

Refinement on geometry of Matuyama-Brunhes polarity transition from paleomagnetic records

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The Bayesian model of the Matuyama/Brunhes (MB) geomagnetic polarity reversal was extended from the previous model IMMAB4 (Leonhardt and Fabian, 2007), which was based on one volcanic record and three sedimentary records from the Atlantic sector. The essential improvement on the model was achieved by incorporating a new volcanic record from Tahiti (Mochizuki et al., 2011). This record is unique in that it contains important absolute paleointensity data for the Pacific region, which provide new constraints for the global geomagnetic reversal scenario. The full vector development of transitional geomagnetic field in the central part of the Pacific significantly stabilized the solution in this important region, which was completely missing in the previous model IMMAB4. The sedimentary high-quality record of ODP Site 769 by Oda et al. (2000) previously was only used to check the reliability of the model IMMAB4 by comparing the VGP paths of the model and the data. An integrated sedimentary record of ODP Site 769 was developed from Oda et al. (2000) in combination with the relative paleointensity record provided by Schneider et al. (1992) and Kent&Schneider (1995). The record will also be included into the construction of the new model. Additionally, two records from the Antarctic region (Guyodo et al., 2001; Macri et al., 2010) were found, and might prove useful for further refining the model. To fulfill the aim, we have also revised the data structure, and developed a GUI based correlation software to simplify refinement of the model and further development of the scheme. In the presentation, we will show the revised morphological development of the Earth's magnetic field during the Matuyama-Brunhes polarity transition.

Keywords: geomagnetic reversal, Brunhes-Matuyama polarity transition, paleomagnetic records, Inversion, Tahiti, IMMAB4