

Geomagnetic Activity Forecast: user specifications and initial analysis and modeling results

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A geomagnetic activity forecast is of interest to our two service users, Baker Hughes Inteq and GEUS, but at different levels. These levels (user requirements) will be discussed.

Baker Hughes Inteq is primarily interested in alerts for periods with long-lasting major magnetic field deviations (as they occur predominantly during magnetic storms). Forecasts must be rather accurate in time, duration and intensity in order to be useful. We thus split our forecast model into two categories, a one-hour prediction for the Brorfelde observatory which is based on ACE spacecraft observations and past Brorfelde observations, and a second category which is supposed to predict the occurrence of large magnetic storms. Work on the first topic (accurate one-hour prediction) is in progress, and initial results will be presented. We will specifically try to assess the performance with respect to staying within user specifications.

GEUS is primarily interested in short-scale magnetic field variations. Short temporal and spatial scales coincide in most cases and are thus treated in a joint evaluation effort. Until now the judgement of excessive magnetic activity was mostly done in a subjective manner. We have therefore begun to analyse past aeromagnetic survey reports from Greenland with the goal to assess the validity of the subjective judgements. First results from the analysis of survey reports will be presented. The results are important for specification of acceptance thresholds and have thus immediate implications on the user requirements.