

## ***Interactive comment on “Calibration of a real-time tsunami detection algorithm for sites with no instrumental tsunami records: application to stations in Eastern Sicily, Italy” by L. Bressan et al.***

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General comments:

interesting and necessary study that reflects very well the difficulty of configuration of tsunami detection algorithms to take into account the local variability of sea level records. The paper is well structured and the work takes into account most of the situations one could encounter during the design of these algorithms; I only miss however some mention to the effect of tide gauge malfunction in the algorithm performance in real time. This is perhaps something difficult to avoid and could generate false alerts. It

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should be mentioned however and, if possible, with some proposal of how minimizing this problem. Finally taking into account that this algorithm is being implemented in the Mediterranean sea, where sudden seiches may appear with the same magnitude or larger than small tsunamis, some mention to the response of the algorithm to these events should appear.

Some sections could be more clearly explained and there are many acronyms dealing with the algorithm indicators and functions that makes reading difficult at some moments. I would suggest perhaps a list of acronyms at the end. In general I would say that the paper should be accepted subject to minor revisions.

Specific comments:

1. pages 3) and 4): not very clear, step 1 in the second procedure: "creation of the background database by selection homogeneous records of sufficient length to cover most of the sea-level conditions from very calm to large perturbations", should be in fact common in both cases (with or without tsunami records), as this is independent of tsunami occurrences. It is not clear from the text why this is not also the first step in the first case. Expanding the database to include the background signal especially in the temporal vicinity of the tsunami arrival (page 3, lines 60-61) seems obviously needed, but not enough for background characterization. I would re-write this step with the following text:

"creation of the background database by selection of at least one year of homogeneous records with adequate tsunami sampling interval to cover most of the sea-level conditions from very calm to large perturbations"

2. page 5, line 139: what is understood by real time here, when the alert is triggered? one second, five seconds, 1 minute?

3. page 5, lines 147-150: important aspect mentioned here of the effect of harbour works after the storm, could an example of the change of the signal be shown (the two

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spectra before and after, for example?)

4. page 6: I find the description of the algorithm a bit difficult to read and follow: many acronyms and so on..One recommendation: a list of acronyms and a simple figure with the scheme illustrating how the algorithm works, the window of data affected and so on..It would help a lot.

5. two methods are described to be run in parallel: the tsunami-detection and the secure-detection method. Are the alerts triggered when both of them detect the tsunami or may be that the alert is triggered with just one of them?

6. page 11: lines 385-390: I don't understand if the tsunami signals are synthetic and obtained with a tsunami propagation model how the co-seismic displacement of the land is reproduced..Perhaps in this scenario you modify the bathymetry of the model? Could you please explain better this?

Technical and typing corrections:

pg.3, line 58: "a long record" instead of "a long records" pg.5, line 143: "January 22nd, 2008" instead of "22 January 200". This affects to all the dates in the document pg.7, line 212: "tIS=6,8,10,12,4" (I assume is 14 instead of 4?) pg.11, line 365: "parent faults" instead of "parents faults" pg.12, line 415: do you mean wind waves here? pg. 27, figure 8: window1,window2...not clear in this plot. Also I don't understand the position of the letters C, R, C+b and S+b in the third plot...what does this mean? Better explanation of this plot in general.. Table 1: specify what TDI is (not only in the text).

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