Geophysical Research Abstracts
Vol. 13, EGU2011-816, 2011
EGU General Assembly 2011

The effect of uniaxial compression in the behavior of remanent and induced magnetizations for basaltic rocks from Wadi Abou Terifya, Egypt

Ahmed Saleh

National Research institute for Astronomy and Geophysics, Helwan, Egypt (ahmed.saleh@daad-alumni.de / Fax: 2 02-27543615)

Ninety oriented basaltic samples were collected from ten sites from the Wadi Aou Terifya area of Cairo-Suez road. Rock magnetic properties such as Curie temperatures and hysteresis parameters, as well as microscopic observations point to titano-magnetite as the main carrier of the remanent magnetization. The stress sensitivity of the basaltic rocks is relatively high. High stress produces an increase in the remanent and induced magnetizations perpendicular to the applied stress axis and a decrease parallel to it. The change of magnetization during stress action ranges from 5.1 to 9.5 % for a stress of 100 bars. The differential total magnetic intensity field with time (within two years) was observed through 80 magnetic observation points set up on both sites of the basaltic sell at the studied area. The observed temporal variations of magnetization can be interpreted as stress loading parallel to the regional stress field in the order of 53 ± 4 bar, according to the stress sensitivity of the basalt.