

Estimation of causative faults producing crustal warping in the Nishi-tsugaru Coast, North-east Japan

OGATA, Yuumi¹, MIYAUCHI, Takahiro^{1*}

¹Graduate School of Science, Chiba University

The Nishi-tsugaru Coast, Northeast Japan, has experienced co-seismic shoreline uplifts associated with two historic earthquakes (either M6.9) which occurred in 1704 AD and 1793 AD (Imamura, 1920; Usami, 2003). Although each offshore causative fault model was proposed to explain the height distribution of co-seismically emerged abrasion platforms by Nakata et al. (1976) and the small tsunami generation (Sato, 1980), neither models did not coincide with active tectonic structures and topography. We renewed Quaternary paleoshoreline data and reconsidered their uplift processes. The obtained results are as follows.

(1) Warping of Holocene and Pleistocene shorelines is not necessarily concordant with that of historical coseismic uplifted abrasion platforms, and is accompanied with at least 6 upwarped units having short wavelength, bounded by height discontinuities. This suggests the accumulative process by activities of plural fault segments.

(2) Geologic faults exist at boundaries of warped units. This indicates that those fault activities is related to warping and height discontinuities. Especially, the deformation is possibly produced by the growth of fault-related fold.

(3) At least 7 reverse fault segments are required in and around coastal areas, to create warped units. Calculating the dislocation by each fault, paleoshoreline warping is nearly reproduced.

(4) Several A- and B- class active source faults are newly recognized in land and below the offshore sea bottom. Re-assessments and to those faults and the caution to next hazardous earthquakes are necessary.

Keywords: paleoshoreline, warping, hisitorical earthquake, causative fault, fault-related fold, Nishi-tsugaru coast