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Vertical Slip Rate on the Uozu Fault Zone Inferred from Buried Terrace Surfaces in Central Japan

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We intend to estimate the vertical slip rate on the Uozu fault zone for earthquake disaster prevention in Central Japan. The slip rate on the fault zone has been calculated only by the offset on fluvial terrace surfaces. Therefore, the offset of the frontal fault on buried terrace surface has not yet been clarified. We obtained the displacement of the frontal fault on a buried terrace surface by seismic reflection survey and arrayed boring. Fluvial terrace surfaces are divided into Higher (H1-H4), Middle (M1) and Lower (LH1, LL1, lowers) surfaces. Ages of the surfaces are estimated from optical and chemical analyses of tephra particles in loess deposits. Loess deposits on fluvial terrace surfaces include cryptotephras such as K-Tz (Kikai-Tozurahara: 90-95 ka), Aso-4 (85-90 ka), DKP (Daisen-Kurayoshi: 55-60 ka) and AT (Aira-Tn: 25-30 ka). LH1 terrace surface formed about 60 ka because the surface is covered by the 55-60 ka DKP tephra. Buried LH1 terrace surface is recognized by arrayed boring around the frontal fault. Buried LH1 terrace surface in four boring cores is covered by buried loess deposits (including DKP and AT) and recent alluvium in ascending order. H2, H3 and M1 terrace surfaces are older than the 90-95 ka K-Tz tephra because the surfaces are covered by loess deposits (including K-Tz, DKP and AT). H2, H3 and M1 terrace surfaces are estimated to be 280-310 ka, 240-260 ka and 155-165 ka respectively as long as the accumulation rate of loess deposits above each surface is constant. The frontal fault is detected in the seismic reflection profile as an east-dipping reverse fault. Vertical slip rate on the frontal fault is calculated as circa 0.1 m/ky from the offset of LH1 buried terrace surface. Vertical slip rates on other faults are calculated by using terrace surfaces as 0.2-0.4 m/ky. Vertical slip rates on the frontal and other faults are summed to 0.3-0.5 m/ky and the rates are half or one-third less than the rates previously reported.