

The decrease in the well water preceding the Nankai earthquake

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<http://www.epsu.jp/jmoo2003/>

Nankai great, Japan, earthquake occurs on the boundary between Eurasia and Philippine Sea plate. After 684A.D, the earthquakes occurred twelve times on the same Nankai trough where was a boundary of the two plates. The Nankai earthquake in the last time was occurred at December 1946. The research committee in the government announced that the probability of the earthquake occurrence would be 40 percent within 30 in future in 2001. A few days before the Showa Nankai earthquake (1946, M8.0), the water level of well where distributed within the area of Pacific coast from Kii peninsula to Shikoku decreased. This report was described in the Hydrographic Bulletin No.201 (special number) published by the Hydrographic Bureau (now, Hydrographic and Oceanographic Department Japan Coast Guard). According this report, we are searching the wells. We found some wells, which were located in the small delta. It is said that the water level was decreased in several decade centimeters or 1 m just before the earthquake. Why does the well water remarkably decreased before the Nankai earthquake? If a pre-slip had occurred before the earthquake in the deep portion of the asperity, an upheaval and extension field would be expected in the area of Pacific coast from Kii peninsula to Shikoku. This field may explain the decreased water in qualitatively. The value of the upheaval and extension was estimated with a few centimeters and 0.1 micro-strain, respectively. Shall it be able to explain this phenomenon by this vale? On the landward in the coastline, the fresh water floats over seawater by the difference in the density. In this case, it is found that a slight upheaval induces a large decrease of the water level. The gradient of riverbed and seabed is same in the delta. In this case, the decrease of the well water level is amplified 41 times of the upheaval.