

Identification_Information:

Citation:

Citation_Information:

Originator: USDA-FSA Aerial Photography Field Office
Publication_Date: 20090902
Title: ortho_1-1_1n_s_oh027_2009_1.sid
Geospatial_Data_Presentation_Form: raster digital data
Publication_Information:
Publication_Place: Salt Lake City, Utah
Publisher: USDA FSA Aerial Photography Field Office

Description:

Abstract:

This data set contains imagery from the National Agriculture Imagery Program (NAIP). The NAIP acquires digital ortho imagery during the agricultural growing seasons in the continental U.S.. A primary goal of the NAIP program is to enable availability of ortho imagery within one year of acquisition. The NAIP provides two main products: 1 meter ground sample distance (GSD) ortho imagery rectified to a horizontal accuracy within +/- 5 meters of reference digital ortho quarter quads (DOQQ's) from the National Digital Ortho Program (NDOP) or from the National Agriculture Imagery Program (NAIP); 1 meter GSD ortho imagery rectified within +/- 6 meters to true ground. The tiling format of NAIP imagery is based on a 3.75' x 3.75' quarter quadrangle with a 300 meter buffer on all four sides. The NAIP imagery is formatted to the UTM coordinate system using the North American Datum of 1983 (NAD83). The NAIP imagery may contain as much as 10% cloud cover per tile. This file was generated by compressing NAIP imagery that cover the county extent. Two types of compression may be used for NAIP imagery: MrSID and JPEG 2000. Target value for the compression ratio is (15:1).

Purpose:

The NAIP imagery is available for distribution within 60 days of the end of a flying season and is intended to provide current information of agricultural conditions in support of USDA farm programs. For USDA Farm Service Agency, the 1 meter GSD product provides an ortho image base for Common Land Unit boundaries and other data sets. The NAIP imagery is generally acquired in projects covering full states in cooperation with state government and other federal agencies who use the imagery for a variety of purposes including land use planning and natural resource assessment. The NAIP is also used for disaster response often providing the most current pre-event imagery.

Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 2009

Currentness_Reference: Photography Source Image Dates.

Status:

Progress: Complete
Maintenance_and_Update_Frequency: Irregular

Spatial_Domain:

Bounding_Coordinates:
West_Bounding_Coordinate: -84.082501
East_Bounding_Coordinate: -83.545407
North_Bounding_Coordinate: 39.638204
South_Bounding_Coordinate: 39.176988

Keywords:

Theme:
Theme_Keyword_Thesaurus: None
Theme_Keyword: farming
Theme_Keyword: Digital Ortho rectified Image
Theme_Keyword: Mosaic
Theme_Keyword: Quarter Quadrangle Centered
Theme_Keyword: Ortho Rectification
Theme_Keyword: Compression
Theme_Keyword: MrSID
Theme_Keyword: JPEG 2000
Theme_Keyword: NAIP
Theme_Keyword: Compliance
Theme_Keyword: Aerial Compliance

Place:

Place_Keyword_Thesaurus: Geographic Names Information System
Place_Keyword: CLINTON
Place_Keyword: CLINTON OH
Place_Keyword: 39027
Place_Keyword: OH

Access_Constraints: None

Use_Constraints:

None, The USDA-FSA Aerial Photography Field Office asks to be credited in derived products.
If defects are found in the NAIP imagery during the warranty period such as horizontal offsets, replacement imagery may be provided. Imagery containing defects that require the acquisition of new imagery, such as excessive cloud cover, specular reflectance, etc., will not be replaced within a NAIP project year.

Point_of_Contact:

Contact_Information:
Contact_Organization_Primary:
Contact_Organization: USDA-FSA Aerial Photography Field Office
Contact_Address:
Address_Type: mailing and physical address
Address: 2222 West 2300 South
City: Salt Lake City
State_or_Province: Utah
Postal_Code: 84119-2020
Country: USA
Contact_Voice_Telephone: 801-844-2922
Contact_Facsimile_Telephone: 801-956-3653

Browse_Graphic:

Browse_Graphic_File_Name: None

Browse_Graphic_File_Description: None
Browse_Graphic_File_Type: None
Native_Data_Set_Environment: Microsoft Windows 2000 Version 5.0 (Build 2195) Service Pack 4; ESRI ArcCatalog 9.2.2.1350
Data_Quality_Information:
Logical_Consistency_Report:
NAIP 3.75 minute tile file names are based on the USGS quadrangle naming convention.
Completeness_Report: None
Positional_Accuracy:
Horizontal_Positional_Accuracy:
Horizontal_Positional_Accuracy_Report: FSA Digital Orthophoto Specifications.
Vertical_Positional_Accuracy:
Vertical_Positional_Accuracy_Report: N/A 2d only
Lineage:
Source_Information:
Source_Citation:
Citation_Information:
Originator: USDA-FSA Aerial Photography Field Office
Publication_Date: 20090902
Title: CLINTON, OH
Source_Scale_Denominator: 12000
Type_of_Source_Media: CD/DVD
Source_Time_Period_of_Content:
Time_Period_Information:
Single_Date/Time:
Calendar_Date: 2009
Source_Currentness_Reference: Majority Aerial Photography Date
Source_Citation_Abbreviation: MrSID / JPEG2000 compressed image.
Source_Contribution: Mosaicked County Image
Process_Step:
Process_Description:
The imagery was collected using ADS40, ADS40-SH51, and ADS40-SH52 digital sensors.
Collection was performed using a combination of twin-engine aircraft flying at an average flying height of 21000 ft above mean terrain with 25% sidelap, giving the collected data nominal ground sampling distance of 0.7 meters.
Based-upon the CCD Array configuration present in the ADS40 digital sensor, imagery for each flight line is 12,000-pixels in width. Red, Green, Blue, Near-Infrared and Panchromatic image bands were collected.
Collected data was downloaded to portable hard drives and shipped to the processing facility daily. Raw flight data was extracted from external data drives using GPro software. Airborne GPS / IMU data was post-processed using IPAS, PosPac and/or TerraPos

software and reviewed to ensure sufficient accuracy for project requirements.

Using Pictovera software, planar rectified images were generated from the collected data for use in image quality review. The planar rectified images were generated at five meter resolution using a two standard deviation histogram stretch. Factors considered during this review included but were not limited to the presence of smoke and/or cloud cover, contrails, light conditions, sun glint and any sensor or hardware-related issues that potentially could result in faulty data. When necessary, image strips identified as not meeting image quality specifications were re-flown to obtain suitable imagery.

Aerotriangulation blocks were defined primarily by order of acquisition and consisted of four to seventeen strips. Image tie points providing the observations for the least squares bundle adjustment were selected from the images using an autocorrelation algorithm. Photogrammetric control points consisted of photo identifiable control points, collected using GPS field survey techniques. The control points were loaded in to a softcopy workstation and measured in the acquired image strips. A least squares bundle adjustment of image pass points, control points and the ABGPS was performed to develop an aerotriangulation solution for each block using Pictovera software. Upon final bundle adjustment, the triangulated strips were ortho-rectified to the USGS NED DEM for the project area. A combination of 10-Meter and 30-Meter NED data purchased from USGS in 2005 was used for rectification. The images were re-sampled from the raw resolution of 0.7 meters to the required resolution of 1.0 meters.

Positional accuracy was reviewed in the rectified imagery by visually verifying the horizontal positioning of the known photo-identifiable survey locations using ArcGIS software.

The red, green, and blue bands were combined to generate a final ortho-rectified image strip.

The ADS40 sensor collects twelve bit image data which requires radiometric adjustment for output in standard eight bit image channels. The ortho-rectified image strips were produced with the full 12 bit data range, allowing radiometric adjustment to 8 bit range to be performed on a strip

by strip basis during the final mosaicking steps.

The imagery was mosaicked using manual seamline generation in Orthovista Seam Editor (OVSE).

The 12 bit data range was adjusted for display in standard eight bit image channels by defining a piecewise histogram stretch using OrthoVista software. A constant stretch was defined for each image collection period, and then strip by strip adjustments were made as needed to account for changes in sun angle and azimuth during the collection period. Strip adjustments were also made to match the strips histograms as closely as possible to APFO specified histogram metrics and color balance requirements. Automated balancing algorithms were applied to account for bi-directional reflectance as a final step before the conversion to 8 bit data range.

APFO specified DOQQs were extracted from the final mosaic in GeoTIFF format. 3-Band DOQQs were produced and 3-Band RGB CCMs were created. DOQQs corresponding to an individual CCM were reviewed for overall color balance within the CCM. Local corrections were made where necessary to ensure uniformity within the CCM. In the case of DOQQs occurring in more than one CCM, a separate version of the image was generated and balanced for each CCM it occurred in.

The color balanced DOQQs were then compressed to MrSID Generation 3 format at 15:1 compression ratio to create a composite CCM.

Process_Date: 20090902

Spatial_Data_Organization_Information:

Indirect_Spatial_Reference: CLINTON, OH

Direct_Spatial_Reference_Method: Raster

Raster_Object_Information:

Raster_Object_Type: Pixel

Row_Count: 49852

Column_Count: 44740

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: 17

Transverse_Mercator:

Scale_Factor_at_Central_Meridian: 0.999600

Longitude_of_Central_Meridian: -81.000000

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: 1.000000
Ordinate_Resolution: 1.000000
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:
Overview_Description:
Entity_and_Attribute_Overview: 24 bit pixels, 3 band color (RGB)
represent brightness values 0-255.
Entity_and_Attribute_Detail_Citation: None
Distribution_Information:
Distributor:
Contact_Information:
Contact_Person_Primary:
Contact_Person: Supervisor Customer Service Section
Contact_Organization: USDA-FSA Aerial Photography Field Office
Contact_Address:
Address_Type: mailing and physical address
Address: 2222 West 2300 South
City: Salt Lake City
State_or_Province: Utah
Postal_Code: 84119-2020
Country: USA
Contact_Voice_Telephone: 801-844-2922
Contact_Facsimile_Telephone: 801-956-3653
Resource_Description: Mosaicked County Image for CLINTON, OH
Distribution_Liability:
In no event shall the creators, custodians, or distributors
of this information be liable for any damages arising out
of its use (or the inability to use it).
Standard_Order_Process:
Digital_Form:
Digital_Transfer_Information:
Format_Name: Compressed County Mosaic
Format_Information_Content: Natural Color
Digital_Transfer_Option:
Online_Option:
Computer_Contact_Information:
Network_Address:
Network_Resource_Name: None
Offline_Option:
Offline_Media: CD-ROM
Recording_Format: ISO 9660
Offline_Option:
Offline_Media: DVD-R
Recording_Format: ISO 9660
Offline_Option:
Offline_Media: USB/Firewire/SATA External Hard Drive

Recording_Format: NTFS

Fees:

Contact the USDA-FSA Aerial Photography Field Office
for more information.

Available_Time_Period:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 2009

Metadata_Reference_Information:

Metadata_Date: 20090914

Metadata_Contact:

Contact_Information:

Contact_Organization_Primary:

Contact_Organization: USDA-FSA Aerial Photography Field Office

Contact_Person: REQUIRED: The person responsible for the metadata
information.

Contact_Address:

Address_Type: mailing and physical address

Address: 2222 West 2300 South

City: Salt Lake City

State_or_Province: Utah

Postal_Code: 84119-2020

Country: USA

Contact_Voice_Telephone: 801-844-2922

Metadata_Standard_Name: FGDC Content Standards for Digital Geospatial
Metadata

Metadata_Standard_Version: FGDC-STD-001-1998

Metadata_Time_Convention: local time

Metadata_Extensions:

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

Profile_Name: ESRI Metadata Profile