

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:

2016-2017 NCEM NCDOT USGS Lidar: Phase Four Counties in North Carolina

1.2. Summary description of the data:

The data set was collected specific to the 2016 Phase Four project area consisting of 20 North Carolina counties. lidar data for the project and the validation site was collected by a single aerial vendor on ESP team between February 27, 2016 and April 17, 2016 and between December 9, 2016 and February 21 of 2017 using Geiger-mode Avalanche Photodiode (GmAPD) sensors. The aerial vendor on the ESP team was Harris Corporation (Harris). Two GmAPD (Geiger-mode) sensors (serial numbers 002 and 003) were used for the data collection of lidar data at a 0.35 meter nominal post spacing (NPS). The following counties or portions of counties were collected in the February through April, 2016 mobilization: Alleghany, Stokes, Surry, Cleveland, Gaston, Mecklenburg, Cabarrus, Stanly, Union, and Anson. The following counties or portions of counties we collected in the December, 2016 through February, 2017 mobilization: Cleveland, Gaston, Mecklenburg, Cabarrus, Stanly, Wilkes, Yadkin, Forsyth, Alexander, Catawba, Iredell, Davie, Rowan, and Davidson. All data was collected during leaf-off conditions. Ground survey support for the project included the establishment of GPS base stations and the collection of control points used for calibration. All data was delivered in the North Carolina State Plane Coordinate System, with a horizontal datum of NAD83 (2011), vertical datum of NAVD88 (Geoid 12B), in US Survey Feet. Data was delivered tiled to a 2,500 foot by 2,500 foot tiling scheme unless otherwise specified in this product description. All lidar was delivered in LASer (LAS) version 1.4 standard format. All lidar and derivative products for this project met the specifications stipulated in Delivery Order 22, the NC Lidar Standard, and the USGS minimum standards for QL1 lidar data. This project was a joint effort between NC Emergency Management, NC Geodetic Survey, and the NCDOT. The following people served as the main representatives for each stakeholder: NC Emergency Management- Hope Morgan (primary contact) and John Dorman; NC Geodetic Survey- Gary Thompson and Watson Ross; NCDOT- Keith Johnston and Marc Swartz, and the United States Geological Survey (USGS).

This metadata 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. At the time of ingest into the DAV (August 2020), that data was missing Lincoln, Cabarrus, and Stanly Counties from the full Phase IV data set. Those counties have been added for DAV processing (January, 2022), but not as EPT.

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:

2016-02-27 to 2017-02-21

1.5. Actual or planned geographic coverage of the data:

W: -81.796371, E: -79.846639, N: 36.607426, S: 34.819963

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:

North Carolina Phase 4 lidar was ingested into the Data Access Viewer for custom product generation by leveraging USGS hosted Entwine Point Tiles and obtaining three counties missing from EPT in LAZ format.

Process Steps:

- 2017-01-01 00:00:00 - LAS Point Classification: The point classification is performed as described below. The bare earth surface is then manually reviewed and edited using TIN visualization and profiles to ensure correct classification on the Class 2 (Ground) points as well as the other classifications required by NCEM. After the bare earth surface is finalized, it is then used to generate all hydro-breaklines through heads-up digitization in a 3D environment for all rivers equal to or larger than 100 feet in width and all closed water bodies equal to or greater than 2 acres. Island equal or greater than 1 acre are mapped are included. All ground (Class 2) lidar data inside of the Lake Pond and Double Line Drain hydro flattening breaklines were classified to water (Class 9) using ESP Utilities. A buffer of 1 foot was also used around each hydro-flattened feature to classify ground (Class 2) points within the buffer to breakline proximity (Class 10). All Lake Pond Island and Double Line Drain Island features were reviewed in ESP Analyst and checked to ensure that the ground (Class 2) points were reclassified to the correct classification after the automated classification was completed. Overlap data was not processed as Geiger mode lidar is flown at a 55 percent overlap with a Palmer scanner. Road polygons derived from heads-up digitization from aerial imagery and the lidar were derived for only state-maintained roads per the latest available road database from the

North Carolina Department of Transportation. These polygons were then used to classify all ground points with the road edges to roads (Class 13). All remaining classifications required by NCEM such as buildings (Class 6) and vegetation strata (Classes 3, 4, and 5) were derived using automated filters in Terrascan then checked for gross errors and review to ensure that a 98 percent confidence level in classification was met. All data was manually reviewed and any remaining artifacts in the ground (Class 2) removed using functionality provided by ESP Analyst. ESP Analyst was used as a final check of the bare earth dataset. ESP Utilities was then used to create the deliverable industry-standard LAS files for both the All Point Cloud Data. ESP Utilities was used to verify full LAS header and projection information.

- 2019-01-01 00:00:00 - Original point clouds in LAS/LAZ format were restructured as Entwine Point Tiles and stored on Amazon Web Services. The data were reprojected horizontally to WGS84 Web Mercator (EPSG 3857). Vertically the data was converted to meters and no changes were made to the vertical datum (NAVD88 GEOID12B; EPSG 5703). (Citation: LAS point cloud on AWS)

- 2020-07-30 00:00:00 - References to the entwine point tiles and data reports were ingested into the Digital Coast Data Access Viewer. No changes to the data were made at this point. The Data Access Viewer will access the point cloud as it resides on AWS under the usgs-lidar-public container. (Citation: Entwine Point Tiles on AWS)

- 2022-01-19 00:00:00 - The three counties missing from the USGS EPT holdings were downloaded from the USGS RockyWeb holdings. These were converted to geographic coordinates (NAD83 2011) and vertical meters. The vertical datum was left as NAVD88 Geoid12B to match the USGS EPT holdings. This allows the Data Access Viewer to combine them. (Citation: USGS Point Cloud)

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/62362>

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=9165/details/9165>

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.