Calibration of a Real-time Tsunami Detection Algorithm for Sites with no Instrumental Tsunami Records: Application to Stations in Eastern Sicily, Italy
Bressan L., Zaniboni F., Tinti S.

In this paper the authors have presented a procedure to calibrate a real-time tsunami detection code for tide-gauge stations where experimental tsunami records are poor or not existing at all. The procedure is based on two main elements: the analysis of the background records and the creation of a suitable database of synthetic tsunami records.

General comments

The topic is suitable for the journal since it addresses an issue which could be of interest to the scientific community. The document is written in clear and fluent English, it is up to the international standards and the length of the paper is adequate. The global application of the calibration methodology is interesting. Further descriptions and details regarding the methodology are required to make reading and comprehension easier. A final discussion about the comparison regarding the parameters configuration of TEDA and the tsunami records database for Catania and Tremestieri.

Detailed comments

This reviewer believes that a major revision would further increase its overall significance, as indicated below:

- In the reviewer's opinion, the paper's name should be including the tidal-gauge word, such as: "Calibration of a Real-time Tsunami Detection Algorithm for Sites with no Instrumental Tsunami Records: Application to tide-gauge Stations in Eastern Sicily, Italy.
- The authors should include a location map for each harbour, with a detailed harbour's maps including the position of the tide-gauges. Pag.4 after line 110.
- Before "8. Results of calibration" or after this section, it is necessary a section where the calibration methodology in section 2.2 is applied step by step in one of the examples.
- This reviewer recommends in section "8. Results of calibration" to include the comparison (with indicators) regarding the 15 parameters configuration of TEDA applied in the 28 tsunami records databases for Catania and 24 tsunami records databases for Tremestieri. The Authors only comment in the paper that configuration A3C1 is the best for Tremestieri and configuration A2C1 is the best for the harbour of Catania.
- Further discussion is required at the end of the paper, in order to justify why the authors keep fixed T_{BS}, T_G and T_{SD}, just in order to "simplify" (line 211). The authors justify it because T_{IS} is the most sensibility parameter based on (Bressan and Tinti, 2011 and 2012), but in the calibration process the combination of these parameters can change the optimal solution. It necessary to support this assumption.

- In Fig.6 EFDs for IS or CF3 could be adjusted for a Pareto distribution function (2 parameters) or Exponential function (1 parameter), BS3 can be fitted by a (lognormal, gamma o weibull) distributions. It could be interesting a parameterisation of these curves for the calibration process.
- Fig. 1 never is called and used in the text
- In page 6, line 194: It is t_{SD}, no tSD in the equation.
- In page 6, line 196: the correct are t_{IS} and t_{SD} and and no: tIS and tSD
- In page 6, line 197: the correct are λ_{SD} and no: λSD
- In page 7, line 212: in values of $t_{IS,}$ at the end is 4 or 14 min.?
- In Page 9, line 284: it is Fig. 4 no Figure 4.
- In Page 10, line 327: it is Fig. 7 no Figure 7.
- In Fig. 9: it is better to change c by Calm, C+b=Calm and bout...., it is not clear for readers.

This manuscript is of broad interest, but this reviewer considers that this article needs some modifications in order to be published.

Mauricio González
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