

01/07/2020

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Concepts of Satellite Photogrammetry:

- Digital Photogrammetry:
- Orthorectification:
- Ortho image:

Photogrammetric process is fully automated.

- Digital photogrammetry is called softcopy photogrammetry.

- Hardware components of a Digital Photogrammetric workflow:

(i) Enabling orientation comprises position & attitude

(ii) On-board GPS receivers determine the satellite ephemeris i.e. camera position.

- Software requirements of a Digital Photogrammetric workflow.

- Standard Requirements:

- Digital Rectification
- Visualization.

- Automation:

- Commercial off the shelf Photogrammetric software:
 - PCI Geomatica: Geomatics Orthoengine.
 - INPHO
 - BAE System: SOCE T: SET

- Open source software enabling photogrammetric software
- Change of perspective centres along the

• Satellite Photography:

→ Advantages of imaging from space:

- Synoptic view.
- Large swath, repeatability.
- Stable radiometry.
- Negligible internal distortions.

→ General workflow:

• Stereo Imaging & topographic mapping.

- Optimum base to height ratio is 0.6 to 1.0
- Atmospheric effects (refraction, optical thickness) become more significant at higher look angles.

• Satellites:

- Interior Orientation.
- Exterior Orientation.

• Light rays in a bundle defined by the sensor are almost parallel - lessening the importance of the satellite.

- Physical Sensor Model:
- Rational Function Model:
- 3D polynomial model.
- 3D affine model.
- Comparison of model:

- Inclination Angle of a Stereo scene:

Nadir: Point directly below the camera.

Half Nadir:

- Tri - Stereo Imagery:

Tri - stereo acquisition

- Stereo Coverage:

- Across-track stereo.
- Along-track stereo.

- Across-track stereo: The pointing of the imaging sensor is oriented off-nadir in the across track direction.

- Advantages

- Limitation:

- Along track stereo: Stereo convergence is obtained during the flight along the same orbit either by
 - Advantages:

- DSM refined

- Image acquisition methodology:

The satellites collect the images by scanning along a line which is called the scan line.

- Triangulation:

- DATA Processing:

- Orbit Characteristics:

Orbital motion:

- Ephemeris Data:

- Modelling satellite

Sensor Orientation: