

GRACE Science Data System Monthly Report February 2007

Prepared by:	Frank Flechtner	GFZ	flechtne@gfz-potsdam.de
Contributions by:	Srinivas Bettadpur	UTCSR	srinivas@csr.utexas.edu
	Mike Watkins	JPL	michael.m.watkins@jpl.nasa.gov
	Gerhard Kruizinga	JPL	gerhard.kruizinga@jpl.nasa.gov
Approved by:	Byron Tapley	UTCSR	tapley@csr.utexas.edu
	Christoph Reigber	GFZ	reigber@gfz-potsdam.de

Highlights:

- Reprocessed RL04 Level-2 products from all three L2 centers for the period January 2003 till November 2006 based on improved background models, more secular trends and full IERS2003 conventions have been made available to the public on February 26. This includes RL04 AOD1B products as well as updated documentation. All three centers are working on the missing products to cover the complete mission between August 2002 and today.
- GFZ RL03 L2 products for December 2006 and CSR RL01 L2 products for November and December 2006 delayed due to heavy workload on RL04 L2 reprocessing. The generation of the January 2007 gravity field will take more time than usual due to accelerometer problems between January 11 and January 20 (see newsletter for January 2007).

Satellite Science Relevant Events:

- Nominal operation in Science Mode throughout the month except the events mentioned in the Level-1 Data Processing Section below.
- The GRACE-1 Brouwer mean orbital elements on March 1, 2007 00:00:00 are as follows:

A [m]	=	6841104.465
E [-]	=	0.001847
I [°]	=	89.015746

The satellites separation was 206 km on February 28, 2007 with a rate of 0.41 km/d. Next orbit maintenance maneuver won't be needed for some months.

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

GRACE-1 Housekeeping: 99.6 %
GRACE-1 Science: 100.0 %
GRACE-2 Housekeeping: 99.9 %
GRACE-2 Science: 100.0 %

Level-1 Data Processing:

- Level-1B Release 01 instrument data have been processed at JPL and archived at GRACE-ISDC and JPL PO.DAAC.
- **Notes:**
 - On 2007-02-07 GRACE-B experienced a Coarse Pointing Mode at 08:30 when the new OBDH software was activated. Nominal operations were re-established at 10:30. About 2 hours of KBR1B data was lost.
 - On 2007-02-13 the GRACE-B on board computer was rebooted which resulted in a data outage in ACC1B at around 15:15 followed by a significant amount of thrusting. This may complicate orbit integration through this event.
- 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_2007-02-01_X_01.dat	24.0	17280	1.76	-7.8	3.6	1	
KBR1B_2007-02-02_X_01.dat	24.0	17280	1.33	-2.9	3.9	1	
KBR1B_2007-02-03_X_01.dat	24.0	17280	1.32	-4.1	3.0	1	
KBR1B_2007-02-04_X_01.dat	24.0	17280	1.83	-4.8	7.0	1	
KBR1B_2007-02-05_X_01.dat	24.0	17254	1.29	-3.0	4.4	1	

KBR1B_2007-02-06_X_01.dat	24.0	17280	1.46	-4.2	3.6	1
KBR1B_2007-02-07_X_01.dat	22.2	15940	1.81	-4.6	5.0	2
KBR1B_2007-02-08_X_01.dat	24.0	17280	1.38	-4.2	2.8	1
KBR1B_2007-02-09_X_01.dat	23.8	17125	1.66	-4.8	4.4	2
KBR1B_2007-02-10_X_01.dat	24.0	17260	1.39	-3.4	3.7	1
KBR1B_2007-02-11_X_01.dat	24.0	17260	1.61	-5.0	3.6	1
KBR1B_2007-02-12_X_01.dat	24.0	17234	1.53	-3.8	4.8	1
KBR1B_2007-02-13_X_01.dat	24.0	17230	1.68	-4.9	7.1	1
KBR1B_2007-02-14_X_01.dat	24.0	17280	1.60	-4.8	3.7	1
KBR1B_2007-02-15_X_01.dat	24.0	17260	1.48	-4.4	4.7	1
KBR1B_2007-02-16_X_01.dat	not yet distributed					
...						
KBR1B_2007-02-28_X_01.dat	not yet distributed					

- **L1B De-aliasing Products Status**

- Release 01 Level-1B barotropic sea level products (OCN1B) and de-aliasing products (AOD1B) were calculated by GFZ until February 28, 2007 and archived at GRACE-ISDC.
- Release 03 Level 1B de-aliasing products (AOD1B) based on OMCT (Ocean Model for Circulation and Tides) baroclinic ocean model output has been derived for January 2007. Because GFZ and JPL will not produce Level-2 RL02/RL03 products beyond January 2007 the processing of AOD1B RL03 will not be continued!
- Release 04 Level 1B de-aliasing products (AOD1B) based on improved OMCT, mass-conserving approach and harmonized land/water masks has been processed for January 2001 until January 2007 and made available to the SDS processing centers for L2 RL04 reprocessing. An updated AOD1B Product Description Document has been made available.

Level-2 Data Processing:

- CSR and GFZ interrupted processing of operational release 01 (CSR) and release 03 (GFZ) products in order to accelerate release 04 reprocessing.
- TN05 containing C20 estimates derived from SLR is periodically updated (maybe used to substitute C20 values of CSR RL01 products).

GRACE Product Distribution:

Besides historical CSR RL01, GFZ RL03 and JPL RL02 time-series and more experimental releases which are only available to the GRACE Science Team the following RL04 L2 products are available to the public:

- GFZ RL04 L2 products: GSM solutions for February 2003 until November 2006. Missing months are June 2003 and January 2004. July 2004 until October 2004 are also available as constrained solutions (*GK2-*). 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.
- CSR RL04 L2 products: GSM solutions along with the GAC and GAD background model files and calibrated errors (GSM*.txt) are available for the period January 2003 until September 2006 (only June 2003 is missing due to accelerometer data problems). Details are listed in the CSR L2 Release Notes.
- JPL RL04 L2 products: GSM solutions along with the GAC and GAD background model files and calibrated errors (GSM*.txt) are available for the period January 2003 until November 2006 except for June 2003. Details are listed in the JPL L2 Release Notes.

Miscellaneous:

- Next GRACE Science Team Meeting (in combination with the German Special Priority Program “Mass Transport and Mass Distribution in the Earth System”) will take place at GFZ Potsdam between October 15 and 17, 2007.
- It was decided by the PI/Co-PI that papers from the Potsdam Joint CHAMP/GRACE Science Meeting in July 2004 shall be provided on the CHAMP and GRACE web pages if the authors agree. A corresponding questionnaire was circulated and evaluated. Corresponding papers will be available soon.
- A list of GRACE related publications which can be sorted by author or date is available at http://www.gfz-potsdam.de/pb1/op/grace/index_GRACE.html under item “Publications”. This list will be regularly updated and maybe incomplete. If you are missing a publication please send an e-mail to Frank Flechtner.
- 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>.