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Least Squares Modification of Stokes Formula vs. Remove-Compute-Restore Technique

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Today's applications of Stokes' formula combine the classical formula with an Earth Gravity model (EGM). In the remove-compute-restore technique this is performed by removing the EGM from the gravity anomaly together with the direct gravity effects for topography, atmosphere, etc. After the Stokes integration all these effects are restored on the geoid height.

In the least squares modification of Stokes' formula the integration is carried out without such direct effects, but all corrections are added as combined effects (direct plus indirect effects) to the computed preliminary geoid heights.

The two strategies for geoid determination are compared both theoretically and in a numerical example vs. GPS-levelling over Sweden.