ROLTA BASE RECTIFY

The Rolta Base Rectify includes rigorous and rational function models developed to compensate for distortions and produce orthorectified satellite images for high resolution and low resolution sensors. Distortions caused by the platform (position, velocity, and orientation), the sensor (orientation, integration time, and field of view) the Earth (geoid, ellipsoid, and relief), and the cartographic projection (ellipsoid and cartographic) are all taken into account using these models. The models reflect the physical reality of the complete viewing geometry and correct all distortions generated during the image formation.

Supported Satellite Formats

ALOS, ASTER, CARTOSAT-1, EROS A and B, FORMOSAT 1 and 2, GeoEye-1, GOSAT, IKONOS, IRS Super Structure, IRS(EOSAT), Kompsat, LANDSAT, MERIS, ORBVIEW, QUICKBIRD, Rapid Eye, SPOT, THEOS, WORLDVIEW 1and 2...etc.

Rigorous Math Models

- Calculate the position and orientation of the sensor when an image is taken
- Accurately account for known distortions in an image
- Use ground control points (GCPs) and tie points, combined with the knowledge of rigorous geometry of sensors, to calculate best fit for all images in a project.

RPC-based corrections are available for the following types of imagery

ALOS PRISM, CARTOSAT (completed 6 Level certification by ANTRIX), GeoEye-1, IKONOS, Kompsat-2, NITF, OrbView-3, QuickBird, SPOT, WorldView-1, WorldView-2.

GCP Collections

GCPs can be collected manually or by using:

- A geocoded image
- Geocoded vectors
- A chip database
- A digitizing tablet
- An imported text file

Other features include:

- Stereo-GCP collection
- Conversion of GCPs to check points to exclude from model calculation
- Display of individual and overall RMS error for GCPs

Residual Reports

Show GCP, check point, tie point, and Stereo-GCP error information in one report

- Edit points in a residual report and update bundle adjustments
- View in ground units or pixel units
- Print the report to a file
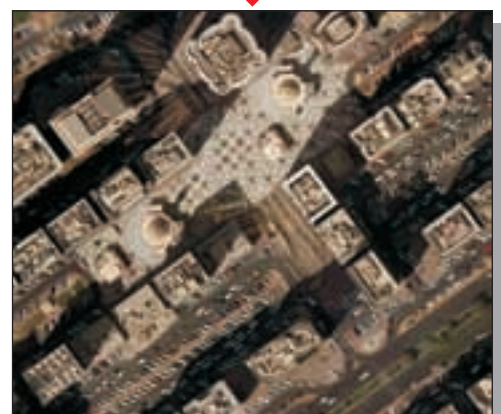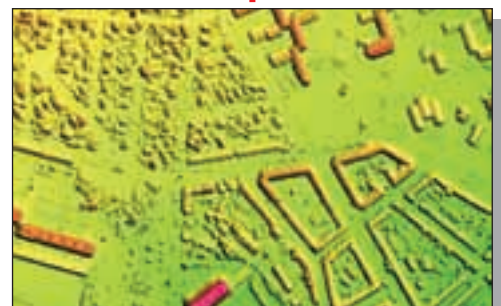
Layout

The Rolta Base Rectify Suite includes quality control tools that display image footprints and the distribution of GCPs for the concerned project.

Orthorectification

- Lets the user to perform batch processes
- Utilizes a DEM for terrain correction
- Increases working cache for processing
- Increases sampling interval for faster processing
- Offers the following resampling methods:

Nearest Neighbor, Bilinear Interpolation, Cubic Convolution....etc.

Clips the image size upon orthorectification

- Lets the user set a starting time for processing
- Provides approximately one-third of a pixel accuracy for VIR satellite images, and approximately one pixel for radar images when quality ground control coordinates are used

Mosaicking

With manual mosaicking, the users can:

- Define a mosaic area
- Collect cutlines manually by:
  - Importing and exporting cutlines-Blending seams using Blend Width
- Perform manual color balancing:
  - Based on samples identified in overlap between images
  - By using samples (match areas) to compute look-up tables (LUTs) to adjust new images to match an existing mosaic
  - By adjusting the dark end or light end
  - By importing and exporting LUTs for color balancing
- Mosaic unreferenced images

Benefits

- Interactive orthophto area select routine

- Intuitive project definition

- Simple ROI (region of interest) output definition

- Uses standard TIFF as non proprietary image format

- Fast output generation

- Ability to down/up sample resolution of final images

- Support for 8/24 bit TIFF raster or tiled images

- Full control over balancing computation parameters

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