

The crustal deformation caused by viscoelastic relaxation of stress after the 1993 Hokkaido Nansei-oki earthquake.

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We investigated a remarkable crustal deformation near the source region of the 1993 Hokkaido Nansei-oki earthquake (M7.8) based on the analysis of tide gauge records, leveling, and GPS data. By assuming that the deformation was a viscoelastic response of the Earth to the fault dislocation, we estimated a viscoelastic structure. The result shows that the best-fit structure to the data is consist of a surface elastic layer with the thickness of 26 km, a subsurface viscoelastic layer with the thickness 75-95 km and the viscosity of $0.3e+19$ - $0.4e+19$ Pas, and an elastic substratum. The structure is nearly consistent with the structure estimated by seismological investigations. Therefore, we conclude that the deformation is the postseismic deformation following the earthquake.