

# Revisit of the source area of the 1854 Ansei Tokai Earthquake -Examination of the Northern Part along the Suruga Bay Area

\*Ritsuko S. Matsu'ura<sup>1</sup>, Misao Nakamura<sup>2</sup>

1. Earthquake Research Center, Association for the Development of Earthquake Prediction, 2. Information Service for Disaster Prevention

Many papers had been published stating that the Iriyamase Fault and some other faults of the Fault Zone in the Estuary area of the Fuji River (hereafter, FZEFR) were dislocated at the time of the Ansei Tokai earthquake in 1854, since Ishibashi (1976) warned the Suruga bay earthquake was in imminent occurrence. The urgency of the single occurrence of the expected Tokai earthquake has been lost most support, after no occurrence of it nearly a half century. However, the north end of the 1854 source area remains as the very important problem to evaluate the FZEFR even now. We revisited the historical documents of the early modern on the northern Suruga Bay area to examine the intensity distribution, and the crustal movement around the norther part of the Suruga Bay due to the 1854 Ansei Tokai earthquake.

Fig. 1 shows the intensity distribution due to the 1854 Tokai event around the Suruga Bay. We carefully avoided fire and tsunami damage mixing into the seismic intensity estimation. Regardless of the difference between the upper and lower sides of the PHS and land plate boundaries, the large intensities appear in places with soft subsurface structure sites. The northern end of the credible uplift was that reported at Yui. So-called “Kambara Coseismic Mound” is a mere abandoned holm due to the eastern transition of the flow channel of the Fuji River after the Ansei Tokai event [Tanaka et al. (2018); Matsu'ura et al. (2018)]. At the Shimizu Port, the coseismic uplift returned as before within four years. All these features tell that the north part of the Suruga Bay was not the source are in 1854. The Ansei Tokai is not the newest activity of FZEFR. Since no activity of FZFER has been known for the recent 400 years, the “Case a” of the current FZFER evaluation by HERP should be reconsidered.

Fig. 1. Intensities and coseismic crustal deformation of 1854 Ansei Tokai Earthquake around the Suruga Bay.

This study was done by the three-year project “Focused Observation Research on the Fault Zone in the Estuary area of the Fuji River” commissioned by the MEXT, Japan, for the evaluation of the long term probability of activities in major Japanese faults by HERP.

Reference:

Ishibashi, K. (1976). *Proceedings of the Fall Meeting of Japan Seismological Soc.*, 30-34.  
Matsu'ura, R. S., K. Tanaka, T. Nakata, M. Tajikara, and T. Matsuda (2018). *Historical Earthq.*, **33**, 1-13.  
Tanaka, K., R. S. Matsu'ura, T. Nakata, M. Tajikara, and T. Matsuda (2018). *J. Geography*, **127**, 305-323.

Keywords: 1854 Ansei Tokai Earthquake, Northern Part of Suruga Bay, Fault Zone in the Estuary area of the Fuji River, Iriyamase Fault, Historical Earthquake in Early Modern

