Landslides modelling and monitoring by exploiting satellite SAR acquisitions, optical imagery, GPS and in-situ measurements in Greece. Preliminary results.

Panagiotis Elias (1), Olga Sykioti (1), George Drakatos (2), Dimitris Paronis (1), Konstantinos Chousianitis (2), Nikolaos Sabatakakis (3), Vassilis Anastasopoulos (4), and Pierre Briole (5)

(1) IAASARS, National Observatory of Athens, Greece (sykioti@noa.gr, pelias@noa.gr, paronis@noa.gr), (2) GEIN, National Observatory of Athens, Greece (g.drakat@noa.gr, chousianitis@noa.gr), (3) Department of Geology, University of Patras, Greece (sabatak@upatras.gr), (4) Department of Physics, University of Patras, Greece (vassilis@upatras.gr), (5) CNRS, Ecole Normale Superieure, Paris, France (briole@ens.fr)

Landslides are recognized as natural hazards having a major social–economic impact and represent a significant risk for citizens as well as infrastructures. During the last years, a significant increase of landslide occurrences has been recorded globally as a result of increased urbanization and development, continued deforestation and severe meteorological events. In Greek territory this exceeds the 20% of the totally recorded cases during the last fifteen years.

Preliminary results of two projects concerning the modelling and monitoring of a number of case studies will be presented.

The "Landslide Vulnerability Model – LAVMO" project aims at creating a persistently updated electronic platform which will help to monitor, predicting and assessing risks related with landslides. Data from Engineering Geology, Satellite active remote sensing of C-band and X-band acquisitions, Optical Satellite Imagery and GPS Measurements will be fused in order to provide a comprehensive information representation. Within this framework three landsliding areas have been selected to be investigated as case studies in the Gulf of Corinth area.

In the framework EOX-EL0071 project, two villages in the Prefecture of Peloponnesus, suffering from slow and episodic landsliding, have been selected for monitoring by exploiting active remote sensing acquisitions and GPS data. Ten corner reflectors for synthetic aperture radar interferometry and a number of GPS benchmarks have been installed inside and outside the landslide bodies of the villages. Moreover, two permanent GPS stations have been installed inside the landslide bodies. They are in operational mode and their measurements are being disseminated in near real-time. Retrospective as well as near-real time studies have been carried out for the assessment and demonstration of the potential use of such an observation system in a future operational mode.