

On the discrete problem of downward continuation of Helmert's gravity

P. Vaníček and Wenke Sun (Department of Geodesy and Geomatics Engineering, University of New Brunswick, Fredericton, N.B., Canada, E3B 5A3)

This is a progress report on our ongoing research of the downward continuation of Helmert's gravity as one of the operations needed for precise geoid computation by means of the Stokes-Helmert technique. This contribution builds on our previous work published recently in Journal of Geodesy on a numerical evaluation of the downward continuation correction. Here we concentrate on the propagation of the boundary error into the area of interest, possible limitation of the size of the area of simultaneous solution (limitation of the size of the matrix of equations), the role of cell averaging, the convergence speed of the solution and the solution stability as a function of grid size.