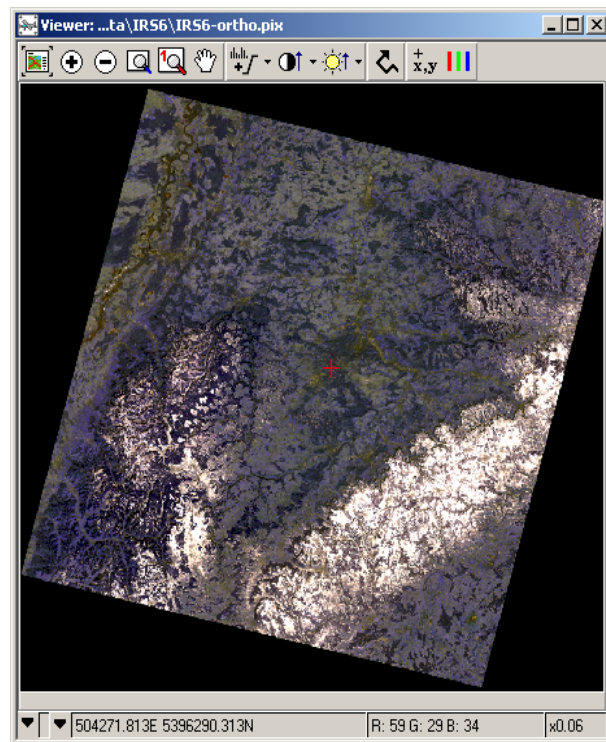
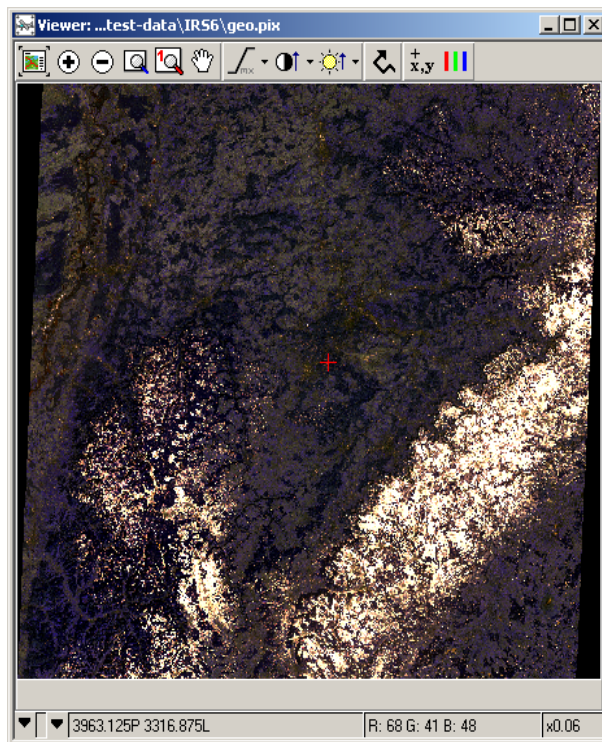


Orthorectifying Resourcesat-1 (IRS P6) Data

The RESOURCESAT-1 (IRS-P6) satellite is designed to provide multispectral, monoscopic and stereoscopic images of the earth's surface with three advanced on-board sensors. It was launched on October 17, 2003. Data is distributed by NRSA Data Centre (<http://www.nrsa.gov.in>) and Space Imaging (<http://www.spaceimaging.com>).

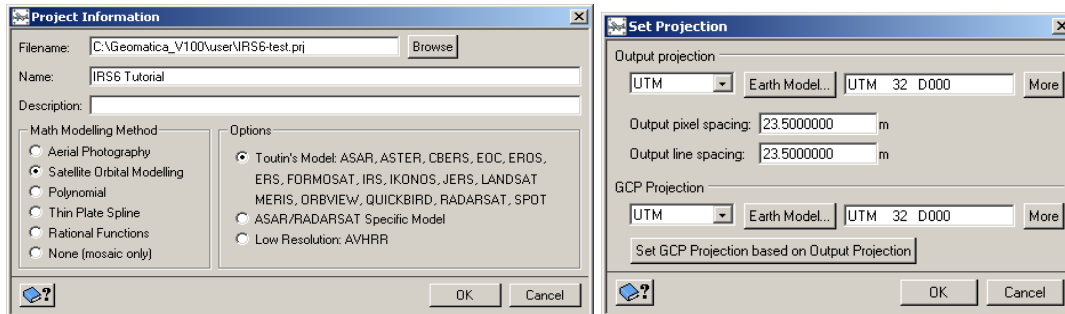
The RESOURCESAT-1 satellite includes three imaging sensors: LISS-IV, with a resolution of 5.8 meters; LISS-III, with a resolution of 23.5 meters; and AWiFS, with a resolution of 56 meters. LISS-IV can operate in three spectral bands (green, red, and near-infrared). LISS-III and AWiFS both operate in four spectral bands (green, red, near-infrared, short-wave infrared).

The following is a Geomatica OrthoEngine tutorial that demonstrates how to orthorectify an IRS P6 LISS-III Geo Imager with Toutin's Rigorous Satellite Model. The image in the viewer below on the left is the data after it was imported into PIX format and the image in the viewer on the right is the result from the orthorectification and radiometric correction process outlined in this tutorial.



Step1 (Create a new Project)

- Create a new project with a Satellite Orbital Math Model using Toutin's Model option to calculate the exterior orientation.
- In the Set Projection window select the output projection, enter the pixel size and the GCP projection and click the OK button.

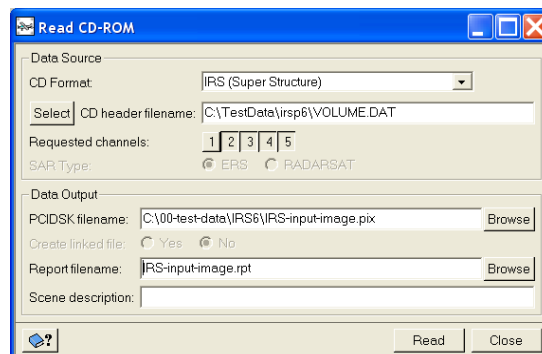


Step2 (Data Input)

The three basic processing levels are Radiometric (Level 1), Geo (Level 2) and Orthorectified (Level 3). Radiometric (Level 1) products are recommended in OrthoEngine except when working with LISS-III data. For LISS-III, the Geo product is recommended for Rigorous Modeling. Resourcesat-1 orthorectified images have already been corrected and cannot be re-orthorectified. For more information about these products, please refer to the National Remote Sensing Agency's (NRSA) website (<http://www.nrsa.gov.in/engnrsa/ebrochure/overview.html>).

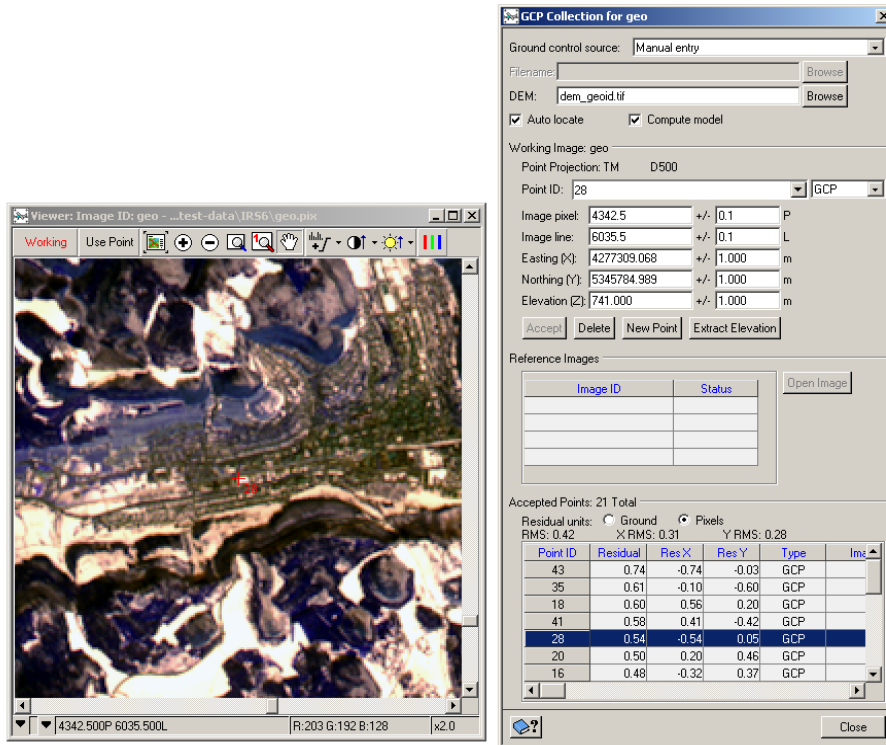
RESOURCESAT -1 data can be delivered in Fast Format, GeoTIFF, or LSGOWG format. Geomatica OrthoEngine supports all three formats. The data is delivered with a number of supporting files. These files must reside in the same directory as the image data when importing the data in OrthoEngine.

- Ensure that all associated files are located within the same directory and then select the Read from CD-ROM button from the Data Input processing step.
- Select IRS (Super Structure) for the CD Format, the buttons of the Requested Channels should change to reflect IRS band data
- Select the VOLUME.DAT file as CD Header Filename and click the appropriate channel buttons
- Enter an output filename and (optional) a scene description.
- Click the Read button to import the data into a *.PIX file.

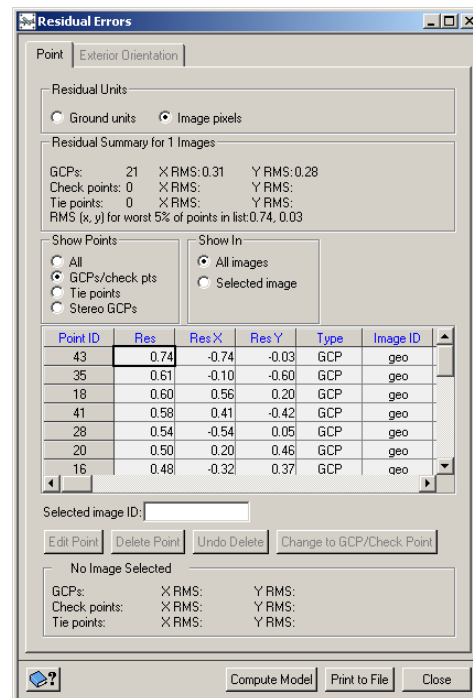


Step3 (Collect GCPs)

Select the GCP/TP Collection processing step. You can collect GCPs for the project using manual entry, from geocoded images, vectors, a chip database, or a text file. You can also collect tie points to pull multiple scenes together.



For the Resourcesat-1 rigorous model you will need a minimum of six accurate GCPs per scene and possibly more depending on the accuracy of the GCPs and the accuracy requirements of the project. Once you have collected your GCPs, run the model calculation and proceed to the residual report panel in the "Reports" processing step to review the initial results. You can also check "Bundle Update" in the GCP collection panel and the model will be calculated when GCPs are added or removed from the project.



Step4 (Generate Ortho Images)

To generate the ortho images, go to the Ortho Generation processing step and click the Schedule ortho generation button. Select the available input files to be processed from the left portion of the Ortho Image Production window and add to the list of Images to process on the right hand side. Select a DEM to be used with the process and set the processing options. Click the Generate Orthos button when all of parameters have been setup to begin the processing.

