

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

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(1) comments from referees/public: This manuscript is on the re-evaluation of the epicenter location of the M<sub>W</sub>8.3- 8.4 25th November 1941 in the North East (NE) Atlantic basin, occurred along the Eurasia-Nubia plate boundary between the Azores and the Strait of Gibraltar as one of the largest submarine strike-slip earthquakes ever recorded in the region, using seismological data not included in previous studies. Furthermore, the authors inverted recorded tsunami waveforms to infer the initial sea surface displacement using Empirical Green Functions without prior assumptions on the geometry of the source to verify the re-location. The study attempts to show that the tsunami was generated due to earthquake's co-seismic deformation but the authors cannot exclude the hypothesis of a local second tsunami source close to the coast of Morocco. The manuscript is clearly written and concise. The study is limited by the use of old

instrumental records, where some of them with a low-amplitude, which is a common limitation in the analysis of C1 NHESSD Interactive comment Printer-friendly version Discussion paper historical tsunamis. The manuscript inarguably addresses relevant scientific questions within the scope of NHESS. It presents both new data and makes effective use of combining several earlier proposed methods. They are up to international standards and both the assumptions and limitations of the used methodologies are clearly written. Since this is the first time that the associated tsunami has been analysed comprehensively, the study should be considered a contribution to the evaluation of tsunami hazard in the North East Atlantic basin. Yet, the question remains: was the tsunami due to the earthquake's co-seismic deformation or was there a submarine landslide close to the coast of Morocco?

(2) author's response: We can not discard the fact that a local landslide occurred because the break of the submarine cables is documented. We have no data about the exact location of the submarine cable neither where it was broken. This lack of information makes the modelling of the landslide very difficult. We think that the occurrence of a landslide close to the coast of Africa (Morocco and Senegal) might influence the signal of the Morocco tide records. However, our strongest tsunami observation is in the Azores (Ponta Delgada); this station is too far away from the submarine cable (and to the possible landslide location) therefore we conclude that the tsunami observed there is due to the earthquake's co-seismic deformation. (3) author's changes in manuscript: no change.

The revised manuscript according to the requirements of referee 1 can be found in the supplement

Please also note the supplement to this comment:

<http://www.nat-hazards-earth-syst-sci-discuss.net/nhess-2016-130/nhess-2016-130-AC2-supplement.pdf>

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