Review of:

Rogue waves, rogue events and extreme wave kinematics in spatio-temporal fields of simulated sea states,
by A. Sergeeva and A. Slunyaev, submitted for publication in Nat. Hazards Earth Syst. Sci. Discuss.

The paper presents a numerical study of long-crested stochastic ocean waves where the stochastics is obtained by the phase of a numerical sea, obtained from the JONSWAP-spectrum. The wave field is integrated forward in time using a usual truncated HOSM method (see also: G. Ducrozet, F. Bonnefoy, D. Le Touze, and P. Ferrant, 2007, 3-D HOS simulations of extreme waves in open seas. Nat. Hazards Earth Syst. Sci., 7, 109122, 2007 www.nat-hazards-earth-syst-sci.net/7/109/2007/). The study does not allow for local breaking which is a limitation. Of course, a severe limitation is that the study allows for one-dimensional propagation only. The study presents:

a. statistics of the elevation

b. individual rogue waves

c. intermittent rogue wave events

d. extreme wave kinematics and extremely high waves

The last point d. is probably the most interesting one, since the other points have been much explored in the literature.

Much has already been published on this subject, and the paper is missing several important references. The paper and presentation will benefit from including the broader picture represented by such references.

Detailed comments:

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.

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

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 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.
The two former presents kinematics in laboratory conditions PIV and the latter compares laboratory kinematics with kinematics of strong waves at sea.

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.

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

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.

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

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.

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.

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

e. the 126 laboratory measurements in Grue et al. (2003)?

f. the kinematics obtained extracted from the field waves in Grue and Jensen (2012)?

g. the scalings that are obtained?

h. 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.

MAIN CONCLUSION: With the suggested changes, the paper will improve/be more interesting.