Geophysical Research Abstracts,
Vol. 11, EGU2009-11543, 2009
EGU General Assembly 2009

Paleosecular variation characteristics from periodogram analyses of Early Cretaceous VGP trajectories in multi-sampled lava flow sequences

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The virtual geomagnetic pole (VGP) paths obtained from Early Cretaceous lava flow sequences of the Serra Geral Formation (southern Brazil) show strong evidences of correlation with sinusoidal functions of periods 1∼167° and 2∼257º, besides the others less apparent periods. These results were achieved by the combination of all available serial information, based on periodogram fitting properties of the contemporaneous VGPs series and making use of 'state of information' functions. This procedure was specifically designed for this analysis and was presented elsewhere. Most of the paleomagnetic data series used in this work sampled various polarity intervals although transitional VGPs were rare. These results strongly points to a main oscillatory-like behavior in a VGP trajectory, and in spite the apparent complexity of data trajectories, they could be described by a relatively low number of sinusoidal components. Phase analyses of the previous determined frequencies may reveal details of the spatial behavior of the poles helping to clarify the dispute of preferential band longitudes.