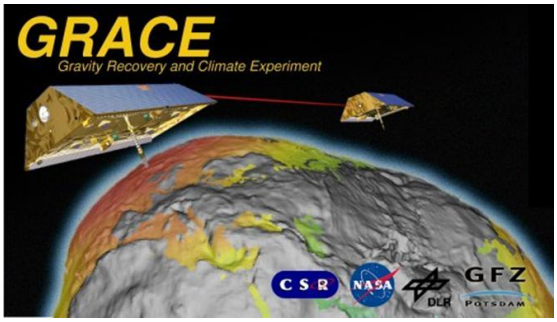
GRACE Science Data System Monthly Report October 2012



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Highlights:

- GFZ has generated and delivered RL05 Level-2 products for September 2012, January till May 2003, July till December 2003 and January 2004.
- Still missing Level-2 RL05 products of the three centers (see tables below) will be provided soon. Please refer to the upcoming newsletters.
- The GRACE Science Team Meeting 2013 will take place 23-25 October 2013 at UTCSR. Further information will follow at http://www.csr.utexas.edu/grace/GSTM.

Satellite Science Relevant Events:

- Due to reasons described in the Level 1 Data Processing Section (see below) nearly no operation in Science Mode was possible throughout the month.
- The actual mission status can be monitored at http://www.csr.utexas.edu/grace/operations/mission_status/.
- The GRACE-1 Brouwer mean orbital elements on November 1, 2012 00:00:00 are as follows:

  A [m] = 6818582.906
  E [-] = 0.001310
  I [°] = 89.026204
- The satellites separation was 262 km on November 1, 2012 with a rate of -0.01 km/d. The next orbit maneuver will be needed approximately February 2013.

Level-0 raw data dump reception statistics at DLR ground stations Weilheim and Neustrelitz:

GRACE-A Housekeeping:	100.0 %	GRACE-B Housekeeping:	100.0 %
GRACE-A Science:	100.0 %	GRACE-B Science:	100.0 %

Level-1 Data Processing:

- Level-1B Release 02 instrument data have been processed at JPL and archived at GRACE-ISDC and JPL PO.DAAC. Please refer to the statistics below.
- RL02 Notes:
  - On 2012-09-25 at 13:08:20 the GRACE-A ACC was powered off to reduce the battery load. At 11:35:07 the GRACE-B ACC was powered off to reduce the battery load.
  - For 2012-10-01 see note 2012-09-25
  - On 2012-10-02 at 11:58:34.44 the KBR measurements were halted to reduce the battery load. See also note 2012-09-25
  - For 2012-10-03 till 2012-10-29 see notes 2012-09-25 and 2012-10-02
  - On 2012-10-30 the KBR measurements were resumed at 08:15, however the Ka phase was not present for GRACE-B in telemetry after start up. Ka phase was restored at 21:36 resulting in nominal operations. See also note 2012-09-25
  - For 2012-10-31 see note 2012-09-25
  - KBR statistics:

    A) KBR1B product name

    B) Total arc length with data (hours)

    C) Number of observations used in residual calculation

    D) KBR-GPS range residual RMS (cm)

    E) minimum KBR-GPS range residual (cm)

    F) maximum KBR-GPS range residual (cm)

    G) number of continuous segments in the KBR product

	A	B	C	D	E	F	G
KBR1B_2012-10-01_X_02.dat	24.0	17280	0.69	-3.6	2.8	1
KBR1B_2012-10-02_X_02.dat	12.0	8615	0.46	-2.2	1.0	1
KBR1B_2012-10-03_X_02.dat	0.0	0	0.00	0.0	0.0	0
KBR1B_2012-10-04_X_02.dat	0.0	0	0.00	0.0	0.0	0
KBR1B_2012-10-05_X_02.dat	0.0	0	0.00	0.0	0.0	0
KBR1B_2012-10-06_X_02.dat	0.0	0	0.00	0.0	0.0	0

KBR1B_2012-10-07_X_02.dat	0.0	0	0.00	0.0	0.0	0
KBR1B_2012-10-08_X_02.dat	0.0	0	0.00	0.0	0.0	0
KBR1B_2012-10-09_X_02.dat	0.0	0	0.00	0.0	0.0	0
KBR1B_2012-10-10_X_02.dat	0.0	0	0.00	0.0	0.0	0
KBR1B_2012-10-11_X_02.dat	0.0	0	0.00	0.0	0.0	0
KBR1B_2012-10-12_X_02.dat	0.0	0	0.00	0.0	0.0	0
KBR1B_2012-10-13_X_02.dat	0.0	0	0.00	0.0	0.0	0
KBR1B_2012-10-14_X_02.dat	0.0	0	0.00	0.0	0.0	0
KBR1B_2012-10-15_X_02.dat	0.0	0	0.00	0.0	0.0	0
KBR1B_2012-10-16_X_02.dat	0.0	0	0.00	0.0	0.0	0
KBR1B_2012-10-17_X_02.dat	0.0	0	0.00	0.0	0.0	0
KBR1B_2012-10-18_X_02.dat	0.0	0	0.00	0.0	0.0	0
KBR1B_2012-10-19_X_02.dat	0.0	0	0.00	0.0	0.0	0
KBR1B_2012-10-20_X_02.dat	0.0	0	0.00	0.0	0.0	0
KBR1B_2012-10-21_X_02.dat	0.0	0	0.00	0.0	0.0	0
KBR1B_2012-10-22_X_02.dat	0.0	0	0.00	0.0	0.0	0
KBR1B_2012-10-23_X_02.dat	0.0	0	0.00	0.0	0.0	0
KBR1B_2012-10-24_X_02.dat	0.0	0	0.00	0.0	0.0	0
KBR1B_2012-10-25_X_02.dat	0.0	0	0.00	0.0	0.0	0
KBR1B_2012-10-26_X_02.dat	0.0	0	0.00	0.0	0.0	0
KBR1B_2012-10-27_X_02.dat	0.0	0	0.00	0.0	0.0	0
KBR1B_2012-10-28_X_02.dat	0.0	0	0.00	0.0	0.0	0
KBR1B_2012-10-29_X_02.dat	0.0	0	0.00	0.0	0.0	0
KBR1B_2012-10-30_X_02.dat	2.3	1672	0.40	-0.6	1.6	1
KBR1B_2012-10-31_X_02.dat	24.0	17280	0.39	-0.9	2.3	1

Following JPL RL02 L1B products are publicly available (green). June and July 2002 and June 2003 (red) are not provided due to accelerometer problems. For several months a significant number of Level-1 data is not available (blue): January and June 2011 (accelerometer data), May 2012 (accelerometer and K-Band data). RL00 and RL01 production has stopped with December 2004 and April 2012, respectively. See also corresponding newsletters.

L1B data	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2002												
2003												
2004												
2005												
2006												
2007												
2008												
2009												
2010												
2011												
2012												

- The L1B Read software has been updated to accommodate 64-bit machines but the software will also work on 32 bit machines. Please change RELEASE_2008-03-20 to RELEASE_2010-03-31 available at ftp://podaac.jpl.nasa.gov/allData/grace/sw/.
- Level-1B Release 01 generation has stopped with 30 April 2012.
- L1B De-aliasing Products Status (for details see AOD1B Product Description Document):
    - Release 01: Generation has been stopped June 30, 2007.
    - Release 03: Generation has been stopped January 31, 2007.
    - Release 04: Generated until April 30, 2012 and extended to 1976-2000 (see newsletter for December 2008). Generation has been stopped April 30, 2012.
    - Release 05: Generated for 1 January 2001 till 2 November 2012. Further information is available at http://www.gfz-potsdam.de/AOD1B.
    - Following AOD1B products are publicly available (yellow: RL01, RL03 and RL04; green: RL01 and RL04, blue: RL04 only, 'x' RL05):

AOD1B	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1976												
…												
1999												
2000												
2001	x	x	x	x	x	x	x	x	x	x	x	x
2002	x	x	x	x	x	x	x	x	x	x	x	x
2003	x	x	x	x	x	x	x	x	x	x	x	x
2004	x	x	x	x	x	x	x	x	x	x	x	x
2005	x	x	x	x	x	x	x	x	x	x	x	x
2006	x	x	x	x	x	x	x	x	x	x	x	x
2007	x	x	x	x	x	x	x	x	x	x	x	x
2008	x	x	x	x	x	x	x	x	x	x	x	x
2009	x	x	x	x	x	x	x	x	x	x	x	x
2010	x	x	x	x	x	x	x	x	x	x	x	x
2011	x	x	x	x	x	x	x	x	x	x	x	x
2012	x	x	x	x	x	x	x	x	x	x		

Level-2 Product Generation and Distribution:

Besides historical RL00 till RL04 time-series (see below) the following RL05 L2 products are presently available to the public (green: available, yellow: in preparation; red: missing due to accelerometer data problems):

- **GFZ RL05:** GSM solutions are available for January 2003 until September 2012. Corresponding background GAA, GAB, GAC and GAD products and calibrated errors (GSM*.txt) have been provided too. Details are listed in the GFZ L2 Release Notes.

GFZ RL05	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2002												
2003												
2004												
2005												
2006												
2007												
2008												
2009												
2010												
2011												
2012												

- **CSR RL05:** GSM solutions along with the GAC and GAD background model files are available for the period January 2003 until September 2012. So far no calibrated errors (GSM*.txt) are available, but will be provided later. Note that CSR has put zeroes in the GSM files in fields that contain the formal errors. Details are listed in the CSR L2 Release Notes.

CSR RL05	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2002												
2003												
2004												
2005												
2006												
2007												
2008												
2009												
2010												
2011												
2012												

- **JPL RL05:** GSM solutions along with the GAA, GAB, GAC and GAD background model files and calibrated errors (GSM*.txt) are available for the period January 2003 until September 2012. Details are listed in the JPL L2 Release Notes.

JPL RL05	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2002												
2003												
2004												
2005												
2006												
2007												
2008												
2009												
2010												
2011												
2012												

- GFZ and CSR have stopped RL04 processing end of April 2012
- JPL has stopped RL04 processing end of January 2012
- GFZ has stopped RL03 processing (Feb 2003 until Jan 2007 available at the archives. For further details refer to the GFZ RL03 release notes for Level-2 products).
- CSR has stopped RL01 processing. (Apr. 2002 until Dec 2006 available at the archives. For further details refer to the CSR RL01 release notes for Level-2 products).
- JPL has stopped RL02 processing (January 2003 until November 2005 available at the archives. For further details refer to the JPL RL02 release notes for Level-2 products).
- TN05/TN07 containing C20 estimates derived from SLR and using GRACE RL04/RL05 standards is periodically updated.

Miscellaneous:

- The Joint GRACE Science Team Meeting 2012 and Final Colloquium of the DFG Special Priority Program SPP1257 "Mass Transport and Mass Distribution in System Earth" took place at the German Research Centre for Geosciences in Potsdam between September 17 and 19, 2012. The proceedings and further information can be found at http://www.gfz-potsdam.de/portal/gfz/Neuestes/Veranstaltungen/Tagungen+und+Konferenzen/2012/GRACE+Meeting .
- Lecture material from the 2011 summer school of the DFG Special Priority Program "Mass transport and mass distribution in the system Earth" can be downloaded at www.massentransporte.de. Before using, please read the agreements on the cover page.
- The following acknowledgement shall be added to any new GRACE related publication (paper, poster etc.): *Acknowledgement: We would like to thank the German Space Operations Center (GSOC) of the German Aerospace Center (DLR) for providing continuously and nearly 100% of the raw telemetry data of the twin GRACE satellites.*
- A list of GRACE related publications which can be sorted by author or date is available at http://www.gfz-potsdam.de/portal/gfz/Struktur/Departments/Department+1/sec12/projects/grace/grace_publications (current status: 959 papers). This list maybe still incomplete. If you

are missing a publication please send an e-mail to Frank Flechtner (flechtne@gfz-potsdam.de).

- Science data users are encouraged to submit citations of their own and other works related with GRACE to the bibliography web page implemented at PO.DAAC: http://podaac.jpl.nasa.gov/grace/bibliography.html.