



## TESTING THE "PRESTO" EARLY WARNING ALGORITHM IN NORTH-EASTERN ITALY, AUSTRIA AND SLOVENIA: UPDATE ANALYSIS

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Since 2002 OGS (Istituto Nazionale di Oceanografia e di Geofisica Sperimentale) in Udine (Italy), the Agencija Republike Slovenije za Okolje (ARSO) in Ljubljana (Slovenia) and the Zentralanstalt für Meteorologie und Geodynamik (ZAMG) in Vienna (Austria), are collecting, analyzing, archiving and exchanging seismic data in real time. The data exchange has proved to be effective and very useful in case of seismic events at the borders between Italy, Austria and Slovenia, where the poor coverage of individual national seismic networks precluded a precise earthquake location, while the usage of common data from the integrated networks improves significantly the overall capability of real time event detection and rapid characterization in this area.

In order to extend the seismic monitoring in North-eastern Italy, Slovenia and Southern Austria, towards earthquake early warning applications, at the end of 2013 OGS, ARSO and ZAMG teamed with the RISSCLab group (<http://www.rissclab.unina.it>) of the Department of Physics at the University of Naples Federico II in Italy. The collaboration focuses on massive testing on OGS, ARSO and ZAMG data of the EW platform PRESTo (Probabilistic and Evolutionary early warning SysTem) developed by RISSC-Lab (<http://www.prestoews.org>).

PRESTo is a stand-alone software system that processes live accelerometric streams from the stations of a seismic network to promptly provide probabilistic and evolutionary estimates of location and magnitude of detected earthquakes while they are occurring, as well as shaking prediction at the regional scale (Satriano et al., 2010). In order to analyse its performance in different seismic hazard context and seismic networks of varying extension, PRESTo is currently operating in several seismological centres (e.g., the ISNet network in southern Apennines; KIGAM in South-Korea; Kandilli in Istanbul; at NIEP in Romania).

Since the beginning of 2014 PRESTo is also running on OGS, ARSO and ZAMG data, by collecting and analysing in real-time the data streams from 20 stations. To date, due to the lack of relevant seismic events, the analysis mainly focused on playing-back the waveforms of small events (i.e. M between 2 and 3) recorded in the recent past, but also of the strong motion data of the Mw 6.5, 1976 Friuli Earthquake (Fig 1), for which PRESTo estimated from the P-wave amplitudes a Mw 6.8 at

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the instant when only three stations have triggered and the first alert is issued. A comprehensive update analysis of the performances of the PRESTo algorithm with most recent data from OGS, ARSO and ZAMG will be here illustrated

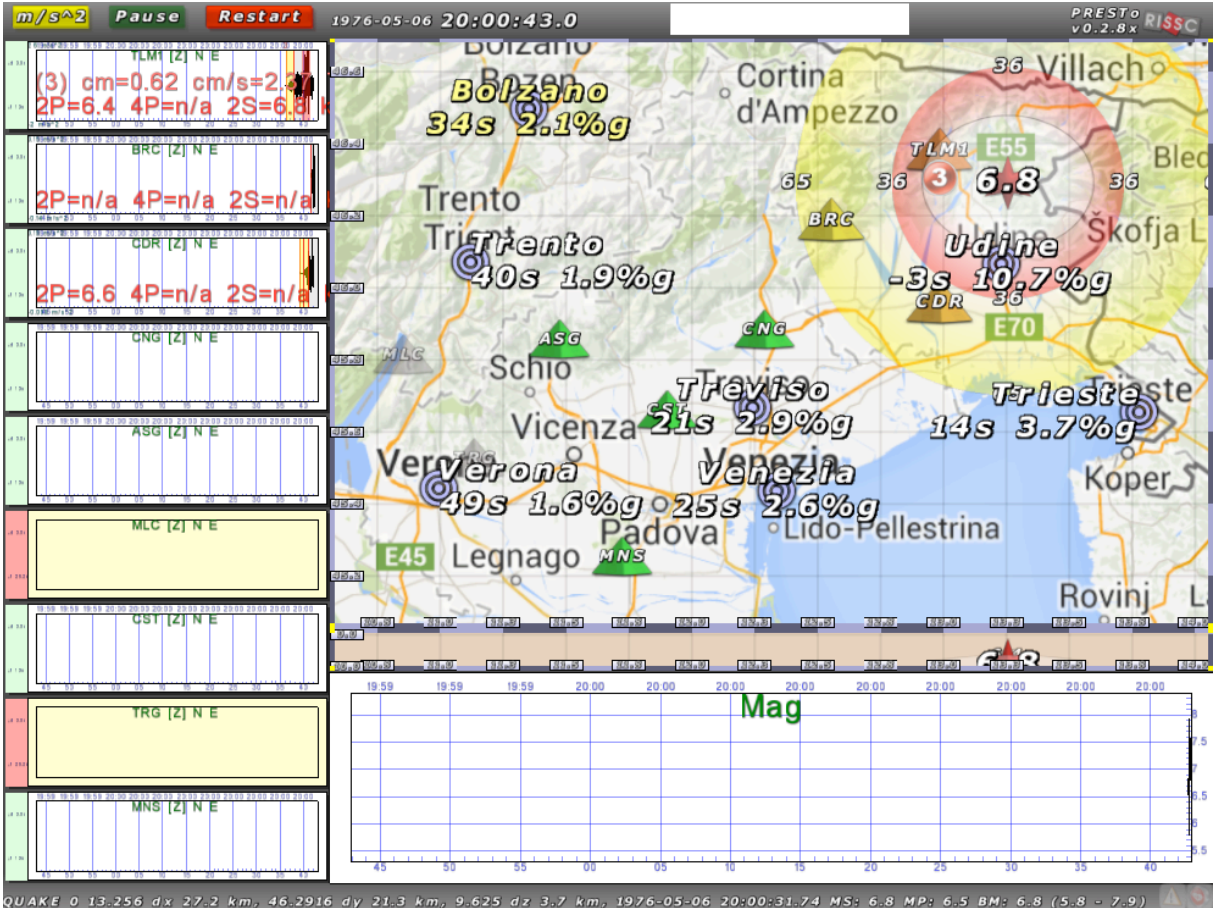


Figure 1. Screenshot of the PRESTo system during the playback of the Mw 6.5 1976 Friuli Earthquake, at the instant when three stations have triggered and the first alert is issued.

**REFERENCES**

Satriano C, Elia L, Martino C, Lancieri M, Zollo A, Iannaccone G (2010) "PRESTo, the earthquake early warning system for Southern Italy: concepts, capabilities and future perspectives", *Soil Dyn Earthq Eng*, <http://dx.doi.org/10.1016/j.soildyn.2010.06.008>