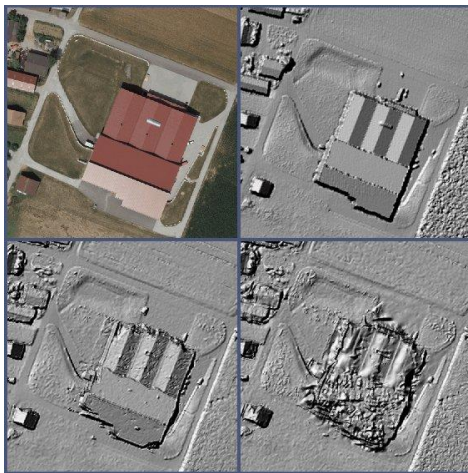


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The DGPF-project on Digital Photogrammetric Airborne Camera Evaluation

The project on Digital Photogrammetric Airborne Camera Evaluation is one of the most important both scientific and user driven activities run in the frame of the DGPF. Initiated in the end of 2007, comprehensive empirical data sets have been flown in summer 2008. By now major analyses have been completed and this PFG issue is especially dedicated to give an overview on the last findings from the different evaluation teams.



The figure on title page exemplarily shows results of the evaluation team “Digital Elevation Models”, which is one focus in this project. Based on the available data sets the current state-of-the-art on photogrammetric 3D data capture from automatic image matching was documented and evaluated. Within these investigations, the benefits of digital image recording compared to scanned analogue images for elevation data generation could be clearly demonstrated. As it is depicted in the figure, this is especially true for regions with limited surface texture. The bottom left picture shows a shaded DSM from image

matching based on the DMC 8cm GSD block collected during the DGPF test. The corresponding result for the scanned RMK data is depicted on the bottom right. These two examples of the test are especially interesting, since both image blocks were captured simultaneously at identical atmospheric and illumination conditions by using a double-hole aircraft. Both depicted DSM grids of 0.2m raster width were generated from the 8cm GSD imagery using the software MATCH-T DSM. For comparison, the top left image of the figure shows the corresponding ortho image. The shaded DSM derived from the ALS 50 LiDAR point cloud is depicted in the top right.

Obviously, the higher radiometric quality of digital images allows for much better matching while scanned analogue imagery is not suitable for the automatic derivation of high accurate surface models. This supremacy was verified for all investigated digital camera systems of the DGPF test. Thus, recent developments in sensor and software technology facilitate the automatic image based generation of elevation data at a quality, which in the past was only feasible by LiDAR measurements. The results clearly indicate, that a considerable number of applications will be feasible based on height data from image matching, if digital airborne cameras are used.

More details on the DGPF-project are given in this issue's papers.

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