Natural Hazards
and Earth System
Sciences
Discussions

Interactive comment on "Impact of Hurricanes Irma and Maria on the PTWC Tsunami Warning Capability for the Caribbean Region" *by* Victor Sardina et al.

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The authors described the impact of two recent 2017 hurricanes on the availability of seismic data in the region impacted by the hurricanes. This topic is important to demonstrate the robustness or the potential issues of the capacities of a Tsunami warning system after impact of large hurricanes that could occur in basins like Caribbean sea or other basins as the South western-Pacific.

Nevertheless, as it is presented, the results of this study are not complete and a major revision is needed before publication.

The first comment is related to the magnitude referred. As related to fast assessment of earthquakes parameters, it is questionable to mention only the ML computation (page 5 line 11). It is well known that most of the Tsunami warning centers compute Mw, that is the more accurate magnitude in particular for last earthquakes and also typical "tsunami earthquake" events (see Kanamori 1975). Why the authors don't take into account the computation of Mw, and the variations of Mw accuracy depending on the station available after the hurricanes ?

The second comment more general, the authors don't mention the reduction of the accuracy due to lack of data for the fast assessment of seismic parameters (location, depth, magnitude, etc...) To validate the results and conclusions of that study, a complementary study, using data set of recent large earthquakes in the region and eliminate the corresponding data (removing a set of data , i) the set corresponding to the stations stopped in consequence of the two 2017 hurricanes ; ii) other sets of data with several various hypothesis of path of future hurricane, southern, western Caribbean sea. . .) would be the best demonstration, and quantify the impact of such weather disaster on the capacities of tsunami monitoring networks and warning systems.

Another additional point related to fast seismic parameters computation and accuracy. The W-Phase centroid moment tensor computation is used at PTWC to get a fast tsunami threat forecast. The authors should provide the impact of data of large set of stations missing to the accuracy of the results of computation of W-Phase centroid moment tensor, considering only the set of stations available after the hurricanes. Similar complementary study could be performed considering one of the recent large earthquake in the region (M > 7,0) and eliminate set of data unavailable to demonstrate the influence on the rapidity and accuracy on earthquake parameters needed for tsunami warning.

Another remark is related to the reason of the stop of data due to the 2 recent hurricanes. Why data of so many stations where unavailable ? Power supply, destruction of station, transmission equipment, could be part of the response . . . It would be useful to

provide information on those issues. An additional point would be how to build robust stations to hurricane. Recommendations by the authors would be useful for all tsunami warning systems.

And last comment, the title is "Impact ... on the PTWC Tsunami warning capability for the Caribbean Region " The tsunami warning system includes also sea-level stations . To be consistent with the title, the authors should add information on the availability of sea level data after the impact of these two recent hurricanes. These data are absolutely necessary to confirm whether a tsunami has been induced by the earthquake or not, and what are the characteristics of the tsunami waves (amplitude, period...). And provide some information how long it last to repair the stations. In case no impact was noticed on the availability of sea level data, the authors should shortly report on that.

Some minor corrections :

a) the notation 01:34 should be changed in ... 1 mn 34 s or other format specifying minutes and seconds.

b) P5 l25 : Figure 10a = (Figure 6b + 110s) ; P5 l31 same correction

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