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Realized earthquake and tsunami prognosis for Kurile-Kamchatka seismic gap

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In [1] it was demonstrated that keyboard model of subduction zone is mostly adequate for strong tsunamigenic events. In Indian tsunami the 'domino' principle have realized since at oblique subduction of Indian lithosphere plate under Sunda island arc, the keyboard block 'shooting' first, involves into motion the chain of near 10 blocks ('chord') located northward which forms the frontal zone of Nicobar and Andaman islands and so causes formation of super-extensive source of earthquake. The concept of seismic gap [1] permits us to formulate a hypothesis of possibile catastrophic tsunami in nearest time in Pacific. First of such seismic gap was located in central part of Kurile-Kamchatka island arc. On the basis of ocean trip of 'Kurile'2005' [2,3] it was modeled a hypothetical source of earthquake located in deep-sea trench between Bussole and Kruzenshtern straits. There were performed a numerical simulation of tsunami wave generation for several scenarios of both keybord blocks motion in this source and earthquake magnitudes, and propagation of generated waves in Pacific and Sea of Okhotsk basins [2,3]. The accuracy of prediction appears to be surprisingly high since the epicenter of strong earthquake occurred in 15 November 2006 near Simushir island was at the boundary of 3 and 4 blocks for our hypothetical source [2,3], and earthquake on 13 January 2007 takes the source edge near trench between 4 and 5 blocks. In this work there are discussed results of simulation for both events.

[1] Lobkovsky L.I. et al. (2004) Modern Problems of Geotectonics and Geodynamics, Nauchny Mir, Moscow, 610 pp. [2] Lobkovsky, L. I., R. Kh. Mazova, et al. (2006), Generation and propagation of tsunami in the Sea of Okhotsk, Doklady, 410, 528. [3] Lobkovsky, L. I., R. Kh. Mazova et al. (2006), Implications of the seismic source dynamics in a model problem of the seismic gap in the Central Kurile region, Russ. J. Earth. Sci., 8, ES5002, doi:10.2205/2006ES000209.