

Analysis of geomagnetically induced current (GIC) in Hokkaido, Japan II

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Intense geomagnetic storms sometimes induce strong current in power grids. This is called GIC (Geomagnetically Induced Current). Studies on the GIC mainly have been made in geomagnetically high latitude region like the U.S., Canada, and northern Europe. There are few studies on the GIC in geomagnetically middle and low latitude region like Japan. Measurement of the GIC started in December 2005 as a collaborative study among the Hokkaido Power Cooperation, the Solar Terrestrial Environment Laboratory (STEL) in Nagoya University, and the National Institute of Information and Communications Technology (NICT).

The largest geomagnetic storm since the start of our GIC measurement occurred at 14:14 UT on 14 December, 2006 and the largest GIC, approximately 3 amperes, was measured during this geomagnetic storm. The source of this geomagnetic storm was the full halo CME associated with the X3.4/4B flare at 2:14 UT on 13 December. The interplanetary disturbance took only 36 hours from the Sun to the Earth. The enhancement of the neutron monitor was also measured. It was reported that the analysis on this event and statistical study of the GIC measurement such as local time distribution of the GIC occurrence using the approximately one-year GIC measurement.