

Observation of EQ-related atmospheric electric field

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Atmospheric-ionospheric anomalies before earthquakes have been studied since the 1970s. Although a number of case studies have been reported, the reality of the phenomena has been controversial partly because the mechanism is still unclear. If the pre-seismic atmospheric - ionospheric anomalies are real, some causal anomalies on the ground surface may be detected. In other words, pre-seismic lithosphere - atmosphere - ionosphere coupling (LAI coupling) must exist. Some mechanisms have been proposed by many researchers, and two energy-transport channels from lithosphere to atmosphere/ionosphere may be categorized as follows (See Kamogawa, EOS, 2006): First, the atmospheric electric field generated on/near the ground surface during pre-seismic period may cause the ionospheric anomalies. Second, gravity waves propagate into the ionosphere, and disturbed it before earthquakes.

Since some model calculations demonstrated that pre-seismic atmospheric electric field can affect ionosphere, we try to observe such electric fields on the ground. For the first step, we investigate the general atmospheric electric field variation.