



## **Monitoring landslides movements by using GPS techniques**

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Results of hazard assessment activities in two sites affected by landslide phenomena are described and reported. The two sites under investigation: Aliano and Avigliano are located in Basilicata region, (South of Italy). These sites are characterized by huge mass movements, subject to frequent reactivations that in the past were the cause of severe damages to the buildings and roads present in the area. On both sites a GPS network has been established at the end of 2003 to monitor the change in time of the landslides. The monitoring activities, based on epoch'GPS surveys, started in January 2004 at Aliano site and in February 2004 at Avigliano. Particular care has been devoted in monitoring the stability in time of the reference sites; i.e. the stable points with respect to all the other measurement are referenced. The positions of these points are recomputed at each epoch campaign, merging the GPS data collected at each time with those of Cagliari, Matera, Noto and Elba, which belong to the National GPS fiducial network. In both the sites the GPS results show a clear evolution in time of the phenomena by measuring several centimetres of displacements of the markers placed along the landslides bodies. At Avigliano site, furthermore, to obtain more information about the current morphology of the landslide body, a high resolution DTM, based on kinematic GPS technique, was built. We plan to perform more kinematic surveys on a regular basis in the next in order to obtain several DTMs at different times. We deem, indeed, the comparison of the topographic information obtained by the DTM, will give helpful details about the evolution of the landslide phenomena.