



Generation of rogue waves in a wave tank

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Rogue waves have been reported as causing damages and ship accidents all over the oceans of the world. For this reason in the past decades theoretical studies have been carried out with the double aim of improving the knowledge of their main characteristics and of attempting to predict its sudden appearance. As an effort on this line we are trying to generate them in a water tank. The description of the procedure to do that is the objective of this presentation.

After Akhmediev et al. (2011) we use a symmetric spectrum as input on the wave maker to produce waves with a rate (Maximum wave height/ significant wave height) of 2.33 and a kurtosis of 4.77, clearly between the limits of rogue waves.

As it was pointed out by Janssen (2003), Onorato et al. (2006) and Kharif, Pelinovsky and Slunyaev (2009) modulation instability is enhanced when waves depart from Gaussian statistics (i.e. big kurtosis) and therefore both numbers enforce the criterion that we are generating genuine rogue waves. The same is confirmed by Shemer (2010) and Dudley et al. (2009) from a different perspective.

If besides being symmetrical the spectrum is triangular, following Akhmediev (2011), the generated waves are even more conspicuously rogue waves.