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Natural Hazards and Earth System Sciences
Discussions

Interactive comment on "Rogue waves in a wave tank: experiments and modeling" *by* A. Lechuga

Anonymous Referee #3

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The results presented are interesting and the paper is recommended for publication in the NHESS Journal. Accounting for the comments of the first Referee will improve the quality of the paper. Some additional comments listed below are suggested to be considered in the final version of the manuscript. The Author writes: "Some authors (Zakharov et al., 2010) are attempting to find the probability of their appearances apart from studying the mechanism of the formation. In the same way, more recently, some researchers (Bitner-Gregersen and Toffoli, 2012) have studied the probability of occurrence of rogue waves."

It latter sentence needs to be slightly revised as it maybe confusing. Bitner-Gregersen and Tofolli (20129 refer to rogue waves generated due to the nonlinear modulational instability. In the paper of Bitner-Gregersen and Tofolli (2012) it is written:

"Met-ocean conditions and sea states in which rogue waves occur are closely related

to the mechanism generating them (Kharif and Pelinovsky, 2003). In this respect, the present study only refers to the nonlinear modulational instability of deep water wave trains propagating outside the influence of ocean currents (thus, effects related to wave-current interaction and bottom topography are excluded)."

To the recognized mechanisms responsible for occurrence of rogue waves in deep water belong also crossing seas and wave-current interaction: Onorato, M., A. Osborne, and M. Serio: Modulation instability in crossing sea states: A possible mechanism for the formation of freak waves, Phys. Rev. Lett., 96, 014503, 2006. Toffoli A., Bitner-Gregersen E. M., Osborne A. R., Serio M. Monbaliu J., Onorato M.: Extreme waves in random crossing seas: Laboratory experiments and numerical simulations. Geophys. Res. Lett., Vol. 38, L06605, 5 pp. doi: 10.1029/201, 2011. Toffoli A., Babanin A. V., Benoit M., Bitner-Gregersen E. M., Cavaleri L., Monbaliu J., Onorato M., Osborne A. R., Stansberg C. T. (2011c). Occurrence of Extreme Waves in Three dimensional mechanically generated wave fields propagating over an oblique current. Natural Hazards and Earth System Science, Vol. 11(3), 2011, pp. 895-903.

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