



Operational tsunami warning: A search for the ad hoc source parameters of rapid/normal/slow sources for tsunami forecast.

Dominique Reymond (1), Anthony Jamelot (1), Olivier Hyvernaud (1), and Luis Rivera (2)

(1) CEA/DASE/LDG, Papeete, Tahiti, French Polynesia (reymond.d@labogeo.pf), (2) IPG, Université de Strasbourg, , France

Tsunami modeling involves, as the first requirement, a realistic estimation of the initial coseismic displacement field; in the tsunami warning context, this latter is essentially calculated using Okada, 1992 formulae, that depend on the source dimensions, the focal geometry, the focal depth, and the medium rigidity.

While the focal geometry and depth are routinely estimated from inversions of the seismic data, the source dimensions and the coseismic slip are the worst unknowns, because they are entirely lying on scaling and similarities laws between seismic moment and aspect ratio of the source.

Our approach will use supplementary parameters given by source duration and its slowness parameter to infer abnormal rupture velocity, and consequently an abnormal rigidity modulus and fault length: a better estimation of the couple (μ , L) will lead to a better estimation of the coseismic slip.

Numerical models of the tsunamis generated by the known and well identified slow/rapid sources will be compared to the available observations, showing the importance to take the slowness of the source into account during tsunami warning context.