

08_09_trackline

Metadata:

- [Identification Information](#)
 - [Data Quality Information](#)
 - [Spatial Data Organization Information](#)
 - [Spatial Reference Information](#)
 - [Entity and Attribute Information](#)
 - [Distribution Information](#)
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Identification_Information:

Citation:

Citation_Information:

Originator:

U.S. Geological Survey - St. Petersburg Coastal and Marine Science Center

Originator: Nancy T. DeWitt

Originator: James G. Flocks

Originator: Elizabeth A. Pendleton

Originator: Mark E. Hansen

Originator: B.J. Reynolds

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Originator: Dana S. Wiese

Originator: Charles R. Worley

Publication_Date: 2011

Publication_Time: 2011

Title: 08_09_tracklines

Geospatial_Data_Presentation_Form: vector digital data

Series_Information:

Series_Name: USGS Data Series Publication

Issue_Identification: DS675

Publication_Information:

Publication_Place: St. Petersburg, FL

Publisher:

U.S. Geological Survey - St. Petersburg Coastal and Marine Science Center

Online_Linkage: <<http://pubs.usgs.gov/ds/675>>

Description:

Abstract:

During the summers of 2008 and 2009 the USGS conducted bathymetric surveys from West Ship Island, Miss., to Dauphin Island, Ala., as part of the Northern Gulf of Mexico (NGOM) Ecosystem Change and Hazard Susceptibility project. The survey area extended from the shoreline out to approximately 2 kilometers and included the adjacent passes. The bathymetry was primarily used to create a topo-bathymetric map and provide a base-level assessment of the seafloor following the 2005 hurricane season. Additionally, these data will be used in conjunction with other geophysical data (chirp and side scan sonar) toward constructing a comprehensive geological framework of the Mississippi Barrier Island Complex. The culmination of the geophysical surveys will provide the data necessary for scientists to define, interpret, and provide baseline bathymetry and seafloor habitat for this area and to aid scientists in predicting future geomorphological changes of the islands with respect to climate

change, storm impact, and sea-level rise. Furthermore, these data provide information for feasibility of barrier island restoration, particularly in Camille Cut, and efforts for the preservation of historical Fort Massachusetts.

Purpose:

This report serves as an archive of the processed single-beam and swath bathymetry data. Data products herein include gridded and interpolated surfaces, surface images, and x,y,z data products. Additional files include trackline maps, GIS files, Field Activity Collection System (FACS) logs, and formal FGDC metadata. Scanned images of the handwritten FACS logs are also provided as PDF files. Refer to the Acronyms page for expansion of acronyms and abbreviations used in this report.

Supplemental_Information:

For navigational purposes, bathymetric surveys have traditionally been referenced to a water level datum using tide gages and tide models. Bathymetric measurements referenced to a Global Positioning System (GPS) is a more accurate way of representing water depth and has been implemented in the acquisition and processing procedures for these datasets. Previous single-beam bathymetric studies performed at the USGS Center for Coastal and Marine Science have successfully referenced bathymetric measurements to GPS (DeWitt and others, 2007; Hansen 2008 and 2009). These surveys were conducted as a test to develop acquisition technology utilizing both single beam and swath bathymetry survey methods together and referencing both types of measurements to GPS rather than water level. Therefore, this survey is considered a seafloor-elevation survey and is explained in greater detail within this report. To accommodate coverage of this area in a limited timeframe, this seafloor-elevation survey was conducted using three techniques; single-beam bathymetry, interferometric swath bathymetry, and a walking kinematic survey of the island shorelines. All three techniques utilized GPS measurements. Implementation of these techniques was executed concurrently yet independently aboard two research vessels: the RV Survey Cat, a 26-foot (ft) shallow draft Glacier Bay Coastal Runner, and the 50-ft RV G.K. Gilbert. A portable push buggy with a rigid antenna-mount served as the platform for the kinematic shoreline survey. Data from each survey technique was post-processed and edited independently with proper inclusion of the differentially processed external navigation files. The x,y,z components from each method were then combined and the two survey years (2008 and 2009) were merged into one dataset. Chirp seismic data were also collected during these surveys and are archived separately.

Time_Period_of_Content:

Time_Period_Information:

Multiple_Dates/Times:

Single_Date/Time:

Calendar_Date: 20080708

Time_of_Day: unknown

Single_Date/Time:

Calendar_Date: 20080726

Time_of_Day: unknown

Single_Date/Time:

Calendar_Date: 20090605

Time_of_Day: unknown

Single_Date/Time:

Calendar_Date: 2090701

Time_of_Day: unknown

Currentness_Reference: data collection interval

Status:

Progress: Complete

Maintenance_and_Update_Frequency: None planned

Spatial_Domain:

Bounding_Coordinates:

West_Bounding_Coordinate: -89.006246

East_Bounding_Coordinate: -88.316241

North_Bounding_Coordinate: 30.275575

South_Bounding_Coordinate: 30.172352

Keywords:

Theme:

Theme_Keyword_Thesaurus: ISO 19115 Topic Category

Theme_Keyword: oceans

Theme_Keyword: elevation

Theme_Keyword: location

Theme:

Theme_Keyword_Thesaurus: General

Theme_Keyword: trackline

Theme_Keyword: bathymetry

Theme_Keyword: USGS

Theme_Keyword: shapefile

Theme_Keyword: HYPACK

Theme_Keyword: HYPACK Inc.

Theme_Keyword: single-beam bathymetry

Theme_Keyword: single beam

Theme_Keyword: swath bathymetry

Theme_Keyword: interferometric swath bathymetry

Theme_Keyword: swath

Theme_Keyword: Base Station

Theme_Keyword: Benchmark

Theme_Keyword: Fort Massachusetts

Theme_Keyword: WHRN

Theme_Keyword: WPTB

Theme_Keyword: kinematic

Theme_Keyword: shoreline

Theme_Keyword: Continuously Operating Reference Station (CORS)

Theme_Keyword: GeoTIFF

Theme_Keyword:

U.S. Geological Survey (USGS), St. Petersburg Coastal and Marine Science Center

Theme_Keyword: Gulf Islands National Seashore (GUIS)

Theme_Keyword: SEA Ltd.

Theme_Keyword: Systems Engineering and Assessment

Theme_Keyword: SWATHplus interferometric

Theme_Keyword: SWATHplus Interferometric Swath System

Theme_Keyword: SWATHplus -H 468-kHz Interferometric system

Place:

Place_Keyword_Thesaurus: GUIS

Place_Keyword: Mississippi

Place_Keyword: West Ship Island

Place_Keyword: East Ship Island

Place_Keyword: Horn Island

Place_Keyword: Horn Island Pass

Place_Keyword: Camille Cut

Place_Keyword: Dog Keys

Place_Keyword: Dog Keys Pass

Place_Keyword: Petit Bois Island

Place_Keyword: Petit Bois Pass

Place_Keyword: Little Dog Keys Pass

Stratum:

Stratum_Keyword_Thesaurus: General

Stratum_Keyword: Water
Stratum_Keyword: shoreline

Temporal:

Temporal_Keyword_Thesaurus: General
Temporal_Keyword: July 2008
Temporal_Keyword: June 2009

Access_Constraints:

The U.S. Geological Survey requests that it be referenced as the originator of this dataset in any future products or research derived from these data.

Use_Constraints: These data are not to be used for navigation.

Point_of_Contact:

Contact_Information:

Contact_Person_Primary:

Contact_Person: Nancy T. DeWitt

Contact_Organization:

U.S. Geological Survey - St. Petersburg Coastal and Marine Science Center

Contact_Position: Geologist

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Address_Type: mailing and physical address

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City: St. Petersburg

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Postal_Code: 33701

Country: USA

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Data_Set_Credit:

Nancy T. DeWitt, James G. Flocks, Elizabeth A. Pendleton, Mark E. Hansen, B.J. Reynolds, Kyle W. Kelso, Dana S. Wiese, and Charles R. Worley.

Native_Data_Set_Environment:

Microsoft Windows XP Version 5.1 (Build 2600) Service Pack 3; ESRI ArcCatalog 9.3.1.3000

Data_Quality_Information:

Attribute_Accuracy:

Attribute_Accuracy_Report:

The accuracy of the data is determined during data collection. These datasets are from four separate research cruises and are therefore internally consistent. Methods are employed to maintain data collection consistency aboard various platforms. During mobilization, each piece of equipment (single beam and swath) is isolated to obtain internal and external offset measurements with respect to the survey platform. All the critical measurements are recorded manually and digitally and entered into their respective programs for calibration. Once calibration is complete and calibration status is considered acceptable, then survey operations commence. Each system has a dedicated computer, and efforts are made to utilize the same equipment and software versions. However, upgrades and changes occur and require additional setup, measurements, and notation. For the single-beam bathymetry, offsets between the single-beam transducers and the Ashetch antenna reference point were measured and accounted for in post-processing. Bar checks were performed as calibration efforts and accounted for any drift in the Marimatech Echosounder, and Differential Geographic Positioning (DGPS) was obtained using post-processing software packages. For the swath bathymetry, offsets between the sonar head and the DGPS antennas were measured and entered into the F190 internal setup program. DGPS is

normally provided through the OmniSTAR High Performance-wide area GPS service unless otherwise noted. DGPS is always implemented for navigational accuracy either during acquisition or as a post-processing step.

Logical_Consistency_Report:

This dataset was completed on four research cruises over the course of 21 days for 2008 and 20 days for 2009. Refer to the FACS logs for respective vessel platforms and survey information. This dataset was created as a visual aid to show the vessel's path and make it available as a shapefile for future use.

Completeness_Report:

These data provide a continuous and completed bathymetry trackline map for USGS cruises 08CCT01, 08CCT02, 09CCT03, and 09CCT04 as recorded in HYPACK version 4.3 (08CCT02 and 09CCT03) and 6.2 (08CCT01 and 09CCT04). This is a complete representation of where the vessels surveyed. Trackline data location (x,y) was exported from HYPACK as a comma delimited file. Any erroneous data points or GPS jumps seen were deleted at this point. The comma delimited file was then imported into ArcMap version 9.3.1. An ArcScript downloaded from the ESRI Support Center Web site called Points to Lines was used to create a polyline from the data points and then converted into a shapefile.

Positional_Accuracy:

Horizontal_Positional_Accuracy:

Horizontal_Positional_Accuracy_Report:

GPS base stations were erected within approximately 15 to 20 km of the survey area. Efforts were made to utilize pre-existing National Geodetic Survey (NGS) benchmarks on the islands. If pre-existing benchmarks were unavailable, a USGS benchmark was installed. Three NGS and two USGS base station locations were occupied for the 2008-2009 surveys. One local NGS Continuously Operating Reference Station (CORS) was used as a backup. All base station locations used were within a maximum of +/- 3.3 cm and a minimum of +/- 1.0 cm.

GPS was recorded using Ashtech Z-Xtreme GPS receivers that record the 12-channel full-carrier-phase positioning signals (L1/L2) from the satellites via the Thales choke-ring antenna. This GPS instrument combination is duplicated on the survey vessel (rover). The base receiver and the rover receiver record their positions concurrently at 1-second (s) recording intervals throughout the survey period. The differential navigation for the single-beam bathymetry and the swath bathymetry navigation were both collected in the same manner.

During swath acquisitions, operations DGPS is obtained using the CodaOctopus Octopus F190 Precision Attitude and Positioning System. The software used is F180 Series version 4.0.5. Two antennas received the integrated OmniSTAR High Performance differential correction. The software used is F180 Series version 4.0.5. The horizontal accuracy of bathymetric data is at the limit of OmniSTAR, a wide-area differential GPS service, which is within 20 cm. However, this navigation string was substituted for the post-processed external navigation between the base receiver and the rover receiver.

Quantitative_Horizontal_Positional_Accuracy_Assessment:

Horizontal_Positional_Accuracy_Value: 0.001

Horizontal_Positional_Accuracy_Explanation: meters

Lineage:

Process_Step:

Process_Description:

This is a shapefile of the ship navigation as recorded using HYPACK version 4.3 and version 6.2. The shapefile was created in ArcMap version 9.3.1.

Process_Date: 2008 and 2009

Process_Contact:

Contact_Information:

Contact_Person_Primary:

Contact_Person: Nancy T. DeWitt
Contact_Organization:
U.S. Geological Survey St. Petersburg Coastal and Marine
Science Center
Contact_Position: Geologist
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Country: USA
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Contact_Electronic_Mail_Address: ndewitt@usgs.gov

Spatial_Data_Organization_Information:
Direct_Spatial_Reference_Method: Vector
Point_and_Vector_Object_Information:
SDTS_Terms_Description:
SDTS_Point_and_Vector_Object_Type: String
Point_and_Vector_Object_Count: 637

Spatial_Reference_Information:
Horizontal_Coordinate_System_Definition:
Planar:
Grid_Coordinate_System:
Grid_Coordinate_System_Name: Universal Transverse Mercator
Universal_Transverse_Mercator:
UTM_Zone_Number: 16
Transverse_Mercator:
Scale_Factor_at_Central_Meridian: 0.999600
Longitude_of_Central_Meridian: -87.000000
Latitude_of_Projection_Origin: 0.000000
False_Easting: 500000.000000
False_Northing: 0.000000
Planar_Coordinate_Information:
Planar_Coordinate_Encoding_Method: coordinate pair
Coordinate_Representation:
Abscissa_Resolution: 0.000001
Ordinate_Resolution: 0.000001
Planar_Distance_Units: meters
Geodetic_Model:
Horizontal_Datum_Name: North American Datum of 1983
Ellipsoid_Name: Geodetic Reference System 80
Semi-major_Axis: 6378137.000000
Denominator_of_Flattening_Ratio: 298.257222

Entity_and_Attribute_Information:
Detailed_Description:
Entity_Type:

Entity_Type_Label: 08_09_tracklines
Entity_Type_Definition: ArcMap 9.3 shapefile
Entity_Type_Definition_Source: ESRI ArcGIS 9.3

Attribute:

Attribute_Label: FID
Attribute_Definition: Internal feature number.
Attribute_Definition_Source: ESRI ArcGIS 9.3
Attribute_Domain_Values:
Unrepresentable_Domain:
Sequential unique whole numbers that are automatically generated

Attribute:

Attribute_Label: Shape
Attribute_Definition: Feature geometry.
Attribute_Definition_Source: ESRI ArcGIS 9.3
Attribute_Domain_Values:
Unrepresentable_Domain: Polyline defining the features.

Attribute:

Attribute_Label: line
Attribute_Definition: Name of trackline from aquisition and post-processing
Attribute_Definition_Source: U.S. Geological Survey
Attribute_Domain_Values:
Codeset_Domain:
Codeset_Name: ###_####
Codeset_Source:
First three numbers represent the number of the line and the last four numbers represent the time at which the line was acquired.

Attribute_Domain_Values:

Codeset_Domain:
Codeset_Name: #####
Codeset_Source: Three or four consecutive numers represent the line name.

Attribute_Domain_Values:

Unrepresentable_Domain:
Trackline name in text format identifying what island it is from

Attribute:

Attribute_Label: year
Attribute_Definition: The year the tracklilne was surveyed
Attribute_Definition_Source: U.S. Geological Survey
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: 2008
Range_Domain_Maximum: 2009
Attribute_Units_of_Measure: year

Attribute:

Attribute_Label: boat
Attribute_Definition: The survey platform that collected the trackline
Attribute_Definition_Source: U.S. Geological Survey
Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: cat
Enumerated_Domain_Value_Definition: RV Survey Cat
Enumerated_Domain_Value_Definition_Source: U.S. Geological Survey
Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: gil
Enumerated_Domain_Value_Definition: RV G.K.Gilbert

Enumerated_Domain_Value_Definition_Source: U.S. Geological Survey
Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: kinematicbuggy
Enumerated_Domain_Value_Definition: kinematic buggy
Enumerated_Domain_Value_Definition_Source: U.S. Geological Survey

Attribute:

Attribute_Label: linetype
Attribute_Definition: the type of bathymetry collected along the trackline
Attribute_Definition_Source: U.S. Geological Survey
Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: singlebeam
Enumerated_Domain_Value_Definition: single beam bathymetry
Enumerated_Domain_Value_Definition_Source: U.S. Geological Survey
Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: swath
Enumerated_Domain_Value_Definition: swath bathymetry
Enumerated_Domain_Value_Definition_Source: U.S. Geological Survey
Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: kinematicbuggy
Enumerated_Domain_Value_Definition: shoreline survey
Enumerated_Domain_Value_Definition_Source: U.S. Geological Survey
Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: false
Enumerated_Domain_Value_Definition: false shoreline
Enumerated_Domain_Value_Definition_Source: U.S. Geological Survey

Attribute:

Attribute_Label: length
Attribute_Definition: the track distance for a line segment
Attribute_Definition_Source: U.S. Geological Survey
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: 0.000773
Range_Domain_Maximum: 17.156905
Attribute_Units_of_Measure: kilometers
Attribute_Measurement_Resolution: 0.001

Overview_Description:

Entity_and_Attribute_Overview:
This is a shapefile of the ship navigation as recorded using HYPACK version 4.3 and version 6.2. The shapefile was created in ArcMap version 9.3.1.
Entity_and_Attribute_Detail_Citation: <<http://ngom.usgs.gov/gomsc/mscip/index.html>>

Distribution_Information:

Distributor:

Contact_Information:

Contact_Person_Primary:

Contact_Person: Jim Flocks

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U.S. Geological Survey St. Petersburg Coastal and Marine Science Center

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Resource_Description: Downloadable Data

Distribution_Liability:

This CD-ROM publication was prepared by an agency of the United States Government. Although these data have been processed successfully on a computer system at the U.S. Geological Survey, no warranty expressed or implied is made regarding the display or utility of the data on any other system, nor shall the act of distribution imply any such warranty. The U.S. Geological Survey shall not be held liable for improper or incorrect use of the data described and (or) contained herein. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise does not constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof.

Standard_Order_Process:

Digital_Form:

Digital_Transfer_Information:

Format_Name: SHP

File-Decompression_Technique: no compression applied

Transfer_Size: 1.44

Digital_Transfer_Option:

Online_Option:

Computer_Contact_Information:

Network_Address:

Network_Resource_Name: <<http://pubs.usgs.gov/ds/675>>

Offline_Option:

Offline_Media: CD-ROM

Recording_Format: CDR/DVD

Fees: none

Custom_Order_Process: none

Technical_Prerequisites: This shapefile was created for use with ESRI ArcGIS software.

Available_Time_Period:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 2011

Time_of_Day: unknown

Metadata_Reference_Information:

Metadata_Date: 20110727

Metadata_Contact:

Contact_Information:

Contact_Person_Primary:

Contact_Person: Nancy T. DeWitt

Contact_Organization:

U.S. Geological Survey St. Petersburg Coastal and Marine Science
Center

Contact_Position: Geologist

Contact_Address:

Address_Type: mailing and physical address

Address: 600 4th Street South

City: St. Petersburg

State_or_Province: FL

Postal_Code: 33701

Country: USA

Contact_Voice_Telephone: (727) 803-8747 x3058

Contact_Electronic_Mail_Address: ndewitt@usgs.gov

Metadata_Standard_Name: FGDC Content Standards for Digital Geospatial Metadata

Metadata_Standard_Version: FGDC-STD-001-1998

Metadata_Time_Convention: local time

Metadata_Access_Constraints:

The U.S. Geological Survey requests that it be referenced as the originator of this dataset in any future products or research derived from these data.

Metadata_Use_Constraints:

The U.S. Geological Survey requests that it be referenced as the originator of this dataset in any future products or research derived from these data.

Metadata_Security_Information:

Metadata_Security_Classification_System: none

Metadata_Security_Classification: Unclassified

Metadata_Security_Handling_Description: none

Metadata_Extensions:

Online_Linkage: <<http://www.esri.com/metadata/esriprof80.html>>

Profile_Name: ESRI Metadata Profile