



## **Monthly to Annual water storage change in the Amazon basin from GRACE and satellite altimetry**

**O. Andersen (1), P. Berry (2), J. Freeman (2), F. G. Lemoine (3), S. B. Lutcke (3)**

(1) Danish National Space Center, Copenhagen, Denmark, oa@spacecenter.dk. (2) De EAPRS Montford University, Leicestershire, UK (3) NASA/GSFC, Space Geodesy, Greenbelt, Maryland, USA

A jointly analysis of GRACE and Satellite altimetry over the Amazon River Basin in order to resolve time-variable hydrological changes. The GRACE gravity changes are analyzed using a local mascon approach derived by NASA/GSFC, solving for mass change at 10-day intervals using 4 deg X 4 deg blocks from GRACE level 1B data.

Satellite altimetry over the region from especially ENVISAT has been submitted to the EARRS Expert-retracer System in order to derive height of rivers in the Amazon. The system recovers substantially more accurate altimetry data over lakes than traditional altimetric data processing.

GRACE derived mass change from 2003 and 2004 are compared with the output of the GLDAS hydrological model at similar resolution. At the same time, altimetry is validated towards a few gauges Subsequently monthly to Annual and inter-annual signals have been studied from the two datasets. Merging the river heights with a simple river-mask enable cross-studies of changes in mass from both GRACE and satellite altimetry, which is shown to be on the same magnitude reaching 25 cm max on annual scales.