



The $M_w > 8$ earthquake pair in the Kuril (North West Pacific) subduction zone : source processes and interaction

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On November 15, 2006, and January 13, 2007, two major earthquakes ($M_w \sim 8.1-8.2$) occurred in the Kuril subduction zone. The first one is a classical interplate event while the second one, which is located 100km Southeast of the first one, is a shallow extensive event ("outer rise" probably related to bending of the subducting plate). This latter mechanism is known to exist in subduction zones but examples of such large earthquakes are very rare. Moreover the very small time and location differences strongly suggest a relationship between these two events. This study uses teleseismic body waves recorded by the global networks to detail the rupture process of the earthquakes. The first earthquake propagated toward Northeast, with a rupture extension of about 160-180km. Two moderate slip patches are imaged at the beginning and end of the rupture process, and a shallower and larger slip (~ 10 m) has occurred 20s-60s after earthquake initiation. Global duration is around 110s. Rupture velocity is slow, with maximum value of the order of 2km/s. The second one also exhibits a Northeast directivity, on a shorter length (100km). Rupture size, rupture velocity and slip distribution will be precised. Interaction between these earthquakes in terms of stress transfer will also be considered.