



Rupture process of the 31 August 2012 Philippine (Mw 7.6) earthquake

Mohammad Raeesi and Kuvvet Atakan

Univ. of Bergen, Department of Earth Science, Bergen, Norway (raeesi@geo.uib.no)

There is no report of interplate earthquakes larger than 8.3 along the Philippine subduction zone. However, there are some major and great earthquakes in the outer-rise part of this subduction zone, with the largest one (M 8.1) on 25 May 1943. The reverse intraplate earthquake of 31 August 2012 (Mw 7.6) is one of these outer-rise events. We find the slip distribution of this earthquake using teleseismic body-waveform inversion and we compare the results with a gravity-derived anomaly, “Trench Parallel Bouguer Anomaly (TPBA)”. TPBA can be used to derive asperities along the forearc areas independent of earthquakes. It also enables us to depict seamounts, fracture zones and similar structures in the outer-rise areas. We analyze the longterm seismicity, aftershock distribution and their correlation with the TPBA distribution. We also discuss the general status of coupling and the location of largest events along the Philippine fore-arc based on TPBA.