



Interactive
Comment

Interactive comment on “Steep unidirectional wave groups – fully nonlinear simulations vs. experiments” by L. Shemer and B. K. Ee

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We thank the reviewer for his general support of our work and greatly appreciate the time and effort invested by him in providing a meaningful review.

We have accepted the reviewer’s suggestions and wish to clarify certain points raised by him. In the following we provide the detailed replies to the reviewer’s comments. The reviewers’ comments are in italics.

1. First, it is noted that the authors’ focus is limited to the special class known as the 2D Peregrine breather wave packets. Given that the actual initial condition for the simulations and the initial driving signal for the wavemaker have been modified and are fundamentally different from the PB, the results on steep crests in the wave train

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presented in this study are of generic nature and applicable beyond the 2D Peregrine breather wave packets. The crest slowdown was also observed in some other studies, as noticed by the reviewer. This fact is now accounted for in the revision. To stress that point, last line of the 4th paragraph of Section 5 was modified.

2. The wording on p.1179, lines 7-10 of the present paper should probably be modified to better reflect the generality and nature of this important advance in knowledge of water wave kinematics. We accept the reviewer's comments; they are now accounted for in the revision.

3. From a careful reading of this discussion and inspection of the key figures 9 and 10, it becomes evident that various sources operative lead to residual uncertainties in their companion model and observational assessment. These uncertainties preclude the conclusive evidence required for certainty of its validity. Hence I am obliged to recommend that the authors accordingly modify their wording on lines 19-21 of p.1179 of the paper.

We accept the reviewer's suggestion to some extent and have changed the statement to a somewhat vaguer formulation. On the other hand, the reviewer's comment prompted us to point out that our conclusions are also supported by visual evidence as seen in video clips presented in the Supplements to both the present manuscript and to Shemer and Liberzon.

New results on this topic that reduce these uncertainties have recently been published for a wider range of cases [Saket et al., ArXiv 1508.07702; Barthelemy et al., ArXiv 1508.06002]. These results provide evidence that questions the validity of the kinematic breaking condition as the primary determinant of breaking onset.

It is our understanding that these two manuscripts were uploaded at the end of August. We should point out that the present paper was motivated to a large extent by an earlier study by Shemer and Liberzon (PoF 2014). The present manuscript was submitted on July 1 and made available online on July 24, 2015. We therefore do not feel that it

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is appropriate to cite manuscripts submitted after our work already was published in NPGD.

Interactive comment on Nonlin. Processes Geophys. Discuss., 2, 1159, 2015.

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