



Space Borne and Ground Based InSAR Data Integration: The Åknes Test Site

Federica Bardi (1), Federico Raspini (1), Andrea Ciampalini (1), Lene Kristensen (2), Line Rouyet (3), Tom Rune Lauknes (3), Regula Frauenfelder (4), and Nicola Casagli (1)

(1) Università di Firenze, Department of Earth Sciences, via La Pira 4, Firenze 50121, Italy, (2) Norwegian Water Resources and Energy Directorate (NVE), Ødegårdsvegen 176, 6200 Stranda, Norway, (3) Norut, P.O. Box 6434, Forskningsparken, 9294 Tromsø, Norway, (4) Norwegian Geotechnical Institute (NGI), Sognsveien 72, 0806 Oslo, Norway

This work concerns a proposal of integration between InSAR (Interferometric Synthetic Aperture Radar) data acquired by ground based (GB) and satellite platforms. The selected test site is the Åknes rockslide, which affects the western Norwegian coast; the availability of GB-InSAR and satellite InSAR data, and the accessibility of a wide literature make the landslide suitable for testing the proposed procedure. The first step consists in the organization of a geodatabase, performed in GIS environment, containing all the available data.

The second step concerns the analysis of satellite and GB-InSAR data, separately. Two datasets, acquired by RADARSAT-2 (related to a period between October 2008 and August 2013) and by a combination of TerraSAR-X and TanDEM-X (acquired between July 2010 and October 2012), both of them in ascending orbit, processed applying SBAS (Small Baseline Subset), are available. GB-InSAR data related to 5 different campaigns of measurements, referred to the summer seasons of 2006, 2008, 2009, 2010 and 2012 are available too.

The third step relies on data integration, performed firstly on a qualitative point of view and lately on a semi-quantitative point of view. The results of the proposed procedure have been validated by comparing them with GPS (Global Positioning System) data.