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Precursory changes of earthquakes

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Precursory changes of earthquakes of M>6.o in the ionosphere, atmosphere and groundwater are studied from time variations of ionosphweric foF2,foEs, seismic clouds, radio noises,and Radon concentration changes around the epicenter before M7.2 Hyogoken-nanbu earthquake of Jan. 17,1995,M7.0 Izu oshima-Kinkai one of Jan. 14, 1978 and M6.8 Chengkung one,Taiwan of Dec.13, 2006. Radon concentration is in inverse proportion to the water and air temperature. The groundwater Radon concentration in Nishinomiya well increased from 78 days before this earthquake, suddenly became the minimum, and rapidly to the maximum 9 days before Jan. 17, 1995. Then, it returned to the normal level. The rapid Radon decrease to the minimum suggests an arrival of some warm matter such as the magma from the deep origin.

Keywords: Earthqouakes, Precursory phenomena, Radon concentration changes, Ionosphere, Atmosphere, Groundwater