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Design and implementation of a mobile device APP for network-based EEW systems: application to PRESTo EEWS in Southern Italy

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A fundamental feature of any Earthquake Early Warning System is the ability of rapidly broadcast earthquake information to a wide audience of potential end users and stakeholders, in an intuitive, customizable way. Smartphones and other mobile devices are nowadays continuously connected to the internet and represent the ideal tools for earthquake alerts dissemination, to inform a large number of users about the potential damaging shaking of an impending earthquake.

Here we present a mobile App (named ISNet EWApp) for Android devices which can receive the alerts generated by a network-based Early Warning system. Specifically, the app receives the earthquake alerts generated by the PRESTo EWS, which is currently running on the accelerometric stations of the Irpinia Seismic Network (ISNet) in Southern Italy. In the absence of alerts, the EWApp displays the standard bulletin of seismic events occurred within the network. In the event of a relevant earthquake, instead, the app has a dedicated module to predict the expected ground shaking intensity and the available lead-time at the user position and to provide customized messages to inform the user about the proper reaction during the alert.

We first present the architecture of both network-based system and EWApp, and then describe its essential operational modes. The app is designed in a way that is easily exportable to any other network-based early warning system.