RESUBMIT

About Possibility Tsunami Registration by Satellite Altimetry Data

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Satellite altimetry data has been used to detect sea level oscillations caused by strongest Pacific tsunamis. Special altimetry database has been developed and used to select and include Topex-Poseidon and ERS-1 measurements for period 1993-2002 in time of Japan Sea Tsunami, 12 July 1993, Great Shikotan Tsunami, 4 October 1994 and others. Sea level profiles recorded by satellite altimeter were analyzed to detect anomalous variation of sea surface that located just behind current tsunami wave front. High-resolution numerical model (2′ of latitude) calculated position of tsunami wave front. There are several successful detections of tsunami signals of 10-20 cm amplitude in vicinity of tsunami wave front. We have found also several erroneous sea level anomalies that probably related to high value of sea level slope in vicinity of wave front. The principal possibility of satellite monitoring marine disasters such as tsunami has been proved.. Recurrence period and spatial resolution of satellite altimetry allow detecting transpacific tsunamis of amplitude greater than 20 cm. The results of our study are presented. The research is supported by RFBR (Projects 03-05-64583 and 03-07-90174).

IMG3B
Oral/Poster