

Analysis of geomagnetically induced current measured in Japan

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It is known that there is a possibility of failure of power grids caused by geomagnetically induced currents associated with intense geomagnetic storms. It is believed that effect of GIC is small in Japan because Japan locates low geomagnetic latitude comparing with its geographical latitude. Damage of transformer is reported from the Republic of South Africa associated with the October, 2003 storm. The Republic of South Africa locates in similar geomagnetic latitude with that of Japan. We made GIC measurements of a transformer of the Memanbetsu substation between 2005 and 2007. Those data are compared with geoelectric data observed by the Memanbetsu geomagnetic observatory of Japan Meteorological Agency. We estimated GICs associated with past intense geomagnetic storms using the geoelectric field data based on the result of the comparison. The result of our analysis will be reported.

Keywords: Geomagnetically Induced Current, geomagnetic storm, earth current, power grids, space weather