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Comparison of the long-term crustal movement deduced from the Quaternary landforms with co-seismic crustal movement of t

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We considered the relationship between the long-term crustal movement deduced from the Quaternary landforms and co-seismic crustal movement of the 2011 off the Pacific coast of Tohoku Earthquake, together with the geodetic data. Altitude of paleo-shoreline of the marine formed during the MIS (marine isotope stage) 5.5 represents the long-term uplift of 0.2-0.8 mm/y along the Joban Coast (Hamadori in Fukusima to Northeast of Ibaraki Prefecture). On the other hand, the geodetic survey conducted by the Geospatial Information Authority of Japan (GSI) shows two periods characterized by the subsidence (1984/85-1994, 1994-2002) and one by the uplift (1978/79-85). Co-seismic crustal movement of the 2011 off the Pacific coast of Tohoku Earthquake along the Joban Coast is characterized by the subsidence 30-50 cm. Development and changes in heights of MIS 5.5 marine terrace cannot be explained by the interseismic crustal deformation observed in last ca. 25 years and the co-seismic crustal movement of the 2011 off the Pacific coast of Tohoku Earthquake. This suggests presence of the interseismic crustal deformation with uplifting along the Joban Coast and/or presence of the co-seismic crustal movement by different type of the 2011 off the Pacific coast of Tohoku Earthquake causing uplifting.

Keywords: Marine terrace, MIS5.5, Abukuma Highlands, 2011 off the Pacific coast of Tohoku Earthquake, Geodetic data