model Key Points. OCM asked AK DGGS about these points, and they said that these points were "multiple-time around errors which weren't disambiguated in pre-processing. They were classified as model key points to separate them from other noise classes during classification." OCM reclassified these points from class 8 - Model Key Point to class 18 - High Noise. Also noted during processing, were that there are lidar points on structures that are classified as ground. Classes available on the DAV are: 1, 2, 3, 4, 7, 18. OCM performed the following processing on the data for Digital Coast storage and provisioning purposes: 1. An internal OCM script was run to check the number of points by classification and by flight ID and the gps and intensity ranges. 2. Internal OCM scripts were run on the laz files to convert from orthometric (NAVD88) elevations to ellipsoid elevations using the Geoid12b model, to convert from UTM Zone 4 NAD83 (2011), meters coordinates to geographic coordinates, to reclass the class 8 points to class 18, to assign the geokeys, to sort the data by gps time and zip the data to database and to AWS S3.

5.1.1. If data at different stages of the workflow, or products derived from these data, are subject to a separate data management plan, provide reference to other plan:

5.2. Quality control procedures employed (describe or provide URL of description):

6. Data Documentation

The EDMC Data Documentation Procedural Directive requires that NOAA data be well documented, specifies the use of ISO 19115 and related standards for documentation of new data, and provides

links to resources and tools for metadata creation and validation.

6.1. Does metadata comply with EDMC Data Documentation directive?

No

6.1.1. If metadata are non-existent or non-compliant, please explain:

Missing/invalid information:

- 1.7. Data collection method(s)
- 3.1. Responsible Party for Data Management
- 4.1. Have resources for management of these data been identified?
- 4.2. Approximate percentage of the budget for these data devoted to data management
- 5.2. Quality control procedures employed
- 7.1. Do these data comply with the Data Access directive?
- 7.1.1. If data are not available or has limitations, has a Waiver been filed?
- 7.1.2. If there are limitations to data access, describe how data are protected
- 7.4. Approximate delay between data collection and dissemination
- 8.1. Actual or planned long-term data archive location
- 8.3. Approximate delay between data collection and submission to an archive facility
- 8.4. How will the data be protected from accidental or malicious modification or deletion prior to receipt by the archive?

6.2. Name of organization or facility providing metadata hosting:

NMFS Office of Science and Technology

6.2.1. If service is needed for metadata hosting, please indicate:

6.3. URL of metadata folder or data catalog, if known:

<https://www.fisheries.noaa.gov/inport/item/67945>

6.4. Process for producing and maintaining metadata

(describe or provide URL of description):

Metadata produced and maintained in accordance with the NOAA Data Documentation Procedural Directive: https://nosc.noaa.gov/EDMC/DAARWG/docs/EDMC_PD-Data_Documentation_v1.pdf

7. Data Access

NAO 212-15 states that access to environmental data may only be restricted when distribution is explicitly limited by law, regulation, policy (such as those applicable to personally identifiable information or protected critical infrastructure information or proprietary trade information) or by security requirements. The EDMC Data Access Procedural Directive contains specific guidance, recommends the use of open-standard, interoperable, non-proprietary web services, provides information about resources and tools to enable data access, and includes a Waiver to be submitted to justify any approach other than full, unrestricted public access.

7.1. Do these data comply with the Data Access directive?

7.1.1. If the data are not to be made available to the public at all, or with limitations, has a Waiver (Appendix A of Data Access directive) been filed?

7.1.2. If there are limitations to public data access, describe how data are protected from unauthorized access or disclosure:

7.2. Name of organization of facility providing data access:

NOAA Office for Coastal Management (NOAA/OCM)

7.2.1. If data hosting service is needed, please indicate:

7.2.2. URL of data access service, if known:

<https://coast.noaa.gov/dataviewer/#/lidar/search/where:ID=9614/details/9614>

<https://noaa-nos-coastal-lidar-pds.s3.amazonaws.com/laz/geoid12b/9614/index.html>

7.3. Data access methods or services offered:

Data is available online for bulk and custom downloads.

7.4. Approximate delay between data collection and dissemination:

7.4.1. If delay is longer than latency of automated processing, indicate under what authority data access is delayed:

8. Data Preservation and Protection

The NOAA Procedure for Scientific Records Appraisal and Archive Approval describes how to identify, appraise and decide what scientific records are to be preserved in a NOAA archive.

8.1. Actual or planned long-term data archive location:

(Specify NCEI-MD, NCEI-CO, NCEI-NC, NCEI-MS, World Data Center (WDC) facility, Other, To Be Determined, Unable to Archive, or No Archiving Intended)

8.1.1. If World Data Center or Other, specify:

8.1.2. If To Be Determined, Unable to Archive or No Archiving Intended, explain:

8.2. Data storage facility prior to being sent to an archive facility (if any):

Office for Coastal Management - Charleston, SC

8.3. Approximate delay between data collection and submission to an archive facility:

8.4. How will the data be protected from accidental or malicious modification or deletion prior to receipt by the archive?

Discuss data back-up, disaster recovery/contingency planning, and off-site data storage relevant to the data collection

9. Additional Line Office or Staff Office Questions

Line and Staff Offices may extend this template by inserting additional questions in this section.