SECOND EUROPEAN CONFERENCE ON EARTHQUAKE ENGINEERING
AND SEISMOLOGY, ISTANBUL AUG. 25-29, 2014

Development of the NOANET GNSS EARLY WARNING WEB PLATFORM: preliminary results

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The prevention and mitigation of geohazards requires the use of early warning systems. Space-geodetic techniques and dedicated satellite missions are crucial tools in the determination of geophysical parameters (e.g. precise and rapid determination of earthquake magnitudes as well as improved modeling of tsunami waves) and monitoring of faults, landslides etc. Since 2006 NOA (National Observatory of Athens) has developed a national GNSS (Global Navigation Satellite System) ground network, NOANET. The NOANET network can provide valuable data (1-s observations) for warning systems because of the development of real-time processing techniques, such as PPP. The PPP (Precise Point Positioning) approach is able to obtain cm-level accuracy of the GNSS receiver (Chassagne, 2012) and is independent of other reference stations which can be a large advantage for a warning service. The PPP results strongly depend on existing satellite orbit and clock products. Such products are becoming increasingly available, including on-line services from IGS and EUREF. EUREF has recently established a service for real time clocks, to be used together with the IGS orbits. In addition, the continued improvement of algorithms which minimize the errors sources like ionosphere, troposphere, clocks etc. has made PPP a reliable method to measure large earthquake displacement and develop platforms for early warning systems (Rizos et al., 2012; Li et al., 2013). In this work we demonstrate the use of the BKG BNC 2.10 (Weber and Mervart, 2009) engine, Python and web programming (HTML, Google API) for the development of a web platform towards monitoring GNSS station positions at Thira island and coastal Peloponnese in real time, and also obtaining some of the quality factors of signal reception at the same stations.

KEYWORDS: GNSS, PPP, BNC, Python, Thira.

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