

2013 OrthoImagery

Thumbnail Not Available

Tags

OrthoImage 2013, OrthoImage

Summary

An orthoimage is useful as a layer of any geographic information system (GIS). It can function as a cartographic base for displaying, generating, and modifying associated digital planimetric data. Other applications include environmental impact assessments, disaster management, emergency evacuation planning, flood analysis, soil erosion assessment, facility management, ground-water and watershed analysis, right of way and road alignment, transportation network inventory and analysis, preliminary design studies, vegetation classification detection of physical features or attributes not possible at ground level, and a myriad of additional applications.

Description

This raster dataset consists of 8-bit, 4-band (R, G, B, NIR) color orthoimagery. A digital orthoimage is a raster image processed from vertical aerial images in which displacement in the image due to sensor orientation and terrain relief have been removed. Orthoimagery combines the image characteristics of an image with the geometric qualities of a map. Unlike planimetric maps which depict natural and manmade features by means of lines, point symbols, texts and polygons, orthoimagery illustrate the actual images of features and are thus more easily interpreted than regular maps. The normal orientation of data in an orthoimage is by lines (rows) and samples (columns). Each line contains a series of pixels ordered from west to east with the order of the lines from north to south. Each image tile is stored in industry standard .TIFF (tagged interchange file format) with an associated true world header file. Aerial imagery was acquired during February 2013 from flying heights of approximately 7,500 feet above mean terrain. Each orthoimage tile is 5,000 feet X 5,000 feet in dimension, edge-tied with the adjacent tiles (no gap and no overlap). This dataset is published in NAD_1983_NSRS2007_StatePlane_Mississippi_West_FIPS_2302_Ft_US with units in feet.

Credits

There are no credits for this item.

Use limitations

Data is uncleaned and may be used with permission.

Extent

There is no extent for this item.

Scale Range

There is no scale range for this item.

[ArcGIS Metadata](#) ►

[Citation](#) ►

TITLE 2013 OrthoImagery

[Resource Details](#) ►

CREDITS

Resource Constraints ►

CONSTRAINTS

LIMITATIONS OF USE

Data is uncleaned and may be used with permission.

Distribution ►

DISTRIBUTOR ►

TRANSFER OPTIONS

ONLINE SOURCE

* LOCATION

file:///\\conas\projects\312013403_M2MAP\Ortho\doc\metadata\6in_Lincoln_County_2013_Orthos

* ACCESS PROTOCOL Local Area Network

Metadata Details ►

* LAST UPDATE 2013-12-10

ARCGIS METADATA PROPERTIES

METADATA FORMAT ESRI-ISO

CREATED IN ARCGIS FOR THE ITEM 2013-10-02 16:10:58

LAST MODIFIED IN ARCGIS FOR THE ITEM 2013-12-10 09:00:05

AUTOMATIC UPDATES

HAVE BEEN PERFORMED No

Identification ►

CITATION

CITATION INFORMATION

ORIGINATOR Hinds County

PUBLICATION DATE 2013-09

TITLE

2013 OrthoImagery

GEOSPATIAL DATA PRESENTATION FORM remote-sensing image

OTHER CITATION DETAILS

2013 OrthoImage in TIFF/TFW Format

ONLINE LINKAGE

\\conas\projects\312013403_M2MAP\Ortho\doc\metadata\Hinds_County_2013_Orthos

DESCRIPTION

ABSTRACT

This raster dataset consists of 8-bit, 4-band (R, G, B, NIR) color orthoimagery. A digital orthoimage is a raster image processed from vertical aerial images in which displacement in the image due to sensor orientation and terrain relief have been removed. Orthoimagery combines the image characteristics of an image with the geometric qualities of a map. Unlike planimetric maps which depict natural and

manmade features by means of lines, point symbols, texts and polygons, orthoimagery illustrate the actual images of features and are thus more easily interpreted than regular maps. The normal orientation of data in an orthoimage is by lines (rows) and samples (columns). Each line contains a series of pixels ordered from west to east with the order of the lines from north to south. Each image tile is stored in industry standard .TIFF (tagged interchange file format) with an associated true world header file. Aerial imagery was acquired during February 2013 from flying heights of approximately 7,500 feet above mean terrain. Each orthoimage tile is 5,000 feet X 5,000 feet in dimension, edge-tied with the adjacent tiles (no gap and no overlap). This dataset is published in NAD_1983_NSRS2007_StatePlane_Mississippi_West_FIPS_2302_Ft_US with units in feet.

PURPOSE

An orthoimage is useful as a layer of any geographic information system (GIS). It can function as a cartographic base for displaying, generating, and modifying associated digital planimetric data. Other applications include environmental impact assessments, disaster management, emergency evacuation planning, flood analysis, soil erosion assessment, facility management, ground-water and watershed analysis, right of way and road alignment, transportation network inventory and analysis, preliminary design studies, vegetation classification detection of physical features or attributes not possible at ground level, and a myriad of additional applications.

TIME PERIOD OF CONTENT

TIME PERIOD INFORMATION

SINGLE DATE/TIME

CALENDAR DATE 2013-09

TIME OF DAY unknown

CURRENTNESS REFERENCE

publication date

STATUS

PROGRESS Complete

MAINTENANCE AND UPDATE FREQUENCY As needed

SPATIAL DOMAIN

BOUNDING COORDINATES

WEST BOUNDING COORDINATE -90.777

EAST BOUNDING COORDINATE -90.021

NORTH BOUNDING COORDINATE 32.592

SOUTH BOUNDING COORDINATE 32.032

KEYWORDS

THEME

THEME KEYWORD THESAURUS Rectified Imagery

THEME KEYWORD OrthoImage 2013

THEME KEYWORD OrthoImage

PLACE

PLACE KEYWORD THESAURUS Hinds County, Mississippi

PLACE KEYWORD Hinds County, Mississippi

TEMPORAL

TEMPORAL KEYWORD THESAURUS 2013

TEMPORAL KEYWORD 2013

ACCESS CONSTRAINTS

May be distributed with the permission of Development Services- Mapping Section

USE CONSTRAINTS

Data is uncleaned and may be used with permission.

POINT OF CONTACT
CONTACT INFORMATION
CONTACT PERSON PRIMARY
CONTACT PERSON Stephen Champlin
CONTACT ORGANIZATION Mississippi Department of Environmental Quality (MDEQ)
CONTACT POSITION Geospatial Resources Division/Flood Mapping Director
CONTACT ADDRESS
ADDRESS TYPE mailing and physical address
ADDRESS P.O. Box 2279
CITY Jackson
STATE OR PROVINCE MS
POSTAL CODE 39225-2279
COUNTRY UNITED STATES

CONTACT VOICE TELEPHONE 601 353 6056
HOURS OF SERVICE 8:30am - 5:30pm EST

NATIVE DATA SET ENVIRONMENT
Microsoft Windows XP Version 5.1 (Build 2600) Service Pack 3; ESRI ArcCatalog
9.2.5.1450

Data Quality ►

LOGICAL CONSISTENCY REPORT

The digital imagery for each acquisition sortie is differentially rectified to produce orthophotography at a resolution of 6in. Once the imagery has passed quality control review, final radiometric adjustments are performed to create a uniform overall appearance.

COMPLETENESS REPORT

Compliance with the accuracy standard was ensured by the collection of airborne GPS data and by referencing the ground control points.

POSITIONAL ACCURACY

HORIZONTAL POSITIONAL ACCURACY

HORIZONTAL POSITIONAL ACCURACY REPORT

Horizontal accuracy is based on ground control and digital elevation model data provided by Sanborn Map Company that was used in the production of the digital orthoimagery.

QUANTITATIVE HORIZONTAL POSITIONAL ACCURACY ASSESSMENT

HORIZONTAL POSITIONAL ACCURACY VALUE 1

HORIZONTAL POSITIONAL ACCURACY EXPLANATION

The digital orthoimagery accuracy requirement meets the Hinds County Requirement of ASPRS Class 1 of clearly identifiable features within the photography. The orthoimagery has been compared to the airborne GPS and surveyed locations to confirm the requirement has been met.

VERTICAL POSITIONAL ACCURACY

VERTICAL POSITIONAL ACCURACY REPORT

For the orthophoto product, there is no vertical accuracy.

QUANTITATIVE VERTICAL POSITIONAL ACCURACY ASSESSMENT

VERTICAL POSITIONAL ACCURACY VALUE 1

VERTICAL POSITIONAL ACCURACY EXPLANATION

For the orthophoto product, there is no vertical accuracy.

LINEAGE

SOURCE INFORMATION

TYPE OF SOURCE MEDIA Aerial Images

PROCESS STEP

PROCESS DESCRIPTION

Several major processes were done before the Hinds County orthophotos were produced namely: digital aerial photography, imagery processing and QC, softcopy aerial triangulation and QC, ortho-rectification and QC.

Aerial Photography: Aerial Photography was acquired with 80 mm focal length, Micorsoft Utltracam Eagle precision digital aerial mapping camera during February and early March of 2013. Aerial photography was flown at approximately 7500 feet above mean terrain. Planes were deployed with gyro-stabilized mount and equipped with forward motion compensation, Ariborne GPS and Intertial Measurement Unit. The photo mission was conducted under optimal atmospheric conditions and greater than 30 degree sun angle.

PROCESS DATE 201302-201303

PROCESS STEP

PROCESS DESCRIPTION

The digital aerial imagery was transferred from the UCEcamera to a Mass Storage Unit (MSU) and shipped to Sanborn's main facility in Colorado Springs. Once downloaded, Data is processed via Micorsoft ultramap software from the raw camera format to a 4-band unsharpened color image and a pan image. An application is executed that outputs the mid-exposure pulse for each image. At this point a POS file is processed photo files as input to the Aerial Triangulation process. Raw camera data files are archived on LTO3 tapes. The imagery is processed using Intergraph PPS processing software to create a 3-band color image in natural color (RGB) format. The images are archived (on LTO3 tapes) and removed from system when orthophotography production has been completed.

PROCESS DATE 201303-201304

PROCESS STEP

PROCESS DESCRIPTION

Softcopy (Digital) Aerotriangulation: This task involved the densification of ground control points, measurement of photo coordinates, computation and block adjustment to solve for exterior orientation parameters of individual photographs necessary for ortho-rectification. New ground control locations surveyed by the Sanborn map company; a combination of photo-identical points and targeted points were used. The ground control points were measured in a fully digital environment using softcopy stereoplotters and tie point and passpoints automatically generated. Analytical aerotriangulation computations and adjustment were done using ZI Imaging's ISAT software, which is capable of performing bundle block adjustments using a rigorous least squares analysis, and possesses error detection and removal facilities. Systematic error corrections for lens distortion, earth curvature, and atmospheric refraction. State-of-the-art software with highly sophisticated error-detection routines was used to perform the computation and bundle block adjustment. Trained aerial triangulation specialist analyzed both numerical printouts and graphical error vector output display to detect gaps or holes in the block due to missing tie points, pass points or ground control.

PROCESS DATE 201303-201305

PROCESS STEP

PROCESS DESCRIPTION

Client Provided Lidar: Sanborn will use the clinet provided lidar for Hinds County, MS.

PROCESS DATE 2013-05

PROCESS STEP

PROCESS DESCRIPTION

Orthorectification: This task involved orthorectification of the raw digital raster images that were created from processing of Micorsoft Ultracam Eagle digital camera data. A

number of image processing techniques were used to maximize the quality of the deliverable images. All operations were performed using Sanborn's proprietary APS (METRO) software. The un-rectified raster images were georeferenced to the Hinds County client provided Lidar Surface using the digital aerotriangulation result and aerial camera data. Digital orthoimagery was created by draping the un-rectified raster images over their corresponding digital terrain models. All relief displacement was removed from the raw image files at ground level on a pixel-by-pixel basis using mathematical pixel manipulation and seams, yielding a set of orthorectified digital photo images. Mosaicking was performed to ensure a perfect edge match between all orthoimage tiles. Seam lines were generated automatically and manually manipulated where necessary to ensure that no image flaws result from seam lines passing through tall structures. Seamline calculations bring in radiometric values of the pixels that are used first and then the terrain is brought into the equation. The software uses the radiometric values to go around cars and buildings the best it can. If the software detects a substantial change in the surface (like steep hills to cliffs), the software will try to compensate with another image, to avoid smearing of the imagery. If the seams would not compensate for the surface change, it would create a smear or the hillside would be more stretched than it should be. There will be on occasion patches of seams hiding these terrain changes. All orthoimagery tiles were generated butt joints, no overlaps nor gaps. Radiometric adjustment was performed to balance and match color tones, brightness and contrast of the imagery over the whole project. Color orthoimagery were produced 8-bit per channel, resulting in 32-bit RGB, .tif/.tiff format with a pixel size of 6in. Ortho tiles were generated according to the pre-approved County orthoimagery tile layout, with tiles 5,000' X 5,000'. Orthoimages were compressed on a County basis to .sid/.sdw format at a 20:1 compression ratio to develop a MrSID format mosaic.

PROCESS DATE 201305-201306

PROCESS STEP

PROCESS DESCRIPTION

Quality Control All orthophoto tiles were thoroughly inspected according to Sanborn QA/QC quality control procedures. Comprehensive visual inspection included looking for mosaicking, image smearing and color balancing across the entire project.

PROCESS DATE 201307-201309

PROCESS STEP

PROCESS DESCRIPTION

Metadata imported.

PROCESS DATE 2013-09

PROCESS STEP

PROCESS DESCRIPTION

Dataset copied.

SOURCE USED CITATION ABBREVIATION

Z:\312013403_M2MAP\Ortho\doc\metadata\Hinds_County_2013_Orthos

PROCESS DATE 2013-10-02

PROCESS TIME 16:10:58

CLOUD COVER 0

Spatial Data Organization ►

DIRECT SPATIAL REFERENCE METHOD Raster

RASTER OBJECT INFORMATION

RASTER OBJECT TYPE Pixel

Spatial Reference ►

HORIZONTAL COORDINATE SYSTEM DEFINITION
PLANAR
GRID COORDINATE SYSTEM
GRID COORDINATE SYSTEM NAME State Plane Coordinate System
STATE PLANE COORDINATE SYSTEM
SPCS ZONE IDENTIFIER FIPS_2302
TRANSVERSE MERCATOR
SCALE FACTOR AT CENTRAL MERIDIAN 0.99995000
LONGITUDE OF CENTRAL MERIDIAN -90.33333333
LATITUDE OF PROJECTION ORIGIN 29.50000000
FALSE EASTING 2296583.33333333
FALSE NORTHING 0.00000000

PLANAR COORDINATE INFORMATION
PLANAR COORDINATE ENCODING METHOD row and column
COORDINATE REPRESENTATION
ABSCISSA RESOLUTION 6in
ORDINATE RESOLUTION 6in
PLANAR DISTANCE UNITS survey feet

GEODETTIC MODEL
HORIZONTAL DATUM NAME North American Datum of 1983
ELLIPSOID NAME Geodetic Reference System 80
SEMI-MAJOR AXIS 6378137.00000000000000000000
DENOMINATOR OF FLATTENING RATIO 298.257222101000020000

VERTICAL COORDINATE SYSTEM DEFINITION
ALTITUDE SYSTEM DEFINITION
ALTITUDE DATUM NAME North American Vertical Datum of 1988
ALTITUDE RESOLUTION 6in
ALTITUDE DISTANCE UNITS feet
ALTITUDE ENCODING METHOD Implicit coordinate
DEPTH SYSTEM DEFINITION
DEPTH DATUM NAME North American Vertical Datum of 1988
DEPTH RESOLUTION 6in
DEPTH DISTANCE UNITS feet
DEPTH ENCODING METHOD Implicit coordinate

Distribution Information ►

DISTRIBUTOR
CONTACT INFORMATION
CONTACT PERSON PRIMARY
CONTACT PERSON Stephen Champlin
CONTACT ORGANIZATION Mississippi Department of Environmental Quality (MDEQ)
CONTACT POSITION Geospatial Resources Division/Flood Mapping Director
CONTACT ADDRESS
ADDRESS TYPE mailing and physical address
ADDRESS P.O. Box 2279
CITY Jackson
STATE OR PROVINCE MS
POSTAL CODE 39225-2279

COUNTRY UNITED STATES

CONTACT VOICE TELEPHONE 601-961-5506
HOURS OF SERVICE 8:30am - 4:30pm EST

STANDARD ORDER PROCESS
DIGITAL FORM
DIGITAL TRANSFER INFORMATION
FORMAT NAME TIFF
TRANSFER SIZE 415744

Metadata Reference ►

METADATA DATE 2013-09-18
METADATA CONTACT
CONTACT INFORMATION
CONTACT ORGANIZATION PRIMARY
CONTACT ORGANIZATION Sanborn Mapping Company, Inc
CONTACT PERSON Derek Hoshijo
CONTACT ADDRESS
ADDRESS TYPE mailing address
ADDRESS 1935 Jamboree Drive, Suite 100
CITY Colorado Springs
STATE OR PROVINCE CO
POSTAL CODE 80920
COUNTRY UNITED STATES

CONTACT VOICE TELEPHONE 719-593-0093
HOURS OF SERVICE 8:30am - 4:30pm EST

METADATA STANDARD NAME FGDC Content Standards for Digital Geospatial Metadata
METADATA STANDARD VERSION FGDC-STD-001-1998
METADATA TIME CONVENTION local time