

Empirical formulas for quick estimation of the moment magnitude of teleseismic earthquakes with STS2 seismometer

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The moment magnitude of a teleseismic earthquake is currently estimated by using the maximum amplitude in 40 seconds after P wave arrival recorded by the long period seismometer at the Matsushiro Seismological Observatory. However, since the magnitude estimated by this method has a little large fluctuation, the new method has been needed for estimation quickly the more accurate magnitude than the current method.

We got the new empirical formulas for estimation of magnitude by using the waveform data of the STS2 seismometer. We didn't use the maximum amplitude but used the root mean square amplitude of P wave for the estimation of magnitude. Moreover, the data of epicentral distance were introduced in the new formulas in order to raise accuracy of magnitude. These new formulas can be applied in order to estimate magnitude of earthquakes of magnitude 6.0 or larger and more than 20 degrees in epicentral distance from Matsushiro