Geophysical Research Abstracts,
Vol. 10, EGU2008-A-05808, 2008
SRef-ID: 1607-7962/gra/EGU2008-A-05808
EGU General Assembly 2008

Landslide mapping at regional scale aided by PSInSAR technology: the example of the Valle d'Aosta Region (NW Italy) landslide inventory.

C. Giannico (1), F. Novali (1), **A. Tamburini** (1), M. Broccolato (2) and S. Ratto (2)

(1) Tele-Rilevamento Europa - T.R.E. S.r.l. - Via Vittoria Colonna 7 - 20149 Milano - Italy (andrea.tamburini@treuropa.com), (2) Regione Autonoma Valle d'Aosta - Dipartimento Territorio, Ambiente e Risorse Idriche - via Promis, 2a - 11100 Aosta - Italy (m.broccolato@regione.vda.it)

During the last years several Italian Regions were studied with Permanent Scatterer SAR Interferometry (PSInSAR) in order to detect and monitor slope instability phenomena. One of the last application of the PSInSAR technique was carried out at the end of 2007 on the whole Valle d'Aosta Region (NW Italy) area. Aim of the study was supporting the landslide inventory performed within the framework of the Italian Landslide Inventory (IFFI) Project, partly funded by APAT (Italian Agency for Environmental Protection and Technical Services). More than 400 SAR scenes acquired by ERS-1 and ERS-2 satellites were processed, covering the period May 1992 to January 2001. About 370000 PS in both ascending and descending geometries were identified within an areal extent of about 3200 km2. Thanks to the PS data it was possible to integrate the results provided by the conventional geological and geomorphological studies, in terms of landslide areal extent cross check, detection of unmapped phenomena and assessment of their activity on the base of long-term surface displacement velocity measurements. Moreover, the availability of PS data in both ascending and descending geometries enhanced the coverage of the study area and enabled the estimation of vertical and E-W horizontal displacement fields in the areas covered by both ascending and descending data. The results of the study confirmed that the traditional geological-geomorphological and the innovative PSInSAR approaches can be considered complementary tools for accurate landslide mapping and landslide activity

evaluation at regional and local scale.