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Parametric geocoding of airborne scanner data - experience

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Parametric geocoding of airborne scanner data - experience

The geometry of airborne scanner data is subject to various distorting influences. To do justice to this a parametric approach is the appropriate method to geometrically correct those data. The software PARGE (PARAmetric GEocoding), developed at the University of Zürich, realizes such an approach.

At DLR, Institute of Optoelectronics, this software package has been in use in major campaigns for two years now, processing roughly 60 scenes of DAIS and HyMap. The workflow - how it is currently realized at DLR, for DAIS and HyMap data respectively - as well as an outlook on possible improvements are discussed in this paper. It also shows the necessary steps to prepare the different auxiliary data like the postprocessing of the differential GPS information, coordinate transformation, control and correction of attitude information and sensor-specific auxiliary data, collecting GCPs on appropriate map material, adaptation of a Digital Elevation Model (DEM) and synchronization of image and auxiliary data.

The quality of the input parameters and their preprocessing are of vital importance to the quality of the geocoded result and therefore need special attention. Of course the auxiliary data - like all data - are superimposed by noise or suffer from other irregularities and have to be carefully examined and handled before use. Some examples will demonstrate typical data failures and methods to correct them. Sometimes information for one or the other parameter is even missing. Possibilities and limits of getting reasonable results under those conditions will be discussed, illustrated by data examples.