On June 1st 2010 after heavy and long-lasting rainfalls the Klodne landslide was triggered affecting the area that was considered as stable. Most of the landslide movement occurred within few days and destroyed 17 houses and two farm buildings. The affected area is located in the central part of Polish Carpathians in Beskid Wyspowy Mountains, east of the city of Limanowa. Klodne landslide is just an example of catastrophic landslide activity that occurred in 2010 in southern Poland and caused significant material losses and damages to infrastructure and human settlement. The aim of presented work was to demonstrate a set of methods for fast and low-cost evaluation, mapping and monitoring of active landslides. Modern satellite, airborne and terrestrial remote sensing sensors theoretically allow to complete that task with high accuracy and large spatial coverage. With the example of Klodne landslide the authors compare the airborne data acquired prior to the landsliding (aerial stereophotographs and photogrammetric DEM) with newly acquired data (aerial photographs and LiDAR DEM) of July 2010. The analysis allows to measure horizontal and vertical displacements and roughly estimate the volume of the colluvium.

The processing was performed with StaMPS. Results of PSI processing of 20 TerraSAR-X scenes from 06.10.2010 to 13.06.2012. Archival ERS-1/2 and Envisat data were used for SAR interferometric multitemporal time series analysis. SAR interferometry was applied here to check whether any terrain deformation were occurred prior to 2010 event. According to current status of analysis no displacements have been found. High Resolution satellite SAR (Synthetic Aperture Radar) data acquired by TerraSAR-X/TanDEM-X system in 2010, 2011, 2012 were used for interferometric analysis to measure the small scale displacements that occurred in different parts of the landslide after the main event. The further monitoring of Klodne landslide activity is continued using repeated terrestrial laser scanning campaigns and will be continued with Sentinel-1 SAR data. Performed remote sensing study allows to measure horizontal and vertical displacements and roughly estimate the volume of the colluvium.

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