

Geoid Model Estimation Without Additive Correction Using KTH Approach for Peninsular Malaysia

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SUMMARY

Geoid model is the vital information in the determination of orthometric height using GNSS technology. Determination of precise geoid model is the main research agenda around the globe. There is several approaches in computing and developing geoid model. The present study investigated a procedure for combining a selected geopotential model and the available observed land gravity data in order to determine precise geoid model for Peninsular Malaysia by using KTH approach. The optimum combination of condition parameter ($M=L=120$, $\Psi_0=3.00$, $\Psi=0.40$ and $\sigma_{\Delta g}=1.0$ mGal) were used to compute the value of Modification coefficient parameters and then generate estimated gravimetric geoid model. The estimated gravimetric geoid model from Peninsular Malaysia are compared with the GPS/Levelling at selected control points and the result shown that the Root Mean Square Error (RMS) differences between orthometric height derived by GPS/Levelling and existing height value from local datum is ± 12.8 cm in the absolute sense. This result shows the preliminary geoid model for Peninsular Malaysia. Further refinement needs to be done especially in the additional of land observed gravity data at no data area and also impose related corrections.