

EGSIEM-KO 13/14-01-15

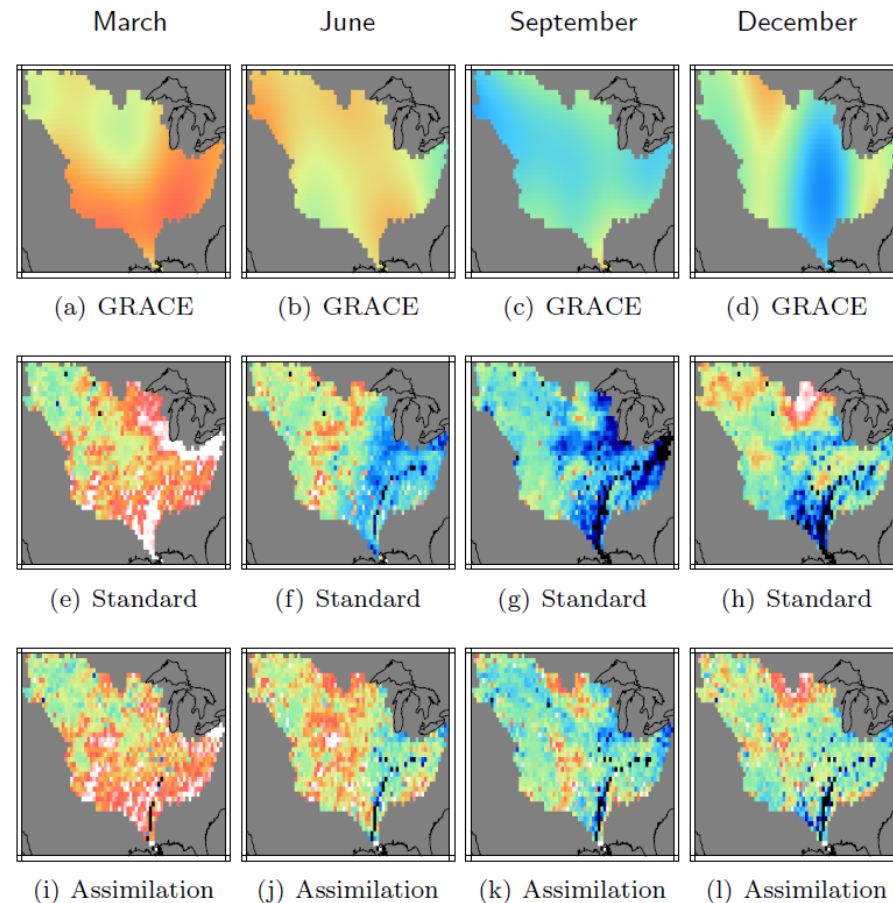
Relevant activities at IGG/UB,
related initiatives and programs

(1/6)

J. Kusche (Bonn University)

@IGG: Data Assimilation of GRACE into hydrological models (2/6)

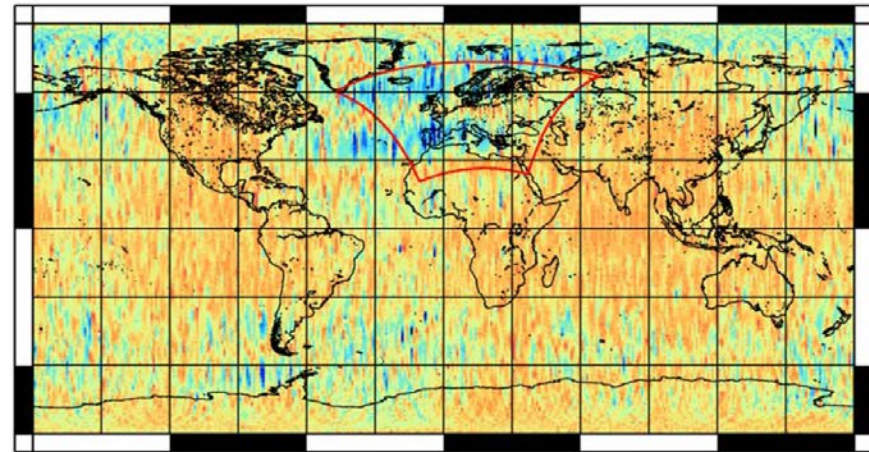
- EnKF -system for assimilating GRACE into WGHM (SPP1257, Eicker et al., 2014)
- Output: daily WGHM grids consistent with GRACE
- Own code, accounts for GRACE error correlation, model calibration
- Currently testing for Mississippi (tuning , SEIK / SQRT, validation discharge, lake levels, GPS, gw, other DA systems)
- Next study regions: Bangladesh (Band-Aid), West Africa (COAST)
- Ongoing: Developing GRACE DA for CLM3.5 / TerrasysMP coupled model over Europe (with MIUB and FZJ)



Eicker et al. 2014 in Surv. Geophys.

@IGG: Experiments with high-resolution dealiasing products (3/6)

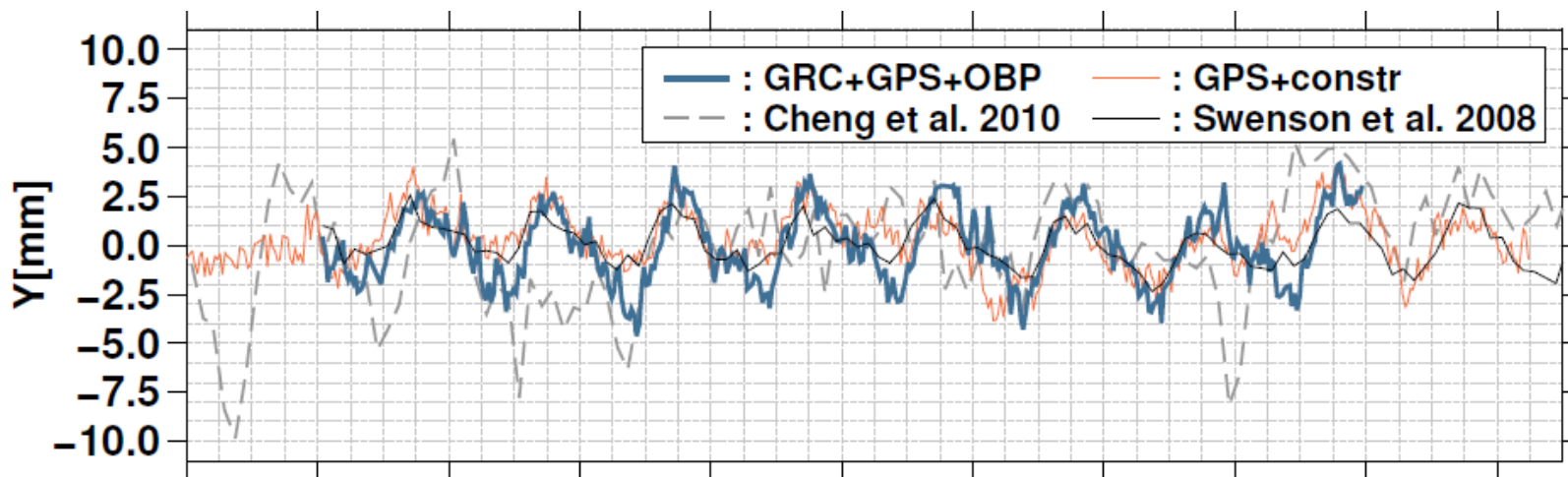
- Recent papers (Forootan et al, Duan et al) showed that GRACE is sensible to atmospheric dealiasing data (ECMWF-OP vs. ERA-I): aliasing vs. Separation issue



- Ongoing at IGG
 - Impact of high-resolution atmospheric models (COSMO-EU, COSMO-RA6)
 - Impact of daily (down to hourly) hydrological models
 - Direct use of KBR data for assessing model quality

@IGG: Geocenter Motion (4/6)

- Effect of geocenter motion in mass estimates
 - Recent trend estimate IGG: X 0.03 mm/a, Y 0.12 mm/a, Z -0.31 mm/a maps into 20 Gt/a over Antarctica
- More short-term variability than Swenson geocenter
- We compute weekly and smoothed geocenter time series (that do not simply follow from an ocean model as in some approaches, see Kusche & Schrama 2005...Rietbroek et al., 2014)
 - Combining GPS-loading , OBP and GFZ GRACE normals (SPP1257-JIGOG), excl. trend
 - Combining Altimetry and GRACE normals (fingerprint method, SPP1257-FIGO), incl. trend



Coordinated programs and initiatives: (5/6)

Programs

- SPP1257 („Mass Transport Program“): finalized, special issue Surv. Geophys 11/14, DFG-FR to be compiled
- SPP1788 („SWARM“): Panel Review 1st phase applications expected for End Feb/begin Mar

Initiatives

- SPP „Sealevel“: Decision on funding expected for Mid-March 2015
- SFB „Terrawatt“: 30 PIs from Geodesy, Remote Sensing, Meteorology, Hydrology, Land Surface Modelling U Bonn, U Cologne, FZ Jülich: Review pre-proposal Mid-March 2015
- FOR „Hydrogeodesy“: Proposal to be submitted first half 2015 to DFG

Coordinated Programs and Initiatives: Band-Aid (6/6)

- OSU (Lead: Shum), LEGOS, IGG, Curtin, IWM Dhaka, U Washington, U Cologne, ULR, ...
- Developing a Bangladesh Delta Monitoring System (relative sea level, flooding, assessments/causes/social science, with some Emergency Service Elements)
- Funded by IGFA/Belmont Forum (<http://www.belmont-bandaid.org>)

