

*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:**

2018 USGS Lidar: North Slope, AK - QL1

### **1.2. Summary description of the data:**

Product: Classified light detection and ranging (lidar) LAS 1.4 files formatted to 4,474 1500 ft x 1500 ft tiles.

In July 2018, Quantum Spatial (QSI) was contracted by the United States Geological Survey (USGS) to collect Light Detection and Ranging (LiDAR) data in the summer of 2018 for several areas of interest (AOIs), comprising the North Slope Borough Communities 3DEP LiDAR project in Alaska. Data were collected to aid USGS in assessing the topographic and geophysical properties of the study area, to support its mission to gather high quality 3D elevation data over the state of Alaska.

Due to inclement weather and the short acquisition timeframe in Alaska, QSI was able to collect LiDAR data in eight out of the eleven contracted AOIs in the 2018 acquisition season: Atkasuk, Barrow North, Barrow South, Barrow Village, Deadhorse, Kaktovic, Nuiqsut and Wainwright. Data collection for the remaining AOIs: Anaktuvuk Pass, Point Lay, and Point Hope was then completed in the summer of 2019.

Dataset Description: The North Slope Borough 3DEP LiDAR project called for the planning, acquisition, and processing of LiDAR data collected at an aggregate nominal pulse spacing (ANPS) of either 0.35 meters or 0.70 meters depending on area. Project specifications are based on the U.S. Geological Survey National Geospatial Program Base LiDAR Specification, Version 1.3. The data was developed based on the NAD83(2011) horizontal datum and NAVD88 (GEOID12B) vertical datum. Data was projected in the appropriate Alaska State Plane Zone for its location.

### **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:**

2018-07-14 to 2019-08-18

### **1.5. Actual or planned geographic coverage of the data:**

W: -166.84204, E: -143.606958, N: 71.31159, S: 68.091777

**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?**

Yes

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

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):*

Process Steps:

- 2019-04-30 00:00:00 - LiDAR Pre-Processing: 1. Review flight lines and data to ensure complete coverage of the study area and positional accuracy of the laser points. 2. Resolve kinematic corrections for aircraft position data using kinematic aircraft GPS and static ground GPS data. 3. Develop a smoothed best estimate of trajectory (SBET) file that blends post-processed aircraft position with sensor head position and attitude recorded throughout the survey. 4. Calculate laser point position by associating SBET position to each laser point return time, scan angle, intensity, etc. Create raw laser point cloud data for the entire survey in \*.las format. Convert data to orthometric elevations by applying a geoid correction. 5. Import raw laser points into manageable blocks (less than 500 MB) to perform manual relative accuracy calibration and filter erroneous points. Classify ground points for individual flight lines. 6. Using ground classified points per each flight line, test the relative accuracy. Perform automated line-to-line calibrations for system attitude parameters (pitch, roll, heading), mirror flex (scale) and GPS/IMU drift. Calculate calibrations on ground classified points from paired flight lines and apply results to all points in a flight line. Use every flight line for relative accuracy calibration. 7. Adjust the point cloud by comparing ground classified points to supplemental ground control points.

- 2019-04-30 00:00:00 - LiDAR Post-Processing: 1. Classify data to ground and other client designated classifications using proprietary classification algorithms. 2. Manually QC data classification 3. After completion of classification and final QC approval, calculate final NVA for the project using ground control quality check points.

- The NOAA Office for Coastal Management (OCM) downloaded this data set from this USGS site: [ftp://rockyftp.cr.usgs.gov/vdelivery/Datasets/Staged/Elevation/LPC/Projects/AK\\_NorthSlopeBorough\\_2018\\_B18/](ftp://rockyftp.cr.usgs.gov/vdelivery/Datasets/Staged/Elevation/LPC/Projects/AK_NorthSlopeBorough_2018_B18/) All 14 subfolders, or blocks, were downloaded. The total number of files downloaded and processed was 5,467. OCM determined the following information regarding the USGS Quality Level (QL) and Alaska State Plane Zone projection for each block: -----

----- "NAD83(2011) / Alaska zone 4 (ftUS)" B9 = QL1  
 B12 = QL2 B2 = QL1 B6 (2 AOIs) = QL2 -----  
 ----- "NAD83(2011) / Alaska zone 2 (ftUS)" B1 = QL1  
 B5 = QL2 ----- "

NAD83(2011) / Alaska zone 6 (ftUS)" B3 = QL1 (2 AOIs) B7 (3 AOIs) =  
 QL2 ----- "NAD83(  
 2011) / Alaska zone 7 (ftUS)" B4 = QL1 B8 = QL2 B10 = QL1  
 B13 = QL2 ----- "  
 NAD83(2011) / Alaska zone 8 (ftUS)" B11 = QL1 B14 = QL2

The data were in the above Alaska State Plane zones, (NAD83 2011), U.S. Feet coordinates and NAVD88 (Geoid12B) elevations in U.S Feet. The data were classified as: 1 - Unclassified, 2 - Ground, 3- Low Vegetation (0.5 - 2 meters), 4 - Medium Vegetation (2 - 6 meters), 5 - High Vegetation (6+ meters), 6 - Buildings, 7 - Noise, 9 - Water, 17 - Bridge Decks, 20 - Ignored Ground, 21 - Snow. OCM processed all classifications of points to the Digital Coast Data Access Viewer (DAV). For this mission, only folders Blocks 1, 2, 3, 4, 9, 10 and 11 were processed, as these were the QL1 files. 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 Alaska State Plane (NAD83 2011), U.S. Feet coordinates to geographic coordinates, to assign the geokeys, to sort the data by gps time and zip the data to database and to http.

**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
- 5.2. Quality control procedures employed
- 7.1.1. If data are not available or has limitations, has a Waiver been filed?
- 7.4. Approximate delay between data collection and dissemination
- 8.3. Approximate delay between data collection and submission to an archive facility

**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/63140>

**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](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?**

Yes

**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=9197/details/9197>  
<https://noaa-nos-coastal-lidar-pds.s3.amazonaws.com/laz/geoid12b/9197/>

**7.3. Data access methods or services offered:**

Data is available online for bulk or 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)*

NCEI\_CO

**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*

Data is backed up to tape and to cloud storage.

**9. Additional Line Office or Staff Office Questions**

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