

Signs of three major Japan quakes before 2011

April 25 2012



A bus was removed from the roof of a building in Ishinomaki on the day after the March 11 earthquake-tsunami disaster. A team of scientists announced Wednesday that three major earthquakes seem to have hit northern Japan before the disaster.

Three major earthquakes seem to have occurred in northern Japan before it was hit in March 2011 by a massive quake and tsunami, researchers said Wednesday based on new evidence.

The findings by Swiss, German and [Japanese scientists](#), which could have a significant impact on future [risk assessments](#), were presented at the annual conference of the European Geosciences Union in Vienna.

"We were able to get a record of at least three major sedimentary remobilisation events that potentially suggest the occurrence of previous

large potentially 2011 Tohoku-type earthquakes," Michael Strasser, a geologist from the Swiss Federal Institute of Technology (ETH) Zurich, told journalists.

"In theory, it might not be an earthquake because you can trigger large scale resedimentation also by other processes, but at this stage, it's the most likely explanation."

The researchers launched an underwater mission in the [subduction zone](#) off the northeastern coast of Japan in March, using a special vehicle equipped with cameras and going to depths of up to 7,700 metres (25,260 feet).

They were now further analysing the samples to date these mooted earthquakes.

"Once we get the age of these events, that will be an important contribution to hazard assessments because if you want to calculate the probability of the occurrence of earthquakes, you should know your occurrence pattern," said Strasser.

Historic sources already mention a major tremor in the same region some 1,300 years ago.

The research mission also mapped out the seabed around the [epicentre](#) of the 9.0-magnitude quake that hit Japan on March 11, 2011, triggering a massive tsunami and a meltdown at the Fukushima nuclear plant, killing some 19,000 people.

Comparisons with measures taken before the quake confirmed with more precision data obtained by other means in March 2011, which showed that parts of the seabed moved up to 50 metres sideways near the [fault zone](#) following the tremor, while an area of 15,000 square

kilometres (5,790 square miles) rose by five metres.

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