

Rogue Waves in Shallow Waters

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An overview on the problem of rogue or freak wave formation in shallow waters is given. A number of huge wave accidents, resulting in damages, ship losses and people injuries and deaths, are known and summarized in recent catalogues and books. This presentation addresses the nature of the rogue wave problem from a general viewpoint based on non-dispersive and weakly dispersive wave process ideas. We start by introducing some primitive elements of sea wave physics with the purpose of paving the way for further discussion. We discuss linear physical mechanisms which are responsible for high wave formation, at first. Nonlinear effects which are able to cause rogue waves are emphasized. In conclusion we briefly discuss the generality of the physical mechanisms suggested for the rogue wave explanation; they are valid for rogue wave phenomena in geophysics and plasma.

References:

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