

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 NYSGPO Lidar DEM: Allegany and Steuben Counties, NY

1.2. Summary description of the data:

Product: These are Digital Elevation Model (DEM) data for Allegany and Steuben County, New York as part of the required deliverables for the 2016 Allegany and Steuben County Lidar project. Class 2 (ground) lidar points in conjunction with the hydro breaklines were used to create a 1 meter hydro-flattened Raster DEM.

Geographic Extent: Allegany and Steuben County, New York, covering approximately 1,316 square miles.

Dataset Description: Allegany and Steuben County, New York 2016 Lidar project called for the Planning, Acquisition, processing and derivative products of lidar data to be collected at a nominal pulse spacing (NPS) of 0.7 meter. Project specifications are based on the U.S. Geological Survey National Geospatial Program Base Lidar Specification, Version 1.2. Lidar data was delivered as flightline-extent unclassified LAS swaths, as processed Classified LAS 1.4 files, formatted to 1516 individual 1500 m x 1500 m tiles, as tiled bare earth DEMs; all tiled to the same 1500 m x 1500 m schema.

Ground Conditions: Lidar was collected in early 2016, while no snow was on the ground and rivers were at or below normal levels. In order to post process the lidar data to meet task order specifications and meet ASPRS vertical accuracy guidelines, New York Office of Information Technology Services established a total of 26 ground control points that were used to calibrate the lidar to known ground locations established throughout the Allegany and Steuben County, New York project area. An additional 111 independent accuracy checkpoints, 61 in Bare Earth and Urban landcovers (61 NVA points). Please note that 3 of the 61 total NVA point were excluded from the solution due to being outside of the LiDAR coverage area. 50 in Tall Grass and Brushland/Low Trees categories (50 VVA points) were used to assess the vertical accuracy of the data. Please note that 2 VVA points out of the 50 collected were excluded due to being outside of the collection area. These checkpoints were not used to calibrate or post process the data.

In addition to these bare earth Digital Elevation Model (DEM) data, the lidar point data

that these DEM data were created from, are also available. These data are available for custom download at the link 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:

2016-03-30 to 2016-05-18

1.5. Actual or planned geographic coverage of the data:

W: -78.108996, E: -77.034467, N: 42.594293, S: 41.978805

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:

Data were collected and processed by Axis GeoSpatial, LLC for the New York Office of Information Technology Services and posted to their ftp site. The NOAA Office for Coastal Management (OCM) downloaded the data from the ftp site and processed it to make it available for custom download from the Data Access Viewer (DAV) and bulk download from https.

Process Steps:

- 2016-01-01 00:00:00 - Aerial LiDAR Acquisition: Aerial data collection was acquired in Sixteen (16) missions. Missions were flown using the Riegl Q1560 LiDAR system at a max flying height of 1830 m AGL. This was to support a 2.6 ppm² LiDAR point cloud. Airborne GPS and IMU data was collected during the acquisition and supported by POS/AV 510 for both sensors. Data acquisition was completed on May 18 2016. In order to post process the lidar data to meet task order specifications and meet ASPRS vertical accuracy guidelines, New York Office of Information Technology Services established a total of 26 ground control points that were used to calibrate the lidar to known ground locations established throughout the Allegany and Steuben County, New York project area. An additional 111 independent accuracy checkpoints, 61 in Bare Earth and Urban landcovers (61 NVA points). Please note that 3 of the 61 total NVA point were excluded from the solution due to being outside of the LiDAR coverage area. 50 in Tall Grass and Brushland/ Low Trees categories (50 VVA points) were used to assess the vertical accuracy of the data. Please note that 2 VVA points out of the 50 collected were excluded due to being outside of the collection area. These checkpoints were not used to calibrate or post process the data. The data were developed based on a horizontal projection/

datum of NAD83, Universal Transverse Mercator, meters and vertical datum of NAVD88 (GEOID12A), meters.

- 2016-01-01 00:00:00 - LiDAR Pre-processing: Airborne GPS and IMU data were merged to develop a Smoothed Best Estimate Trajectory (SBET) of the LiDAR system trajectory for each lift. LiDAR ranging data were initially calibrated using previous best parameters for this instrument and aircraft. Relative calibration was evaluated using advanced plane-matching analysis and parameter corrections derived. This process was repeated interactively until residual errors between overlapping swaths, across all project lifts, was reduced to 2 cm or less. Data was then block adjusted to match surveyed calibration control. Raw data NVA was checked using independently surveyed check points. Swath overage points were identified and tagged within each swath file.

- 2016-01-01 00:00:00 - Initial processing of the GPS data was processed using POSPAC MMS 7.2. The solution file was generated and RiProcess software was used to generate georeferenced laser returns which were then processed in strip form allowing for the QC of the overlap between strips (lines). The data from each line were combined and automated classification routines run to determine the initial surface model. This initial surface model was then verified to the surveyed test points

- 2016-01-01 00:00:00 - LiDAR Post-Processing: The calibrated and controlled LiDAR swaths were processed using automatic point classification routines in TerraSolid software. These routines operate against the entire collection (all swaths, all lifts), eliminating character differences between files. Data were then distributed as virtual tiles to experienced LiDAR analysts for localized automatic classification, manual editing, and peer-based QC checks. Supervisory QC monitoring of work in progress and completed editing ensured consistency of classification character and adherence to project requirements across the entire project. All classification tags are stored in the original swath files. After completion of classification and final QC approval, the NVA and VVA for the project are calculated. Sample areas for each land cover type present in the project were extracted and forwarded to the client, along with the results of the accuracy tests. Upon acceptance, the complete classified LiDAR swath files were delivered to the client.

- 2016-01-01 00:00:00 - LiDAR Classification: LAS Point Classification: The point classification is performed as described below. The bare earth surface is then manually reviewed to ensure correct classification on the Class 2 (Ground) points. After the bare-earth surface is finalized, it is then used to generate all hydro-breaklines through digitization. All ground (ASPRS Class 2) lidar data inside of the Lake Pond and Double Line Drain hydro flattening breaklines were then classified to water (ASPRS Class 9) using TerraScan macro functionality. A buffer of 1 meter was also used around each hydro-flattened feature to classify these ground (ASPRS Class 2) points to Ignored ground (ASPRS Class 10). All Lake Pond Island and Double Line Drain Island features were checked to ensure that the ground (ASPRS Class 2) points were reclassified to the correct classification after the automated classification was completed. All overlap data was processed through automated

functionality provided by LasTools to appropriately bit flag overlapping flight line data per USGS specifications. All data was manually reviewed and any remaining artifacts removed using functionality provided by TerraScan and TerraModeler. Global Mapper was used as a final check of the bare earth dataset. LP360 was then used to create the deliverable industry-standard LAS files for both the All Point Cloud Data and the Bare Earth. New York Office of Information Technology Services proprietary software was used to perform final statistical analysis of the classes in the LAS files, on a per tile level to verify final classification metrics and full LAS header information.

- Hydro Flattened Raster DEM Process: Class 2 (ground) lidar points in conjunction with the hydro breaklines were used to create a 1 meter hydro-flattened Raster DEM. Using LasTools a merged large scale Imagine IMG file was created and then cut into tiles using Global Mapper. Each surface is reviewed using Global Mapper to check for any surface anomalies or incorrect elevations found within the surface.

- 2021-08-26 00:00:00 - The NOAA Office for Coastal Management (OCM) downloaded 1516 digital elevation model (DEM) files in img format from the NY State GIS ftp site ftp://ftp.gis.ny.gov/elevation/DEM/NYSGPO_AlleganySteuben2016/. The bare earth raster files were at a 1 m grid spacing. The data were in UTM Zone 18 NAD83 (2011), meters coordinates and NAVD88 (Geoid 12A) elevations in meters. OCM assigned the appropriate EPSG codes (Horiz - 6347, Vert - 5703) and copied the raster files to https for Digital Coast storage and provisioning purposes.

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/65211>

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=9353/details/9353>

https://noaa-nos-coastal-lidar-pds.s3.us-east-1.amazonaws.com/dem/NY_Alleg_Steuben_DEM_2016_9353.tif

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_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.