

# Source time estimation of Off-Sumatra Earthquake using phase spectra of long-period surface waves

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We have estimated the source time of off-Sumatra Earthquake which occurred on Dec. 26, 2004. The source time called in this study is defined as the sum of delay time, rise time, and rupture propagation time (Furumoto and Nakanishi(1983)).

Assuming the unilateral rupture propagating on the fault at average rupture velocity (Ben-Menahem(1961)), we analysed the long-period surface waves recorded by STS-1 broadband seismometers at IRIS and F-net(NIED) observations, and the source time was obtained from Fourier phase spectra of three consecutive seismic phases of those long-period surface waves, following Furumoto and Nakanishi(1983).

In the same way, we also performed the analysis for the strain record observed by the 100m quartz pipe extensometer at Matsushiro Seismological Observatory, JMA, and the result was compared as that for the broadband seismometer.

To estimate the accuracy of the results, we have examined how the obtained source time changes if we adopt the different value as the origin time.

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