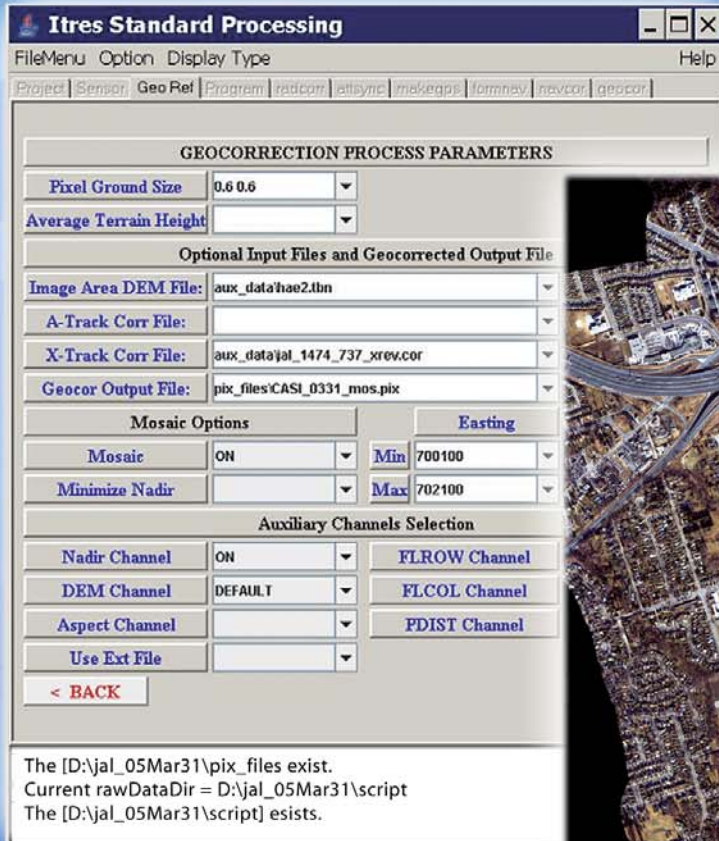


Geocor: Precision Geocorrection Software

Airborne Hyperspectral Solutions



ITRES Standard Processing

FileMenu Option Display Type Help

Project Sensor Geo Ref Program radcorr attsync makeqps formnev navcor geocor

GEOCORRECTION PROCESS PARAMETERS

Pixel Ground Size: 0.6 0.6

Average Terrain Height: []

Optional Input Files and Geocorrected Output File

Image Area DEM File: aux_data\hae2.tbn

A-Track Corr File: []

X-Track Corr File: aux_data\jal_1474_737_xrev.cor

Geocor Output File: pix_files\CASI_0331_mos.pix

Mosaic Options

Mosaic: ON

Minimize Nadir: []

Easting

Min: 700100

Max: 702100

Auxiliary Channels Selection

Nadir Channel: ON

DEM Channel: DEFAULT

Aspect Channel: []

Use Ext File: []

FLROW Channel

FLCOL Channel

PDIST Channel

< BACK

The [D:\jal_05Mar31\pix_files] exist.
Current rawDataDir = D:\jal_05Mar31\script
The [D:\jal_05Mar31\script] exists.



Above: Screenshot of ITRES Standard Processing Control Interface during configuration of Geocor.

Right: Geocorrected CASI-1500 image mosaic (60 cm resolution processed using Geocor, with inputs from Lidar DEM and POS AV.

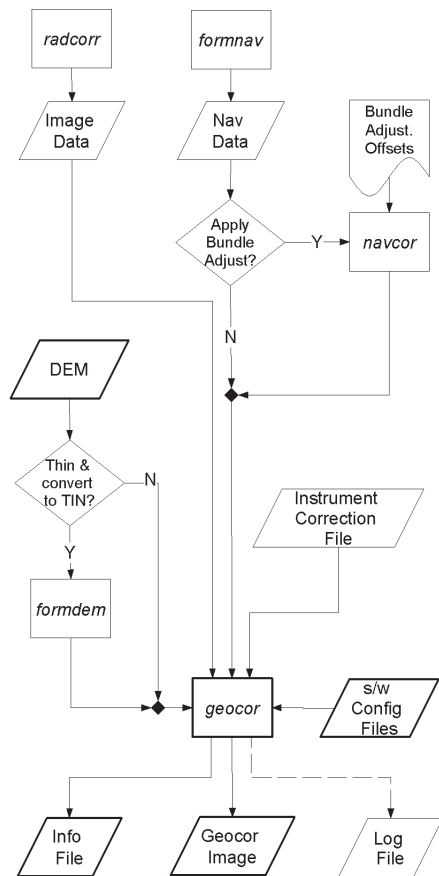
Data provided by the Joint Airborne Lidar Bathymetry Technical Center of Expertise and collected with the US Naval Oceanographic Office's CHARTS system equipped with a CASI 1500

Hyperspectral Data Geocorrection

- 12+ Year Track Record
- Robust Bundle Adjustment
- Tabbed Windows GUI Control
- Orthocorrection via Lidar/lfsar DEM
- Integrated with Precision IMU/GPS (POS AV™, SPAN™, CMIGITS™)



Geocor Geocorrection Software



Simplified processing flowchart showing inputs to geocorrection program after radiometric correction and navigation processing.

Bringing it All Together

As the final program run in the ITRES Standard Processing chain, Geocor geometrically corrects sensor image data by mapping onto a chosen coordinate system (e.g. UTM). Geocor brings together three data streams acquired during sensor operation - image data from an ITRES sensor, and precision attitude and position (navigation) data from a precision GPS/IMU.

Geocor incorporates Lidar or IFSAR Digital Elevation Models (DEMs) and sensor alignment corrections to improve image positional accuracy.

Bundle Adjustment Input

Multiple sensors (imaging sensor, GPS antenna, & IMU) are installed in the aircraft. Installation-related linear and angular offsets between each sensor are measured and corrected for using pbsbund, a program run once on imagery acquired over an established geometric calibration site. Pbsbund generates a set of coefficients used to correct the navigation (attitude & position) data from future datasets, which are then input to Geocor. Doing so results in substantial positional accuracy improvement to the output imagery without the use of project-specific GCPs and tie points.

Geocor Sensor Compatibility

Geocor works with the CASI, SASI, TASI, & TABI.

Georeferencing Accuracy

Formal assessments of the georeferencing accuracy of datasets from ITRES sensors processed using Geocor have been undertaken by independent third parties, including NOAA. Typically these show RMS errors of +/- 1 pixel for 1 m pixels when incorporating a Lidar-based DEM and bundle adjustment. The accuracy and resolution of the DEM and quality of the navigation data often provide the largest influence on positional accuracy.

Geocor Specifics

- Imagery 16-bit, Unsigned Integer, BIP format (native), BSQ, BIL (ENVI & ERDAS Imagine compatible)
- Minimize nadir option during mosaicking to reduce off-nadir view angle effects
- Supports UTM (native), 3TM, British National Grid, and State Plane Coordinate systems
- Optional DEM, aspect, or nadir channel output
- Via formnav program, supports map projections other than Transverse Mercator (native) and datums other than NAD83 or WGS84.

