Review of "Detectability of seismic waves..." by Katsumata et al.

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I was very disappointed by this paper. It presents succinct research, ignores previous work which clearly contradicts the argument, makes statements which border on being outrageous, and proposes warning measures which are nothing short of naive. Finally, its style is poor and it was not even proofread.

The paper should be rejected.

- The main argument of the paper is that there is no detectable seismic signature to the landslide which generated the catastrophic PNG tsunami of 17 July 1998. This statement directly contradicts the work of *Okal* [2003], in which I presented (on Figure 3) and discussed in detail the record of the landslide at the same station JAY allegedly studied by the authors. It is clear that they used the wrong (very low-frequency) filters, and thus missed the signal. They do not justify working in such inadequate frequency bands, and completely ignore the detailed analysis of seismic and hydroacoustic phases which went into my 2003 paper.

- I note on Page 4, Line 9 the statement "*The Mediterranean is a seismically inactive region*"! This is completely false. The USGS catalog contains 1132 events with at least one magnitude reaching 5 or greater for the period 1963–2015, between latitudes 30 and 45°N, longitudes –5 and 35°E, and depths 0 and 100 km...

  This factually wrong scientific statement takes an insulting societal tone when confronted to the memory of the thousands of victims of earthquakes in the Mediterranean Basin, documented since historic times.

Those two very serious shortcomings suffice to warrant rejection of the paper.

- It is wrong to use the reference to *Tappin et al*. [2008] to suggest that the slide underwent a "deceleration stage affected by interaction of the sliding mass with sea water". All submarine slides will feature such interaction. What was unique in the PNG slide was that it was stopped abruptly when it abutted against the opposite wall of the amphitheater in which it took place. All of this was explained in detail by *Synolakis et al*. [2002] and *Okal* [2003]; as mentioned above, the authors seem to ignore the latter paper, as they ignore the fundamental paper by *Sweet and Silver* [2003], who conducted the *in situ* discovery and study of the slide.

- The dynamics of the underwater PNG landslide and of the Mt. St. Helens one are totally different, given that the latter was caused by an atmospheric explosion, and reached velocities of 70 m/s (as documented from films) which cannot be sustained by underwater landslides.

- The proposal to densely instrument the seafloor in order to detect and identify in real time a landslide and issue a warning is naive in the context of the PNG tsunami, given that the whole process would have to be realized in a few minutes. Most of the casualties at Sissano resulted from the lack of an escape route: the residents were trapped on a narrow spit of land between the Bismarck Sea and Sissano Lagoon. The only survivors had managed to climb the few trees which were not uprooted. As such distances, the only reliable means of tsunami mitigation is proper planning (the village should not have been built on the spit), and in real-time, self-evacuation.

References

Okal, E.A., *T* waves from the 1998 Papua New Guinea earthquake and its aftershocks: Timing the tsunamigenic slump, *Pure Appl. Geophys.,* **160,** 1843–1863, 2003.

Sweet, S., and E.A. Silver, Tectonics and slumping in the source region of the 1998 Papua New Guinea tsunami from seismic reflection images. *Pure Appl. Geophys.,* **160,** 1945–1968, 2003.