

The role of low-cost satellites in providing early warning of sea surface hazards including tsunamis.

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The contribution of satellite monitoring of the ocean surface could be dramatically increased if constellations of small, special-purpose satellites were launched to complement the current research missions that use single platforms. These may be well-suited to the detection of small, long-term environmental changes required by global climate programmes. They remain quite inadequate, however, for the provision of rapid warning of the dangers which can develop at sea within a matter of hours.

The tsunami wave which engulfed the coastlines of so many countries around the Indian Ocean could have been detected by radar altimeters. Indeed the two carried by JASON and Topex/Poseidon did detect the ocean surface signal as, quite fortuitously, they passed over the area some 2 hours after the quake.

It required the tragedy of December 26th 2004 to focus world attention on the awesome power of the sea. But severe storms somewhere across the globe are almost a daily occurrence. Many lives are lost at sea each year, and the damage, delay and disappearance of ships in weather-related incidents remain unacceptably high.

We discuss how these losses could be reduced by deploying constellations of low-cost, special-purpose platforms and, how in the light of recent events, a tsunami mode could be introduced to complement the measurements of 'in situ' pressure sensors.