rm10cct03_west1_rbf_50m_5f.tif

Metadata:

- Identification Information
- Data Quality Information
- Spatial_Data_Organization_Information
- Spatial Reference Information
- Entity_and_Attribute_Information
- Distribution Information
- <u>Distribution_Information</u>
- 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_west1_rbf_50m_5f.tif: 50-m interpolated bathymetry grid of west

section 1 from USGS Cruise 10cct03

Edition: rm10cct03_west1_rbf_50m_5f
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, Geograpahic 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.

```
<a href="http://ngom.usgs.gov/gomsc/mscip/index.html">http://ngom.usgs.gov/gomsc/mscip/index.html</a>.
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: -88.721697
           East Bounding Coordinate: -88.388896
           North Bounding Coordinate: 30.224833
           South_Bounding_Coordinate: 30.155947
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:

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

Theme_Keyword: Continuously Operating Reference Station (CORS)

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 ArcMap 9.3.1.3000; rm10cct03_west1_rbf_50m_5f.txt; 4.83 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., HYPSWEEP version

10 was used for the multibeam data acquisition, system calibration, and data postprocessing. 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

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_west1_rbf_50m_5f.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 XToools Pro version 6.

Contact_Electronic_Mail_Address: ndewitt@usgs.gov

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 named rm10cct03_west1_rbf_50m_5f.tif converted to ASCII data using ArcMap version 9.3.1 raster to ASCII conversion tools.

*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

Spatial_Data_Organization_Information:
 Direct_Spatial_Reference_Method: Raster
 Raster_Object_Information:
 Raster_Object_Type: Pixel

Row_Count: 144 Column_Count: 639 Vertical Count: 1

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: row and column

Coordinate Representation:

Abscissa_Resolution: 50.000000 Ordinate_Resolution: 50.000000

Planar_Distance_Units: meters

Geodetic_Model:

Horizontal_Datum_Name: D_WGS_1984

Ellipsoid_Name: WGS_1984

```
Vertical_Coordinate_System_Definition:
           Depth_System_Definition:
                 Depth Datum Name: Mean lower low water
                 Depth Resolution: 0.05
                 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_west1_rbf_50m_5f.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_west1_rbf_50m_5f_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: 42634
           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: -3.7811
           Attribute:
                 Attribute Label: X
                 Attribute_Definition: WGS84 UTM 16N
```

Semi-major_Axis: 6378137.000000

Denominator_of_Flattening_Ratio: 298.25722356300003

```
Attribute Definition Source: World Geodtic System of 1984
                  Attribute Domain Values:
                         Range_Domain:
                               Range_Domain_Minimum: 334327.94
                               Range Domain Maximum: 366227.94
            Attribute:
                  Attribute_Label: Y
                  Attribute Definition: WGS84 UTM 16N
                  Attribute_Definition_Source: World Geodtic System of 1984
                  Attribute Domain Values:
                         Range_Domain:
                               Range Domain Minimum: 3337340.76
                                Range Domain Maximum: 3344490.76
      Detailed_Description:
            Entity_Type:
                   Entity_Type_Label: rm10cct03_west1_rbf_50m_5f_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: <a href="http://ngom.usgs.gov/gomsc/mscip/index.html">http://ngom.usgs.gov/gomsc/mscip/index.html</a>
      Overview Description:
            Entity_and_Attribute_Overview:
                   This is file rm10cct03_west1_rbf_50m_5f.tif converted to a point shapefile named
                  rm10cct03_west1_rbf_50m_5f_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 XToools Pro version 6.0.
            Entity and Attribute Detail Citation: <a href="http://ngom.usgs.gov/gomsc/mscip/index.html">http://ngom.usgs.gov/gomsc/mscip/index.html</a>
      Overview_Description:
            Entity and Attribute Overview:
                   This is file rm10cct03_west1_rbf_50m_5f.tif converted to a ASCII shapefile named
                  rm10cct03 west1 rbf 50m 5f 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: <a href="http://ngom.usgs.gov/gomsc/mscip/index.html">http://ngom.usgs.gov/gomsc/mscip/index.html</a>
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

Address: 600 4th Street South

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 west1 rbf 50m 5f.tif

Distribution_Liability:

This DVD 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: TIFF

File_Decompression_Technique: no compression applied

Transfer_Size: 1.78 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

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 x3012

Contact Electronic Mail Address: jflocks@usgs.gov

Resource_Description:

Downloadable Data File Name = rm10cct03_east_rbf_50m_3f_raster2point.shp Distribution_Liability:

This DVD 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: 4.83
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

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

osiai_coac. 3370

Country: USA

Contact_Voice_Telephone: (727) 803-8747 x3012 Contact_Electronic_Mail_Address: jflocks@usgs.gov *Resource_Description:*

Downloadable Data File Name = rm10cct03_east_rbf_50m_3f_raster2ascii.txt *Distribution Liability:*

This DVD 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: ASCII

File_Decompression_Technique: no compression applied

Transfer_Size: 0.701

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

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 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

Generated by mp version 2.9.14 on Tue Feb 21 15:41:27 2012