GRACE Science Data System Monthly Report
November 2004

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

Satellite Science Relevant Events:

- No events happened at the satellites which were science relevant.
- The GRACE-1 Brouwer mean orbital elements on December 01, 2004 00:00:00 are as follows:

  A [m] = 469105.2
  E [-] = 0.001942
  I [º] = 89.029297

  The satellites separation was 217 km on November 30 with a rate of +0.89 km/d. The next orbit maintenance maneuver will be needed in about 2 months.

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

GRACE-1 Housekeeping:	100.0 %
GRACE-1 Science:	100.0 %
GRACE-2 Housekeeping:	100.0 %
GRACE-2 Science:	100.0 %

Level-1 Data Processing:

- Level-1B instrument data have been processed at JPL and archived at GRACE-ISDC and JPL PO.DAAC.

Notes:

- On day 2004-11-05 KBR1B data was lost due to 3 IPU reboots
- On day 2004-11-10 KBR1B data was lost due to a long IPU reboot on GRACE-A
- On day 2004-11-15 KBR1B data was lost due the course pointing mode associated with problems of the upload of V4 reference attitude library on GRACE-B. Formal clock error limit was raised to 15 cm (from 10 cm) to limit the loss KBR1B data. The slight degraded clock solution should have little impact on the KBR1B data quality.
- On day 2004-11-16 KBR1B data was lost due to course pointing mode associated with long GPS data outage on GRACE-B
- On day 2004-11-19 KBR1B data was lost because of long period to reacquire KBR data after an IPU reboot on GRACE-B

The following table gives provides statistical information on the available KBR1B products. The columns in the table are:

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_2004-10-30_X_00.dat	23.8	17125	1.69	-3.7	4.7	2
KBR1B_2004-10-31_X_00.dat	24.0	17280	1.77	-4.7	6.9	1
KBR1B_2004-11-01_X_00.dat	24.0	17280	1.72	-5.7	3.8	1
KBR1B_2004-11-02_X_00.dat	23.9	17204	1.75	-6.1	5.8	2
KBR1B_2004-11-03_X_00.dat	24.0	17261	1.50	-4.9	3.5	1
KBR1B_2004-11-04_X_00.dat	23.8	17145	1.65	-4.0	5.0	2
KBR1B_2004-11-05_X_00.dat	23.5	16931	1.69	-3.9	4.5	4
KBR1B_2004-11-06_X_00.dat	24.0	17280	1.33	-3.3	4.9	1
KBR1B_2004-11-07_X_00.dat	24.0	17280	1.62	-5.2	3.8	1
KBR1B_2004-11-08_X_00.dat	24.0	17280	1.60	-3.9	4.1	1
KBR1B_2004-11-09_X_00.dat	24.0	17273	1.80	-6.0	3.8	1

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KBR1B_2004-11-10_X_00.dat  23.5  16915  1.80    -5.8    6.3  3
KBR1B_2004-11-11_X_00.dat  23.9  17185  1.92    -6.4    5.6  2
KBR1B_2004-11-12_X_00.dat  24.0  17260  1.42    -3.2    4.1  1
KBR1B_2004-11-13_X_00.dat  23.7  17085  2.06    -4.0    5.3  2
KBR1B_2004-11-14_X_00.dat  24.0  17280  1.50    -4.0    4.4  1
KBR1B_2004-11-15_X_00.dat  22.0  15844  2.34    -6.7    8.0  4
KBR1B_2004-11-16_X_00.dat  23.4  16845  2.03    -7.5    6.7  2
KBR1B_2004-11-17_X_00.dat  23.8  17133  2.04    -6.0    5.6  2
KBR1B_2004-11-18_X_00.dat  24.0  17280  2.10    -5.7    6.5  1
KBR1B_2004-11-19_X_00.dat  23.4  16884  1.82    -4.2    5.4  2
KBR1B_2004-11-20_X_00.dat   --- not yet processed ---
   …
KBR1B_2004-11-30_X_00.dat   --- not yet processed ---
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- Level-1B barotropic sea level products (OCN1B) and de-aliasing products (AOD1B) until November 30 were calculated by GFZ and archived at GRACE-ISDC.

Level-2 Data Processing:

- All 3 L2 centers at CSR, JPL and GFZ concentrated on improvements in the gravity model product quality and catching up on the remaining monthly fields data processing.
- A long period 4 days repeat cycle starting around April 2004 degraded gravity solution quality up to September 2004. Investigations have shown that the minimum of the resonant angle of the 61st order resonance had its minimum on September 19, 2004. Therefore it is expected that the quality of the GRACE gravity fields will improve again.

GRACE Product Distribution:

- No products have been delivered to the archives.
- The GFZ L2 Release Notes have been updated on December 9 (monthly gravity field solutions provided so far are constrained by Kaula´s rule starting at degree and order 70).

Miscellaneous:

- Tests dumps at the GFZ/DLR ground station in Ny Alesund have been carried out through whole month in order to support the long term occultation test on GRACE-2 scheduled for

December 2, 2004. This occultation experiment will be stopped after the third IPU reboot.

- Next SDS workshop will take place on Thursday, December 16 2004, at the San Francisco Marriott hotel (meeting room Sierra C on 4th floor).
- Selected and reviewed presentations from the July 2004 Joint CHAMP/GRACE Science Meeting will be published in a special issue of EGU´s ´Advances of Geosciences´.
- The GRACE Science Team members who acquire GRACE products at PO.DAAC should re-visit the public GRACE data website and double check that they have all products. For the present, the password protected site is not being updated with new products, only the public site is.GRACE-ISDC does not distinguish between ST members and other users. Therefore double checking is not necessary.
- 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.