



Application of the global geopotential models for a determination of the leveling normal correction

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Vertical networks in Poland are processed in the normal heights system called Kronstadt'86. Leveling evaluation of high precision measurements requires a determinations of normal leveling corrections, based on gravity Faye's anomalies. The purposes of the paper is to analyze the possibility of using in this computations the anomalies generated from global geopotential models while maintaining accuracy analysis which indicate a possible accuracy of Faye's anomalies. Authors have compared gravity anomalies obtained directly from measurements with gravity anomalies generated from different global geopotential models EGM96, GPM96, EGM2008. Authors have proposed an algorithm of gravity anomalies computation on geoid surface after free-air moving anomalies from geopotential models. Comparison was made on points of vertical networks located in medium-hill areas (around Starachowice near Kielce) and lowland (around Gostyn and Grudziadz) and on others test fields in Poland. The ability to use the geopotential models depends on their resolution. As a result of analysis concluded that only in the plain and lowland areas is possible to use data from global geopotential models with resolution above degree 720.