

MODELLING & ANALYSIS OF LF SCATTER FROM THE SEA USING SURFACE WAVE RADARS FOR TSUNAMI SIGNAL DETECTION

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ABSTRACT

Tsunamis are an ever-present threat to lives and property along the coasts of the most world's ocean. Sumatra tsunami of 26 December 2004 reminded the world that we must be more proactive in developing ways to reduce their impact on our society. It is a general purpose and object of the present invention to provide a tsunami detection system that can detect very long wavelengths in ocean waves in real time and can distinguish shallow water waves from wind-generated waves having much smaller wavelengths. In addition to the tsunami wave, wind-generated waves will also be detected by the tsunami wave detection system. Signal processing methods are used to separate the two types of waves in spectral space to eliminate the wind generated waves from consideration and thereby avoid false positives. Mathematical Modelling using shallow water wave equations is the best method of propagation of tsunami detection system that can detect very long wavelengths in ocean waves in real time and without a high false alarm rate. For that low-frequency surface wave radars can be used.

KEYWORDS: *Tsunami, Shoaling' Effect, Coriolis Force, Shallow Water Wave, Surface Wave Radars*

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