# THE MODEL OF JAPAN EARTHQUAKE 2011 ($M$=9.0)

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**Abstract.** Intraplate earthquakes are described by model of thrust fault in continues or in cracked media. Such model can be used also for description of interplate earthquakes, in particular for strong earthquakes in subduction zones. However new seismic, tectonic and GPS data for strong Japanese earthquake need more detailed model. Such possible model can be model of elastic island plate, coupled with dipping oceanic plate with submarine mountings. These mountings, sitting on dipping oceanic plate, hinder its motion due to coupling with asperities on the bottom of island plate. When coupling ends, the bottom of plate can be cut similar to plough, and earthquake can be take place. Decoupling of distinct mountain leads to more weak interpolate earthquake, forshock and aftershock. Main great earthquake is a result of effect of basaltic plateau or greatest mountain, which leads to avalanching decoupling of all mountains on great area of coupled plates. In the first approximation we can consider, that, despite its deformation, oceanic plate moves permanent with nearly constant velocity all time both in time of earthquakes and between them. Island plate behaves similar to elastic plate, which permanently bends due to momentum of forces acting on its junction with dipping oceanic plate. After earthquake bending plate becomes straight. This leads to its thrust on oceanic plate with displacement toward ocean and uplift of its oceanic part and sinking of its island part with following tsunami.

*Keywords:* Islands arcs, subduction, elastic rebound, plate asperities.