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:

2015 Lidar DEM: Miami-Dade County, FL

1.2. Summary description of the data:

This metadata record describes the 1798 grid files at a 5 ft grid spacing, received by the NOAA Office for Coastal Management (OCM), provided by the Miami-Dade County Information Technology Department (ITD). Aerial Cartographics of America, Inc. (ACA) LB 6748, operating under the authority of Miami-Dade County Aviation Department, as per contract number E10-MDAD-03, was tasked by Miami-Dade County's Information Technology Department (ITD) to provide LiDAR data for 1612 square miles. The dates of collection were February 15, 17, 18, 19, 20, 21, 2015 and April 2, 3, 11, 12, 13, 2015, collected in 366 flight lines. Tiles were delivered to follow FDOR tiling scheme.

Upon receipt and review of the data from Miami-Dade County's ITD, NOAA OCM noticed some inconsistencies in the classifications of the point data and informed Miami-Dade County ITD. OCM decided to improve the usability of the data by contracting out the reclassification of the lidar las files and accordingly, the re-creation of the DEM img files. The original, unclassified point data were sent to Tetra Tech by Aerial Cartographics of America (ACA) for the re-classification work. The re-classified point data and re-created DEMs were delivered to NOAA OCM.

In addition to these bare earth Digital Elevation Model (DEM) data, the lidar point data that these DEMs were created from, are also available. These data are are available for custom download at the link provided in the URL section of this metadata record.

Hydro breaklines and a large building footprint (with highest elevation) are also available. These data are available for download at the link provided in the URL section of this metadata record. Please note that these products have not been reviewed by the NOAA Office for Coastal Management (OCM) and any conclusions drawn from the analysis of this information are not the responsibility of NOAA or OCM.

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:
2015-02-15 to 2015-04-13

1.5. Actual or planned geographic coverage of the data:
W: -80.8825255556, E: -80.105244, N: 26.0255653056, S: 25.2250032222

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?

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:

- 2015-01-01 00:00:00 - The project was divided in two phases: Collection and classification of LiDAR data; and building height extraction. The LiDAR data was collected utilizing a Riegl LMS-Q680i in a Cessna 206 from an approximate altitude of 1,800 feet above ground level, an approximate ground speed of 110 knots at a pulse rate repetition of 400kH, resulting in a minimum of 8.2 points per square meter. The sensor used a 60 degree field of view. The project was flown to have 50 percent overlap between swaths. The Global Positioning System (GPS) data were processed using Applanix POSPac Mapping Suite version 7.8 using Smart Base method and single base methods. A fixed bias carrier phase solution was computed in forward and reverse directions. The LiDAR collection took place when Positional Dilution of Precision (PDOP) was at or below 3. Occasionally, the PDOP rose slightly above 3. This had no effect on the data. The GPS trajectory was combined with the IMU data using the Applanix POSPac software. The resulting Smoothed Best Estimate of Trajectory (SBET) was exported and used in Riegl RiProcess software to compute the laser mass point positions in Northing, Easting, and Elevations coordinates. The raw laser data were merged with the SBET using Riegl RiProcess software. The data set was processed using RiProcess, RiAnalyze, and RiWorld software where each flight line was processed to a point cloud. The data was adjusted flight line to flight line using Riegl's Scan Data Adjustment tool to ensure a proper relative calibration match between flight lines. Each flight was checked for project coverage, data gaps between overlapping flight lines, point density and then exported in LAS 1.3 format. The entire project was collected without gaps. The LAS files were projected to the NAD_1983_HARN_StatePlane_Florida_East_FIPS_0901_Feet and North American Vertical Datum of 1988 (NAVD88). Ellipsoidal heights were converted to orthometric heights using the current Geiod12A. The LAS files were imported to TerraSolid, LTD TerraScan software to be classified to bare earth ground and later feature coded to USGS specifications. The LAS files contain 8 classifications: 1 = unclassified; 2 = ground; 7 = noise points; 9 = water; 10 = buffered ground points surrounding

breaklines; 12 = overlap; 15 = overpass and bridges. The tiles dataset was imported to Digital Transfer Solutions EarthShaper® software to collect breaklines from LiDAR data. The single and double line linear hydrographic features were hydro-enforced with downhill constraints to model correct flow patterns. Water bodies were hydro-flattened to ensure uniform elevation across the feature. The data were adjusted flight line to flight line using Riegl's Scan Data Adjustment tool to ensure a proper relative calibration match between flight lines. Each flight was checked for project coverage, data gaps between overlapping flight lines, point density and then exported in LAS 1.3 format. The LAS files were imported to TerraSolid, LTD TerraScan software to be classified to bare earth ground and later feature coded to USGS specifications.
- 2015-01-01 00:00:00 - DEMs were created using QCoherent LP360 software. The bare-earth LAS data was loaded into the software along with the tile layout and hydro shapefile collected from the LAS data set. DEMS were produced at a 5ft cell size and hydro-flattened. To QC the DEMs Global Mapper was used to check for completeness of the tiles and that the hydro features were flattened and represented correct elevations. Once the QC was complete the files were exported out of ArcGIS to create Arc DEMS. The LiDAR data was ran through an automated ground and building classification using terrascan software. A manual check of the building classification was done in LP360 and terrascan. The provided building shapefile was loaded and data cross sections were taking to check the classification of the outlined buildings. Once the manual check was completed the building LAS points were loaded into LP360 along with the building polygon shapefile supplied by ITD. In LP360 a confliction was ran to drape each building polygon to the max Z value of LAS data found in each polygon. To QC the auto process the building polygon shapefile was brought into ArcGIS using LP360 to take cross sections of the data to check the building polygon Z value. After all the building data was quality controlled and assured we joined the field height to complete the geodatabase BuildingPlanimetrics_from PSDE3.gdb provided by the county. Any building with a height value of 0 represents a building that did not exist in the LiDAR dataset. The building geodatabase remained as ITD provided it projected horizontally to the NAD_1983_ StatePlane_Florida_East_FIPS_0901_Feet, and vertically to the North American Vertical Datum of 1988 (NAVD88). COLLECTION DATES: 2/15/15, 2/17/15, 2/18/15, 2/19/15, 2/20/15, 2/21/15, 4/2/15, 4/3/15, 4/11/15/, 4/12/15, 4/13/15. 366 flight lines of data were collected.
- 2018-03-09 00:00:00 - The NOAA Office for Coastal Management (OCM) received 1798 topographic DEM files in img format from the Miami-Dade County Information Technology Department (ITD). The bare earth raster files were at a 5 ft grid spacing. The data were received in Florida State Plane East Zone 0901, NAD83 HARN coordinates and were in orthometric (NAVD88) elevations in US feet. Upon receipt and review of the data from Miami-Dade County's ITD, NOAA OCM decided to improve the usability of the data by contracting out the re-classification of the lidar las files and accordingly, the re-creation of the DEM img files. The reclassification of the las files and creation of new DEM img files was done by Tetra

Tech in August 2017.
- 2017-08-29 00:00:00 - Tetra Tech took delivery of the data from NOAA and began review on 29 August 2017. The data was initially reviewed for completeness using LP360 and ArcMap 10.2. Some gaps were found in the data and these were reported to NOAA. The LiDAR was then run through an initial classification, where Classes 3, 4, and 5 (Vegetation) were classed to Class 1 (Unclassified). Extraneous classes beyond the classification scheme were also identified and moved to an appropriate class. The LiDAR data was then run through a step designed to add to, and improve the Class 2 – Ground classified points, as well as provide improvement in the building class (Class 6). 5 foot DEMs were then created using LP360. These DEMs were reviewed for quality, and this review was used to correct the classification in the LAS point cloud, where needed. Final 5 foot DEMs were then created in LP360.
- 2023-07-03 00:00:00 - The NOAA Office for Coastal Management (OCM) received 1798 topographic DEM files in img format from Tetra Tech. The data remained in the Florida State Plane East Zone 0901, NAD83 HARN coordinates, orthometric (NAVD88) elevations in US feet and a 5 ft grid spacing. NOAA OCM performed the following processing for data storage and Digital Coast provisioning purposes: 1. Converted the raster files from img format to Cloud Optimized Geotiff format

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/51984

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=6266
https://noaa-nos-coastal-lidar-pds.s3.us-east-1.amazonaws.com/dem/FL_Miami_Dade_DEM_2015_626

7.3. Data access methods or services offered:
Data is available online for custom and bulk 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)

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.