



Combined geomorphological and PSInSAR approach to characterize the Croix Courma Deep-seated Gravitational Slope Deformation (Pont St. Martin, Aosta - Italy).

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Deep-seated Gravitational Slope Deformations (DGSD) are complex landslides characterized by large areal extent and surface displacements ranging from few millimeters to tens of millimeters per year. From a geomorphological point of view the presence of a DGSD is highlighted by typical features, like double ridges, trenches, counterscarps and so on. The evolution of a DGSD is typically characterized by a succession of long periods of quiescence and reactivation, which can result in large cumulative displacements that can seriously damage structures and infrastructures. Due both to the low displacement rate and the high areal extent, traditional monitoring instrumentation isn't generally suitable to monitor such phenomena and assess their state of activity. Thanks to its high accuracy, and to the availability of data archives covering more than one decade, Permanent Scatterer SAR Interferometry (PSInSAR) represents nowadays one of the most powerful techniques capable of retrieving surface displacements over long periods and large areas. The Croix Courma DGSD have been investigated by processing both ascending and descending ERS-1 and ERS-2 data covering the period May 1992 to January 2001. A zonation of the slope based on the yearly displacement rate distribution was performed, while the analysis of the displacement time series

of the identified PS showed a good correlation between local reactivations and major meteorological events.