

ADVANCED TECHNOLOGIES FROM ISRO

Interest Exploration Note

TT / 09 / 14 / SAC

Satellite Photogrammetry Software for Indian Remote Sensing Missions- Cartosat 1 (SAPHIRE-C ©)

The Indian Space Research Organisation (ISRO) has developed Satellite Photogrammetry Software for Indian Remote Sensing Missions – Cartosat-1 (SAPHIRE-C) which can process Cartosat-1 satellite stereo data products to generate Digital Elevation Model (DEM) and Orthoimage for the user interest area. SAPHIRE-C is available on Linux & Window platform.

The software accepts the Cartosat-1 stereo-pair products and Ground Control Points (GCP) as inputs. It allows user interaction for choosing the optimum model errors and generates DEM and Orthoimage as output. The software has been tested on a variety of regions from plain to highly hilly terrain and is utilized in various remote sensing application projects.

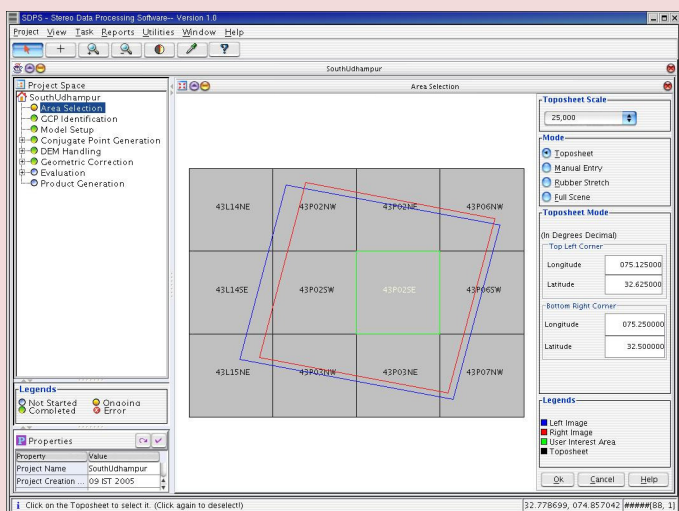


Fig : User Area Selection

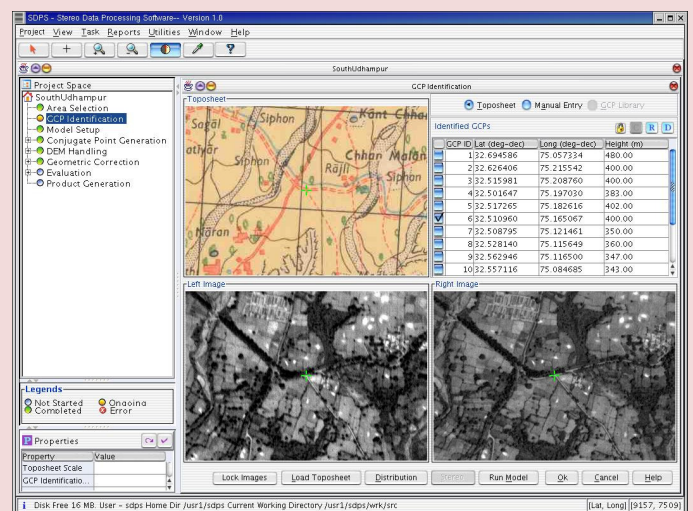


Fig : GCP Identification

SALIENT FEATURES

- Graphical User Interface for User Interaction.
- Processes Cartosat-1 stereo-pair products
- Generates DEM and respective Orthoimage
- Model uses the sensor geometry thus improving the end product accuracies
- Supports SOI Map-index grid for user geographical area selection
- DEM provided in ASCII formats
- Orthoimage generated in GeoTiff format
- Report generation on processing parameters
- Database support for archiving processing history
- Handles multiple stereo-pair product processing
- Output Product evaluation , Supports WGS84 and Everest Datum
- Supports UTM and Polyconic Map Projections
- Archival of GCP ground coordinates with image chips in database is possible.
- Provision for DEM Visualisation in vector and raster form.
- DEM editing in vector form.

APPLICATION(S)

SAPHIRE-C is used for generation of DEM and Orthoimage of user defined area in varying scales and resolution using Ground Control Points. The DEM thus generated gives precise three dimensional ground coordinates which include the terrain height for specific points in the given area. The DEM can be used in applications like extraction of drainage patterns, contour line generation, terrain visualisation and generating Orthoimage. The Orthoimage can be used for topographic mapping applications. This also gives a bird's eye view of the terrain undulation of the given area to an appreciable accuracy.

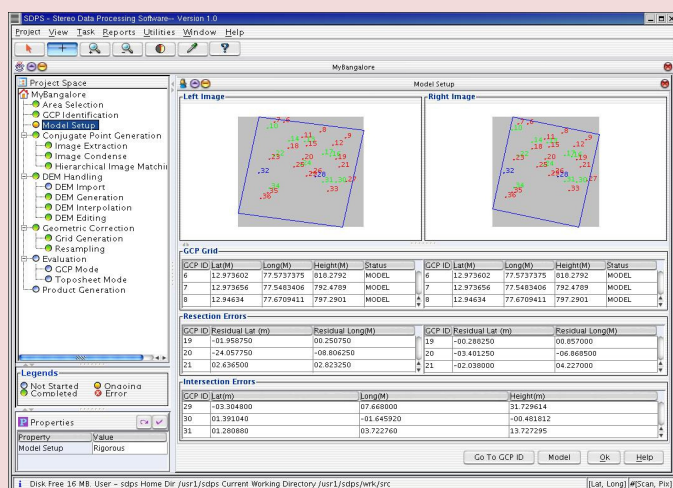


Fig: Model Setup

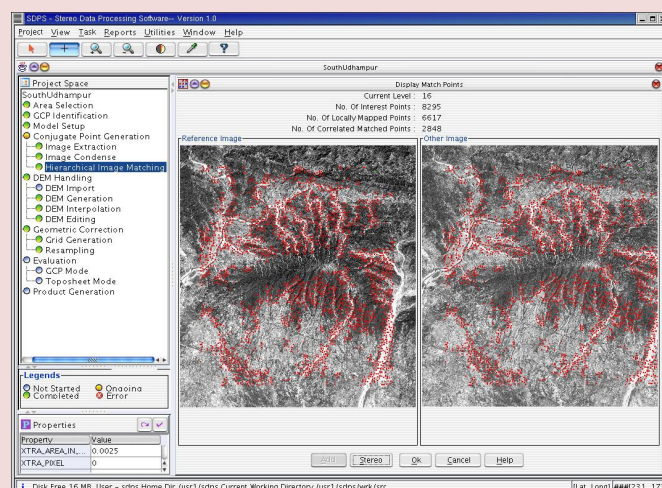


Fig: Display of Conjugate Points

TECHNOLOGY TRANSFER FROM ISRO

ISRO is willing to offer the know-how of this technology to entrepreneurs / industries in India. Capable industries interested in acquiring this know-how may write with details of their present activities, requirements and plans for implementation, infrastructure and technical enterprise available with them, their own market assessment, if any, and plans for diversification to the address given below. Alternatively, you can also fill in the response form provided in this website.

For further details, please contact:

Head

Technology Transfer & Industry Interface Division (TTID)

Planning & Projects Group (PPG)

Space Applications Centre (SAC), ISRO

Ambawadi Vistar (PO)

Ahmedabad - 380 015

Ph: 079-2691 3355, Fax: 079-2691 5817

e-mail: ttid@sac.isro.gov.in

Director

Technology Transfer & Industry Cooperation (TT&IC)

ISRO Headquarters

"Antariksh Bhavan"

New BEL Road

Bangalore - 560 094



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