__**2. The Second Referee's Report**__

2.1. P. 40, line 20: 'how long rogue waves live' has been studied in:
D. Clamond and J. Grue (2002) Interaction between envelope solitons as a model for freak wave formations. C. R. Mecanique, Vol. 330, pp. 575-580. The paper should be referred to.

This reference is added at the most appropriate place, where the lifetimes of observed rogue events are discussed. Our observations are in line with the reference.

2.2. P. 41, lines 5-16. I suggest that discussion/references of laboratory studies and numerical studies are separated in two distinct paragraphs.

Done.

3. P. 41, lines 5 and so on: When it comes to kinematics in strong waves, both random, unidirectional and directional, the results of the following papers should be discussed:
J. Grue, D. Clamond, M. Huseby and A. Jensen (2003) Kinematics of extreme waves in deep water. Appl. Ocean Res. 25:355-366.
J. Grue and A. Jensen (2006) Experimental velocities and accelerations in very steep wave eventsin deep water. Eur. J. Mech. B/Fluids 25:554-564.
J. Grue and A. Jensen (2012) Orbital velocity and breaking in steep random gravity waves. J. Geophys. Res. Vol. 117, C07013.
The two former presents kinematics in laboratory conditions PIV and the latter compares laboratory kinematics with kinematics of strong waves at sea.

We introduced a brief discussion of these papers in the introduction. The aim of our study in the part of wave kinematics is formulated more precisely.

4. P. 41, lines 17-24: I suggest a reference to the GOTEX field experiments is made, with a short description of this experiment. Reference:
L. Romero and W. K. Melville (2010) Airborne Observations of Fetch-Limited Waves in the Gulf of Tehuantepec. J. Phys. Oceanogr. 40:441-645.

The aim of our statement in lines 17-24 was to stress that even when much information is available, only a small amount of it is used eventually for further processing. We reformulated the sentence to make it clearer. This experiment is described in paper [Grue & Jansen (2006)], which is referred in the introduction.

5. P. 41, lines 25 and so on, a reference should be made to:
O. Gramstad and K. Trulsen (2007) Influence of crest and group length on the occurrence of freak waves J. Fluid Mech. Vol. 582, 463-472

We have included this valuable paper on numerical simulations of long-crested and short-crested waves in the list of references.

6. P. 43, lines 15-20: It has been shown by Clamond et al. (2006) that the HOSM-formulation by West et al. (1987) is correct while the HOSM-formulation by Dommermuth and Yue (1987) does involve a non-convergent representation of the

vertical velocity, which leads to numerical errors in long time simulations. Such a statement should be included in this paragraph.

We added the reference and the statement on the observation made in the paper. In the study we employed the formulation by West et al. (1987), thus the remark does not influence the results of our study.

7. P. 44, in (5), which value of gamma is used? What are cases A and E?

The referee probably missed Table 1, where all this information is collected.

8. P. 45, lines 16-25: It is well known that the simplified formulation by Trulsen et al. is quite useful in the BF-time range. This should be mentioned, with references.

The approach of generalized nonlinear Schrodinger equation, which was developed by Trulsen and Dysthe, indeed may be quite efficient. However, since we work in the regime of steep waves and broad spectrum, we follow another way. We mention the MNLS theory in the new version of the text.

9. P. 48, lines 3-20. It is well known that the trough-to-trough estimate of the wave period (or wavelength) are more useful than the zero-up crossing period. See discussion in:
J. Grue, D. Clamond, M. Huseby and A. Jensen (2003) Kinematics of extreme waves in deep water. Appl. Ocean Res. 25:355-366.
M. Y. Su (1982) Three-dimensional deep water waves. Part 1. Experimental measurements of skew and symmetric wave patterns. J. Fluid Mech. 124, 73-108.
The former paper has found that zero-down crossing period and trough-to-trough periods are relatively close.

We are grateful for this important remark and will be aware of this issue in future.
However, in the present study the wave period was not processed at all. The individual waves were singled out with the only purpose to study its geometrical properties. Hence, the method how the wave period was estimated did not matter for this issue.
At the same time, the new version of the manuscript contains our reply to the comment 10 (see below), and this section needs estimation of local wave length. The difference in methods for estimating local wave lengths / periods is emphasized in the new version of the text. The difference preserves in the new version of the paper since our primary interest is focused in high-amplitude wave slopes rather than wave crests.

10. Section 4. In this section a discussion of the findings of the kinematics, in
J. Grue, D. Clamond, M. Huseby and A. Jensen (2003) Kinematics of extreme waves in deep water. Appl. Ocean Res. 25:355-366.
J. Grue and A. Jensen (2006) Experimental velocities and accelerations in very steep wave events in deep water. Eur. J. Mech. B/Fluids 25:554-564.
J. Grue and A. Jensen (2012) Orbital velocity and breaking in steep random gravity waves. J.Geophys. Res. Vol. 117, C07013.
is missing. How does the numerical simulations relate to
-. the 126 laboratory measurements in Grue et al. (2003)?
-. the kinematics obtained extracted from the field waves in Grue and Jensen (2012)?
-. the scalings that are obtained?

-. the irregular one-directional waves (similar as in the present study)?
Further, a reference to the 3d-method is relevant in this section:
J. Grue (2010) Computation formulas by FFT of the nonlinear orbital velocity in three-dimensional surface wave fields. J. Eng. Math. 67:55-69.

At present, only limited study on wave kinematics has been performed by us and we cannot complete the thorough comparison with all the mentioned studies; it requires a dedicated study. Serving the referee request, three paragraphs describing our results through the lenses of the mentioned papers are added in the end of section 4, Figure 12 which displays the results is added, and a concluding statement is given in the conclusion.

The results of our numerical simulations seem to report somewhat higher values of horizontal velocities than documented in Grue et al. (2003) based on numerical simulations, but they are always less than the 'nonlinear' wave velocity. This partial discrepancy with Grue et al. (2003) may be due to some differences in the approaches to the wave processing. Our primary interest was to study the cases of extremely high drops of elevation in space series. However, we have found that the parameterization by the 'nonlinear' wave celerity results in agreement between the low bound of computed velocities and the theoretical curve for Stokes waves.

We considered only unidirectional waves, which is stressed in the manuscript, thus, we cannot compare our findings with the 3D study in Grue and Jensen (2012) and Grue (2010).