

Mechanism of the Totomi-Oki Earthquake of the November 7, 1855

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On October 15, 2006 a large earthquake M7.9 of a plate boundary dip slip typed one occurred in the south sea region of the central part of Kuril Island, and accompanied with it a small tsunami was observed at tide gauges on the pacific coasts of the Japanese Island. About two month after it, On January 13th , 2007 another large earthquake M8.2 occurred in the same sea region at the point slightly outside of the trench axis, and its mechanism was estimated a normal typed one and occurred at the point of the sinking plate broken due to the weight of the plate itself, which had been supported by the upper stress given by the overlaid plate before the occurrence of the first event.

The Totomi-Oki Earthquake of November 7, 1855 occurred in the sea region off Tokai district about one year after the Ansei Tokai Earthquake M8.4 of December 23, 1854. A small tsunami of the height of 1 to 2 meters was recorded at several points on the pacific coast, and strong shaking of seismic intensities 6-7 were recorded on the plains of Shizuoka prefecture. The crust at Sagara port, near the Cape of Omaezaki, uplifted by about one meter at the Ansei tokai earthquake, but it was subsided by about 60 centimeters accompanied with the Toptomi-Oki earthquake. The crust of Irie village on the east coast of lagoon Hamana had been subsided and the residential area and the rice fields became lagoon bed after the Ansei Tokai earthquake. But after the Totomi-Oki earthquake the crust was uplifted and the residential and rice field areas recovered as before. It is suggested that that the mechanism of the Totomi-Oki earthquake is a normal typed one, which was generated in the Philippine Sea plate. It is suggested that the relationship between the Ansei Tokai Earthquake and the Totomi-Oki earthquake is the same as the two events which occurred in the sea area of Kuril Islands in the recent days. The same typed events also recorded in the few years after the Ansei Nankai Earthquake of December 24, 1854 in an old document written by a person lived in Kochi castle town.