

**Atmospheric Electricity Modulated  
by the 2011 Fukushima Daiichi Nuclear Power Plant Accident**  
Fair-Weather Electrical Properties of the Atmosphere

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The 2011 off the Pacific coast of Tohoku Earthquake generated a series of large tsunamis resulting in serious damage to the Fukushima Daiichi nuclear power plant (FDNPP) and radioactive materials were discharged to the environment. After the damages, transported radioactive materials were deposited around east Japan. The radioactive deposition modulated atmospheric electricity such as the decrease of atmospheric electric field (AEF) for more than several months. From the ground-based observations of AEF, detectable modulated area on the ground was restricted within a few hundred kilometers from FDNPP. In addition, we estimate the modulated volume over the ground by applying the observed data to a global electric circuit model, so that the modulated height was up to 1 km. The estimated volume agrees with aerial radiation monitoring. Therefore, the long-period modulation of atmospheric electricity is not a global event such as the nuclear weapon tests in 1960s and the 1986 Chernobyl disaster but a local event.