

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:

2020 USGS Lidar: 17 County, AL

1.2. Summary description of the data:

The Project data set consists of the Classified Point Cloud. The Geographical Extent of this dataset extends to the AL 17County_2020_B20 UTM Zone 16N D1 boundary and the AL 17County_2020_B20 UTM Zone 16N D2 boundary. These areas are in northern and central Alabama.

Block 1 - AL_17Co_1_2020, Work Unit 226776

The data covers 6440.76 square miles in the following counties: Blount, Colbert, DeKalb, Jackson, Lauderdale, Lawrence, Marshall, Morgan

Block 2 - AL_17Co_2_2020, Work Unit 191531

The data covers 6704.85 square miles in the following counties: Calhoun, Clay, Cleburne, Lowndes, Marengo, Montgomery, St. Clair, Talladega, Wilcox

Ground Conditions: water at normal levels; no unusual inundation; no snow; leaf off.

How the Withheld Points are Identified: Withheld flag was not used in this dataset.

This metadata record supports the data entry in the NOAA Digital Coast Data Access Viewer (DAV). For this data set, the DAV is leveraging the Entwine Point Tiles (EPT) hosted by USGS on Amazon Web Services.

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:

2020-12-10 to 2021-01-17, 2020-12-09 to 2021-02-23

1.5. Actual or planned geographic coverage of the data:

W: -88.20573, E: -85.49292, N: 35.026664, S: 33.732627

Data collection area for AL_17Co_1_2020

W: -88.15, E: -85.28, N: 34, S: 31.9
Data collection area for AL_17Co_2_2020

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):

Lineage Statement:

The NOAA Office for Coastal Management (OCM) ingested references to the USGS Entwine Point Tiles (EPT) hosted on Amazon Web Services (AWS) into the Digital Coast Data Access Viewer (DAV). The DAV accesses the point cloud as it resides on AWS under the usgs-lidar-public-container.

Process Steps:

- 2021-01-24 00:00:00 - Aerial Lidar Acquisition: Lidar acquisition was done using Gunterville Municipal Airport (K8A1) and Northwest Alabama Regional Airport (KMSL) as the base airport. DAS used one dedicated GPS base station located at the respected airport to support the aerial Lidar acquisition. DAS used Leica's Terrian Lidar Sensor (SN90524) for the acquisition. The project consisted of 305 flightlines totaling 9426.82 nautical miles. The acquisition was completed in 31 lift from December 9th ,2020 - Feburary 22, 2021. Ground Control Survey: A survey was performed to support the acquisition of Light Detection and Ranging (LiDAR). The control network involved a total of Hundred Ninety Two (192) check points (110 NVA + 82 VVA). The points were a combination of the following ground cover classification: Open Terrain, Urban Terrain, Bare Earth, High Grass, and Low Trees. All field survey observations were completed March 22, 2019 with Leica GPS GS15 and 1200 equipment.

- 2021-02-24 00:00:00 - LiDAR Data Processing: Inertial Explorer 8.9 software was used to compute inertial solution file (*.sol) for each mission using ground GPS base station. The resulting solution was checked to ensure a minimum accuracy of +/- 0.05m, combined separation, for horizontal and vertical positions. Inertial Explorer methodology integrates Inertial Navigation Solution by processing the GPS data and Inertial Measurement Unit (IMU). The software applies the reference lever arms for the GPS and IMU during the process to determine the trajectory (position and orientation) of the LiDAR sensor during the acquisition mission. Inertial Explorer generated graphical results was reviewed to ensure that the IMU data was healthy. These results are found in Appendix D. Raw LiDAR sensor ranging data and the final solution sensor trajectory (*.sol), from Inertial Explorer, were processed in Leica's HxMap software to produce LiDAR point cloud swath for each flight line in LAS version 1.4 file format. Quality control of the swath point cloud was performed

to validate proper functioning of the sensor system, full coverage of the project area and point density of the LiDAR data. Swath point clouds were assigned unique file source identification. The data was found to be complete and consistent with the sensor calibration parameters.

- 2021-03-09 00:00:00 - LiDAR Calibration:HxMap is the common workflow platform for Leica airborne sensors. The processing workflow involves; Ingest, Block Creation, LiDAR Matching, Quality Assurance (QA) and Product Generation. LiDAR is processed in HxMap by generating point clouds from raw sensor data during the Ingest step. Noise filtering, sensor installation calibration and atmospheric condition parameters are also applied during the ingest process. Once all data is processed through ingest, they are assembled into a block for LiDAR Matching. The LiDAR Matching step resolves LiDAR registration errors which remain in the point clouds after sensor and installation calibration parameters are applied in the ingest step. QA tool is run on the Block after LiDAR Matching to verify quality of results. QA results are reviewed to ensure that, 95% of patches less than 5cm for Vertical Scan Direction and Vertical Line Separation. Ground control points are also included to assess absolute accuracy for the point cloud data. LiDAR products are finally generated in the Product Generation step as LAS swaths (LAS 1.4). Vertical (Z) shift (calculated from QA step) is also applied during the product generation.

- Original point clouds in LAS/LAZ format were restructured as Entwine Point Tiles and stored on Amazon Web Services. The data were re-projected horizontally to WGS84 web mercator (EPSG 3857) and no changes were made to the vertical (NAVD88 GEOID18 meters).

- 2024-05-31 00:00:00 - The NOAA Office for Coastal Management (OCM) created references to the Entwine Point Tiles (EPT) that were ingested into the NOAA Digital Coast Data Access Viewer (DAV). No changes were made to the data. The DAV will access the point cloud as it resides on Amazon Web Services (AWS) under the usgs-lidar-public container. These are the AWS URLs being accessed: https://s3-us-west-2.amazonaws.com/usgs-lidar-public/AL_17Co_1_2020/ept.json https://s3-us-west-2.amazonaws.com/usgs-lidar-public/AL_17Co_2_2020/ept.json

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/72716>

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?

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=10125/details/10125>

https://rockyweb.usgs.gov/vdelivery/Datasets/Staged/Elevation/LPC/Projects/AL_17County_2020_B20/

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)

NCEI_NC

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 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.