Orthoimagery, Black Hawk County Iowa, March 1994

Metadata also available as

Metadata:

Identification_Information:

Citation:

Citation_Information:

Originator: Black Hawk County Iowa
Publication_Date: Unpublished Material
Title: Orthoimagery, Black Hawk County Iowa, March 1994
Geospatial_Data_Presentation_Form: remote-sensing image
Publication_Information:

Publication_Place: Black Hawk County Iowa
Publisher: Black Hawk County

Online_Linkage: <http://www.co.black-hawk.ia.us/depts/bhentry.htm>

Description:

Abstract:

Orthophotos combine the image characteristics of a photograph with the geometric qualities of a map. Two products were produced for the base map of the Black Hawk County GIS. The first product was a digital orthophoto at 0.625-meter ground resolution covering the entire county. The images were subdivided, or tiled, into 2000-meter by 2000-meter TIFF image files. The second product was a digital orthophoto at 0.16-meter ground resolution covering urbanized areas throughout the county. These images were subdivided, or tiled, into 500-meter by 500-meter TIFF image files. The image tiles are referenced to the Iowa State Plane Coordinate System NAD 1983 North Zone in meters. The images were radiometrically balanced and mosaicked prior to the tile creation. Images were supplied in TIFF format with a CAD file containing geo-referencing position information. Orthoimages were converted from TIFF format

to COT format for incorporating into Black Hawk County's MGE cadastral project. File size refers to a per image size.

Purpose:

The orthophotos were developed to provide spatially accurate, high resolution images that serve as a foundation for drawing vector graphics, including the GIS cadastral maps.

Supplemental_Information:

Aerial photos, orthophotos in TIFF format, and digital terrain models were developed by Aerial Services Inc., Cedar Falls Iowa as a contracted service. Conversion from TIFF format to MrSid format was done as a contracted service by the Sidwell Company, 675 Sidwell Court, St. Charles, IL.

Time_Period_of_Content:

Time_Period_Information:

Range_of_Dates/Times:

Beginning_Date: 19940331
Ending_Date: 19940401

Currentness_Reference: ground condition

Status:

Progress: Complete
Maintenance_and_Update_Frequency: Irregular

Spatial_Domain:

Bounding_Coordinates:

West_Bounding_Coordinate: -92.556
East_Bounding_Coordinate: -92.062
North_Bounding_Coordinate: 42.644
South_Bounding_Coordinate: 42.294

Keywords:

Theme:

Theme_Keyword_Thesaurus: ISO 19115 Topic Category
Theme_Keyword: imageryBaseMapsEarthCover

Place:

Place_Keyword: Black Hawk County
Place_Keyword: Iowa

Temporal:

Temporal_Keyword: March, 1994

Access_Constraints:
This data set is in the public domain, and the recipient may not assert any proprietary rights thereto nor represent it to anyone as other than Black Hawk County, Aerial Services Inc., or the USGS.
Use_Constraints:
This data set is provided "as-is" without warranty of any kind, including, but not limited to, the implied warranties of merchantability and fitness for a particular purpose. The user assumes all responsibility for the accuracy and suitability of this data set for a specific application. In no event will the creators or Black Hawk County be liable for any damages, including lost profits, lost savings, or other incidental or consequential damages arising from the use of or inability to use this data set. 1994 orthoimages for Black Hawk County should not be used at scales greater than 1:1200.
Point_of_Contact:

Contact_Information:

Contact_Organization_Primary:

Contact_Organization: Black Hawk County Information Technology Department
Contact_Person: Kim Veeder

Contact_Position: Director
Contact_Address:

Address_Type: mailing and physical address
Address: 316 E. 5th Street
City: Waterloo
State_or_Province: Iowa
Postal_Code: 50703
Country: USA

Contact_Voice_Telephone: 319 833-3154
Contact_Facsimile_Telephone: 319 833-3165
Contact_Electronic_Mail_Address: kveeder@co.black-hawk.ia.us

Data_Set_Credit:
Aerial Services, Inc., 2120 Center Street, Cedar Falls Iowa contracted service provider
Native_Data_Set_Environment: TIFF, COT

Data_Quality_Information:

Attribute_Accuracy:

Attribute_Accuracy_Report:
During digital image production, photographic reproduction of the source image was completed on an analog dodging printer to improve image quality and radiometric uniformity. One set of film diapositivas was produced for the analytical aero-triangulation and a second set was produced for scanning purposes. The scanned images were orthorectified using Autometric softplotter software. The orthorectified images were balanced and mosaicked using OrthoVista and Autometric software.

Large image blocks were mosaicked at one time to lessen the effects of variance due to sun angle and illumination. Even though images were acquired on different days and at different times, this process eliminated major image differences. Good radiometry and image content was maintained for the entire project with only minor variances between blocks.

Logical_Consistency_Report:

.cot format, correct physical format and field values for header record elements were verified. Logical relationships between header record elements are tested.

Completeness_Report:

Completed at a scale of 1:1200 for urban areas, and 1:4800 for the entire county Contact Lynn Kloberdanz, BHC Engineer's Office, for reference map showing location of orthophotos developed from 1994 aerial photography.

Positional_Accuracy:

Horizontal_Positional_Accuracy:

Horizontal_Positional_Accuracy_Report:

The positional accuracy is dependent, in part, upon the individual accuracies of each process used to produce the final data. The individual processes or data sources used are the ground control, aerotriangulation process, source camera calibration, DTM process, and the mosaic process. The digital orthophotos were developed based on 179 measured ground control points. These measured points fall within +/- 0.05 meters in horizontal position, using a 95% confidence factor. The horizontal ground control was completed to First Order (1:100,000) or better survey standards. The vertical control was completed to third order standards. The testing of the control yielded accuracies well beyond those needed to meet National Map Accuracy Standards (NMAS). The aerotriangulation process was tested by using strip, block and bundle tests, along with targeted control that was withheld for validation purposes. The aerotriangulation was found to exceed 1:10,000 of the flight height of the photography used. The aerial cameras used have current calibrations from USGS that exceed the needed standards. These calibrations were utilized in all photogrammetry processes. The scanner is calibrated or checked in three ways. At the time of scanning, the data is checked against a calibrated reseau grid. The scans are checked a second time at the point of import of the aerotriangulation solutions and a test against the camera fiducials and their calibrated positions. The final test of scans occurs when stereo models are created on the softcopy photogrammetric systems and control point comparisons are completed. The DTM production is done on softcopy and hardcopy stereoplotter equipment using standard compilation techniques. Breaklines and mass points were compiled to ensure positional accuracies needed for the project. The mosaic process was part of the final quality control check. During this process, overlapping images were mosaicked together using a tolerance of 2 pixels. Estimated positional accuracy is + 2 pixels. Users should be aware that even though the scale of digital data may be increased to overlay large scale digital maps, the accuracy of the digital source is not improved by scale enlargement. For a complete report regarding the establishment of geodetic control points for Black Hawk County, please contact Lynn Kloberdanz, Black Hawk County Engineer's Office.

Vertical_Positional_Accuracy:

Vertical_Positional_Accuracy_Report:
All measured points fall within +/- 0.07 meters vertically for bench mark use utilizing a 95% confidence factor. For a complete report regarding the establishment of geodetic control points for Black Hawk County, please contact either Lynn Kloberdanz, Black Hawk County Engineer's Office.

Lineage:

Process_Step:

Process_Description:
The following production procedures, equipment and software were utilized on all or a portion of the project: 1. Source images were scanned at 25 microns. 2. Ground control points were acquired from GPS ground surveys with First Order accuracy for horizontal and third order accuracy for vertical. 3. The aerotriangulation results yielded ground positions with horizontal and vertical residuals of 0.35 meters. 4. The scanned images were processed using Autometric's block import tool. The aerotriangulation results were applied to each image and stereo models were created for softcopy viewing and DTM production. Hard copy diapositivas were set up using the aerotriangulation results for DTM production in analytical stereoplotters. Breakline and mass point data was compiled for each stereo model with the net result of the DTN accuracy being + 1.5 meters for low altitude images and + 2.5 meters for high altitude images. The DTM was compiled to yield image overlap for mosaic purposes. 5. The DTM was utilized along with the controlled images to orthorectify stereo models for coverage of the entire county from the high altitude images and urban area coverage from the low altitude images. 6. The high altitude images were mosaicked into image blocks to create a complete seamless image of the county at 0.625-meter pixel resolution. These image blocks were then cut into TIF image tiles 2000 meters by 2000 meters in size. 7. The low altitude images were mosaicked by Aerial Services, Inc. into seamless coverages of the urban areas requested by Black Hawk County. These image areas are at 0.16-meter resolution with the areas cut into TIF image tiles 500 meters by 500 meters in size. 8. All image tiles were visually inspected by Aerial Services, Inc. for positional anomalies and radiometric variances prior to delivery to Black Hawk County. 9. The TIF image tiles were delivered on CD, along with a CAD file showing all tile insertion positions. The coordinate system utilized was NAD 1983 in meters. Future production of world files (tfw) will be done in both meters and feet for use in geo-referencing the image tiles.

Process_Date: 1995-1997

Process_Contact:

Contact_Information:

Contact_Organization_Primary:

Contact_Organization: Black Hawk County Engineers Office
Contact_Person: Lynn Kloberdanz

Contact_Position: Engineering Technician
Contact_Address:

Address_Type: mailing and physical address
Address: 316 E. 5th Street
City: Waterloo
State_or_Province: Iowa
Postal_Code: 50703

Contact_Voice_Telephone: 319 833-3008
Contact_Electronic_Mail_Address: lkloberdanz@co.black-hawk.ia.us

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Spatial_Data_Organization_Information:

Direct_Spatial_Reference_Method: Raster
Raster_Object_Information:

Raster_Object_Type: Pixel

Spatial_Reference_Information:

Horizontal_Coordinate_System_Definition:

Planar:

Map_Projection:

Map_Projection_Name: Lambert Conformal Conic
Lambert_Conformal_Conic:

Standard_Parallel: 42.067
Standard_Parallel: 43.267
Longitude_of_Central_Meridian: 93.5
Latitude_of_Projection_Origin: 41.5
False_Easting: 1500000
False_Northing: 1000000

Planar_Coordinate_Information:

Planar_Coordinate_Encoding_Method: row and column
Coordinate_Representation:

Abscissa_Resolution: 0.524934
Ordinate_Resolution: 0.524934

Planar_Distance_Units: survey feet

Geodetic_Model:

Horizontal_Datum_Name: North American Datum of 1983

Ellipsoid_Name: Geodetic Reference System 80
Semi-major_Axis: 6378137
Denominator_of_Flattening_Ratio: 298.257

Vertical_Coordinate_System_Definition:

Altitude_System_Definition:

Altitude_Datum_Name: National Geodetic Vertical Datum of 1929
Altitude_Resolution:
1:1200 resolution is 0.16m flight altitude=1000 ft elevation, 1:4800 resolution is 0.625 m, flight at 4000 ft elevation
Altitude_Distance_Units: feet
Altitude_Encoding_Method:
Explicit elevation coordinate included with horizontal coordinates

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Entity_and_Attribute_Information:

Detailed_Description:

Entity_Type:

Entity_Type_Label: Band_1

Attribute:

Attribute_Label: ObjectID
Attribute_Definition: Internal feature number.
Attribute_Definition_Source: ESRI
Attribute_Domain_Values:

Unrepresentable_Domain:
Sequential unique whole numbers that are automatically generated.

Attribute:

Attribute_Label: Value

Attribute:

Attribute_Label: Count

Overview_Description:

Entity_and_Attribute_Overview:
8-bit gray-scale value between 0-255. A value of 0 represents black while a value of 255 represents white. Values between 0 and 255 are represented as a shade of gray.

Distribution_Information:

Distributor:

Contact_Information:

Contact_Organization_Primary:

Contact_Organization: Black Hawk County Information Technology Department
Contact_Person: Kim Veeder

Contact_Position: Director
Contact_Address:

Address_Type: mailing and physical address
Address: 316 E. 5th Street
City: Waterloo
State_or_Province: Iowa
Postal_Code: 50703

Contact_Voice_Telephone: 319 833-3154
Contact_Electronic_Mail_Address: kveeder@co.black-hawk.ia.us

Resource_Description: Offline Data
Standard_Order_Process:

Digital_Form:

Digital_Transfer_Information:

Format_Name: TIFF or COT
Transfer_Size: 7.683

Digital_Transfer_Option:

Offline_Option:

Offline_Media: CD-ROM

Fees: Contact Black Hawk County Information Technology Department for established fee schedule
Ordering_Instructions: Contact distributor
Turnaround: One week or less

Available_Time_Period:

Time_Period_Information:

Range_of_Dates/Times:

Beginning_Date: 19970301
Ending_Date: present

Metadata_Reference_Information:

Metadata_Date: 20060905
Metadata_Contact:

Contact_Information:

Contact_Person_Primary:

Contact_Person: Kim Veeder
Contact_Organization: Black Hawk County Information Technology Department

Contact_Position: Director
Contact_Address:

Address_Type: mailing and physical address
Address: 316 E. 5th Street
City: Waterloo
State_or_Province: Iowa
Postal_Code: 50703

Contact_Voice_Telephone: 319 833-3154
Contact_Electronic_Mail_Address: kveeder@co.black-hawk.ia.us

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
