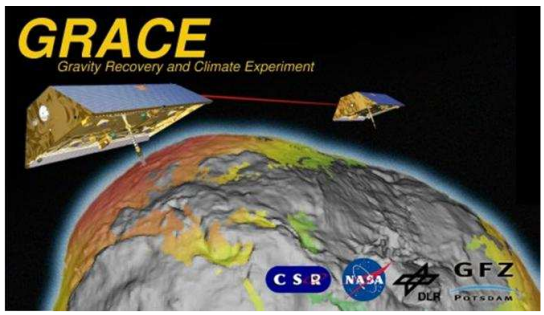
GRACE Science Data System Monthly Report September 2007



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:

- CSR and GFZ have generated RL04 Level-2 products for July 2007. May 2007 GFZ Level-2 products pending due to still incomplete GPS constellations (orbits and clocks). For further details see GRACE Product Distribution Section below.
- Generation of AOD1B RL04 was interrupted on September 21 to investigate a possible problem with S22 “ocn” and “oba” coefficients observed since mid of 2006.
- The Joint International GRACE Science Team Meeting and German Special Priority Program “Mass Transport and Mass Distribution in the Earth System” Symposium took place at GFZ Potsdam between October 15 and 17, 2007 (about 170 participants). PDFs of oral and poster presentations will be made available at the meeting site http://www.massentransporte.de/?130 mid of November.

Satellite Science Relevant Events:

- Operation in Science Mode throughout the month except of the OTM-5 (Orbit Trim Maneuver No. 5) on GRACE-B on September 26. For further details refer to the Level-1 Data Processing Section below.
- The GRACE-1 Brouwer mean orbital elements on October 1, 2007 00:00:00 are as follows:

  A [m] = 6841914.718
  E [-] = 0.001645
  I [°] = 89.021836

  The satellites separation was 180 km on October 1, 2007 with a rate of +0.98 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 2007-09-03 20 minutes of KBR1B was lost due to gaps in the GPS FLINN clock solutions. 2007-09-03 may be redelivered at a later time when new GPS FLINN clocks for 2007-09-03 are available.
  - On day 2007-09-26 GRACE-B performed OTM-5 (Orbit Trim Maneuver No. 5) from 26-SEP-2007 04:10:46 till 26-SEP-2007 04:12:14 The KBR1B may be degraded from 2007-09-26 03:20 till 2007-09-26 04:33 because of removal of the -1 deg attitude bias on GRACE-B. Furthermore GRACE-A performed a 90 deg yaw turn from 04:46 till 05:22 resulting in 23 minutes of KBR1B data loss
  - On 2007-09-30 19:28 the GRACE-A IPU (Instrument Processing Unit) executed an autonomous restart tracker command After that, the KBR data appeared nominal but post processing revealed a KBR range drift of 1.5 cm/sec compared to the actual range determined from GPS derived orbits resulting in large KBR-GPS residuals (see below). The KBR data became nominal after a GRACE-A IPU reboot on 2007-10-01 16:16. Also, the KBR data failed the prefit test in this interval. Therefore, it is recommended to exclude the L1B data from the gravity determination process during this time span.

- 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_2007-08-24_X_01.dat	24.0	17280	1.92	-8.3	3.7	1
KBR1B_2007-08-25_X_01.dat	24.0	17280	1.85	-5.5	6.2	1
KBR1B_2007-08-26_X_01.dat	24.0	17260	1.76	-5.9	6.5	2
KBR1B_2007-08-27_X_01.dat	23.8	17145	2.13	-6.9	5.1	2
KBR1B_2007-08-28_X_01.dat	23.9	17214	1.89	-4.2	4.6	4
KBR1B_2007-08-29_X_01.dat	24.0	17280	1.70	-4.8	5.0	1
KBR1B_2007-08-30_X_01.dat	24.0	17280	1.63	-5.0	5.2	1
KBR1B_2007-08-31_X_01.dat	24.0	17280	1.26	-3.7	3.6	1
KBR1B_2007-09-01_X_01.dat	24.0	17280	1.81	-5.0	5.0	1
KBR1B_2007-09-02_X_01.dat	23.9	17243	1.55	-3.5	3.4	3
KBR1B_2007-09-03_X_01.dat	24.0	17001	2.28	-7.0	8.5	2
KBR1B_2007-09-04_X_01.dat	24.0	17280	1.60	-3.5	5.3	1
KBR1B_2007-09-05_X_01.dat	24.0	17280	1.70	-5.3	5.6	1
KBR1B_2007-09-06_X_01.dat	24.0	17280	1.54	-3.6	4.9	1
KBR1B_2007-09-07_X_01.dat	24.0	17280	1.65	-6.0	4.2	1
KBR1B_2007-09-08_X_01.dat	24.0	17280	1.38	-3.3	3.4	1
KBR1B_2007-09-09_X_01.dat	24.0	17254	1.71	-6.2	3.9	1
KBR1B_2007-09-10_X_01.dat	23.6	17005	1.97	-5.1	5.7	3
KBR1B_2007-09-11_X_01.dat	24.0	17280	1.99	-4.7	5.2	1
KBR1B_2007-09-12_X_01.dat	24.0	17280	1.65	-4.8	5.1	1
KBR1B_2007-09-13_X_01.dat	24.0	17256	1.84	-4.9	4.2	2
KBR1B_2007-09-14_X_01.dat	23.9	17188	1.48	-5.5	4.6	3
KBR1B_2007-09-15_X_01.dat	23.9	17225	1.33	-5.0	3.4	3
KBR1B_2007-09-16_X_01.dat	24.0	17252	1.81	-4.7	5.9	2
KBR1B_2007-09-17_X_01.dat	24.0	17280	1.78	-5.0	5.2	1
KBR1B_2007-09-18_X_01.dat	24.0	17280	1.51	-4.5	4.7	1

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KBR1B_2007-09-19_X_01.dat  23.9  17205  1.77    -5.1    5.6  2
KBR1B_2007-09-20_X_01.dat  24.0  17251  1.45    -3.6    3.6  2
KBR1B_2007-09-21_X_01.dat  23.8  17124  1.66    -6.6    4.2  3
KBR1B_2007-09-22_X_01.dat  24.0  17280  1.52    -4.0    4.5  1
KBR1B_2007-09-23_X_01.dat  24.0  17280  2.05    -7.3    6.7  1
KBR1B_2007-09-24_X_01.dat  24.0  17280  1.65    -3.5    6.6  1
KBR1B_2007-09-25_X_01.dat  24.0  17280  1.54    -4.8    3.9  1
KBR1B_2007-09-26_X_01.dat  23.6  17001  1.80    -7.9    5.7  2
KBR1B_2007-09-27_X_01.dat  24.0  17280  1.58    -4.7    4.7  1
KBR1B_2007-09-28_X_01.dat  24.0  17280  1.38    -5.7    4.0  1
KBR1B_2007-09-29_X_01.dat  24.0  17280  1.50    -4.5    3.8  1
KBR1B_2007-09-30_X_01.dat  24.0  17251 3183.52 -12729.6 12720.5 2
```

- 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: Generation has been stopped June 30, 2007.
  - Release 03: Generation has been stopped January 31, 2007.
  - Release 04: Processed and archived until September 20, 2007. Generation of RL04 interrupted on September 21 to investigate a possible problem with S22 ocn and oba coefficients observed since mid of 2006.
  - Following AOD1B products are publicly available (yellow: RL01, RL03 and RL04; green: RL01 and RL04, blue: 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 July 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. May 2007 not yet available due to still incomplete GPS constellations (orbits and clocks). 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 July 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. 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 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 containing C20 estimates derived from SLR is periodically updated (maybe used to substitute C20 values of CSR RL01 products).

Miscellaneous:

- 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 .