Geophysical Research Abstracts,
Vol. 11, EGU2009-10648, 2009
EGU General Assembly 2009

A profile approach for estimating the absolute dynamic ocean topography

R. Savcenko and W. Bosch

Deutsches Geodätisches Forschungsinstitut, München, Germany (savcenko@dgfi.badw.de)

Since the essential improvements of GRACE gravity field models reliable signatures of the dynamic ocean topography (DOT) can be obtained by subtracting geoid heights from the sea surface. The differences are usually performed after an initial data gridding which already implies an undesirable loss of signal. On the other hand, even the latest gravity field solution from GRACE exhibit a meridional striping in the geoid and require a smoothing. In order to preserve the high along track resolution of altimetry the present paper investigates a profile approach which (i) performs a spectral smoothing of the GRACE gravity field (ii) merges mean-tide geoid profiles to the along-track sea level measurements of satellite altimetry and (iii) performs a common low pass filtering of along track differences in order to make filtered sea level and geoid heights spectrally consistent. The approach is performed with the latest GRACE gravity field models and the sea surface height profiles of TOPEX and Jason-1 and produces time varying profiles of the DOT. Globally, the profiles exhibit the expected topographic features which are compared with independent estimates of the DOT.