GRACE Science Data System Monthly Report
July 2004

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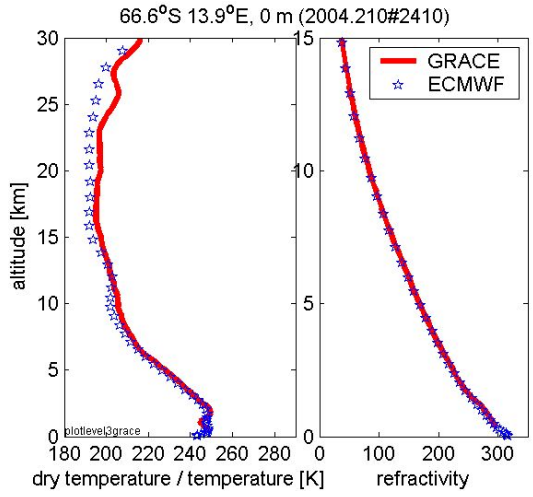
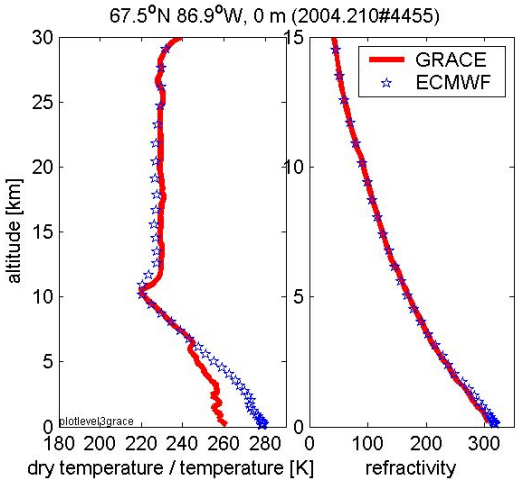
Satellite Science Relevant Events:

- Between July 28 06:05 and July 29 07:10 UTC the radio occultation capability of the Instrument Processing Unit (IPU) has been tested on GRACE-2. Some tens of dry temperature and refractivity profiles have been derived at JPL and GFZ which all show good agreement with meteorological services data (see GFZ figures below). During the experiment the number of tracked GPS satellites was decreased to 9. At first glance, there appears to have been no impact on gravity data collection from this experiment. Further analysis is underway.





- The GRACE-1 Brouwer mean orbital elements on August 01, 2004 00:00:00 are as follows:

  A [m] = 470718.94

  E [-] = 0.001842

I [º] = 89.014369

The satellites separation is 199 km (July 30) with a rate of -0.50 km/d. The next orbit maintenance manoeuvre will be necessary in about two 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: 99.4 %
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.

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_2004-06-19_X_00.dat	24.0	17280	1.53	-4.2	4.4	1
KBR1B_2004-06-20_X_00.dat	23.8	17145	1.36	-3.5	4.0	2
KBR1B_2004-06-21_X_00.dat	24.0	17280	1.53	-4.7	3.8	1
KBR1B_2004-06-22_X_00.dat	24.0	17280	1.76	-6.8	4.3	1
KBR1B_2004-06-23_X_00.dat	23.8	17145	1.66	-4.4	5.3	2
KBR1B_2004-06-24_X_00.dat	24.0	17280	1.33	-3.9	3.2	1
KBR1B_2004-06-25_X_00.dat	24.0	17280	1.80	-4.7	5.7	1

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KBR1B_2004-06-26_X_00.dat  24.0  17280  1.56    -5.9    4.2  1
KBR1B_2004-06-27_X_00.dat  23.8  17145  1.57    -3.8    4.2  2
KBR1B_2004-06-28_X_00.dat  24.0  17280  1.38    -3.5    3.3  1
KBR1B_2004-06-29_X_00.dat  24.0  17280  1.78    -5.2    4.9  1
KBR1B_2004-06-30_X_00.dat  23.9  17191  1.55    -4.5    4.6  3
KBR1B_2004-07-01_X_00.dat  24.0  17250  1.84    -6.8    4.2  3
KBR1B_2004-07-02_X_00.dat  24.0  17280  1.67    -4.1    4.2  1
KBR1B_2004-07-03_X_00.dat  24.0  17261  1.59    -4.2    4.5  1
KBR1B_2004-07-04_X_00.dat  23.9  17185  1.73    -4.6    4.8  2
KBR1B_2004-07-05_X_00.dat  23.8  17125  1.40    -5.1    4.2  2
KBR1B_2004-07-06_X_00.dat  24.0  17280  1.74    -4.4    4.6  1
KBR1B_2004-07-07_X_00.dat  23.8  17108  1.93    -6.2    5.1  2
KBR1B_2004-07-08_X_00.dat  24.0  17280  1.73    -5.3    7.0  1
KBR1B_2004-07-09_X_00.dat  24.0  17265  1.63    -5.6    5.8  2
KBR1B_2004-07-10_X_00.dat  24.0  17280  1.66    -4.6    4.6  1
KBR1B_2004-07-11_X_00.dat  23.9  17194  1.34    -4.0    3.8  2
KBR1B_2004-07-12_X_00.dat  24.0  17280  1.50    -3.5    4.1  1
KBR1B_2004-07-13_X_00.dat  23.8  17131  1.44    -3.6    4.6  3
KBR1B_2004-07-14_X_00.dat  24.0  17280  1.41    -3.3    3.6  1
KBR1B_2004-07-15_X_00.dat  24.0  17280  1.44    -5.2    3.7  1
KBR1B_2004-07-16_X_00.dat  24.0  17280  1.44    -3.9    3.1  1
KBR1B_2004-07-17_X_00.dat   --- not yet processed ---
  …
KBR1B_2004-07-31_X_00.dat   --- not yet processed ---
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Additionally all level-1B barotropic sea level products (OCN1B) and de-aliasing products (AOD1B) until July 31 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.

GRACE Product Distribution:

- On August 9 GRACE L1B and L2 products for the period August 1, 2002 until May 31,

2004 will be provided to the public.

- Presently the following Level-2 products are available at the GRACE-ISDC and PO.DAAC:
  - Monthly solutions
    - CSR: 19
    - GFZ: 9
    - JPL: 4
  - Combination solutions:
    - CSR: 1 (111 days)
  - Satellite only solutions:
    - GFZ: 2 (66 and 110 days)
    - JPL: 1 (191 days)

  Further details are given in the corresponding L2 release notes available at both archives.

Miscellaneous:

- Joint CHAMP/GRACE Science Meeting took place at GFZ in Potsdam on July 6-8. 268 scientists from 20 different countries participated. Selected and reviewed presentations from the meeting will be published in a special issue of EGU´s ´Advances of Geosciences´.
- Science data users are encouraged to submit citations of their own and other works related with GRACE to the new bibliography web page implemented at PO.DAAC: http://podaac.jpl.nasa.gov/grace/bibliography.html.