

## ***Interactive comment on “Fast evaluation of tsunami scenarios: uncertainty assessment for a Mediterranean Sea database” by I. Molinari et al.***

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The aim of this study is creation of the database of pre-calculated tsunami waveforms for the entire Mediterranean Sea using the response on Gaussian-shaped unit sources (Green-like function) uniformly distributed in the sea. The Green functions are rather often used for fast tsunami computations; however, in previous works the unit sources were located in seismic zones where strong earthquakes and tsunamis are expected. The novel moment here is to locate sources uniformly in the sea, which also allows taking into account nonseismic sources e.g. landslides and meteotsunami. For me, it is an expected step due to a huge progress in computer resources. I like the idea and support the paper publication.

The authors also mention another application of uniformly distributed sources for

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tsunami inversion (Mulia, I.E., and Asano, T. Randomly distributed unit sources to enhance optimization in tsunami waveform inversion. *Nat. Hazards Earth Syst. Sci.*, 2015, vol. 15, 187–196).

I would also like to underline that this idea was used even earlier in our papers for comparable analysis of tsunami hazard in various seas; see:

1. Choi, B.H., Pelinovsky, E., and Hong, S.J. Simulation of prognostic tsunamis on the Korean Coast. *Geophysical Research Letters*, 2001, vol. 28, No. 10, 2013-2016.
2. Zahibo, N., Pelinovsky, E., Kurkin, A., and Kozelkov, A. Estimation of far-field tsunami potential for the Caribbean Coast based on numerical simulation. *Science Tsunami Hazards*. 2003, vol. 21, N. 4, 202 – 222.
3. Choi, B.H., Pelinovsky, E., Lee, H.J., and Woo, S.B. Estimates of tsunami risk zones on the coasts adjacent to the East (Japan) Sea based on the synthetic catalogue. *Natural Hazards*, 2005, vol. 36, No. 2, 355-381.
4. Zaitsev, A.I., and Pelinovsky, E.N. Forecasting of tsunami wave heights at the Russian Coast of the Black Sea. *Oceanology*, 2011, vol. 51, No. 6, 907-915.

For example, for the Black Sea we used the source with a height of 4 m and diameter of 65 km. Such diameter is too large for the Green function but it helps to avoid dispersive effects and save computer resources, which was critical 10 years ago. Surely, the diameter of 4 km used in the reviewed manuscript is more suitable for the Green function.

I would recommend the authors to extend the discussion on applications of uniformly distributed sources in Introduction or Conclusion.

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Please also note the supplement to this comment:

<http://www.nat-hazards-earth-syst-sci-discuss.net/nhess-2016-145/nhess-2016-145->

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