

Crustal activities before the 1995 Kobe earthquake and the anelastic deformation in the upper crust

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A detachment model for the generating process of the 1995 Kobe Earthquake was qualitatively proposed based on the crustal strain data for about one hundred years before the earthquake. The observed tensional strain in the north-south direction is thought to result from the aseismic slip on the detachment fault in the lower crust that exists in the north of the earthquake fault. The detachment fault is detected as a S-wave reflector. However, this model is not quantitatively reasonable, since it is necessary to assume the amount of the aseismic slip greater than a few cm/yr. The observed data can be explained by the assumption of anelastic deformation in the upper crust around the region of the large tensional strain in the north-south direction. This is because the anelastic deformation can magnify the deformation at the surface due to the slip on the detachment fault.