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Oberseminar

Vortrag

Herr Prof. I.N. Tziavos

Gravity field research at the Aristotle University of Thessaloniki
The GeoGrav scientific group

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Geschwister-Scholl-Str. 24D

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Gravity field research at the Aristotle University of Thessaloniki

The *GeoGrav* scientific group

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Abstract

The main research activities of the *GeoGrav* scientific group during the last two decades mainly focus on gravity field modeling over the Mediterranean and Aegean Sea and the surrounding land areas through the optimal combination of terrestrial, airborne and satellite data. Several projects were carried out, or are still in progress, individually or in cooperation with other European Institutes, funded by national and international organizations (European Union, European Space Agency, Greek Secretariat of Research and Technology, etc.). The objectives of these studies were primarily the determination of stationary components of the gravity field (e.g., geoid, quasi-geoid) as well as non-stationary ones (dynamic ocean topography, sea level variations, etc.) with high accuracy and resolution. The key points in the frame of the aforementioned investigations were (a) the calibration and validation of the heterogeneous input data sources, (b) the study of the spectral content of the available observations and (c) the development, or appropriate modification, of data optimal combination methods. In the most recent projects (GOCESeaComp, GOCE+++, GEOMED II) the exploitation of GOCE-based high accuracy global gravity field models in the long wavelength part of the gravity spectrum are employed over marine areas along with products from satellite altimetry missions to determine the ocean circulation. Over land areas, GOCE-type gravity field models and EGM08 global geopotential model form the reference surfaces for combination solutions of the gravity field for local and regional applications related to geodesy and geosciences in general, such as datum unification, data quality control, etc. Last, but not least, a project for the enhancement of the existing gravity database over the country and the establishment and monitoring of gravity networks in test areas with peculiar geodynamic features is in progress. Absolute and relative gravity measurements by CG5 and A10 gravity meters are regularly conducted. The latter research is of importance, in combination with GPS derived data, for vertical datum unification and the connection of height systems in islands with that of the continental area of Greece.