GRACE Science Data System Monthly Report
August 2006

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Highlights:

- CSR RL01 and GFZ RL03 L2 products for July 2006 have been provided to the archives.

Satellite Science Relevant Events:

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

  A [m] = 6842017.766
  E [-] = 0.001864
  I [^{o}] = 89.028553

  The satellites separation was 252 km on September 1, 2006 with a rate of -0.30 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 2006-07-28 two IPU reboots resulted in a KBR1B data loss of 23 minutes.
  - On 2006-08-24 KBR1B data from 07:19:28 till 10:35:55 may be corrupted because a Ka missed interrupt occurred on 07:19:28 while a K missed interrupt was in progress. Nominally only one band (K or Ka) exclusively experiences missed interrupt until the missed interrupt is cleared. The missed interrupt condition was cleared by a restart tracker command at 10:35:55. This anomalous behavior is similar to a missed interrupt anomaly seen on 2006-06-15 and 2006-06-16. Part of the KBR1B data for the June days was down weighted or removed from the gravity field solution.
  - On 2006-08-25 the KBR-GPS range residual RMS is higher than normal, however the Level2 prefit check showed nominal performance.
  - On 2006-08-31 the X-SRF Accelerometer bias jumped on GRACE-B at 2006-08-31 13:04:58. For the remainder of the day a bias correction of 58983.84998606431 nm/sec2 was applied to make the X-SRF accelerometer consistent over the whole day. Caution is advised for using the GRACE-B ACC1B data after 2006-08-31 13:04:58.

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_2006-07-28_X_01.dat	23.6	16988	1.32	-3.1	4.1	4
KBR1B_2006-07-29_X_01.dat	24.0	17280	1.40	-3.8	4.6	1
KBR1B_2006-07-30_X_01.dat	24.0	17280	1.54	-3.8	2.8	1
KBR1B_2006-07-31_X_01.dat	23.8	17145	1.32	-4.2	3.6	2
KBR1B_2006-08-01_X_01.dat	24.0	17280	1.41	-3.2	4.8	1
KBR1B_2006-08-02_X_01.dat	23.8	17070	1.57	-4.6	4.8	2
KBR1B_2006-08-03_X_01.dat	23.8	17163	1.50	-4.6	3.5	4

KBR1B_2006-08-04_X_01.dat	24.0	17280	1.49	-5.7	4.0	1
KBR1B_2006-08-05_X_01.dat	23.9	17244	1.19	-4.3	2.8	3
KBR1B_2006-08-06_X_01.dat	23.9	17205	1.59	-3.6	6.8	2
KBR1B_2006-08-07_X_01.dat	24.0	17280	1.24	-3.4	3.2	1
KBR1B_2006-08-08_X_01.dat	23.8	17138	1.32	-4.7	4.4	2
KBR1B_2006-08-09_X_01.dat	23.9	17207	1.66	-4.3	4.2	1
KBR1B_2006-08-10_X_01.dat	24.0	17280	1.28	-3.5	2.9	1
KBR1B_2006-08-11_X_01.dat	24.0	17280	1.60	-3.9	5.5	1
KBR1B_2006-08-12_X_01.dat	23.7	17070	1.52	-5.6	4.4	3
KBR1B_2006-08-13_X_01.dat	24.0	17266	1.44	-3.4	4.0	2
KBR1B_2006-08-14_X_01.dat	24.0	17256	1.49	-4.9	3.5	2
KBR1B_2006-08-15_X_01.dat	23.7	17085	1.14	-2.8	4.3	5
KBR1B_2006-08-16_X_01.dat	23.9	17221	1.32	-3.5	3.8	4
KBR1B_2006-08-17_X_01.dat	23.7	17074	1.43	-3.7	4.6	2
KBR1B_2006-08-18_X_01.dat	23.8	17131	1.19	-3.3	3.5	3
KBR1B_2006-08-19_X_01.dat	23.8	17118	1.49	-5.5	3.1	3
KBR1B_2006-08-20_X_01.dat	23.9	17244	1.39	-4.0	3.7	3
KBR1B_2006-08-21_X_01.dat	23.9	17203	1.39	-5.3	3.1	2
KBR1B_2006-08-22_X_01.dat	24.0	17280	1.48	-3.9	4.3	1
KBR1B_2006-08-23_X_01.dat	23.8	17121	1.27	-5.5	3.4	3
KBR1B_2006-08-24_X_01.dat	23.9	17242	1.47	-4.6	3.5	3
KBR1B_2006-08-25_X_01.dat	24.0	17280	2.12	-6.7	7.0	1
KBR1B_2006-08-26_X_01.dat	24.0	17280	1.73	-7.0	6.0	1
KBR1B_2006-08-27_X_01.dat	23.7	17070	1.35	-3.8	3.5	3
KBR1B_2006-08-28_X_01.dat	24.0	17280	1.81	-5.0	5.1	1
KBR1B_2006-08-29_X_01.dat	24.0	17280	1.42	-3.9	5.2	1
KBR1B_2006-08-30_X_01.dat	24.0	17266	1.70	-4.3	4.3	2
KBR1B_2006-08-31_X_01.dat	23.9	17205	1.36	-3.5	4.3	2

- Release 01 Level-1B barotropic sea level products (OCN1B) and de-aliasing products (AOD1B) were calculated by GFZ until August 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 July 2006 generated and archived at GRACE-ISDC, processing of August has started.

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.
- TN05 containing C20 estimates derived from SLR is periodically updated (may be used to substitute C20 values of CSR RL01 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 July 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 – July 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.