

Determination of a New Gravimetric Quasigeoid for Romania

Ileana Spiroiu, Radu – Dan – Nicolae Crişan, Irina Belinschi, Vlad Sorta and Neculai Avramiuc (Romania)

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SUMMARY

The project of modeling a gravimetric quasigeoid for Romania is carried out in stages, based on the gravimetric measurements in the area of each county, in the gravimetric points of the 0, 1st and 2nd order gravimetric network, in the checkpoints (with GNSS/levelling data) and also in the new designed points to ensure a uniform density and distribution of these points in order to generate the quasigeoid model.

The new local quasigeoid model obtained from the measured points will improve the height transformation grid (Avramiuc, Dragomir, Rus, 2009), ensuring the transition from the Black Sea 1975 normal height system to the European Terrestrial Reference System - ETRS89 ellipsoidal height which is provided through the Romanian Position Determination System - ROMPOS. The new gravimetric quasigeoid model will be more accurate than the current geometric quasigeoid, ensuring the interoperability of national and European spatial data in the Infrastructure for Spatial Information in the European Community - INSPIRE, for the adoption and implementation of European standards for scientific purposes and for solving technical problems such as support for economic activities.

The remove-compute-restore technique was used to remove the long-wavelength component from the Global Geopotential Model (GGM) and the effect of the short-wavelength signal by applying terrain corrections, to compute residual geoid heights, and to restore the effect of the GGM and topography.

In this article are presented the main activities that took place in the period 2016-2021 for creating the projects in the counties of Romania and the results obtained till now as well as the perspective for the next years.