

## The building of multipoint measurement network for observing electrostatic field changes caused by lightning discharge

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It's not easy to understand the developing process of thunderstorm only with existing meteorological measurements because of its small spatial scale (less than an order of 1 km) and rapid change of the complicated structure. Electrostatic field under the thundercloud or its predecessor reflects the distribution of electrical charges, which is the result of frictions between ice crystal and hail due to strong vertical wind inside the thundercloud. If we measure the vertical electric field at multipoints on the ground, we could estimate the 3 dimensional distribution or the changes of the distribution of electrical charges, from which we may know the detailed development of thunderstorm. The traditional equipment for atmospheric electrostatic field measurement is field-mill sensor, which costs an order of 1 M JPY. In order to increase the number of observing stations, we should reduce the price of the instrument. Here we introduce a thunderstorm observation campaign, carried out in mountain area of Yamanashi prefecture, August 2013. We developed new plate-type electric field sensor, which costs about 0.2 M JPY or less including recording device and battery for one site. This sensor was placed at seven locations in every 4 km with recording system and GPS clock. As a result, we succeeded to record the electrostatic field changes at the same time in multi points, which occurred due to lightning strikes for three days.

Keywords: lightning discharge, electrostatic field, multipoint measurement