



Modeling error degree variances and combination parameters of the airborne and terrestrial gravity data and satellite gravity models

Jonas Agren (1) and Yan Ming Wang (2)

(1) Lantmäteriet, the Swedish mapping, cadastre and registry authority, Gävle, Sweden (jonas.agren@lm.se), (2) National Geodetic Survey, Silver Spring, USA (yan.wang@noaa.gov)

The errors in the satellite gravity model, the airborne gravity and terrestrial gravity data have their distinctive characteristics. In order to combine them in an optimal way, proper modeling of the error degree variances of each data type is an important step. In this paper, we model the errors based on the following assumptions: satellite model is accurate at long wavelength and the error is characterized by its formal error degree variances; the airborne gravity data is accurate at medium wavelength and the terrestrial gravity data are accurate at high frequencies. Here the airborne and terrestrial error degree variances are constructed as combinations of colored and white noise parts. It is finally studied how the flying height affects the airborne error model and the spectral combination parameters.