

## ***Interactive comment on “A comprehensive model for the kyr and Myr time scales of Earth’s axial magnetic dipole field” by Matthias Morzfeld and Bruce A. Buffett***

### **Anonymous Referee #2**

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#### Review

The authors take an interesting Bayesian approach, but there is a number of issues which require an improvement of the manuscript. The developed stochastic model uses of paleomagnetic and archeomagnetic data. How do the authors treat uncertainties in dating, smooth the data and carry out other data massages?

How can one combine many frequency-domain data points with a few time-domain data points?

Please, discuss the geomagnetic power spectra and the respective models in some more detail. How do they incorporate them in the Bayesian approach?

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What do we learn from their approach about geomagnetic field variations or about the dynamo process in the Earth using their model?

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Interactive comment on Nonlin. Processes Geophys. Discuss., <https://doi.org/10.5194/npg-2018-42>, 2018.