Geophysical Research Abstracts
Vol. 14, EGU2012-368, 2012
EGU General Assembly 2012

Archaeological Depth Estimation using magnetic method at different environmental soil types, Egypt

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Egypt has many unexplored archeological sites. The archeologists know where to search, but they like to know where to dig. Three shallow archeological sites of different soil types from Egypt (sand, mud and limestone) are investigated here using detailed geomagnetic measurements. Some traditional techniques and filters and other recent methods are applied on the total magnetic field to correlate the depths found from all methods. Euler deconvolution is constraint by the structural index of the source body, while the power spectrum is constraint by the spectral window of the FFT, scaling exponent and fitting method, and the other methods are constraint by the magnetic susceptibility contrast of the subsurface layers. The depth to the top of buried bodies and the horizontal location are calculated with high accuracy.

Keywords: Magnetic Depth Estimation, Archeological sites, Euler deconvolution and power spectrum.