



## **The event of 26th of December 2004 - the biggest earthquake in the world in the last 40 years**

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A great earthquake occurred at 00:58:49 (UTC) on Sunday, December 26, 2004 off the northwest coast of Sumatra, Indonesia. Its revised magnitude is 9.0 making it the fourth largest earthquake in the world since 1900 and the largest since the 1964. The earthquake caused tsunami waves which killed more than 150,000 people in Southern Asia and Africa.

There were 31 earthquakes with magnitudes between 5.5 and 7.3 in the 48-hours period after the main event, and it seemed that seismicity migrated northwards along the 1,000km fault. Similar size events occurred in that location off Sumatra in the 19-th century, but no written records of their tsunami effects in Australia are preserved. The devastating megathrust earthquake of 26 December 2004 occurred on the interface of the Indo-Australian and Euro-Asian plates where the first plate subducts beneath the overriding second plate and the Indo-Australian plate begins its descent into the mantle. In the epicentral region, the Indo-Australian plate moves toward the northeast at a rate of about 7cm/year relative to the Euro-Asian plate. This results in oblique convergence and partitioning into thrust-faulting. From the size of the earthquake, it is likely that the average displacement on the fault plane was about fifteen meters.

As with the recent event, megathrust earthquakes often generate large tsunamis that cause damage over a much wider area than is directly affected by ground shaking near the earthquake's rupture. The subduction zone continues further south of the Indonesian archipelago and that area is also a potential risk of producing a megathrust event that may affect coastal parts of northwest Australia.