Ocean tide loading models for coastal gravity observations

K. Breili, D.I. Lysaker, B.R. Pettersen

Department of mathematical sciences and technology, University of Life Sciences (UMB),
P.O. Box 5003, N-1432 Ås, Norway

A large number of global ocean tide loading (OTL) models are available for correcting geodetic observables. Usually these models are estimated by convolving a global ocean tidal model with a proper Green's function over all oceans on the Earth's surface. However, coastal gravity observations are very sensitive to local tidal conditions. This raises the need for a fine resolution coastline close to the observation site, and additionally an ocean tide model that accurately recreates the local ocean tides. Here a new approach is presented based on observations of local ocean tides and vertical displacements of the observation site. The estimated models are compared to short time series from an absolute gravimeter.