

Freak waves spotted from space

The shady phenomenon of freak waves as tall as 10 storey buildings has finally been proved, the European Space Agency (Esa) said on Wednesday.

Sailors often whisper of monster waves when ships sink mysteriously but, until now, no one quite believed them.

As part of a project called MaxWave - which was set up to test the rumours - two Esa satellites surveyed the oceans.

During a three week period they detected 10 giant waves, all of which were over 25m (81ft) high.

Strange disappearances

Over the last two decades more than 200 super-carriers - cargo ships over 200m long - have been lost at sea. Eyewitness reports suggest many were sunk by high and violent walls of water that rose up out of calm seas.

But for years these tales of towering beasts were written off as fantasy; and many marine scientists clung to statistical models stating monstrous deviations from the normal sea state occur once every 1,000 years.

The waves exist in higher numbers than anyone expected

Wolfgang Rosenthal, GKSS Research Centre, Germany

"Two large ships sink every week on average," said Wolfgang Rosenthal, of the GKSS Research Centre in Geesthacht, Germany. "But the cause is never studied to the same detail as an air crash. It simply gets put down to 'bad weather'."

To prove the phenomenon or lay the rumours to rest, a consortium of 11 organisations from six EU countries founded MaxWave in December 2000.

As part of the project, Esa tasked two of its Earth-scanning satellites, ERS-1 and ERS-2, to monitor the oceans with their radar.

The radars sent back "imagettes" - pictures of the sea surface in a rectangle measuring 10 by 5km (6 by 2.5 miles), which were taken every 200km (120 miles).

Around 30,000 separate imagettes were produced by the two satellites during a three-week period in 2001 - and the data was mathematically analysed.

Esa says the survey revealed 10 massive waves - some nearly 30m (100 ft) high.

"The waves exist in higher numbers than anyone expected," said Dr Rosenthal.

Wave map

Ironically, while the MaxWave research was going on, two tourist liners endured terrifying ordeals. The Breman and the Caledonian Star cruisers had their bridge windows smashed by 30m waves in the South Atlantic.

The Bremen was left drifting for two hours after the encounter, with no navigation or propulsion.

Now that their existence is no longer in dispute, it is time to gain a better understanding of these rogues.

In the next phase of the research, a project called WaveAtlas will use two years' worth of imagettes to create a worldwide atlas of freak wave events.

The goal is to find out how these strange cataclysmic phenomena may be generated, and which regions of the seas are most at risk.

Dr Rosenthal concluded: "We know some of the reasons for the rogue waves, but we do not know them all."

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