Geophysical Research Abstracts
Vol. 14, EGU2012-2974, 2012
EGU General Assembly 2012

Geoid improvement over Alaska/Yukon area by GRACE and GOCE models

X. Li (3), J.L. Huang (2), Y.M. Wang (1), M. Véronneau (2), and D. Roman (1)

(1) NOAA/NGS, Geoscience Research Lab, Silver Spring, United States (yan.wang@noaa.gov), (2) 2Geodetic Survey Division, CCRS, NRCan, Canada, (3) ERT Inc. USA

For the realization of a regional geoid model through the remove-compute-restore Stokes scheme, long wavelength components of the geoid are usually determined from a satellite gravity model. The spectral blending of the satellite model with surface gravity data is done by applying a modification to the Stokes kernel. The latest GRACE and GOCE gravity models, such as GGM03S and $GOCO_2S$, provide improved measurements of the gravity field, especially at medium wavelengths, making it possible to increase the degree of modification (more satellite data) and, therefore, reduce further systematic errors in the surface gravity data.

Geoid models over the Alaska/Yukon region are relatively worse than geoid models over other parts of Canada and USA. This is primarily due to the mountainous topography of the region and sparse distribution of gravity data. In this paper, we investigate the improvement to geoid models by combining the latest satellite GRACE and GOCE models with the surface gravity data. For comparison, EGM08 will be used as a reference model. In addition, the results will be compared with the GPS/leveling data in Alaska and Yukon.

GRAV-D airborne gravity data add another dimension to the local geoid computations. We will investigate the impact of the data to the realization of a geoid model and compare it with the satellite models, focus on the medium wavelength area.