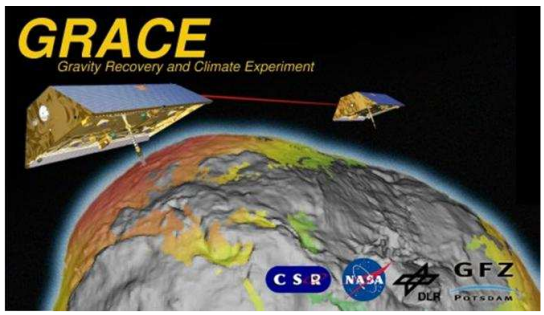
GRACE Science Data System Monthly Report
June 2007



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
Markus Rothacher GFZ rothacher@gfz-potsdam.de

Highlights:

- RL04 Level-2 products have been provided for April and May 2007 by CSR. For further details see GRACE Product Distribution Section below.
- The announcement of the Joint International GRACE Science Team Meeting and German Special Priority Program "Mass Transport and Mass Distribution in the Earth System" Symposium which will take place at GFZ Potsdam between October 15 and 17, 2007 is now online available at http://www.massentransporte.de/?gstm07.

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 July 1, 2007 00:00:00 are as follows:

  A [m] = 6840515.691
  E [-] = 0.001729
  I [°] = 89.013862

  The satellites separation was 219 km on July 2, 2007 with a rate of -0.26 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:	99.3 %
GRACE-1 Science:	100.0 %
GRACE-2 Housekeeping:	100.0 %
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 2007-06-04 GRACE A&B performed Center of Mass calibration maneuvers. Both spacecraft were in non-science mode from 06:15 to 17:25. Data in this interval may be degraded and caution should be used when using this data in the gravity field determination process.
  - On 2007-06-07 GRACE-A experienced an anomalous missed interrupt at 4:44:06. Nominal operations were restored by a restart tracker command at 13:39:05. An attempt was made to correct the KBR1B data but the data in this interval may be unreliable and caution should be used when using this data in the gravity field determination process.
  - On day 2007-06-12 GRACE-A experienced disabling of supplemental heater lines (DSHL) at 21:39 which caused temperature control on ACC to be stopped. The cool down of the ACC caused the ACC biases to change. The re-heating of the ACC returned the ACC biases to near nominal values at the beginning of day 2007-06-17. The ACC1B data may be degraded for a few days more after 2007-06-17 due to the exponential decay nature of the ACC biases change. Caution should be used when using the ACC1B during this interval for the gravity field determination process.
  - For days 2007-06-13, 2007-06-14, 2007-06-15 and 2007-06-16 see note 2007-06-12.

- 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_2007-06-01_X_01.dat	23.8	17160	1.61	-4.4	4.3	4
KBR1B_2007-06-02_X_01.dat	24.0	17280	1.34	-3.0	3.8	1
KBR1B_2007-06-03_X_01.dat	24.0	17280	1.26	-3.2	3.0	1
KBR1B_2007-06-04_X_01.dat	24.0	17280	1.75	-4.9	6.7	1
KBR1B_2007-06-05_X_01.dat	24.0	17280	1.65	-4.7	4.2	1
KBR1B_2007-06-06_X_01.dat	23.6	17010	1.83	-5.5	4.8	3
KBR1B_2007-06-07_X_01.dat	23.7	17063	1.47	-4.2	5.3	3
KBR1B_2007-06-08_X_01.dat	24.0	17280	1.78	-5.8	6.3	1
KBR1B_2007-06-09_X_01.dat	24.0	17266	1.69	-5.3	4.9	2
KBR1B_2007-06-10_X_01.dat	24.0	17258	1.84	-3.4	6.6	2
KBR1B_2007-06-11_X_01.dat	24.0	17280	1.91	-6.1	5.0	1
KBR1B_2007-06-12_X_01.dat	24.0	17280	1.58	-4.9	3.2	1
KBR1B_2007-06-13_X_01.dat	24.0	17280	1.55	-5.5	3.6	1
KBR1B_2007-06-14_X_01.dat	24.0	17280	1.62	-4.6	5.2	1
KBR1B_2007-06-15_X_01.dat	24.0	17266	1.67	-4.1	6.5	2
KBR1B_2007-06-16_X_01.dat	24.0	17258	1.70	-6.1	3.7	2
KBR1B_2007-06-17_X_01.dat	24.0	17280	1.65	-4.2	4.0	1
KBR1B_2007-06-18_X_01.dat	24.0	17280	1.86	-5.6	5.0	1
KBR1B_2007-06-19_X_01.dat	24.0	17280	1.92	-5.5	6.2	1
KBR1B_2007-06-20_X_01.dat	24.0	17280	1.53	-5.3	5.0	1
KBR1B_2007-06-21_X_01.dat	23.9	17205	1.47	-3.8	3.6	2
KBR1B_2007-06-22_X_01.dat	24.0	17280	1.49	-5.2	5.2	1
KBR1B_2007-06-23_X_01.dat	24.0	17280	1.60	-6.2	5.1	1
KBR1B_2007-06-24_X_01.dat	24.0	17280	1.59	-3.8	4.0	1
KBR1B_2007-06-25_X_01.dat	24.0	17280	1.47	-4.6	4.5	1
KBR1B_2007-06-26_X_01.dat	23.9	17205	1.69	-5.3	4.1	2
KBR1B_2007-06-27_X_01.dat	23.9	17205	1.63	-4.5	4.5	2
KBR1B_2007-06-28_X_01.dat	23.8	17109	1.61	-4.0	4.2	4
KBR1B_2007-06-29_X_01.dat	not yet distributed					
KBR1B_2007-06-30_X_01.dat	not yet distributed					

- Following JPL RL00 (yellow) and RL01 (green) L1B products are publicly available. June and July 2002 are not provided due to accelerometer problems.

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

- L1B De-aliasing Products Status (for details see AOD1B Product Description Document):
  - Release 01 Level-1B barotropic sea level products (OCN1B) and de-aliasing products (AOD1B) were calculated by GFZ until June 30, 2007 and archived at GRACE-ISDC. Because CSR will not continue to generate RL01 Level-2 products based on AOD1B RL01 after May 2007 (see below) it was decided to stop the generation of RL01!
  - Release 03 Level 1B de-aliasing products (AOD1B) generation based on OMCT with non mass-conserving approach has been stopped January 31, 2007.
  - Release 04 Level 1B de-aliasing products (AOD1B) based on improved OMCT, mass-conserving approach and harmonized land/water masks have been processed until June 30, 2007 and archived at GRACE-ISDC.
  - Following AOD1B products are publicly available (yellow: RL01, RL03 and RL04; green: RL01 and RL04, red: RL04 only):

AOD1B	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2002												
2003												
2004												
2005												
2006												
2007												

Level-2 Product Generation and Distribution:

- Besides historical CSR RL01, GFZ RL03 and JPL RL02 time-series (see below) and more experimental releases which are only available to the GRACE Science Team the following RL04 L2 products are presently available to the public (green: available, yellow: in preparation; red: missing due to accelerometer data problems)

  - GFZ: GSM solutions for August 2002 until April 2007. July 2004 until October 2004 and December 2006 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.

GFZ RL04	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2002												
2003												
2004							GK2	GK2	GK2	GK2		
2005												
2006												GK2
2007												

- CSR: GSM solutions along with the GAC and GAD background model files and calibrated errors (GSM*.txt) are available for the period April 2002 until May 2007. Details are listed in the CSR L2 Release Notes.

CSR RL04	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2002												
2003												
2004												
2005												
2006												
2007												

- JPL: 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. At present, it is not foreseen to prolong this time series. Details are listed in the JPL L2 Release Notes.

JPL RL04	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2002												
2003												
2004												
2005												
2006												
2007												

- 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 interrupted RL01 processing. It is planned to stop RL01 generation with May 2007 products (April 2002 until December 2006 already 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 containing C20 estimates derived from SLR is periodically updated (maybe used to substitute C20 values of CSR RL01 products).

Miscellaneous:

- Next GRACE Science Team Meeting in combination with the German Special Priority Program “Mass Transport and Mass Distribution in the Earth System” symposium will take place at GFZ Potsdam between October 15 and 17, 2007. For further details see http://www.massentransporte.de/?gstm07.
- 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 .