Photogrammetry Notes and Observations

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Common Terminology

Orthorectification A method of correcting an image to align with real-world coordinates on a map. This involves measuring the exact location of the image center as well as the camera angle. This is followed by the computation of the camera calibration parameters to remove camera and lens distortions. Finally, you may terrain induced distortions using DEM data.

Georectification A method of stretching and warping an image to align with another map projectin or spatial data in GIS. This is comparable to Google Earth and other systems which implement overlays. If an image is rectified, Ground Control Points (GCP) can be used to create a transformation which aligns one image to the GIS data. This is different from orthorectification as well because it is assumed that the image is already orthorectified. Georectification just changes the projection and/or coordinate system.

Georeference Same as Georectification .

Aerotriangulation The process of assigning ground control values to points on a block of photographs by determining the relationship between the photographs and known ground control points.

Bundle Adjustment The process of simulaneously refining 3D coordinates derived from multiple viewpoints. This requires that the user has multiple 3d coordinates measured from multiple image pairs. This is often solved with Levenberg-Marquardt.

Boresight Boresight is the physical mounting angles between an IMU and a digital camera. Basically, if the IMU defines a flight axis, the Boresight defines the angles from the axis of which the camera is pointing.

Common Variables

- H - Height of the camera above ground, *Flying Height*
- B - Distance between two image, *Air Base*

Orthorectification

Bibliography

[1] Bon A. DeWitt and Paul R. Wolf. *Elements of Photogrammetry(with Applications in GIS)*. McGraw-Hill Higher Education, 3rd edition, 2000.

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