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:

March 2009 Scripps Institute of Oceanography (SIO) Lidar of the Southern California Coastline: Long Beach to US/Mexico Border

1.2. Summary description of the data:

This lidar point data set was collected during low tide conditions along an approximately 500-700 meter wide strip of the Southern California

coastline within an area extending south from Long Beach to the US/Mexico border. Data were collected in Los Angeles, Orange and San Diego

counties from south of the Downtown Long Beach Marina in Long Beach, California to Leucadia on March 8, 2009 between 19:56 and 22:59 UTC.

Data were collected in Orange and San Diego counties from south of Dana Point to north of La Jolla on March 9, 2009 between 21:27 and 23:48 UTC.

Data were collected in San Diego County from south of Del Mar to south of the United States-Mexico border near Playas de Tijuana, Baja California,

Mexico on March 10 between 21:32 and 22:32 UTC. Data set features include water, beach, cliffs, and top of cliffs. The all points data set contains

the complete point cloud of first and last return elevation and laser intensity measurements recorded during the spring 2009 airborne lidar survey

conducted semi-annually by the University of Texas at Austin for the Southern California Beach Processes Study.

The data set was generated by the processing of laser range, scan angle, and aircraft attitude data collected using an Optech Inc. Airborne

Laser Terrain Mapper (ALTM) 1225 system and geodetic quality Global Positioning System (GPS) airborne and ground-based receivers. Instrument

settings and parameters during survey were:

Nominal on-ground beam diameter: 25 cm

Pulse rate: 25 kHz

Maximum number of returns recorded: 2

Minimum separation between detected returns from a single pulse: 4.3 m

Laser wavelength: 1064 nm

Frequency of GPS sampling: 1 Hz

Frequency of IMU sampling: 50 Hz; Scan angle: +/- 20 degrees

Nominal height of instrument above ground: 1100 m

Nominal single-swath pulse density: 2 m

Nominal aggregate pulse density: 0.75

Nature of vertical control: Kinematic and static GPS points

Original contact information:

Contact Name: Roberto Gutierrez

Contact Org: University of Texas at Austin Center for Space Research

Title: Research Associate in Geodesy and Geophysics

Phone: 512.471.5573

Email: oskar@mail.utexas.edu

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:
2009-03-08 to 2009-03-10

1.5. Actual or planned geographic coverage of the data:
W: -118.00024, E: -117.119071, N: 33.659194, S: 32.508919

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

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:

- ALTM range files were downloaded from the Optech ALTM 1225 system and

decoded using Optech's REALM 3.0 tape decode program.
- Raw GPS data were downloaded from three Ashtech Z-12 GPS receivers. One receiver collected in-flight aircraft data; the other two collected data during flight time at separate base stations. The GPS data were converted into RINEX2 format with pseudorange smoothing applied. The National Geodetic Survey's PAGES-NT software was used to compute double differenced, ionospherically corrected, static GPS solutions for each GPS base station with precise ephemerides from the International GPS Service (IGS) with respect to selected CORS sites. As part of the solution tropospheric zenith delays were estimated and L1 and L2 phase biases were fixed as integers. Aircraft trajectories were estimated with respect to all base stations using National Geodetic Survey's Kinematic and Rapid-Static Software (KARS) software. Trajectories were double-differenced, ionospherically corrected, bias-fixed GPS solutions computed with precise IGS ephemerides. Coordinates for base stations and trajectories were in the International Terrestrial Reference Frame of 2000 (ITRF00). Aircraft trajectories were transformed from the ITRF00 to North American Datum of 1983 (NAD83) using the Horizontal Time Dependent Positioning (HDTP) software (Snay, 1999).
- The 1 Hz GPS trajectory and 50Hz aircraft inertial measurement unit (IMU) data were combined in Applanix's POSProc version 4.2 to compute an aided inertial navigation solution (INS) and a 50 Hz, smoothed best estimate of trajectory (SBET). The POSPac software employs a Kalman filter to obtain a blended navigation solution. Afterwards, smoothing was applied to the solution to obtain the SBET for the aircraft.
- The SBET, laser range observations, scanner position information, and GPS/ internal clock files were processed in the Realm 2.27 software suite to generate uncalibrated lidar data points in the Universal Transverse Mercator (UTM) projection. Lidar point data were compared to 1998 ATM LIDAR data over several cross-track piers and roads to estimate lidar instrument calibration parameters: roll and pitch biases, scanner scale factor, and first/last return elevation biases. An iterative, least-squares methodology was used to estimate calibration parameters so as to minimize differences between lidar and ground GPS data. Samples of lidar data were used to create high-resolution digital elevation models (DEM); these DEMs were inspected for horizontal or vertical anomalies. Data collected on March 8, 2009, were compared to kinematic GPS points collected along the E. Pacific Coast Hwy near Laguna Beach. Data collected on March 9 and 10, 2009, were compared to kinematic GPS points collected in a parking lot near North Torrey Pines Road. After system calibration and initial quality control step, the adjusted lidar x,y,z-point data were generated by REALM software and output using the UTM Zone 11 coordinate system with elevations being heights above the GRS-80 reference ellipsoid (HAE). The output format from REALM 2.27 is a headerless space-delimited 9-column ASCII file that contains: Column 1 = the point time tag in seconds in the GPS week; Columns 2-4 = the UTM Zone 11 North easting, UTM Zone 11 North northing and height above ellipsoid (HAE) of the first lidar return; Columns 5-7 = the UTM Zone 11 North easting, UTM Zone 11 North northing and HAE of the last lidar return; and

Columns 8 & 9 = the laser backscatter intensity of the first and last returns.
- Heights above the GRS80 ellipsoid (HAE) were converted to orthometric heights with respect to the North American Vertical Datum of 1988 (NAVD88), using the GEOID99 model. GPS time tags were used to separate the data collected on a single day into distinct passes. The resulting pass data sets were then parsed into 3.75-minute USGS quarter-quadrangle components containing the complete point cloud. Each output file includes data points found within a 20 meter buffer area surrounding each quarter quadrangle. Outlier data points that exceeded designated elevation thresholds (< -20 m or > 250 m) were eliminated during the parsing process.
- 2011-03-01 00:00:00 - The NOAA Office for Coastal Management (OCM) received the lidar files in ASCII format. The files contained lidar intensity and elevation measurements. OCM performed the following processing for data storage and Digital Coast provisioning purposes: 1. Data converted from UTM coordinates to geographic coordinates. 2. Data converted from NAVD88 heights to ellipsoid heights using GEOID99. 3. Data converted from dual return xyz format to xyz text format with return numbers to las format. 4. The LAS data were sorted by latitude and the headers were updated.

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:
- 1.6. Type(s) of data
- 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/50016

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=572
https://coast.noaa.gov/htdata/lidar1_z/geoid18/data/572

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.