Geophysical Research Abstracts, Vol. 7, 06684, 2005
SRef-ID: 1607-7962/gra/EGU05-A-06684

Paleomagnetic signature of the Vredefort (South Africa) Meteorite Crater

L. Carporzen (1), S. Gilder (1) and R. Hart (2)

(1) Laboratoire de Paléomagnétisme, Institut de Physique du Globe de Paris

(2) University of the Witwatersrand, Schonland Research Center

lcarpo@ipgp.jussieu.fr

Magnetic surveys of the Martian surface detect significantly lower magnetic field intensities over the gigantic impact craters Hellas and Argyre than surrounding regions. The reduced fields are commonly attributed to pressure demagnetization caused by shock waves generated during meteorite impact. Lower than average magnetic field intensities are also observed above the Vredefort (South Africa) meteorite crater. Yet our study of Vredefort, the best terrestrial analog of a Martian meteorite crater, has identified that the rocks in this crater possess much higher magnetic intensities than equivalent lithologies found on Earth. Moreover, we find that the magnetite grains contributing to the magnetic remanence crystallized during impact, which directly relates the intensification to the impact event. Our presentation will explain this apparent contradiction: the existence of high magnetic remanence with a reduced aeromagnetic field.