



Rupture tracking with different seismological methods

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Spatial length, time duration, and direction of an earthquake rupture are important parameters for an early warning of a potential tsunami. With different seismological methods namely polarization analysis of incoming compressional waves (P-waves), directivity effect, and wavelet transform these parameters are tried to estimate from recordings of broadband three-component-seismometers.

One important requirement for a successful tsunami warning is a very fast (real time) investigation of seismograms. For some of the methods a dense station network and especially a wide backazimuthal distribution is necessary. The latter is a premise for the investigation of the directivity effect of an earthquake (in the literature this effect is often compared with a kind of doppler-effect). We show for some earthquakes e.g. Sichuan of May 2008, great Andaman of December 2004, and Pakistan of October 2005, that with a simple integration of regional and teleseismic recordings and subsequently plotting them sorted by the azimuth, stations can easily splitted into stations, from which the rupture went away and stations, which lie in the direction of the rupture. With this investigation, the question of the direction of the rupture can quickly be answered.