GRACE Science Data System Monthly Report
July 2006

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:

- CSR RL01 and GFZ RL03 L2 products for June 2006 have been provided to the archives. **Reminder:** Most of the KBR1B data between June 14 and June 21 are considered unreliable and should not be used for any June 2006 gravity field determination! For detailed time spans see June 2006 newsletter.

Satellite Science Relevant Events:

- Nominal operation in Science Mode throughout the month.
- The GRACE-1 Brouwer mean orbital elements on August 01, 2006 00:00:00 are as follows:

  A [m] = 6842227.209
  E [-] = 0.001524
  I [°] = 89.030592

  The satellites separation was 259 km on August 1, 2006 with a rate of -0.12 km/d. Orbit maintenance maneuver won't be needed for a few months.

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

GRACE-1 Housekeeping:	99.7 %
GRACE-1 Science:	100.0 %
GRACE-2 Housekeeping:	99.7 %
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 day 2006-07-06 two IPU (Instrument Processing Unit) reboots (GRACE-A at 7:13 and GRACE-B at 07:34) resulted in 24 minutes of KBR1B data loss.
    - On 2006-07-22 GRACE-B experienced an anomalous IPU reboot at 21:53. After this reboot the GPS tracking data was low quality and only a maximum of 6 GPS satellites were tracked. Nominal GPS tracking operation returned after the second IPU reboot at 23:43. Due to the poor orbit and clock solution from 21:53 till 23:43, it is recommended to exclude all KBR1B data during this time interval from the gravity field solution

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_2006-06-23_X_01.dat	24.0	17252	1.09	-3.5	2.7	3
KBR1B_2006-06-24_X_01.dat	23.8	17123	1.21	-4.4	2.8	3
KBR1B_2006-06-25_X_01.dat	23.8	17132	1.43	-4.7	4.6	1
KBR1B_2006-06-26_X_01.dat	24.0	17246	1.58	-5.5	5.1	2
KBR1B_2006-06-27_X_01.dat	24.0	17238	1.41	-3.1	3.7	2
KBR1B_2006-06-28_X_01.dat	23.8	17125	1.41	-3.5	3.2	2
KBR1B_2006-06-29_X_01.dat	24.0	17260	1.50	-4.0	6.2	1
KBR1B_2006-06-30_X_01.dat	23.8	17120	1.53	-4.2	6.4	2
KBR1B_2006-07-01_X_01.dat	23.8	17125	1.41	-4.2	3.7	2
KBR1B_2006-07-02_X_01.dat	23.8	17125	1.41	-4.1	3.4	2
KBR1B_2006-07-03_X_01.dat	24.0	17280	1.43	-5.7	3.3	1
KBR1B_2006-07-04_X_01.dat	24.0	17245	1.36	-3.6	3.6	2
KBR1B_2006-07-05_X_01.dat	24.0	17227	1.81	-4.5	5.4	2

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KBR1B_2006-07-06_X_01.dat  23.5  16934  1.47    -5.0    3.6  2
KBR1B_2006-07-07_X_01.dat  24.0  17280  1.50    -5.2    3.7  1
KBR1B_2006-07-08_X_01.dat  23.9  17237  1.56    -3.6    3.5  3
KBR1B_2006-07-09_X_01.dat  23.9  17205  1.39    -4.1    3.6  2
KBR1B_2006-07-10_X_01.dat  24.0  17280  1.74    -5.4    4.5  1
KBR1B_2006-07-11_X_01.dat  23.7  17085  1.85    -5.3    4.0  2
KBR1B_2006-07-12_X_01.dat  24.0  17260  1.53    -5.1    4.3  1
KBR1B_2006-07-13_X_01.dat  24.0  17260  1.49    -3.6    4.6  1
KBR1B_2006-07-14_X_01.dat  23.8  17147  1.46    -3.9    4.6  4
KBR1B_2006-07-15_X_01.dat  24.0  17260  1.63    -4.8    3.7  1
KBR1B_2006-07-16_X_01.dat  23.8  17125  1.71    -6.3    3.7  2
KBR1B_2006-07-17_X_01.dat  23.8  17116  1.76    -4.6    5.8  4
KBR1B_2006-07-18_X_01.dat  23.6  16988  1.39    -3.0    3.8  2
KBR1B_2006-07-19_X_01.dat  24.0  17280  1.37    -3.7    3.8  1
KBR1B_2006-07-20_X_01.dat  23.9  17238  1.41    -4.7    3.2  3
KBR1B_2006-07-21_X_01.dat  24.0  17266  1.43    -6.1    3.9  2
KBR1B_2006-07-22_X_01.dat  22.1  15915  2.37   -34.9   22.6  4
KBR1B_2006-07-23_X_01.dat  24.0  17280  1.36    -3.5    4.0  1
KBR1B_2006-07-24_X_01.dat  24.0  17280  1.75    -5.9    4.7  1
KBR1B_2006-07-25_X_01.dat  23.8  17145  1.65    -5.1    3.7  2
KBR1B_2006-07-26_X_01.dat  24.0  17280  1.70    -5.9    4.9  1
KBR1B_2006-07-27_X_01.dat  24.0  17227  1.44    -4.2    4.6  2
KBR1B_2006-07-28_X_01.dat  not yet distributed
…
KBR1B_2006-07-31_X_01.dat  not yet distributed
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- Release 01 Level-1B barotropic sea level products (OCN1B) and de-aliasing products (AOD1B) were calculated by GFZ until July 31, 2006 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 for June 2006 generated and archived at GRACE-ISDC, processing of July 2006 will be started soon.

Level-2 Data Processing:

- All 3 L2 centers at CSR, JPL and GFZ continued processing of release 01 (CSR), release 02 (JPL) and release 03 (GFZ) products.
- Spurious slopes over land, which are due to the non-mass-conserving OMCT model output in AOD1B RL03 (used in JPL RL02 and GFZ RL03 L2 products), can and have to be corrected by re-adding the GAB product over land. A technical note TN04 was prepared and is available since May 10, 2006.
- All 3 L2 centers started tests for next round of reprocessing (improved background models (e.g. static gravity field, AOD1B RL04, FES2004, Ocean Pole Tide), more secular trends, full IERS2003 conventions etc.). First results are expected at the next GSTM (see Section "Miscellaneous").

GRACE Product Distribution:

Besides more experimental releases which are only available to the GRACE Science Team the following L2 products are available to the public:

- GFZ RL03 L2 products are available for February 2003 until June 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 and GAC products and calibrated errors (GSM*.txt) have been provided too. Details are listed in the GFZ L2 Release Notes.
- CSR RL01 unconstrained GSM solutions along with the GAC background model files and calibrated errors (GSM*.txt) are available for the period August 2002 – June 2006 (only June 2003 is missing due to accelerometer data problems). Details are listed in the CSR L2 Release Notes.
- JPL RL02 L2 products along with the GAB and GAC background model files and calibrated errors (GSM*.txt) are available for February 2003 until November 2005 except for June 2003 and August to October 2004. Details are listed in the JPL L2 Release Notes.

Miscellaneous:

- Next GRACE Science Team Meeting will be held in San Francisco at the Holiday Inn Golden Gateway on December 8/9, 2006.
- Last GRACE Science Team Meeting (GSTM) proceedings (October 2005) are available

online (http://www.csr.utexas.edu/grace/GSTM).

- A list of GRACE related publications which can be sorted by author or data is now available at http://www.gfz-potsdam.de/pb1/op/grace/index_GRACE.html under item “Publications”. This list will be regularly updated and maybe still 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.