

Geophysical results

Introduction

On the basis of the original programme the Coordinating Board expected from the geophysicists only a gravity Bouguer map, a magnetic map and a “geolectric” map. The geophysical teams came to the conclusion, however, within a short time after collecting the data in the first years, to connect the base stations with measurements and to establish common databases as there was lack of data in many areas. One of the largest underground freshwater reservoirs in Europe, the detrital cone of the Danube of 3000 km² lateral extension was, for example, hardly known vertically (only a dozen wells penetrated the detrital cone of Quaternary age). The knowledge was better concerning the location and connections of the structural line separating the European and African plates (the Rába–Hurbanovo–Diósjenő Line), or the nature of the Mur–Mürz Line running along the western edge of the Vienna Basin (strike-slip, subduction zone?). In the framework of the DANREG programme funding became available in all three countries to reduce this insufficiency in knowledge by means of geophysical measurements. As a consequence also unforeseen results have been achieved. From the scientific point of view the most remarkable one is probably the new knowledge about the structure of the crust and the mantle deduced from the integrated interpretation of gravity, magnetic, seismic and magnetotelluric measurements. According to this, beneath the 8 km deep Neogene basin lying between Bratislava and Győr the crust is thinner and the asthenosphere is supposedly ele-

vated (mantle plume). A brief summary of these results is the conclusion that unification of geophysical data along the border and their common interpretation are of great importance.

From the three countries more than 30 geophysicists took part in the project. As a form of acknowledgment they are listed below. Without their exemplary professionalism, willingness to cooperate, and exemplary self-effacement these results could not have been achieved.

The scientists themselves wish to express here their thanks to their respective ministries, various higher authorities, institutions and numerous colleagues for their whole-hearted collaboration and for their devoted work.

In the framework of the DANREG programme 16 geophysical maps have been constructed. Among them nine can be presented in this volume:

— the classical gravity Bouguer anomaly map is presented in a scale of 1:200 000;

— and further 8 maps in a scale of 1:500 000 on two sheets.

At first the methodology of the map construction will be described (technical and methodological problems), then reference will be made on the procedures promoting the interpretation (*e.g.* filtering, transformation). Finally, an integrated interpretation will be given, concerning the structure of crust and mantle, the Neogene sequence and the results achieved in Quaternary research, using all geophysical data and maps.