

**Measurements of Atmospheric Electric Field, Aerosols, and Clouds
on the Research-Vessel Hakuho Maru for Global Electric Circuit Study**
Global Electrical Circuit

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There is an ionospheric potential between conductive solid-earth and ionosphere which reaches approximately 250 kV. The ionospheric potential is generated by the spherical shell capacitance of which is formed by positively charged ionosphere and negatively charged solid-earth. The capacitance is charged and discharged by the global thunderstorm activity and air-earth current in the fair weather, respectively. This large-scale electric circuit is termed a global electric circuit. Recently, it is pointed out that the variation of ionospheric potential is associated with global climate change, so that some of scientists started revisiting this traditional topic. In order to promote their resurvey, we show that a ground-based measurement of atmospheric electric field highly affected by atmospheric clouds, aerosols, and so on is still a useful tool to directly measure the variation of ionospheric potential through the simultaneous observations of ground-based atmospheric electric field, aerosols, and clouds on the R/V Hakuho Maru over the Pacific Ocean.