

Rates of regional uplift and crustal shortening inferred from Late Quaternary fluvial terraces across the central NE Japan arc

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Crustal shortening and strain rates of the central part of the NE Japan arc are estimated using late Quaternary fluvial terraces. Fluvial terraces are correlated to marine isotope stages (MISs) by tephrochronology and C-14 dating. Regional uplift rates are estimated as ca. 0.17 m/kyr (outer arc) and ca. 0.28 m/kyr (inner arc) using the relative heights of accumulation terrace surfaces. Assuming that the regional isostatic uplift is caused by crustal shortening, the shortening rates are ca. 0.26 cm/yr (outer arc) and ca. 0.40 cm/yr (inner arc). The strain rates are ca. 0.03 ppm/yr (outer arc) and ca. 0.05 ppm/yr (inner arc). These long-term rates are smaller than the short-term (several-year) strain rate obtained using global positioning system data.