Geophysical Research Abstracts
Vol. 16, EGU2014-3374-1, 2014
EGU General Assembly 2014

SHA.DIF.14k: a new archaeomagnetic model for the Holocene period

F. Javier Pavon-Carrasco (1), M. Luisa Osete (2,3), J. Miquel Torta (4), Angelo De Santis (1,5)

(1) Istituto Nazionale di Geofisica e Vulcanologia, Via Vigna Murata, 605, 00143-Roma, Italy, (2) Dept. Física de la Tierra I, Facultad de Ciencias Físicas, Universidad Complutense de Madrid, Avd. Complutense s/n, 28040-Madrid, Spain, (3) Instituto de Geociencias (IGEO) CSIC, UCM, Ciudad Universitaria, 28040-Madrid, Spain, (4) Observatori de l'Ebre, (OE), CSIC – Universitat Ramon Llull, Horta Alta 38, 43520-Roquetes, Spain, (5) Università G. D'Annunzio, Via dei Vestini 31, 66013 Chieti, Italy

A new global model of the Earth's magnetic field based on archaeomagnetic and lava flow data covering the Holocene period, from 12000BC to 1900AD, is presented. This model, called SHA.DIF.14k, was developed in space using the spherical harmonic analysis and in time using the penalized cubic b-splines. According to the model predictions, the dipolar moment of the Earth's magnetic field shows a minimum during the Neolithic (between 5500BC to 3000BC), then a maximum around 500 BC, followed by the well-known decreasing trend of the last two millennia. The north magnetic dip pole is characterized by a mean rate of motion of 5.1 km/yr for the last 14ka (6.3 km/yr for the last 8ka) and it can be averaged as axial dipolar in about 2000 yr within an error of 5º, the classical error of palaeomagnetic studies, although the rigorous geocentric axial dipole (GAD) hypothesis is reached when it is averaged over more than 10000 yr.