Reference 76

9532564

metadata

Identification_Information:

Citation:

Citation_Information:

Originator: U.S. Geological Survey (USGS)

Publication_Date: 1995

Title: PORT INGLESIDE NE

Publication_Information:

Publication_Place: Reston, VA

Publisher: USGS

Other_Citation_Details: 2797152

Description:

Abstract: This document describes a series of digital orthophoto images that were produced by the U.S. Geological Survey (Reston, VA). These digital orthophoto quads (DOQs) are being created nationwide by USGS as a standard digital product. These DOQs, and other DOQs produced to USGS standards by the Texas Orthoimagery Program, provide coverage for the state of Texas. Funding for DOQs in Texas has been supported by contributions from the Federal Government, the State of Texas, and local and regional organizations. All DOQ products produced by the USGS, or for the USGS, by the Texas Orthoimagery Program reside in the public domain. A digital orthophoto is a raster image of remotely sensed data in which displacement in the image due to sensor orientation and terrain relief have been removed. Orthophotos combine the image characteristics of a photograph with the geometric qualities of a map. The DOQ is a 1-meter ground resolution, quarter-quadrangle (3.75-minutes of latitude by 3.75-minutes of longitude) image cast on the Universal Transverse Mercator Projection (UTM) on the North American Datum of 1983 (NAD83). The geographic extent of the DOQ is equivalent to a quarter-quad plus approximately 300 meters of overedge. The normal orientation of data 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. The initial production format for DOQs produced by USGS is band interleaved by line (BIL). The images were converted from BIL to GeoTIFF format on CD-ROM.

Purpose: The DOQs described in this document are part of a national base map project and cover the US/Mexico border region of Texas.

Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 19950107

Currentness_Reference: ground condition

Status:

Progress: complete
Maintenance_and_Update_Frequency: irregular
Spatial_Domain:
Bounding_Coordinates:
West_Bounding_Coordinate: -97 11 15.000
East_Bounding_Coordinate: -97 7 30.000
North_Bounding_Coordinate: 27 52 30.000
South_Bounding_Coordinate: 27 48 45.000
Keywords:
Theme:
Theme_Keyword_Thesaurus: None
Theme_Keyword: Digital Ortho Quarterquad
Theme_Keyword: DOQ
Theme_Keyword: DOQQ
Theme_Keyword: digital orthophoto
Theme_Keyword: digital orthophotoquad
Theme_Keyword: digital image map
Theme_Keyword: aerial photograph
Theme_Keyword: rectified photograph
Theme_Keyword: rectified image
Theme_Keyword: orthophoto
Theme_Keyword: quarter-quadrangle orthophoto
Theme_Keyword: 1-meter orthophoto
Theme_Keyword: 3.75- x 3.75-minute orthophoto
Place:
Place_Keyword_Thesaurus: None
Place_Keyword: Texas
Place_Keyword: US/Mexico border
Access_Constraints: None
Use_Constraints: None
Point_of_Contact:
Contact_Information:
Contact_Organization_Primary:
Contact_Organization: USGS - EROS Data Center
Contact_Address:
Address_Type: mailing address
Address: 47914 252nd Street
City: Sioux Falls
State_or_Province: SD
Postal_Code: 78711-3231
Country: USA
Contact_Voice_Telephone: 800-252-4547
Hours_of_Service: 08:00 AM - 4:00 PM Monday- Friday
Contact_Instructions: also at edcwww.cr.usgs.gov
Data_Set_Credit: USGS
Data_Quality_Information:
Attribute_Accuracy:
Attribute_Accuracy_Report: The attribute assigned to each pixel in a DOQ is a radiometric value (color or grayscale). The DOQs described here are produced from

both black-and-white and color infrared aerial photography. The primary objective is to faithfully reproduce the information contained in the source photograph. The DOQs have not been processed to enhance visual appeal or consistency between images so that image content is not reduced. During photographic reproduction of the source photography, limited analog dodging is performed to improve image quality. Analog dodging consists of holding back light from certain areas of the sensitized photographic material to avoid overexposure. The diapositive is inspected to insure clarity and radiometric uniformity. Diapositive image brightness values are collected with a minimum of image quality manipulation. Image brightness values may deviate from brightness values of the original imagery due to image value interpolation during the scanning and rectification processes. Radiometry is verified by visual inspection of the digital orthophoto quadrangle with the original unrectified image to determine if the digital orthophoto has the same or better image quality as the original unrectified input image. Systematic radiometric differences can be detected between adjacent DOQ files due primarily to differences in source photography capture dates and sun angles of aerial photography along flight lines. These differences can be observed in an image's general lightness or darkness when compared to adjacent DOQ images.echo

Logical_Consistency_Report: All DOQ header data and image file sizes are validated by the Tape Validation System (TVS) Software). This validation procedure assures correct physical format and field values for header record elements. Logical relationships between header record elements are tested.echo

Completeness_Report: All DOQ imagery is visually inspected for completeness to ensure that no gaps, or image misplacement exist in the 3.75' image area or in overedge coverage. DOQ images may be derived by mosaicking multiple images, in order to insure complete coverage. All DOQs are cloud free within the 3.75' image area. Source photography is leaf-off. The data set field content of each DOQ header record element is validated to assure completeness. The area of coverage for a digital orthophoto is one quarter of a standard quadrangle (3.75-minutes of latitude by 3.75-minutes of longitude plus overedge). Image overedge is provided between adjoining DOQs to facilitate edge matching and the creation of mosaics. The overedge extent is approximately 300 (plus or minus 30) meters beyond the extremes of the primary and secondary datum corner points for the standard digital orthophoto quad. The

resulting digital orthophoto is a rectangle whose size may vary slightly in relation to adjoining digital orthophotos due to changes in latitude.echo

Positional_Accuracy:

Horizontal_Positional_Accuracy:

Horizontal_Positional_Accuracy_Report: The DOQ horizontal positional accuracy and the assurance of that accuracy depend, in part, on the accuracy of the data inputs to the rectification process. These inputs consist of the digital elevation model (DEM), aerotriangulation control and methods, the photo source camera calibration, scanner calibration, and aerial photographs that meet National Aerial Photography Program (NAPP) standards. The vertical accuracy of all DEMs are equivalent to or better than a Level 1 or 2 DEM, with a root mean square error (RMSE) of no greater than 7.0 meters. Field control is acquired by third order class 1 or better survey methods sufficiently spaced to meet National Map Accuracy Standards (NMAS) for 1:12,000-scale products. Aerial cameras have current certification from the USGS, National Mapping Division, Optical Science Laboratory. Test calibration scans are performed on all source photography scanners. Adjacent DOQs, when displayed together in a common planimetric coordinate system, may exhibit slight positional discrepancies across common DOQ boundaries. Linear features, such as streets, may not be continuous. These edge mismatches, however, still conform to positional horizontal accuracy within the NMAS. The Horizontal_Positional_Accuracy Value (see below) is an root mean square error (RMSE) of image positions to ground coordinates as determined by the orthorectification software used.

Quantitative_Horizontal_Positional_Accuracy_Assessment:

Horizontal_Positional_Accuracy_Value: 0.2

Horizontal_Positional_Accuracy_Explanation:

U.S. Bureau of the Budget, 1947, United States National Map Accuracy Standard.

Lineage:

Source_Information:

Source_Citation:

Citation_Information:

Originator: USGS

Publication_Date: 1994-1998

Title:

Publication_Information:
Publication_Place: Reston, VA
Publisher: U.S. Geological Survey
Source_Scale_Denominator: 40,000
Type_of_Source_Media: Diapositives
Source_Time_Period_of_Content:
Time_Period_Information:
Single_Date/Time:
Calendar_Date: 19950107
Source_Currentness_Reference: ground condition
Source_Citation_Abbreviation: Photo1
Source_Contribution: Color infrared or black-and-white NAPP Photography.
Process_Step:
Process_Description: The production procedures, instrumentation, hardware, and software used in the collection of these DOQs vary depending on systems used at the contractor production sites. The process step describes, in general, the process used in the production of standard USGS DOQ data sets. The rectification process requires, as input, a user parameter file to control the rectification process, a digital elevation model gridded to user specified bounds, projection, zone, datum and X-Y units, a scanned digital image file covering the same area as the DEM, ground X-Y-Z point values and their conjugate photo coordinates in the camera coordinate system, and measurements of the fiducial marks in the digitized image. The camera calibration report provides the focal length of the camera and the distances in millimeters from the camera's optical center to the camera's 8 fiducial marks. These marks define the frame of reference for spatial measurements made from the photograph. Ground control points acquired from ground surveys or developed in aerotriangulation, are third order class 1 or better, and meet National Map Accuracy Standard (NMAS) for 1:12,000-scale. Ground control points are in the Universal Transverse Mercator on NAD83. Horizontal and vertical residuals of aerotriangulated tie-points are equal to or less than 2.5 meters. Standard aerotriangulation passpoint configuration consists of 9 ground control points, one near each corner, one at the center near each side and 1 near the center of the photograph, are used. The conjugate positions of the ground control points on the photograph are measured and recorded in camera coordinates. The raster image file is created by scanning an aerial photograph film diapositive (PHOTO1) with a precision image scanner. An aperture of approximately 25 microns is used. Using 1:40,000-scale photographs, a 25-micron scan aperture equates to a ground resolution of 1-meter. The principal elevation data source are standard DEM data sets either supplied from the National Digital Cartographic Data Base (NDCDB) or produced by contractors to fulfill DOQ production requirements. All DEM data is equivalent to or better than USGS DEM standard Level 1

or 2. The DEM used in the production of DOQs generally has a 30-meter grid post spacing and possesses a vertical RMSE of 7-meters or less. A DEM covering the extent of the photograph is used for the rectification. The DEM is traversed from user-selected minimum to maximum X-Y values and the DEM X-Y-Z values are used to find pixel coordinates in the digitized photograph using transformations mentioned above. For each raster image cell subdivision, a brightness or gray-scale value is obtained using nearest neighbor, bilinear, or cubic convolution resampling of the scanned image. An inverse transformation relates the image coordinates referenced to the fiducial coordinate space back to scanner coordinate space. Rectification Process: The photo control points and focal length are iteratively fitted to their conjugate ground control points using a single photo space resection equation. From this mathematical fit is obtained a rotation matrix of constants about the three axes of the camera. This rotation matrix can then be used to find the photograph or camera coordinates of any other ground X-Y-Z point. Next a two-dimensional fit is made between the measured fiducial marks on the digitized photograph and their conjugate camera coordinates. Transformation constants are developed from the fit and the camera or photo coordinates are used in reverse to find their conjugate pixel coordinates on the digitized photograph. Quality Control: All data are inspected according to a quality control plan designed by USGS. All USGS DOQ contractors must meet DOQ standards for attribute accuracy, logical consistency, data completeness, and horizontal positional accuracy. During the initial production phase, all rectification inputs and DOQ data sets are inspected for conformance to standards. After a production source demonstrates high quality, inspections will be made to a sample of delivery lots. All DOQs are visually inspected for gross positional errors and tested for physical format standards.

Additional Process Step: These files were compressed using the MrSID compression technology from LizardTech. MrSID (pronounced "Mister Sid")is an abbreviation that stands for Multi-resolution Seamless Image Database. This compression technology was developed by the Computer Research and Applications Group at Los Alamos National Laboratory. Using the Federal Technology Transfer acts the Seattle based company LizardTech, Inc. (www.lizardtech.com) was later awarded the rights to MrSID commercialisation. MrSID utilizes a wavelet transform-based algorithm to achieve both the efficient storage and retrieval of digital images of very large dimensions. Image data compression improves the utilisation of storage and transmission resources, while MrSID's multiscale image representation provides a multiresolution browsing capability. These features allow seamless DWT compression

and smooth multi-scale browsing of image data sets of almost unlimited size. The following parameters were used to perform the compression:
Target Compression Ratio: 18:1
Zoom Level: 4
Block Size: 512
G-Weight: 2
Weight: 4

Source_Used_Citation_Abbreviation: PHOTO1
Process_Date: 19950721
Spatial_Data_Organization_Information:
Direct_Spatial_Reference_Method: Raster
Raster_Object_Information:
Raster_Object_Type: Pixel
Row_Count: 7654
Column_Count: 6888
Vertical_Count: 3
Spatial_Reference_Information:
Horizontal_Coordinate_System_Definition:
Planar:
Grid_Coordinate_System:
Grid_Coordinate_System_Name: Universal Transverse Mercator
Universal_Transverse_Mercator:
UTM_Zone_Number: 14
Transverse_Mercator:
Scale_Factor_at_Central_Meridian: 0.9996
Longitude_of_Central_Meridian: -99.00
Latitude_of_Projection_Origin: 0.0
False_Easting: 500,000.0
False_Northing: 0.0
Planar_Coordinate_Information:
Planar_Coordinate_Encoding_Method: row and column
Coordinate_Representation:
Abscissa_Resolution: 1
Ordinate_Resolution: 1
Planar_Distance_Units: meters
Geodetic_Model:
Horizontal_Datum_Name: NAD 1983
Ellipsoid_Name: GRS 80
Semi-major_Axis: 6378137
Denominator_of_Flattening_Ratio: 298.257
Entity_and_Attribute_Information:
Overview_Description:
Entity_and_Attribute_Overview: Pixels from color infrared photography contains red, blue and green (RGB) values, each from 0 to 255. Pixels derived from black-and-white photography contain only grayscale values from 0 to 255. Areas where the rectification process is incomplete due

to incomplete data (i.e., lack of elevation data, gaps), are represented with the numeric value of 0.

Entity_and_Attribute_Detail_Citation: U.S. Department of the Interior, U.S. Geological Survey, 1992, Standards for Digital Orthophotos: Reston, VA.

Distribution_Information:

Distributor:

Contact_Information:

Contact_Organization_Primary:

Contact_Organization: Texas Natural Resources Information System (TNRIS)

Contact_Address:

Address_Type: mailing address

Address: 1700 N. Congress Avenue

City: Austin

State_or_Province: TX

Postal_Code: 78701

Country: USA

Contact_Voice_Telephone: 512-463-8337

Hours_of_Service: 8:00 AM - 5:30 PM Monday- Friday

Contact_Instructions: also at www.tnris.state.tx.us

Resource_Description: Digital Orthophotoquad

Distribution_Liability: No warranty expressed or implied is made by USGS or TNRIS regarding the utility of the data on any system, nor shall the act of distribution constitute any such warranty.

Standard_Order_Process:

Digital_Form:

Digital_Transfer_Information:

Format_Name: TIFF

Format_Version_Number: 6.0

Format_Specification: tag image file format

Format_Information_Content: Uncompressed TIFF. The files are compatible with tag image file format version 6.0 and conform to GeoTIFF standards available at the time of production.

Digital_Transfer_Option:

Offline_Option:

Offline_Media: Compact Disk

Recording_Format: ISO-9660

Compatibility_Information: This CD-ROM can be used with all computer operating systems that support CD-ROM as a logical storage device. All text files are in ASCII format. Data files are in ASCII or binary format.

Fees: Variable, call for current pricing.

Ordering_Instructions: Alternate contacts: EISYS at (888)-839-3282 or VARGIS at (800)-834-0225

Metadata_Reference_Information:

Metadata_Date: 1999

Metadata_Review_Date: 1999

Metadata_Contact: 3DI, LLC
Contact_Information:
Contact_Organization_Primary:
Contact_Organization: 3DI, LLC
Contact_Person: Andy Bury
Contact_Address:
Address_Type: Mailing address
Address: 7447 Bee Cave Rd., Suite 206
City: Austin
State_or_Province: TX
Postal_Code: 78746
Country: USA
Contact_Voice_Telephone: 512-329-5577
Contact_Facsimile_Telephone: 512-329-5588
Contact_Electronic_Mail_Address: abury@eisys.net
Metadata_Standard_Name: Content Standards for Digital Geospatial Metadata
Metadata_Standard_Version: 19940608