Earthquake of Sumatra: did the axis of the Earth tremble?
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The recent earthquake of magnitude 9.3 which took place on December 26, 2004 close to Sumatra is the second stronger in the world since 1900 and is even stronger than the one which occurred in Alaska in 1964 (mag 9.2). Could it have a perceptible effect in the rotation of the Earth? The expert researchers in Paris Observatory, pertaining to IERS (International Earth Rotation Service) show that the effect is not discernible.

Figure 1:

Observations: What can be seen in the observations of IERS?

There exist several data bases concerning the major earthquakes in particular the catalogue of U.S. Geological Survey. From several parameters (magnitude, localization, seismic moment..) characterizing the event one can from a model make an estimate of the effect of an event in the variations of the rotation of the earth. According to various calculations made independently from these parameters by R. Gross (JPL), B Chao (NASA) and by C Bizouard (Paris Observatory), the effect in the movement of the pole should be of a few centimetres in the polhodie and of a few microseconds of time in the duration of the day, which is not very likely to be detected seen the current precision of the observations. The Earth rotation Center of the International Earth Rotation Service (IERS) at the Observatory of Paris has in particular the role of follow-up in quasi-real time of the variations of the earth motion by using the observations resulting from various space techniques like the GPS, interferometry on extragalactic radio sources as well as laser telemetry on satellites and the Moon. The fine analyses of the variations observed in the "polhodie" (see figure 1) did not show a discernible effect.
References