REFEREE REPORT

Title " **Reversal in the nonlocal large-scale αΩ-dynamo** "

Authors: L. K. Feschenko and G. M. Vodinchar

The paper present results of modeling the reversals of Earth magnetic field using a simple model of geodynamo.

.

The topic is interesting, and the paper is suitable for publication in NPG, however the paper requires some revision.

: 1) The title of the paper is misleading. "Non-local" implies rather some spatial non-locality (space correlation, non-local interactions, etc.), than time effects. In fact, authors intend to introduce a dynamo model with memory. Different titles can be suggested (Reversals in an αΩ-dynamo model with memory, Reversals in an αΩ-dynamo with retarded quenching, etc.).

2) The introduction is redundant large. People, who can be attracted by the title (or the abstract) are familiar for sure with the induction equation (in the general form and in mean-field approximation). The idea of Parkers dynamo model is also well known in the dynamo community.

3) On the contrary, the main part of the paper could be extended. In my opinion, the model (6) is more attractive, because it is really a model with memory. Authors found that this model cannot give reversals without the change of the sign of $R_\alpha$ and stopped by this. It's a pity that they have not tried to overcome this problem. A simple suggestion is to consider $B^P B^T$ instead of $B^2$. There are many other possibilities of course.

4) The random model (7-9) is interesting, but uses an independent random process, which has nothing to do with the memory of the dynamo process. Why not include in some way the "dynamo memory" in this random process? Also a variety of possibility to realize it exists.

Summarizing, it is a pity that authors have not considered a real dynamo model with memory (implicitly promised in the introduction). In my mind it requires few additional efforts only.

5) The English should be checked

( What is "differential nature of the middle course", "real space dynamo systems" ,
"the authors of Frick et al. (2006) found that" , etc.).