

## A spatio-temporal model in the geomagnetic field around Japan during 1970 - 2000 based on ground observations

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In order to capture characteristic variations in the geomagnetic field around Japan, we are intending to construct spatial-temporal model of the geomagnetic field in the region during the period from 1965 - 2005. The first order geomagnetic survey results by the Geographical Survey Institute (GSI) are used for the modeling along with the observatory data obtained by GSI, the Japan Meteorological Agency, Earthquake Research Institute of the University of Tokyo, and the Disaster Prevention Research Institute of the Kyoto University.

Selection of appropriate basis function is an important issue in the field modeling as well as the collection of high quality data. Many studies for expressing regional geomagnetic field variations adopted the Spherical Cap Harmonic Analysis (SCHA) (Haines, 1985), which is a modification of conventional spherical harmonic analysis. An earlier study conducted by the Geographical Survey Institute of Japan has also exploit the SCHA to represent the spatial characters in the geomagnetic secular variation (Ji et al. 2006). However, there are the inherent difficulties in SCHA when we aim to represent the main field over a quite small region (e.g., De Santis et al., 1997). Therefore, we adopt the ordinary spherical harmonics with careful attention to determine model parameters. In the presentation, we will show the resultant model as well as its accuracies.