GRACE Science Data System Monthly Report
March 2006

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Highlights:

- 4th birthday of the GRACE satellites on March 17!
- The GRACE operational phase will start on May 1, 2006. Then, the L1B instrument data will be provided to the public within 11 days, L2 products will be delivered within 60 days. At present the GRACE documentation is updated and completed, the archives at PO.DAAC (JPL) and ISDC (GFZ) are harmonized.

Satellite Science Relevant Events:

- Nominal operation in Science Mode except on March 25 when the Instrument Processing Unit (IPU) data on GRACE-1 became corrupted at 06:34 UTC. In the following, the Level-1 software was unable to process the data. A commanded reboot on March 26 at 21:20 cleared the problem and restored the nominal data stream. The anomaly and possible reprocessing of the corrupted data has been investigated. See also section “Level-1 Data Processing”.
- The GRACE-1 Brouwer mean orbital elements on April 01, 2006 00:00:00 are as follows:

  A [m] = 6842904.59

  E [-] = 0.001620

  I [º] = 89.035107

  The satellites separation was 232 km on April 1, 2006 with a rate of 0.5 km/d. Next maintenance maneuver is needed in about 2 months.

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

GRACE-1 Housekeeping:	99.8 %
GRACE-1 Science:	100.0 %
GRACE-2 Housekeeping:	99.6 %
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 2006-03-25 around 6:34 a bit-flip in the IPU computer code memory occurred on GRACE-A which set the third least significant bit for each byte to zero in the IPU blackjack data stream. This problem was cleared by an IPU reset on 2006-03-26 around 21:24. All IPU blackjack data was corrupted during this time and has been considered lost.

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_2006-02-17_X_01.dat	23.2	16721	1.44	-4.6	3.4	6
KBR1B_2006-02-18_X_01.dat	23.9	17186	1.27	-3.6	3.9	2
KBR1B_2006-02-19_X_01.dat	24.0	17280	1.58	-4.8	4.1	1
KBR1B_2006-02-20_X_01.dat	24.0	17280	1.82	-6.4	4.5	1
KBR1B_2006-02-21_X_01.dat	24.0	17280	1.62	-3.6	4.1	1
KBR1B_2006-02-22_X_01.dat	23.9	17205	1.28	-3.9	3.5	2
KBR1B_2006-02-23_X_01.dat	23.8	17140	1.60	-4.7	5.1	2
KBR1B_2006-02-24_X_01.dat	24.0	17280	1.38	-5.2	3.6	1

KBR1B_2006-02-25_X_01.dat	24.0	17280	1.48	-3.9	3.8	1
KBR1B_2006-02-26_X_01.dat	24.0	17266	1.41	-3.9	4.0	2
KBR1B_2006-02-27_X_01.dat	24.0	17145	1.58	-7.5	4.2	2
KBR1B_2006-02-28_X_01.dat	23.7	17056	1.37	-5.0	5.0	4
KBR1B_2006-03-01_X_01.dat	24.0	17280	1.31	-5.0	4.0	1
KBR1B_2006-03-02_X_01.dat	24.0	17280	1.67	-4.6	4.3	1
KBR1B_2006-03-03_X_01.dat	24.0	17280	1.60	-4.2	4.9	1
KBR1B_2006-03-04_X_01.dat	24.0	17280	1.27	-4.0	4.0	1
KBR1B_2006-03-05_X_01.dat	23.7	17058	1.32	-3.6	3.9	2
KBR1B_2006-03-06_X_01.dat	23.9	17205	1.33	-5.2	3.3	2
KBR1B_2006-03-07_X_01.dat	24.0	17280	1.43	-4.0	3.7	1
KBR1B_2006-03-08_X_01.dat	23.8	17134	1.49	-4.3	3.4	2
KBR1B_2006-03-09_X_01.dat	24.0	17280	1.35	-4.2	3.7	1
KBR1B_2006-03-10_X_01.dat	23.9	17198	1.40	-5.1	4.2	2
KBR1B_2006-03-11_X_01.dat	24.0	17280	1.37	-3.3	5.3	1
KBR1B_2006-03-12_X_01.dat	24.0	17280	1.53	-5.2	3.7	1
KBR1B_2006-03-13_X_01.dat	23.8	17145	1.10	-2.3	3.2	2
KBR1B_2006-03-14_X_01.dat	24.0	17280	1.37	-3.5	5.5	1
KBR1B_2006-03-15_X_01.dat	24.0	17252	1.40	-4.7	3.5	3
KBR1B_2006-03-16_X_01.dat	23.9	17179	1.57	-5.5	4.2	3
KBR1B_2006-03-17_X_01.dat	24.0	17280	1.84	-5.4	6.3	1
KBR1B_2006-03-18_X_01.dat	24.0	17280	1.53	-4.4	4.2	1
KBR1B_2006-03-19_X_01.dat	23.8	17111	1.67	-5.6	4.2	4
KBR1B_2006-03-20_X_01.dat	24.0	17256	1.32	-3.4	5.2	2
KBR1B_2006-03-21_X_01.dat	24.0	17280	1.36	-4.4	3.5	1
KBR1B_2006-03-22_X_01.dat	23.9	17205	1.57	-4.8	5.4	2
KBR1B_2006-03-23_X_01.dat	24.0	17280	1.70	-4.7	5.5	1
KBR1B_2006-03-24_X_01.dat	24.0	17280	1.54	-6.4	3.6	1
KBR1B_2006-03-25_X_01.dat	6.3	4538	1.21	-4.3	5.9	2
KBR1B_2006-03-26_X_01.dat	2.6	1851	1.16	-2.0	2.6	1
KBR1B_2006-03-27_X_01.dat	24.0	17280	1.45	-4.1	4.1	1
KBR1B_2006-03-28_X_01.dat	23.8	17145	1.61	-4.9	4.2	2
KBR1B_2006-03-29_X_01.dat	24.0	17280	1.42	-4.6	3.1	1
KBR1B_2006-03-30_X_01.dat	24.0	17280	1.41	-3.8	3.5	1
KBR1B_2006-03-31_X_01.dat	not yet distributed					

- Release 01 Level-1B barotropic sea level products (OCN1B) and de-aliasing products (AOD1B) were calculated by GFZ until March 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 February 2006 generated, processing of March 2006 will be started soon.

Level-2 Data Processing:

- All 3 L2 centers at CSR, JPL and GFZ continued reprocessing of release 02 (CSR, JPL) and 03 (GFZ) based on new standards, background models and processing strategies.
- Investigations ongoing, if and how slopes over land, which are due to the non-mass-conserving OMCT model output in AOD1B RL03 (used in JPL and GFZ L2 products), can be corrected. A technical note is under preparation.

GRACE Product Distribution:

- GFZ RL03 L2 products are now available for the Science Team for February 2003 until February 2006. Missing months are June 2003 and January 2004. July 2004 until October 2004 are also available as constrained solutions (*GK2-*).
- CSR has provided RL01 constrained and unconstrained solutions for January 2006. In total, 41 RL01 unconstrained solutions are now available for the period August 2002 – January 2006 (only June 2003 is missing due to accelerometer data problems).

Miscellaneous:

- GRACE Science Team Meeting (GSTM) proceedings are available online (http://www.csr.utexas.edu/grace/GSTM).
- 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.