Geophysical Research Abstracts,
Vol. 10, EGU2008-A-11131, 2008
SRef-ID: 1607-7962/gra/EGU2008-A-11131
EGU General Assembly 2008

Physical modelling with the GMS-2 magnetic susceptibilitymeter of Geoinstruments, Ltd.

S. Méndez-Delgado, E.L. Medina-Ferrusquia and A. García-Peña

Facultad de Ciencias de la Tierra, UANL, Nuevo León, México

smendez@fct.uanl.mx

The magnetic susceptibility is a property of rocks that commonly is obtained directly in the laboratory or in the field on outcrops. In the magnetic method it plays a similar role to the one that density of mass in the gravimetric method. The knowledge of the magnetic susceptibility of rock samples or outcrops has lots of uses in geology, magnetometric, archaeology and mining.

The measurements of magnetic susceptibility can be carried out with portable instruments like the equipment GMS-2 of Geoinstruments, Ltd. The measuring instruments of magnetic susceptibility (susceptibilitymeter) consist generally of systems of coils. According to previous studies, the depth of investigation or zone of influence of the measurement depends on the configuration of coils, as well as on the height at which the measurement is taken. By the way, these instruments ordinarily are calibrated to make the measurements in direct contact, as close as possible, to the rock. Therefore, in the case of measurements in veins of materials, correction factors must be applied. The question that arises is: what is this factor?

In the search of the solution to the previous problem, a series of experiments was made performing physical modelling by using several lots of tiles. So, of each lot of different tiles, those were selected that presented more similar values, trying to form with them homogenous blocks of magnetic susceptibility. Once selected the materials, experiments were made "thinning" the thickness of the samples or trying to simulate models 1-D, 2-D and cuasi 3-D. Futher experiments were made varying the instrument altitude on the homogenous material.

In this work we show the design of the experiments, as well as the results of some measurements and their comparison with other sources.