



Two years of continuous TIR satellite monitoring over European and Asian Regions: results and possible implications for an Integrated System for a Dynamic Assessment of Seismic Risk (DASR).

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Space-time fluctuations of Earth's emitted Thermal Infrared (TIR) radiation have been observed by satellite months to weeks before earthquakes occurrence. The general RST (Robust Satellite Techniques) approach has been used (since 2001) in order to discriminate normal (i.e. related to the change of natural factor and/or observation conditions) TIR signal fluctuations from anomalous signal transients possibly associated to earthquake occurrence. Since then several earthquakes occurred all around the World have been studied on the base of decades of satellite observations always using a validation/confutation approach in order to verify the presence/absence of anomalous space-time TIR transients in presence/absence of significant seismic activity.

During the PRE-EARTHQUAKES EU-FP7 Project (www.pre-earthquakes.org), a real-time monitoring activity was started by applying RST approach to MSG/SEVIRI data over Italy (since October 2010), Turkey (since November 2011) and Greece (since July 2012).

For the first time a similar analysis has been performed in real-time, systematically analyzing, day by day, TIR anomaly maps in order to identify possible significant (e.g. persistent in the space-time domain) thermal anomalies. Results were quite surprising as only in very few cases the day by day analysis enhanced space-time persistent anomalies that were communicated to the other PRE-EARTHQUAKES partners asking for their attention.

In this paper results of two years of day-by-day TIR analysis over some European and Asian Region will be presented. Its enhanced potential, when applied in the framework of a DASR (Dynamic Assessment of Seismic Risk) system continuously integrating independent observations, will be moreover discussed.