

# IDEAL-GRACE: Goals of the Second Phase

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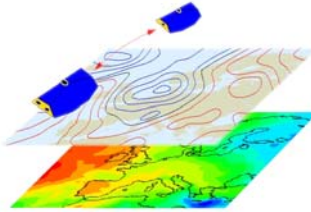
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## IDEAL-GRACE Phase 1 (2007-2008)

### General Project Goals:

The project goals are:

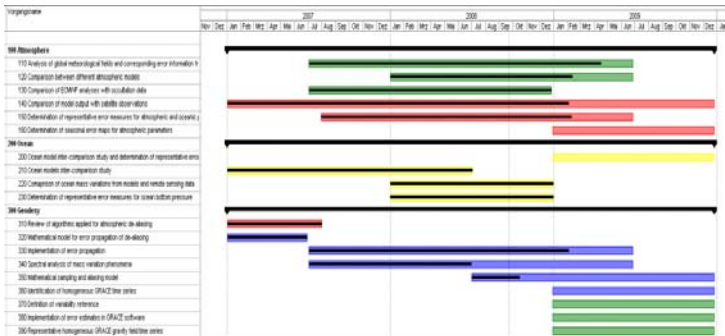
1. Determine error measures for atmospheric and oceanic input data.
2. Develop error propagation from atmosphere and oceanic errors to gravitational correction coefficients.
3. Setup of a mathematical sampling and aliasing model to identify homogeneous time series for GRACE data analysis.



### Project Status after End of Phase 1:

Goals 1 and 2 are reached at a level of 80% to 90% (WP110 to 330). Some remaining activities are planned to be continued in phase 2 of the project.

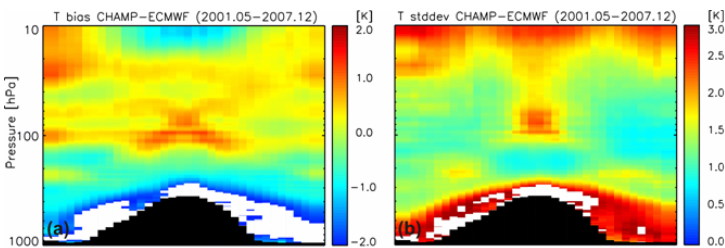
Work for goal 3 (WP340 to 390) partly has been started and will be continued and completed in phase 2.



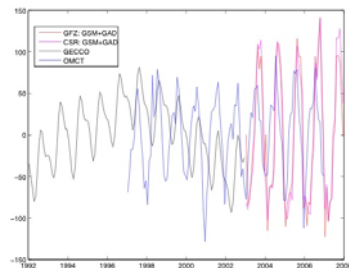
IDEAL-GRACE project schedule after end of phase 1: blue = TUM-IAPG, green = GFZ, red = DLR-IMF, yellow = UNIH-H-IFM. Inserted black bars show the level of completion for each WP.

### Some Results from Phase 1:

#### WP130: Comparison of ECMWF Analyses with radio Occultation Data



Zonal temperature bias (a) and temperature standard deviation (b) between CHAMP and ECMWF for pressure (altitude) range 1000 – 10 hPa and the time interval May 2001 – December 2007.

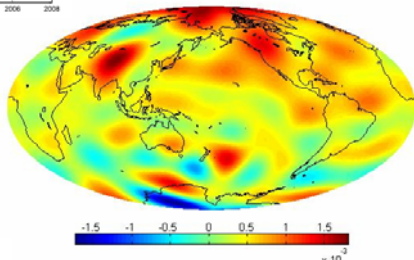


WP210: Ocean Model Inter-Comparison Study

Global variability of ocean bottom pressure. Global mean ocean bottom pressure anomaly (in Pa) from GRACE monthly products and hydrodynamic models (OMCT / GECCO).

#### WP330: Implementation of De-Aliasing Error Propagation

Geoid height differences in terms of [m] for December 1, 2006 00:00 between the "error-free" and "full error" case (taking into account atmosphere errors for determination of de-aliasing coefficients).



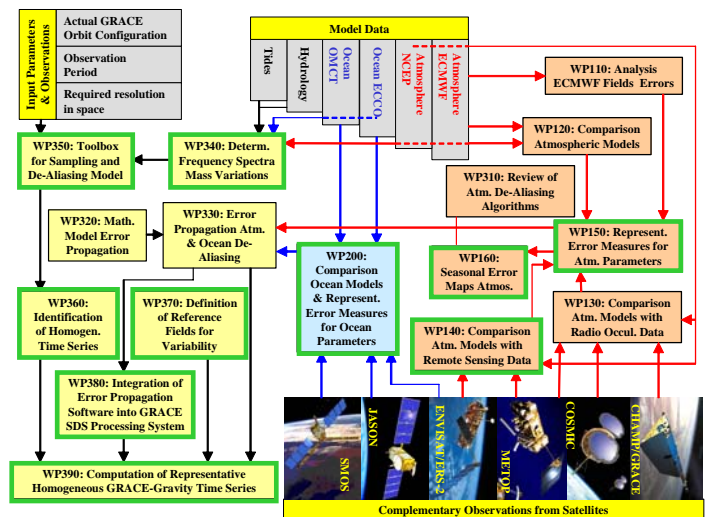
## IDEAL-GRACE Phase 2 (2009)

### Extended Goals for Phase 2:

From the results of the first phase

3. Continuation and completion of mathematical sampling and aliasing model.
4. Provision of time variable error measures for atmospheric parameters.
5. Preparation of error propagation software for implementation in operational GRACE processing software. Processing of a set of monthly GRACE gravity models applying the new correction coefficients based on static and/or time-variable error measures and assessment of impact.

### Extended Project Structure:



Working program and interactions between modules: Colours indicate contributions from different disciplines: red = atmospheric sciences, blue = oceanography, yellow = geodesy. Green boxes mark main work packages for phase 2 of the project.

### Work proposed for Phase 2:

#### WP140, 150 & 160:

- Identification of further suitable satellite observations/instruments for comparisons with atmospheric model parameters.
- Determination of a consolidated representative error map.
- Extension of time-invariant error maps to seasonal representative error maps taking into account the GRACE analysis time periods.

#### WP200:

- Results from different ocean models are compared against each other and with independent information.
- Extension by applying new model test runs and further independent data. For this results from the SPP1257 projects OCEANTRANS and BAROTROP will be incorporated.

#### WP340 & 350:

- Determination of spectral and spatial properties for geophysical models. There are available 12 years of model output for all domains.
- Combination of geophysical model properties and satellite orbit characteristics for determination of a mathematical sampling and aliasing model.
- Cooperation with other disciplines for mathematical modeling.

#### WP360, 370, 380 & 390:

- Work packages not been funded in the first phase.
- Improvement of GRACE de-aliasing process by application of project results.
- Identification of homogeneous data time series from GRACE.
- Review of concept of applying a bi-yearly reference field and investigation of alternatives.
- Incorporation of error propagation software into the standard GRACE processing.
- Generation of an alternative representative homogeneous GRACE gravity field time series.