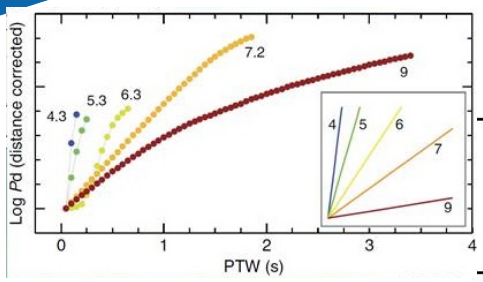
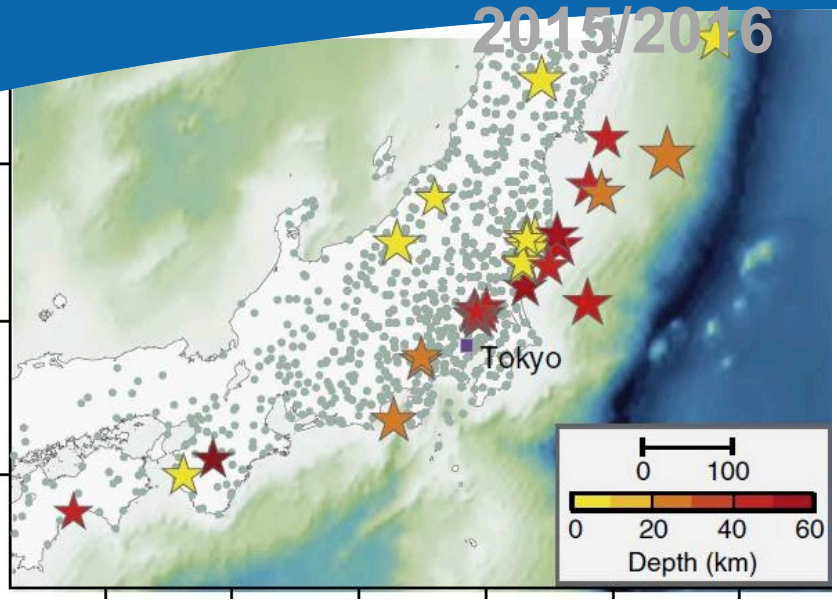
ISTerre
Institut des Sciences de la Terre

Grand Séminaire
2015/2016




*Evolution of the P-wave peak displacement measured as a function of the time along the seismogram on data of the K-Net and Kik-Net strong motion networks (Japan)*

# Toward the next generation of earthquake Early Warning Systems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*The concept of Earthquake Early Warning System (EEWS) is becoming more and more popular, as an effective real-time strategy to mitigate the earthquake damage, through individual or automatic safety actions. EEW means the rapid detection and source characterization of an ongoing earthquake rupture and the alert broadcasting to a wide target area, before the late arrival of potential damaging waves. The underlying assumption of current Early Warning methods is that the rapid and automatic analysis of the initial P-wave signal can bring information about the final earthquake size and its potential damage effects. Such a simplifying hypothesis has revealed to be not consistent with post-event analysis of large to huge earthquakes (M>7.5), in particular for the 2011 M9, Tohoku-Oki earthquake. In the recent years, new concepts and ideas have been set forward to overcome the limitations of actual EEWS, either by expanding the observational window along seismograms or including contemporary measurements of different physical quantities, such as the displacement from high frequency continuous GPS or ground motion acceleration/velocity from strong motion instruments. The very recent observations of a different rupture initiation between small and large earthquakes provide new insights about the earthquake nucleation processes and lead to new real-time signal processing methods to rapidly discriminate the earthquake size and rupture extent. We will explore these new research directions and review the new methods and technologies which are now being set up to build the next generation of earthquake early warning systems.*


## Jeudi 10 septembre 2015 à 11h

## Salle de conférences d'ISTerre

OSUG-C, 1381 rue de la piscine, Campus Universitaire
Arrêt Tram B/C Bibliothèques universitaires