

rm10cct03_mb_50m.tif

Metadata:

- [Identification_Information](#)
- [Data_Quality_Information](#)
- [Spatial_Data_Organization_Information](#)
- [Spatial_Reference_Information](#)
- [Entity_and_Attribute_Information](#)
- [Distribution_Information](#)
- [Distribution_Information](#)
- [Distribution_Information](#)
- [Metadata_Reference_Information](#)

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: William R. Pfeiffer

Originator: James N. Gibson

Originator: Dana S. Wiese

Publication_Date: 20111001

Title:

rm10cct03_mb_50m.tif: 50-m interpolated bathymetry grid of the entire survey from USGS Cruise 10cct03

Edition: rm10CCT03_mb_50m

Geospatial_Data_Presentation_Form: remote-sensing image

Series_Information:

Series_Name: USGS Data Series Publication

Issue_Identification: DS671

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/671>>

Description:

Abstract:

In April of 2010, the U.S. Geological Survey (USGS) conducted a geophysical survey from the east end of West Ship Island, MSiss., extending to the middle of Dauphin Island, Ala. This survey had a dual purpose: (1) to interlink previously conducted nearshore geophysical surveys (shoreline to ~2 kilometers, km) with those of offshore surveys (~2 km to ~9 km) in the ares and (2) to extend the geophysical survey to include a portion of the Dauphin Island nearshore zone. The efforts were part of the USGS Gulf of Mexico Science Coordination partnership with the U.S. Army Corps of Engineers (USACE) to assist the Mississippi Coastal Improvements Program (MsCIP) and the Northern Gulf of Mexico (NGOM) Ecosystem Change and Hazards Susceptibility Project by mapping the shallow geological stratigraphic framework of the Mississippi Barrier Island Complex.

Purpose:

This report serves as an archive of the processed multibeam bathymetry and side scan sonar (SSS) data. Data products herein include gridded and interpolated digital depth surfaces, seabed surface backscatter imagery, and x,y,z data products for both multibeam bathymetry and side scan sonar imagery. Additional files include trackline maps, navigation files, Geopraphic Infromation System (GIS) files, Field Activity Collection System (FACS) logs, and formal Federal Geographic Data Committee (FGDC) metadata. Scanned images of the handwritten FACS logs and digital FACS logs are also provided as PDF files. Refer to the Acronyms page for expansion of acronyms and abbreviations used in this report or hold the cursor over an acronym for a pop-up explanation.

Supplemental_Information:

These 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 geomorpholocial changes of the islands with respect to climate change, storm impact, and sea-level rise. Furthermore, these data will provide information for barrier island restoration, particularly in Camille Cut, and provide protection for the historical Fort Massachusetts. For more information refer to <http://ngom.usgs.gov/gomsc/mscip/index.html>.

Time_Period_of_Content:

Time_Period_Information:

Range_of_Dates/Times:

Beginning_Date: 20100417

Beginning_Time: unknown

Ending_Date: 20100428

Ending_Time: unknown

Currentness_Reference: data collection interval

Status:

Progress: Complete

Maintenance_and_Update_Frequency: None planned

Spatial_Domain:

Bounding_Coordinates:

West_Bounding_Coordinate: -88.865328

East_Bounding_Coordinate: -88.176509

North_Bounding_Coordinate: 30.246283

South_Bounding_Coordinate: 30.153961

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: multibeam

Theme_Keyword: RESON

Theme_Keyword: Seabat 8125

Theme_Keyword: Applanix POS MV

Theme_Keyword: Trimble DSM 212

Theme_Keyword: GeoTIFF

Theme_Keyword: Continuously Operating Reference Station (CORS)

Theme_Keyword:

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

Center

Theme_Keyword: U.S. Army Corps of Engineers (USACE) Mobile Alabama District

Theme_Keyword: Gulf Islands National Seashore (GUIS)

Place:

Place_Keyword_Thesaurus: GNIS

Place_Keyword: Mississippi

Place_Keyword: West Ship Island

Place_Keyword: Horn Island

Place_Keyword: Petit Bois Pass

Place_Keyword: Dauphin Island

Stratum:

Stratum_Keyword_Thesaurus: General

Stratum_Keyword: water

Temporal:

Temporal_Keyword_Thesaurus: General

Temporal_Keyword: None

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

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

Data_Set_Credit:

Nancy T. DeWitt, James G. Flocks, William R. Pfeiffer, James N. Gibson, Dana Wiese

Native_Data_Set_Environment:

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

9.3.1.3000; rm10cct03_mb_50m.txt; 1.65 MB

Data_Quality_Information:

Attribute_Accuracy:

Attribute_Accuracy_Report:

The accuracy of the data is determined during data collection. This dataset is from a single cruise and therefore internally consistent. Methods are employed to maintain data collection consistency aboard various platforms. During mobilization, each piece of equipment (swath and sonar) 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. HYPACK, Inc., HYPSWEPP version

10 was used for the multibeam data acquisition, system calibration, and data post-processing. A patch test was performed at the beginning of the survey to calibrate the SEABAT 8125 and included latency, roll, pitch, and yaw. This involved collecting multibeam data along lines over a sloping surface for the latency, pitch, and yaw tests and over a flat surface for the roll test. The resulting offsets from the patch test were applied to the hardware configuration file prior to survey data acquisition. The Applanix POS MV is not a gyro and therefore did not need calibration. The RESON SeaBat 8125 multibeam transducer head was mounted on a retractable strut-arm that is lowered between the catamaran hulls. Offsets between the sonar head and the DGPS antennas were measured and entered into the respective program. DGPS is always implemented for navigational accuracy. During data acquisition, the differentially corrected positions supplied through the Trimble DSM 212 interface were recorded in the WGS84 datum. Ship heading and motion (roll, pitch, heave) were measured by the Applanix POS MV motion unit. Sound velocity was recorded at the multibeam sonar head. Additional sound velocity casts were conducted at the start and finish of each survey day and as needed throughout the survey. All multibeam bathymetry data were collected using the RESON SeaBat 8125. All side scan sonar data were collected using the Klein 3900 system.

Logical Consistency Report:

This dataset was completed on the same research vessel platform.

Completeness Report:

This is a complete processed multibeam bathymetry grid in GeoTIFF format. These data provide a continuous and complete surface; however, there may in some cases be data missing and inconsistent with reported tracklines. This is directly due to the exclusion of poor data or instrument failures.

Positional Accuracy:

Horizontal Positional Accuracy:

Horizontal Positional Accuracy Report:

Differential navigation was acquired using a local National Geodetic Survey (NGS) Continuously Operating Reference Station (CORS) beacon that broadcasts carrier phase and code range measurements that are captured in real-time using the Applanix Position and Orientation System for Marine Navigation (POS MV). The multibeam bathymetry and side scan sonar data were collected simultaneously using HYSWEEP version 10 and SonarPro version 11.3, respectively. The multibeam bathymetry and the side scan sonar data were collected with separate instruments but utilized the same navigation string from the Applanix POS MV. Unless noted, all DGPS data are referenced to WGS84.

Quantitative Horizontal Positional Accuracy Assessment:

Horizontal Positional Accuracy Value: 10

Horizontal Positional Accuracy Explanation: centimeters

Vertical Positional Accuracy:

Vertical Positional Accuracy Report:

Ship motion was measured by the Applanix POS MV. The multibeam bathymetry was collected using the RESON SeaBat 8125 System. This system uses a frequency of 455 kHz with a maximum swath angle of 120 degrees. Vertical accuracy is directly affected by the accuracy of both the navigation system and tidal measurements. Data for tide correction were obtained from automated tide gages maintained by the USACE and applied within MBMAX.

Quantitative Vertical Positional Accuracy Assessment:

Vertical Positional Accuracy Value: 0.05

Vertical Positional Accuracy Explanation: meters

Lineage:

Process Step:

Process Description:

Multibeam data post processing was completed at the USACE in Mobile, Ala.,

using HYPACK Inc., HYSWEEP version 10. The raw HSX data files were imported into MBMAX editor for post-processing. Data for tide correction was obtained from automated tide gages maintained by the USACE and applied at this point within MBMAX. The sound velocity cast data were also applied in MBMAX at this point. The processed x,y,z data files were exported in ASCII format and referenced to WGS84 for the horizontal datum and MLLW for the vertical datum. This dataset was then transferred to the St. Petersburg Science Center for gridding and incorporation into a larger bathymetric dataset for the GUIS. The x,y,z ASCII files were imported into ESRI's ArcMap version 9.3.1 and gridded using the Geostatistical Analyst Tool's radial basis functions.

Process_Date: 20111001

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

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

Process_Step:

Process_Description:

This is the completed 50-m resolution grid of swath bathymetric data exported as point data. This shapefile is raster grid rm10cct03_mb_50m.tif converted to point data using ArcMap version 9.3.1 raster to point conversion tool. The table produced was then populated with X,Y fields using XTools Pro version 6.

Process_Date: 20111001

Process_Contact:

Contact_Information:

Contact_Person_Primary:

Contact_Person: Nancy T. DeWitt

Contact_Organization:

U.S. Geological Survey St. Petersburg Coastal and Marine
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Process_Step:

Process_Description:

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converted to ASCII data using ArcMap version 9.3.1 raster to ASCII conversion tools.

Process_Date: 20111001

Process_Contact:

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Contact_Person_Primary:

Contact_Person: Nancy T. DeWitt

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

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Postal_Code: 33701

Country: USA

Contact_Voice_Telephone: (727) 803-8747 x3058

Contact_Electronic_Mail_Address: ndewitt@usgs.gov

Spatial_Data_Organization_Information:

Direct_Spatial_Reference_Method: Raster

Raster_Object_Information:

Raster_Object_Type: Pixel

Row_Count: 187

Column_Count: 1324

Vertical_Count: 1

Spatial_Reference_Information:

Horizontal_Coordinate_System_Definition:

Planar:

Planar_Coordinate_Information:

Planar_Coordinate_Encoding_Method: row and column

Coordinate_Representation:

Abscissa_Resolution: 50.000000

Ordinate_Resolution: 50.000000

Planar_Distance_Units: meters

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

Geodetic_Model:

Horizontal_Datum_Name: D_WGS_1984

Ellipsoid_Name: WGS_1984

Semi-major_Axis: 6378137.000000

Denominator_of_Flattening_Ratio: 298.25722356300003

Vertical_Coordinate_System_Definition:

Depth_System_Definition:

Depth_Datum_Name: Mean lower low water

Depth_Resolution: 0.46

Depth_Distance_Units: meters

Depth_Encoding_Method: Explicit depth coordinate included with horizontal coordinates

Entity_and_Attribute_Information:

Detailed_Description:

Entity_Type:

Entity_Type_Label: rm10cct03_mb_50m.tif

Entity_Type_Definition: ESRI ArcGIS 9.3

Entity_Type_Definition_Source: ESRI ArcMap 9.3 TIFF

Detailed_Description:

Entity_Type:

Entity_Type_Label: rm10cct03_mb_50m_raster2point.shp

Entity_Type_Definition: ESRI ArcGIS 9.3

Entity_Type_Definition_Source: ESRI ArcMap 9.3 shapefile

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: Point Geometry

Attribute_Definition_Source: ESRI ArcGIS 9.3

Attribute_Domain_Values:

Unrepresentable_Domain:

Sequential unique whole numbers that are automatically generated.

Attribute:

Attribute_Label: POINT_ID

Attribute_Definition: Number

Attribute_Definition_Source: ESRI ArcGIS 9.3

Attribute_Domain_Values:

Range_Domain:

Range_Domain_Minimum: 1

Range_Domain_Maximum: 63710

Attribute:

Attribute_Label: GRID_CODE

Attribute_Definition: depth in meters

Attribute_Definition_Source: USGS

Attribute_Domain_Values:

Range_Domain:

Range_Domain_Minimum: -15.2834

Range_Domain_Maximum: -2.45

Attribute:

Attribute_Label: X

Attribute_Definition: WGS84 UTM 16N

Attribute_Definition_Source: World Geodetic System of 1984

Attribute_Domain_Values:

Range_Domain:

Range_Domain_Minimum: 320534

Range_Domain_Maximum: 386684

Attribute:

Attribute_Label: Y

Attribute_Definition: WGS84 UTM 16N

Attribute_Definition_Source: World Geodetic System of 1984

Attribute_Domain_Values:

Range_Domain:

Range_Domain_Minimum: 3337337

Range_Domain_Maximum: 3346637

Detailed_Description:

Entity_Type:

Entity_Type_Label: rm10cct03_mb_50m_raster2ascii.txt

Entity_Type_Definition: ESRI ArcGIS 9.3

Entity_Type_Definition_Source: ESRI ArcMap 9.3 ASCII file

Overview_Description:

Entity_and_Attribute_Overview:

This file is the completed processed 50-m resolution multibeam bathymetry grid as a GeoTIFF file.

Entity_and_Attribute_Detail_Citation: <<http://ngom.usgs.gov/gomsc/mscip/index.html>>

Overview_Description:

Entity_and_Attribute_Overview:

This is file rm10cct03_mb_50m.tif converted to a point shapefile named 10cct03_mb_50m_raster2point.shp. The shapefile was created using ArcMap version 9.3.1 raster to point conversion tool and then populated with X,Y fields using XTools Pro version 6.0.

Entity_and_Attribute_Detail_Citation: <<http://ngom.usgs.gov/gomsc/mscip/index.html>>

Overview_Description:

Entity_and_Attribute_Overview:

This is file rm10cct03_mb_50m.tif converted to a ASCII shapefile named rm10cct03_mb_50m_raster2ascii.txt. The text files was created using ArcMap version 9.3.1 raster to ASCII conversion tool. This text file is array format with header information at the top of the file.

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

Contact_Organization:

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

Contact_Position: Geologist

Contact_Address:

Address_Type: mailing and physical address

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City: St. Petersburg

State_or_Province: FL

Postal_Code: 33701

Country: USA

Contact_Voice_Telephone: (727) 803-8747 x3012

Contact_Electronic_Mail_Address: jflocks@usgs.gov

Resource_Description:

Downloadable Data File Name = rm10cct03_mb_50m.tif

Distribution_Liability:

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Standard_Order_Process:

Digital_Form:

Digital_Transfer_Information:

Format_Name: TIFF

File_Decompression_Technique: no compression applied

Transfer_Size: 2.93

Digital_Transfer_Option:

Online_Option:

Computer_Contact_Information:

Network_Address:

Network_Resource_Name: <<http://pubs.usgs.gov/ds/671>>

Offline_Option:

Offline_Media: DVD

Recording_Format: CDR/DVD

Fees: None

Custom_Order_Process: none

Technical_Prerequisites: image viewer

Available_Time_Period:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 20111001

Time_of_Day: unknown

Distribution_Information:

Distributor:

Contact_Information:

Contact_Person_Primary:

Contact_Person: Jim Flocks

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Resource_Description:

Downloadable Data File Name = rm10cct03_mb_50m_raster2point.shp

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Standard_Order_Process:

Digital_Form:

Digital_Transfer_Information:

Format_Name: SHP

File_Decompression_Technique: no compression applied

Transfer_Size: 6.10

Digital_Transfer_Option:

Online_Option:

Computer_Contact_Information:

Network_Address:

Network_Resource_Name: <<http://pubs.usgs.gov/ds/671>>

Offline_Option:

Offline_Media: DVD

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: 20111001

Time_of_Day: unknown

Distribution_Information:

Distributor:

Contact_Information:

Contact_Person_Primary:

Contact_Person: Jim Flocks

Contact_Organization:

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

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Resource_Description:

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Standard_Order_Process:

Digital_Form:

Digital_Transfer_Information:

Format_Name: ASCII

File_Decompression_Technique: no compression applied

Transfer_Size: 1.65

Digital_Transfer_Option:

Online_Option:

Computer_Contact_Information:

Network_Address:

Network_Resource_Name: <http://pubs.usgs.gov/ds/671>

Offline_Option:

Offline_Media: DVD

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: 20111001

Time_of_Day: unknown

Metadata_Reference_Information:

Metadata_Date: 20111001

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

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Country: USA

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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 request 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 request 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

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