Geophysical Research Abstracts,
Vol. 11, EGU2009-7785, 2009
EGU General Assembly 2009

Improving time-dependent parameters of magnetic field models

S. Macmillan, A. Thomson, B. Hamilton, and S. Reay
British Geological Survey, Geomagnetism, Edinburgh, United Kingdom (smac@bgs.ac.uk)

When selecting satellite data for magnetic field modelling it is normal practice to use less disturbed data collected when the local time is between certain hours during the night and perhaps additionally when the data are not sunlit. However this approach results in gaps in the temporal data distribution which are likely to compromise the model parameters that depend on time, particularly the secular variation, secular acceleration, annual and semi-annual variations. If the solar zenith angle is also a selection criterion, parameters which depend on location will also be compromised as an annual signal is introduced into the data distribution at high latitudes. Here we strive for a more continuous coverage in time. Rather than eliminating large amounts of data which are normally considered to be too noisy to include in the model, we downweight these data. This builds on work done previously involving small-scale noise estimators along a satellite track and larger-scale disturbance estimators (the L̈AVAïndex) derived from nearby observatory data. Examples of data selections and resulting global models are presented.