O10-13	**SOME PRELIMINARY RESULTS FROM THE ANALYSIS OF THE LIVINGSTON ISLAND MAGNETIC ANOMALIES WITH A SET OF POSITIVE AND NEGATIVE ELEMENTARY SOURCES**

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On the basis of a profound theoretical analysis, and a lot of experimente, we came to the conclusion, that the model of positive and negative point sources (Zhelev and Petrova, 1994) is more suitable (in the sense of better approximating possibilities and more real physical meaning) than the ones used so far- real dipoles (Zidarov, 1968), -final dipoles (Zhelev and Petrova, 1993), etc. for interpretation of local and some degree of regional geomagnetic anomalies, as in this case in most of the situations, the charges of the sources of different sign are usually drawn apart. Besides, this model is very flexible, as in the process of optimization, it can be easily transformed into each of them. Since they are its boundary cases.

With a computer program worked out, a number of experiments with theoretical and real observations were made. Promising results were obtaºned. The Livingston island (Antarctic) magnetic anomalies were studied here using this method. After some preliminary polynomial approximations to eliminate some residuals of the regional trend (so that to ease the optimization), the local anomalies together with the rest pf the trend are modeled with a set of point sources and a rest of the trend are modeled with a se of point sources and a linesr trend. The unknown parameters of the suggested model are determined through optimization. The obtained results seems to be quite in agreement with the intrusive bodies supposed to be in the upper part of the crust at different depths in this region. The locations of the real sources of the observations are determined, and an excellent model of the observations is obtained.

It may be said in conclusion, that the obtaºned results are significant both for clearing up the inner structures of the Earth as well as for mineral resources prospecting. Better results can be expected on the basis of more detailed observations and some improvements in the method, based mainly on the introduction of some additional restrictions on the model and better seperation of the trend.

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