



Identification of sea level changes by combining GRACE and altimetry data

B. Wouters (1), D. Chambers (2), M. Naeije (1), E. Schrama (1)

(1) Department of Astrodynamics and Satellite Systems, Delft University of Technology, The Netherlands, (2) Center for Space Research, University of Texas at Austin, USA
(Bertw@deos.tudelft.nl)

Using 11-year of TOPEX and Jason-1 altimeter data, a trend in the global mean sea level of 2.9 ± 0.4 mm/yr has been observed over the period 1993-2003. This data was used to produce a mean monthly climatology set, which were corrected for the steric (volume-related) sea level signal using monthly average grids of salinity and temperature from the World Ocean Atlas 2001 (WOA01). The resulting seasonal eustatic (mass-related) sea level signal was used as a reference to mass variations over the oceans inferred from the monthly GRACE gravity field estimates. Both methods give comparable results, with similar estimates for amplitude (~ 8.5 mm) and phase (275°).

To study the accuracy of the two methods at a local scale, the eustatic signal was estimated in the three major ocean basins. It is shown that the application of various corrections, such as the addition of the barotropic model used to correct the GRACE data, can have an important influence on the results.