



World's longest earthquake lasted 32 years - and may have killed thousands of people

AN EARTHQUAKE lasting more than 30 years may have been responsible for killing thousands of people on the Indonesian island of Sumatra in 1861, new research has shown.

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Researchers from Nanyang Technological University in Singapore have identified the world's longest known **earthquake**. The so-called "slow-slip event" likely began off the coast of Sumatra in 1829, before culminating in a major disaster 32 years later. A paper published in the journal Nature Geoscience has drawn a link between the decades-long event and a powerful magnitude 8.5 quake that struck in 1861.

The 1861 earthquake ruptured along the Sunda megathrust - a fault line east of Sumatra - and triggered a devastating tsunami.

The tsunami is believed to have hit more than 300 miles (500km) of coastline, killing several thousands of people.

Tremors were felt as far away as Malaysia and aftershocks continued to rock the region for another seven months.

By identifying a potential source of the cataclysm, scientists want to help detect dangerous quakes in the future.

According to the US Geological Survey ([USGS](#)), slow-slip events are sometimes known as "slow earthquakes".

The tremors begin when a fault line begins slipping - as it does in a regular earthquake - but at a sluggish pace.

The earthquakes can take several days to finish, instead of seconds, but the new study has shown they can go on for much longer.

Slow-slip events are often recorded at Kilauea, the most active of the five volcanoes forming Hawaii's Big Island.

The USGS said: "However, slow earthquakes produce no seismic waves and, therefore, none of the damaging shaking of a regular earthquake.

"Because of this, we actually look forward to them!

"They help relieve a small amount of stress on the fault and give us a view into frictional properties of this hazardous fault beneath Kīlauea."

According to a report in Scientific American, scientists found evidence of the slow-slip event in Indonesia by observing growth patterns of coral near the Indonesian island of Simeulue.

Movements along the fault line leave an imprint of the coral, showing how the ground has shifted up or down over time.

And since coral cannot grow when exposed to air, layers of dead coral can also reveal changes in the local sea level.

The corals observed near Simeulue appear to show a frequent history of movement along the fault between 1738 and 1861.

For about 90 years, the coral shows the ground has been dropping at a very steady rate of about one to two millimetres per year.

Sometime around 1982, a sudden change in seismicity caused the coral to sink up to seven times faster - the slow-slip event.

But all of that changed in 1861 as a major earthquake caused the sinking to change once again.

The slow-slip event may have acted as a catalyst or as a trigger for the magnitude 8.5 temblor.

Rishav Mallick, a doctoral student and the study's lead author, told Scientific American the quakes may have released some tension along one portion of the fault but placed more strain on another.

He said: "It's like a bunch of springs. So if one releases, the others have to take up that load."

According to the USGS, a magnitude 7.1 earthquake in Anchorage, Alaska, may have been triggered by a combination of seismic events, including a slow-slip event.

In a paper published in Geophysical Research Letters, the study's authors wrote: "The earthquake was encouraged by stress accumulation caused by slow slip on the interface between the slab and the North American plate.

"Slow slip events also more than doubled the $M \geq 3$ earthquake rate in the Cook Inlet beginning in the 1990s."