Data Processing

System Correction

The in-flight recorded DN (digital numbers) have been corrected for dark current/electronic offsets and converted to radiance using laboratory radiometric calibration information.

Brachmann, J., Baumgartner, A., Gege, P. (2016) The Calibration Home Base for Imaging Spectrometers. DOI: 10.17815/jlsrf-2-137 ISSN 2364-091X

Gege, P. et al. (2009) Calibration facility for airborne imaging spectrometers. ISPRS Journal of Photogrammetry and Remote Sensing, 64, Seiten 387-397. DOI: 10.1016/j.isprsjprs.2009.01.006

Ortho-Rectification

Ortho-rectification of the radiance data is performed with ORTHO based on the parametric model/table using recorded attitude and flight path data (*.txt-file) in combination with a digital terrain model (DEM). To correct for the boresight misalignment angles, a geometric calibration is carried out every campaign. The result of this calibration is taking into account.

Müller, Rupert und Lehner, Manfred und Reinartz, Peter und Schroeder, Manfred (2005) EVALUATION OF SPACEBORNE AND AIRBORNE LINE SCANNER IMAGES USING A GENERIC ORTHO IMAGE PROCESSOR. In: High Resolution Earth Imaging for Geospatial Information, Vol. XXXVI. High Resolution Earth Imaging for Geospatial Information, Hannover, 17.-20. Mai 2005. ISBN ISSN No. 1682-1777

Co-Registration of VNIR and SWIR Data Cubes

Improving HySpex sensor co-registration accuracy using brisk and sensor-model based RANSAC

Schwind, Peter und Schneider, Mathias und Müller, Rupert (2014) Improving HySpex Sensor Co-Registration Accuracy using BRISK and Sensor-model based RANSAC. In: ISPRS Archives, XL-1, Seiten 371-376. ISPRS Archive. Pecora 19 Symposium in conjunction with the Joint Symposium of ISPRS Technical Commission I and IAG Commission 4, 17-20 Nov 2014, Denver, USA. DOI: 10.5194/isprsarchives-XL-1-371-2014

Atmospheric Correction

Atmospheric correction performed with the ATCOR4 model based on atmospheric lookup tables generated with the radiative transfer model MODTRAN4. For more information about the ATCOR4 model see http://www.rese.ch/atcor/atcor4/.

Richter, R. und Schläpfer, D. (2002) Geo-atmospheric processing of airborne imaging spectrometry data. Part 2: atmospheric/topographic correction. International Journal of Remote Sensing, 23 (13), Seiten 2631-2649

Spectral Polishing

Savitzky-Golay Filtering:

- Window size (filter size): 5
- Polynomial degree: 4
- Filtering applied to:
  Band 0 – Band 212

Band 246 – Band 288
Band 330 – Band 407

Schläpfer, D. und Richter, R. (2011) Spectral Polishing of High Resolution Imaging Spectroscopy Data, presented at 7th SIG-IS Workshop on Imaging Spectroscopy, Edinburgh, pp. 7.

Remark:

Removed channels:

- After stacking of VNIR and SWIR: 416 bands
- Removal of overlapping bands: 154 – 160
- Removal of bands within the absorption areas:
  Band 132 – Band 160
  Band 176 – Band 192
  Band 211 – Band 242
  Band 290 – Band 331
- Eventually 290 bands of the orioganlly 416 bands remained