

# Application of $M_{wp}$ to the Great December 26, 2004 Sumatra Earthquake

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The broadband moment magnitude  $M_{wp}$  is obtained from the first(P wave) or the differences of the first and the second (pP or sP) peak values of P-wave portion in the integrated displacement seismogram. It is proposed for issuing the early tsunami warning[Tsuboi et al., 1995,1999]. The source duration time(the pulse width of P-wave in the integrated displacement seismogram) is showed also useful for identifying the tsunami-genic earthquake[Tsuboi, 2000].

We exceptionally applied the  $M_{wp}$  measurement to the earch peaks in the integrated displacement seismogram of the 2004 Sumatra earthquake.  $M_{wp}=8.3$  and  $M_{wp}=8.6$  are obtained from the first and the second peak respectively, and  $M_{wp}=8.9$  is also obtained from the third peak as coincident with the earch ruptures of the earthquake. The source time duration times not show a large value at the beginning of rupture. It show the large value in the rupture of northern area.