



The great (Mw 8.2) 9 September 2017 earthquake of Chiapas Mexico: seismic sources parameters and tsunami modeling of an unusual intra-slab normal faulting event.

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We present a study on the recent event of magnitude $M_w = 8.2$ on September 8, 2017 located offshore of the region of Chiapas Mexico. This particular event, that can be qualified of 'rapid' with energetic P-waves, exhibits unusual tectonic characteristics consistent with an intra-slab rupture, with a focal mechanism in normal faulting inside the Cocos plate. Thus it is not a classical inter-plate earthquake located in a subduction zone.

This strong earthquake that triggered an alarm for the tsunami warning center of French Polynesia (Centre Polynésien de Prévention des tsunamis, CPPT hereafter), had been analyzed during the context of tsunami warning. We present a summary of the seismic source parameters estimated through different independent methods: inversion of long period surface waves, W-phase inversion in the ultra-long period domain, estimation of the slowness, and source duration. Several tsunami scenarios have been then considered, in order to evaluate the expected tsunami heights, especially for the Marquesas Archipelago, for which it has been proven to be concerned by their spectacular tsunami amplification effects. We present also the comparisons between observed and calculated tsunami waveforms, for the available DART buoys, and the numerical modeling obtained for different sites of French Polynesia with the different source scenarios.