

Interactive comment on “New Study on the 1941 Gloria Fault Earthquake and Tsunami” by M. A. Baptista et al.

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Anonymous Referee #1, comment 1 (0) page 2, line 60 (1) comments from referees/public: The technique to locate the epicenter from the seismograms needs more description. In particular, what is the method behind “Hypocenter” code running under SEISAN environment” (P60)? (2) author’s response: We accept the comment. (3) author’s changes in manuscript: the paragraph reads now: “To compute the hypocenter, we used “Hypocenter”, a damped least square algorithm for earthquake location (Lienert et al., 1986), running under SEISAN environment, a seismic analysis package containing a complete set of programs and a simple database for analyzing earthquake data (Ottemöller et al., 2011). The reference Lienert et al., 1986 was also added to the reference list.

C1

Anonymous Referee #1, comment 2 (0) page 2, line 61 (1) comments from referees/public: In addition, it would be very useful to the reader if a waveform comparison of the seismograms is presented in a figure. Displaying the newly-acquired historic seismograms would also be very interesting. (2) author’s response: We accept the comment. (3) author’s changes in manuscript: A new figure 2 was added to the manuscript. All other figures were renumbered accordingly.

Anonymous Referee #1, comment 3 (0) page 7, line 224-225 (1) comments from referees/public: Could the significant topography surrounding the Gloria fault also play a role in tsunami generation, in terms of horizontal movement? This was discussed by Ishii et al. [2013] in an analogous study of the 2012 Mw 8.6 Indian Ocean event, with regard to displacement of the Ninety-East Ridge. (2) author’s response: The comparison shown in figure 6 (now figure 7) was made considering only the vertical component of the co-seismic displacement constrained by the horizontal resolution of the Green Function Database. The role of the horizontal motion of the seafloor close to the source can be a good guess for the interpretation of the solution, due to the sharp vertical offset associated with the Gloria Fault, but is outside the scope of the paper. (3) author’s changes in manuscript: no change.

Anonymous Referee #1, comment 4 (0) page 7, line 230-231 (1) comments from referees/public: is the apparent rotation of the inverted displacement field shown in Fig. 5 caused by the azimuthal distribution of tide gauge stations or some other artifact of the inversion? (2) author’s response: We cannot attribute the apparent rotation of the solutions displayed in figure 5 to the azimuthal distribution of the tide gauge stations as the “chessboard test” shows (figure 4). This rotation may result from the apparent “contradiction” between the records from Cascais (see lines 230-231) and Lagos tide stations, but we have no independent assessment of this problem to weight differently the station data. Another possible explanation is the effect of a secondary tsunami source – a possible submarine landslide (see answer to referee 2). (3) author’s changes in manuscript: no change.

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Anonymous Referee #1, comment 5 (0) page 11, line 369 (1) comments from referees/public: It would be helpful to show the fault trace for the Gloria fault on Fig. 1, as well as how it is segmented. (2) author's response: The segmentation of Gloria fault is shown in figure 4. In figure 1 it would jeopardize the direct analysis of bathymetric data by the readers. (3) author's changes in manuscript: No action.

Anonymous Referee #1, comment 6 (0) figure 1 (1) comments from referees/public: I cannot discern the 1st motion polarities on the focal mechanism in Fig. 1 (e.g., the "BC segment"). (2) author's response: We accept the comment. (3) author's changes in manuscript: Figure 1 was edited accordingly.

Anonymous Referee #1, comment 7 (0) page 2, line: 45 (1) comments from referees/public: ". . .new set of old seismograms" better phrased as ". . .newly acquired set of historic seismograms" (2) author's response: We accept the comment. (3) author's changes in manuscript: The manuscript was changed accordingly.

Anonymous Referee #1, comment 8 (0) page 2, line: 69-70 (1) comments from referees/public: P65: What is the Dineva et al. (2002) approach? please describe in the manuscript. (2) author's response: We accept the comment and the sentence was rephrased and completed. (3) author's changes in manuscript: The paragraph was changed to "We computed the scalar seismic moment using the (Dineva et al., 2002) approach. Original analogue seismograms were digitized and the seismic moment is computed from the spectra of body waves ground motion independently for each component. Twenty-six seismograms from fourteen seismic stations were digitized."

The revised version of the manuscript is uploaded named Revised_discussion_paper_new_study_1941_Atlantic_tsunami with changes highlighted in yellow

Please also note the supplement to this comment:
<http://www.nat-hazards-earth-syst-sci-discuss.net/nhess-2016-130/nhess-2016-130->

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AC1-supplement.pdf

Interactive comment on Nat. Hazards Earth Syst. Sci. Discuss., doi:10.5194/nhess-2016-130, 2016.

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