



ABSTRACTS

6. Corina Daniela PĂUN, Ersilia Valeria ONIGA, Petre Iuliu DRAGOMIR: *The integration of RPAS and TLS data for 3D reconstruction of cultural heritage buildings*

The 3D reconstruction of cultural heritage buildings has become an important stage in the process of restoration and conservation. Many studies in the academic literature have shown that any single sensor cannot give information about the whole building regardless the number of measurements. Thus, the process of data integration from different survey techniques offers the possibility to obtain a complete 3D model without information gaps. In this paper the integration of two 3D point clouds obtained by terrestrial laser scanner (TLS) and Remotely Piloted Aircraft System (RPAS) technology respectively, will be tested. The TLS point cloud contains detailed information about the building facades with a very high density of points while the RPAS point cloud will fill in the missing information i.e the building roof. The RPAS point cloud was obtained automatically based on digital images using the SfM algorithm and multi-view stereo methods, while the TLS point cloud is the result of four point clouds registration using the 3D conformal transformation. The two point clouds were integrated in two steps: using the coordinates of GCPs obtained by GNSS technology and applying the ICP algorithm to minimize the distances between the points. For the integrated point cloud a mesh surface was created using the "Cloudcompare"• software. The final result presents a complete and compact 3D model of the cultural heritage building with textural information.

Organisers



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