Identification_Information:

Citation:

Citation_Information:

Originator: Department of Commerce (DOC), National Oceanic and Atmospheric Administration (NOAA), National Ocean Service (NOS),

Coastal Services Center (CSC)

Originator: JALBTCX (Joint Airborne Lidar Bathymetry Technical Center of eXpertise)

Publication_Date: 20130329

Title: 2010-2011 US Army Corps of Engineers (USACE) Joint Airborne Lidar Bathymetry Technical Center of Expertise (JALBTCX) Topobathy Lidar: Oregon and Washington

Publication_Information:

Publication_Place: Charleston, SC

Publisher: NOAA's Ocean Service, Coastal Services Center (CSC)

Other_Citation_Details:

This data set has been extracted from one much larger. See the URL for the location of this larger data set.

Online_Linkage: http://www.csc.noaa.gov/dataviewer/index.html?action=advsearch&qType=in&qFld=ID&qVal=1381

Online_Linkage: http://www.csc.noaa.gov/lidar

Online_Linkage: http://www.csc.noaa.gov

Online_Linkage: http://www.csc.noaa.gov/htdata/lidar1_z/geoid12a/data/1381

Description:

Abstract:

This data set is an LAS format file containing LIDAR point cloud data with 6633391 points. The data set was generated from a larger data set and includes all valid points within the requested geographic bounds.

These files contain topographic and bathymetric lidar data collected with the Leica ALS60 (topo) and SHOALS-1000T (bathy) systems along the coasts of Oregon and Washington.

Data coverage generally extends along the coastline from the waterline inland 500 meters and offshore 1000 meters or to laser extinction. The ALS60 topographic lidar

sensor has a pulse repetition rate of 200 kHz at 1064 nm. The bathymetric lidar was collected by the SHOALS-1000T system along the coast. The SHOALS

system has a pulse repetition rate of 1 kHz at 532 nm (green wavelength). Native lidar data is not generally in a format accessible to most Geographical Information

Systems (GIS). Specialized in-house and commercial software packages are used to process the native lidar data into 3-dimensional positions that can

be imported into GIS software for visualization and further analysis.

The data are classified and available from the NOAA Digital Coast as follows:

Unclassified = -1

Ground = 2

Water = 9

Bathymetry = 11

Overlap = 12

Listed below are the specific dates of collection for different parts of this data set:

2010 Oregon (Coos, Curry, and Douglas Counties) Bathymetry: Date of collection: 20100618-20100702

2010-2011 Oregon (Curry County) Bathymetry: Date of collection: 20100702-20110608

2010 Oregon (Coos, Douglas, and Lane Counties) Bathymetry Date of collection: 20100618-20100705

2010 Oregon (Coos and Curry Counties) Topography: Date of collection: 20100713

2010 Oregon (Coos and Douglas Counties) Topography: Date of collection: 20100714

2010 Washington Topography: Date of collection: 20100813

2011 Oregon (Curry County) Topography: Date of collection: 20110610

Purpose:

These data were collected as a part of the National Coastal Mapping Program (NCMP) to depict the elevations above and below the water line in the

Oregon and Washington coastal zone.

Supplemental_Information:

A footprint of this data set may be viewed in Google Earth at:

ftp://ftp.csc.noaa.gov/pub/crs/beachmap/qa_docs/or/usace/2010-2011_USACE_Topobathy_Lidar_Washington_and_Oregon_Coasts.kmz

Time_Period_of_Content:

Time_Period_Information:

Range_of_Dates/Times:

Beginning_Date: 20100618

Ending_Date: 20110610

Currentness_Reference: ground condition

Status:

Progress: Complete

Maintenance_and_Update_Frequency: As needed

Spatial_Domain:

Bounding_Coordinates:

West_Bounding_Coordinate: -124.29

East_Bounding_Coordinate: -124.25

North_Bounding_Coordinate: 42.07

South_Bounding_Coordinate: 42.03

Keywords:

Theme:

Theme_Keyword_Thesaurus: ISO 19115 Topic Category

Theme_Keyword: elevation

Theme:

Theme_Keyword_Thesaurus: None

Theme_Keyword: Topography/Bathymetry

Theme_Keyword: U.S. Army Corps of Engineers, Mobile District

Theme_Keyword: JALBTCX

Theme_Keyword: ALS60

Theme_Keyword: Topography

Theme_Keyword: Unclassified LAS

Theme_Keyword: Lidar

Theme_Keyword: oceans

Theme_Keyword: Land use

Place:

Place_Keyword_Thesaurus: None

Place_Keyword: United States

Place_Keyword: Oregon

Place_Keyword: Washington

Place_Keyword: Pacific

Temporal:

Temporal_Keyword_Thesaurus: None

Temporal_Keyword: 2010

Temporal_Keyword: 2011

Access_Constraints:

This data set was compiled dynamically, and will exist on ftp.csc.noaa.gov/tmp/dav until

10 days after 03/29/2013, as 42124_03_28.zip. After 10 days this file will be deleted from the system.

Use_Constraints:

Users should be aware that temporal changes may have occurred since this data set was collected and some parts of

this data may no longer represent actual surface conditions. Users should not use this data for critical applications without a

full awareness of its limitations. These data depict the heights at the time of the survey and are only accurate for that time.

Point_of_Contact:

Contact_Information:

Contact_Organization_Primary:

Contact_Organization: JALBTCX

Contact_Position: Data Production Manager

Contact_Address:

Address_Type: mailing and physical

Address: 7225 Stennis Airport Rd, STE 100

City: Kiln

State_or_Province: MS

Postal_Code: 39556

Country: USA

Contact_Voice_Telephone: 228-252-1111

Contact_Voice_Telephone: 228-252-1121

Contact_Facsimile_Telephone: 228-252-1133

Hours_of_Service: 8 am - 5 pm Monday through Friday

Contact_Electronic_Mail_Address: shoals-info@sam.usace.army.mil

Browse_Graphic:

Browse_Graphic_File_Name: ftp://ftp.csc.noaa.gov/pub/crs/beachmap/qa_docs/or/usace/2010-2011_USACE_Topobathy_Lidar_Washington_and_Oregon_Coasts.kmz

Browse_Graphic_File_Description: This graphic shows the lidar coverage for the coasts of Oregon and Washington.

Browse_Graphic_File_Type: kmz

Data_Set_Credit:

Acknowledgement of US Army Corps of Engineers (USACE) Joint Airborne Lidar Bathymetry Technical Center of Expertise (JALBTCX) would

be appreciated in products derived from these data.

Native_Data_Set_Environment: Microsoft Windows 2000 Version 5.2 (Build 3790) Service Pack 2; ESRI ArcCatalog 9.2.6.1500

Cross_Reference:

Citation_Information:

Title: ASPRS LIDAR Data Exchange Format Standard

Originator: American Society for Photogrammetry and Remote Sensing

Publication_Date: 20030509

Publication_Time: Unknown

Geospatial_Data_Presentation_Form: tabular digital data

Online_Linkage: http://www.asprs.org/society/committees/standards/asprs_las_format_v10.pdf

Cross_Reference:

Citation_Information:

Title: Geographic Names Information System

Originator: U.S. Geological Survey

Publication_Date: 19810501

Publication_Time: Unknown

Geospatial_Data_Presentation_Form: vector digital data

Online_Linkage: http://geonames.usgs.gov/

Cross_Reference:

Citation_Information:

Originator: Olsen, L.M., G. Major, K. Shein, J. Scialdone, R. Vogel, S. Leicester, H. Weir, S. Ritz, T. Stevens, M. Meaux, C.Solomon, R. Bilodeau,

M. Holland, T. Northcutt, R. A. Restrepo

Publication_Date: 2007

Publication_Time: Unknown

Title: NASA/Global Change Master Directory (GCMD) Earth Science Keywords

Edition: Version 6.0.0.0.0

Geospatial_Data_Presentation_Form: document

Online_Linkage: http://gcmd.gsfc.nasa.gov/Resources/valids/archives/keyword_list.html

Security_Information:

Security_Classification_System: N/A

Security_Classification: Unclassified

Security_Handling_Description: N/A

Data_Quality_Information:

Attribute_Accuracy:

Attribute_Accuracy_Report: These data are not attributed.

Quantitative_Attribute_Accuracy_Assessment:

Attribute_Accuracy_Value: N/A

Attribute_Accuracy_Explanation: These data are not attributed.

Logical_Consistency_Report:

The data provided in this file were tested against ground truth data. At these locations the lidar data matched within 0.30 meters (RMSE 95% confidence level).

Positional_Accuracy:

Horizontal_Positional_Accuracy:

Horizontal_Positional_Accuracy_Report:

The data positions were obtained using post processed KGPS methods. Because this data set includes several smaller data sets, the horizontal

accuracy information for each specific data set is listed.

Bathymetry: The horizontal accuracy of the data is better than plus or minus 1.5 m RMSE

Topography: The horizontal accuracy of the data is better than plus or minus 0.50 m RMSE

Vertical_Positional_Accuracy:

Vertical_Positional_Accuracy_Report: The data positions were obtained using post processed KGPS methods. Because this data set includes several

Bathymetry and Topography: The vertical accuracy of the data is better than plus or minus 15 cm RMSE

Lineage:

Process_Step:

Process_Description:

Bathymetry:

These data were collected using the SHOALS-1000T system. It is owned by Fugro Pelagos Inc. and operated through contract. The system collects bathymetric

lidar at 1 kHz and RGB imagery at 1Hz. A CASI-2 hyperspectral line scanner is integrated with the system as well. Aircraft position, velocity, and

acceleration information are collected through a combination of Novatel and POS A/V 410 equipment. All raw data streams are transferred to the office

for downloading and processing in SHOALS GCS software. Aircraft position data are processed using POSPac software and the results are combined with the

lidar data to produce 3-D positions for each lidar shot. Upon inspection and QA/QC in the software package Fledermaus, anomalous data are flagged as

invalid. FPI Workbench then converts all valid data from ellipsoid to orthometric heights based on the NGS' GEOID09 model and exports data as a series of

bathymetry (H) ASCII files. The bathymetry files contain all of the returns form the bathymetric sensor which includes returns both above and below

the water. Process date for this is unknown.

Topography:

These data were collected using the ALS60 lidar system. It is owned by Fugro EarthData and operated through contract. The system collects topographic

lidar data at maximum pulse rate of 200 kHz in a wavelength of 1064 nm. A CASI-1500 hyperspectral line scanner integrated with the system. Aircraft position,

velocity and acceleration information are collected by the onboard GPS/IMU system. Raw data were transferred to the office and processed in IPAS software.

Aircraft position data are processed using POSPac software and the results are combined with the lidar data to produce 3-D positions for each lidar shot.

Upon processing, validation and QA/QC in the software packages GeoCue and TerraScan, anomalous data are flagged as invalid and necessary reflights are called.

Fugro's proprietary software converts all valid data from ellipsoid to orthometric heights based on the NGS GEOID09 model and exports topographic data as

a series of LAS files with a single file per flightline per 5 km box. Process date for this is unknown.

Process_Contact:

Contact_Information:

Contact_Voice_Telephone: 858-292-8922

Contact_Organization_Primary:

Contact_Organization: Fugro Pelagos, Inc.

Contact_Position: LIDAR Data Manager

Contact_Address:

Address_Type: mailing and physical

Address: 3574 Ruffin Rd.

City: San Diego

State_or_Province: CA

Postal_Code: 92123

Country: USA

Contact_Facsimile_Telephone: 858-292-5308

Hours_of_Service: 8am - 5pm Monday through Friday

Process_Date: Unknown

Process_Step:

Process_Description:

Topographic lidar had an additional process step. Outlined below is a representative description for all the topo data sets.

1. The raw lidar data was processed with Leica ALS Post Processor software to LAS format.

2. The processed flightlines were boresighted and block adjustment was performed to ensure flightlines match each other vertically and to the control

points using TerraMatch and Fugro EarthData proprietary software.

3. The boresighted data was cut to work tiles in GeoCue and TerraScan classification macros were developed and applied to classify bare-earth points automatically.

4. Then the auto-filtered tiles were manually edited in TerraSolid software packages to correct misclassification errors. Editors used a combination of

intensity data, profiles, and color shaded TIN surface to assist the manual editing.

5. All edited tiles were reviewed by the QC team to ensure consistency and accuracy of point classification.

6. Water body polygons were digitized based on the lidar data. The water body polygons were then used to classify the lidar points fall in water to

Class 9 - Water using Fugro EarthData proprietary software.

7. Using GeoCue and Fugro EarthData proprietary software the work tiles were then re-cut and re-projected to delivery tiling scheme and projection/datum.

8. These tiles are then re-formatted to two delivery data sets – Classified and Un-classified Point Cloud that meet the project specification.

9. The Un-classified lidar point cloud data were delivered tiled in LAS 1.2 format; Class 1 - Default.

Process_Date: Unknown

Process_Step:

Process_Description:

The NOAA Coastal Services Center (CSC) received the topo files in LAS v1.2 format and the hydro files in ascii format. The files contained lidar

elevation and intensity measurements. The topo data were received in geographic coordinates (NAD83) and vertically referenced to NAVD88 using

the Geoid09 model. The vertical units of data were meters. The hydro files were received in geographic coordinates (NAD83) and vertically referenced to NAVD88.

CSC performed the following processing for data storage and Digital Coast provisioning purposes:

1. Both topo and hydro files were filtered for elevation outliers.

2. The topo las files were converted from orthometric (NAVD88) heights to ellipsoidal heights using Geoid09.

3. The hydro files were converted from orthometric (NAVD88) heights to ellipsoidal heights using Geoid09 and points were classified as 11 (Bathymetry).

Process_Date: 201208

Process_Contact:

Contact_Information:

Contact_Organization_Primary:

Contact_Organization: NOAA Coastal Services Center

Contact_Address:

Address_Type: mailing and physical

Address: 2234 South Hobson Ave.

City: Charleston

State_or_Province: SC

Postal_Code: 29405-2413

Contact_Voice_Telephone: 843-740-1200

Contact_Electronic_Mail_Address: csc.info@noaa.gov

Process_Step:

Process_Description:

The vertical values in this data set have been converted to reference NAVD88, using the GEOID12A grids provided by the National Geodetic Survey.

Process_Date: 20130329

Process_Step:

Process_Description:

The data values in this data set were extracted from one or more LAS files with the Coastal Services Center 'las_merge' program. Any datum and projection transformations were then done with the 'datum_shift' program.

Process_Date: 20130329

Process_Step:

Process_Description:

The data values in this data set have been projected. This projection is noted in another section of this metadata record. The projection library used was derived from the General Cartographic Transform Program developed by the United States Geological Survey, National Mapping Division.

Process_Date: 20130329

Process_Contact:

Contact_Information:

Contact_Organization_Primary:

Contact_Organization: NOAA Coastal Services Center

Contact_Address:

Address_Type: mailing and physical

Address: 2234 South Hobson Ave.

City: Charleston

State_or_Province: SC

Postal_Code: 29405-2413

Country: US

Contact_Voice_Telephone: 843-740-1200

Contact_Electronic_Mail_Address: csc.info@noaa.gov

Cloud_Cover: Unknown

Completeness_Report: 100%

Spatial_Data_Organization_Information:

Direct_Spatial_Reference_Method: Vector

Point_and_Vector_Object_Information:

SDTS_Terms_Description:

SDTS_Point_and_Vector_Object_Type: String

Spatial_Reference_Information:

Horizontal_Coordinate_System_Definition:

Planar:

Grid_Coordinate_System:

Grid_Coordinate_System_Name:

Universal Transverse Mercator

UTM_Zone_Number: 10

Planar_Coordinate_Information:

Planar_Coordinate_Encoding_Method:

coordinate pair

Coordinate_Representation:

Abscissa_Resolution: 0.0825660871530352

Ordinate_Resolution: 0.11119104

Planar_Distance_Units: meters

Geodetic_Model:

Horizontal_Datum_Name:

North American Datum of 1983

Ellipsoid_Name:

Geodetic Reference System 80

Semi-major_Axis:

6378137

Denominator_of_Flattening_Ratio:

298.257

Vertical_Coordinate_System_Definition:

Altitude_System_Definition:

Altitude_Datum_Name:

North American Vertical Datum of 1988

Altitude_Resolution: 0.01

Altitude_Distance_Units: meters

Altitude_Encoding_Method:

Explicit elevation coordinate included with horizontal coordinates

Distribution_Information:

Distributor:

Contact_Information:

Contact_Organization_Primary:

Contact_Organization: NOAA Coastal Services Center

Contact_Address:

Address_Type: mailing and physical

Address: 2234 South Hobson Ave.

City: Charleston

State_or_Province: SC

Postal_Code: 29405-2413

Contact_Voice_Telephone: 843-740-1200

Contact_Electronic_Mail_Address: csc.info@noaa.gov

Resource_Description: Downloadable Data

Distribution_Liability: Any conclusions drawn from the analysis of this information are not the responsibility of USACE, JALBTCX, the Coastal

Services Center, or its partners.

Custom_Order_Process: This data can be obtained on-line at the following URL:

http://www.csc.noaa.gov/dataviewer/index.html?action=advsearch&qType=in&qFld=ID&qVal=1381

This data set is dynamically generated based on user-specified parameters.

Metadata_Reference_Information:

Metadata_Date: 201209

Metadata_Contact:

Contact_Information:

Contact_Organization_Primary:

Contact_Organization: NOAA Coastal Services Center

Contact_Address:

Address_Type: mailing and physical

Address: 2234 South Hobson Ave.

City: Charleston

State_or_Province: SC

Postal_Code: 29405-2413

Contact_Voice_Telephone: 843-740-1200

Contact_Electronic_Mail_Address: csc.info@noaa.gov

Metadata_Standard_Name: FGDC Content Standards for Digital Geospatial Metadata

Metadata_Standard_Version: FGDC-STD-001-1998