

Earthquake 'double whammy' caused 2009 Tonga tsunami

A strange double earthquake was responsible for the tsunami that devastated parts of the South Pacific in 2009, scientists claim.

Howard Falcon-Lang, BBC, 8-18-10

In a rare set of events, an initial 8.1 magnitude earthquake was immediately followed by a second 8.0 shock.

The resulting tsunami devastated the South Pacific islands of Tonga and Samoa.

An estimated 192 people died as four waves each more than five metres high surged inland.

And international team led by Professor Thorne Lay of the University of California, US, studied the causes of the tsunami. The results are published in the journal Nature.

Record shock

The earthquake was unusual, not only because of the double shock, but also because of the location of the first event.

Almost all great earthquakes - shocks of magnitude 8.0 or bigger - occur at locations where fragments of the Earth's rigid crust, known as tectonic plates, grind against one another.

However, the initial Tonga earthquake occurred up to 100 km (62 miles) from the closest tectonic plate boundary. As such it is the largest ever earthquake of this type reported in more than 100 years of monitoring.

Professor Lay commented that the Tonga earthquake was "unlike anything seismologists have seen before".

This "out of place" earthquake was triggered as part of the Earth's crust was dragged under another piece of crust. As it bent, it snapped near its middle sending out shockwaves.

Earthquakes and tsunamis are a common feature of the Pacific. The region - known as the Ring of Fire because of its many volcanoes - is one of the most geologically active parts in the world

In 2004, a massive 9.1 magnitude earthquake triggered the infamous Boxing Day Tsunami. This catastrophic event killed nearly a quarter of million in 14 countries throughout the Pacific and Indian oceans.