

*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:**

October 2005 Lidar Point Data of Southern California Coastline: Long Beach to US/  
Mexican Border

### **1.2. Summary description of the data:**

This data set contains lidar point data (UTM, Zone 11) from a strip of Southern California coastline (including water, beach, cliffs, and top of cliffs) from Long Beach to the US/  
Mexico border. The data set

was created by combining data collected using an Optech Inc. Airborne Laser Terrain Mapper (ALTM) 1225 in combination

with geodetic quality Global Positioning System (GPS) airborne and ground-based receivers. The Bureau of Economic

Geology, the University of Texas at Austin owns and operates an ALTM 1225 system (serial number 99d118). The system

was installed in a twin engine Partenavia P-68 Observer (tail number N6602L) owned and operated by Aspen Helicopter, Inc.

The lidar data set described by this document was collected on 18 and 19 October 2005; Julian Days 29105 and 29205

(see Lineage, Source\_Information, Source\_Contribution for pass information). 99d118 instrument settings for these flights

were; laser pulse rate: 25kHz, scanner rate: 26Hz, scan angle: +/- 20deg, beam divergence: narrow, altitude: 300-600m AGL,

and ground speed: 95-120kts. Four GPS base stations, Seal Beach and San Onofre on 29105 and Point Loma and Scripps Pier

on 29205 (see Lineage, Source\_Information, Source\_Contribution for coordinates), operated during the survey. Data

represented is all points including terrain, vegetation, and structures. This data also

contains returns from the water

surface. No processing has been done to remove returns from terrain, vegetation, structures or water surfaces.

Original contact information:

Contact Name: Julie Thomas/Randy Bucciarelli

Contact Org: SCBPS/CDIP, Scripps Institution of Oceanography

Title: Project Managers

Phone: 858-534-3032

**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:**

2005-10-18 to 2005-10-19

**1.5. Actual or planned geographic coverage of the data:**

W: -118.205817, E: -117.120717, N: 33.766585, S: 32.534185

**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:

- 2005-10-18 00:00:00 - GPS and XYZ-Point Data Processing 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). 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). The aircraft trajectory were transformed from the ITRF00 to North American Datum of 1983 (NAD83) using the Horizontal Time Dependent Positioning (HDTP) software (Snay, 1999) The 1Hz GPS trajectory and 50Hz aircraft inertial measurement unit (IMU) data were combined in Applanix's POSProc version 2.1.4

to compute an aided inertial navigation solution (INS) and a 50Hz, smoothed best estimate of trajectory (SBET) for day 09405. On the second day of data collection (09805), due to an equipment problem, the IMU data was recorded with random data gaps onto the ALTM1225 hard drive. Because of these data gaps, the post-processed INS and SBET for 09805 was judged not acceptable. The 1Hz aircraft trajectory computed with KARS and the real-time, aided INS solution from POS-AV provided better results. The SBET (09405) and KARS trajectory (09805), laser range observations, scanner position information, and GPS/internal clock files were processed in Realm 2.27 software suite to generate lidar data points in the Universal Transverse Mercator (UTM) projection. Lidar point data were compared to GPS ground survey data and 1998 ATM lidar data 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 DEM were inspected for horizontal or vertical anomalies.

- 2005-10-18 00:00:00 - After system calibration and initial quality control step, the adjusted lidar x,y,z-point data were generated by REALM software and output, by shoreline pass, in UTM Zone 11 with elevations being heights above the GRS-80 reference ellipsoid (HAE). The output format from REALM 2.27 was a 9-column ASCII file containing: the second in the GPS week, easting, northing and HAE of the first lidar return, the easting, northing and HAE of the last lidar return, and the laser backscatter intensity of the first and last returns. Using the GEOID99 geoid model, heights above the GRS80 ellipsoid were converted to orthometric heights with respect to the North American Vertical Datum of 1988 (NAVD88). Parse the 9-column lidar point file into 3.75-minute quarter-quadrangle components. Convert UTM Easting and Northing to geodetic latitude and longitude with respect to the GRS80 ellipsoid. The conversion was computed using the TMGEOD and TCONPC fortran subroutines written by T. Vincenty (NGS). Each record contains 9 columns of data: time tag (seconds in the GPS week), first return Latitude, first return Longitude, first return NAVD88, last return Latitude, last return Longitude, last return NAVD88, first return intensity, and last return intensity. In some cases either the first or last return values may be missing (5 columns). Latitude and longitude are in decimal degrees with nine significant digits to retain the 0.01m resolution of the UTM coordinates. West longitude is negative and north latitude is positive. The UTM quarter-quad files were re-organized into latitude delineated files. UTM quarter-quads files that were delineated by the same upper and lower latitude bounds were concatenated. The lat-long files were named by the month-year of the survey (e.g. sep04) and the lower latitude bounding the quarter-quad. Processing occurred 20051018-20060222.

- 2003-04-18 00:00:00 - Created initial metadata

- 2007-07-24 00:00:00 - The NOAA Office for Coastal Management (OCM) received files in ASCII format. The files contained LiDAR intensity and elevation

measurements. OCM performed the following processing on the data to make it available within the LiDAR Data Retrieval Tool (LDART) 1. Data returned to ellipsoid heights from NAVD88, using GEOID99. 2. Data converted to LAS format. 3. 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/50009>

#### **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](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=53>

<https://noaa-nos-coastal-lidar-pds.s3.amazonaws.com/laz/geoid18/53/index.html>

##### **7.3. Data access methods or services offered:**

This data can be obtained on-line at the following URL: <https://coast.noaa.gov/dataviewer>

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##### **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.*