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:

2013 NOAA Topographic Lidar DEM: U.S. Virgin Islands (St. Croix, St. John, St. Thomas)

1.2. Summary description of the data:

The United States Virgin Islands Topographic LiDAR Task Order involved collecting and delivering topographic elevation point data derived from multiple return light detection and ranging (LiDAR) measurements on the islands of St. Thomas, St. John, St. Croix and numerous smaller islands and islets in the United States Virgin Islands. The data collected for the project area will exhibit Hydro Flattened DEMs (1m resolution) for inclusion into the NED. The purpose of the data is for use in coastal management decision making, including applications such as flood plain mapping and water rights management. LiDAR was collected at an average of 0.7 meter point spacing for all acquired project areas.

Overall the DEMs were acceptable, but appear oversampled as a result of low ground point density (heavy vegetation), and is not a contractor issue as a 1 m DEM was specified. Incremental improvements to the DEMs were earned through breakline adjustments. Another characteristic of the USVI lidar data that was observed on all islands is the appearance of divots where there is a single tree or a narrow line of trees that lie in areas of open, bare terrain. The cause appeared to be sub-canopy points that were lower than the surrounding land. In most cases these low points were lower than the true ground surface at those locations, but were classified as ground and retained in the point cloud for use in DEM generation. This issue was not addressed during revisions.

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:

2013-11-09 to 2013-12-10

1.5. Actual or planned geographic coverage of the data:

W: -65.093469, E: -64.561957, N: 18.423828, S: 17.670388

1.6. Type(s) of data:
(e.g., digital numeric data, imagery, photographs, video, audio, database, tabular data, etc.)
Model

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):

Process Steps:

- 2013-01-01 00:00:00 - Applanix + POSPac Mobile Mapping Suite software was used for post-processing of airborne GPS and inertial data (IMU), which is critical to the positioning and orientation of the LiDAR sensor during all flights. POSPac combines aircraft raw trajectory data with stationary GPS base station data yielding a " Smoothed Best Estimate Trajectory (SBET) necessary for additional post processing software to develop the resulting geo-referenced point cloud from the LiDAR missions. During the sensor trajectory processing (combining GPS and IMU datasets) certain statistical graphs and tables are generated within the Applanix POSPac processing environment which are commonly used as indicators of processing stability and accuracy. This data for analysis include: Max horizontal / vertical GPS variance, separation plot, altitude plot, PDOP plot, base station baseline length, processing mode, number of satellite vehicles, and mission trajectory.
The generated point cloud is the mathematical three dimensional composite of all returns from all laser pulses as determined from the aerial mission. Point clouds were created using the Leica ALS Post Processor software. Laser point data are imported into TerraScan and a manual calibration is performed to assess the system offsets for pitch, roll, heading and scale. At this point this data is ready for analysis, classification, and filtering to generate a bare earth surface model in which the above-ground features are removed from the data set. GeoCue distributive processing software was used in the creation of some files needed in downstream processing, as well as in the tiling of the dataset into more manageable file sizes.
- 2014-01-01 00:00:00 - TerraScan and TerraModeler software packages were used for the automated data classification, manual cleanup, and bare earth generation. Project specific macros were developed to classify the ground and remove side overlap between parallel flight lines. The classes used in the dataset are as follows and have the following descriptions: Class 1 - Processed, but Unclassified - These points would be the catch all for points that do not fit any of the other deliverable classes. This would cover things like vegetation, buildings, cars, bridges, etc. Class 2 - Bare earth ground - This is the bare earth surface Class 7 - Noise - Low or high points, manually and/or automatically identified above or below the surface that could be noise points in point cloud. Class 9 - Water - Points found inside of inland lake/ponds, rivers or points on the ocean side of any shoreline feature. Class 10 - Ignored Ground - Points found to be close to

breakline features. Points are typically moved to this class from Class 2. This class is ignored during the DEM creation. Class 17 - Overlap Default (Unclassified) - Points found in the overlap between flight lines. These points are created through automated processing methods and are not cleaned up during manual classification. Class 18 - Overlap Bare-earth ground - Points found in the overlap between flight lines. These points are created through automated processing, matching the specifications determined during the automated process, that are close to the Class 2 dataset (when analyzed using height from ground analysis) Class 25 - Overlap Water - Points found in the overlap between flight lines that are located inside hydro features. These points are created through automated processing methods and are not cleaned up during manual classification. All overlap data was processed through automated functionality provided by TerraScan to classify the overlapping flight line data to approved classes by USGS. The overlap data was classified to Class 17 (Overlap Default) and Class 18 (Overlap Ground). These classes were created through automated processes only and were not verified for classification accuracy. Due to software limitations within TerraScan, these classes were used to trip the withheld bit within various software packages. 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 heads-up digitization. Class 2 LIDAR was used to create a bare earth surface model. The surface model and LAS intensity were then used to heads-up digitize 2D breaklines of inland streams and rivers as well as the ocean shoreline. Inland Ponds and Lakes of 2 acres or greater were also collected. Elevation values were assigned to all Inland Ponds and Lakes using TerraModeler functionality. Elevation values were assigned to all Inland Streams and Rivers using Photo Science proprietary software. Elevation values were assigned to all Coastal Shoreline features using TerraModeler functionality. Z values for the shorelines were assigned based on tidal conditions at the time of acquisition. 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. LAS data was then run throu

- 2014-01-01 00:00:00 - NOAA OCM received the Digital Elevation Models (DEMs) along with the las points and the hydro-flattened breaklines. Overall the DEMs were acceptable, but appear oversampled as a result of low ground point density (heavy vegetation), and is not a contractor issue as a 1 m DEM was specified. Incremental improvements to the DEMs were earned through breakline adjustments. Another characteristic of the USVI lidar data that was observed on all islands is the appearance of divots where there is a single tree or a narrow line of trees that lie in

areas of open, bare terrain. The cause appeared to be sub-canopy points that were lower than the surrounding land. In most cases these low points were lower than the true ground surface at those locations, but were classified as ground and retained in the point cloud for use in DEM generation. This issue was not addressed during revisions. For further information, the QA Review Report may be accessed here: https://noaa-nos-coastal-lidar-pds.s3.amazonaws.com/laz/geoid12a/3669/supplemental/usvi2013_stc_stj_stt_m3669_qa_report.pdf

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/48382

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=8390
https://noaa-nos-coastal-lidar-pds.s3.us-east-1.amazonaws.com/dem/NOAA_USVI_DEM_2013_8390/in

7.3. Data access methods or services offered:
This data can be obtained on-line at the following URL: https://coast.noaa.gov/dataviewer

;

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.