



## **Learning from the experience: preliminary results of integration experiments within PRE-EARTHQUAKES EU-FP7 Project.**

V. Tramutoli (1), S. Inan (2), N. Jakowski (3), S. Pulinets (4), A. Romanov (5), C. Filizzola (6), I. Shagimuratov (7), N. Pergola (8), N. Genzano (1), M. Lisi (1), E. Alparslan (2), V. Wilken (3), K. Tsybulia (4), A. Romanov (5), R. Paciello (6), M. Balasco (8), I. Zakharenkova (7), D. Ouzounov (9,10), G. A. Papadopoulos (11), M. Parrot (12), and the PRE-EARTHQUAKES Team

(1) University of Basilicata, DIFA, Potenza, Italy (valerio.tramutoli@unibas.it), (2) TUBITAK Marmara Research Center, Gebze - Kocaeli, Turkey, (3) Deutsches Zentrum fuer Luft - Und Raumfahrt EV, Linder Hoehe, Koeln, Germany, (4) Fedorov Institute of Applied Geophysics, 9, Rostokinskaya St., 129226 Moscow, Russia, (5) JSC Russian Space Systems, Moscow, Russian Federation, (6) Geospazio Italia srl., Potenza, Italy, (7) West Department of N.V. Pushkov IZMIRAN RAS, 41, Pobedy Av., 236010 Kaliningrad, Russia, (8) Institute of Methodologies for Environmental Analysis of the National Research Council, Tito Scalo (PZ), Italy, (9) Chapman University, One University Drive, Orange, CA 92866, USA, (10) NASA Goddard Space Flight Center, Greenbelt, MD 20771, USA, (11) Institute of Geodynamics, National Observatory of Athens, Athens, Greece, (12) Laboratoire de Physique et Chimie de l'Environnement et de l'Espace (LPC2E)/CNRS, UMR6115, Orléans, France

PRE-EARTHQUAKES (Processing Russian and European EARTH observations for earthQUAKE precursors Studies) EU-FP7 project is devoted to demonstrate - integrating different observational data, comparing and improving different data analysis methods - how it is possible to progressively increase reliability of short term seismic risk assessment.

Three main testing areas were selected (Italy, Turkey and Sakhalin) in order to concentrate observations and integration efforts starting with a learning phase on selected event in the past devoted to identify the most suitable parameters, observations technologies, data analysis algorithms.

To this aim events offering major possibilities (variety) of integration were particularly considered - Abruzzo EQ (April 6th 2009 Mw 6.3) for Italy, Elazig EQ (March 8th 2010 Mw 6.1) for Turkey and Nevelsk EQ (August 2nd 2007 Mw 6.2) for Sakhalin - without excluding other significant events occurred during 2011 like the ones of Tohoku in Japan and Van in Turkey.

For these events, different ground (80 radon and 29 spring water stations in Turkey region, 2 magneto-telluric in Italy) and satellite (18 different systems) based observations, 11 data analysis methods, for 7 measured parameters, have been compared and integrated.

Results achieved by applying a validation/confutation approach devoted to evaluate the presence/absence of anomalous space-time transients in single and/or integrated observation time-series will be discussed also in comparison with results independently achieved by other authors.