Release Notes for GFZ GRACE Level-2 Products - version RL06

Last update: 26.09.2019

Prepared by: Christoph Dahle, GFZ (email: grace@gfz-potsdam.de)

General Remarks:

- A GFZ GRACE RL06 time series has been reprocessed and is currently available at the two GRACE archives GFZ/ISDC (Information System and Data Centre) and JPL/PO.DAAC (Physical Oceanography Distributed Active Archive Center) for the period from April 2002 through June 2017.
- GFZ GRACE RL06 substitutes GFZ GRACE RL05a (RL05a will not be produced anymore).
- Details on modifications w.r.t. GFZ GRACE RL05a are described by Dahle et al. [1] and can be found as well in the GFZ GRACE Level-2 Processing Standards Document For Level-2 Product Release 06 [2] which is also available at the GRACE archives.
- One notable difference when comparing GRACE RL06 with previous releases is the Level-2 filename format. This has been altered to ensure conformity with future GRACE-FO product releases (see GRACE Level-2 Gravity Field Product User Handbook [3]).
- Another notable difference in GRACE RL06 is the use of a linear mean pole that negates the need for the correction of the C_{21} and S_{21} coefficients recommended by Wahr et al. [4], which was applicable for GRACE RL05 solutions.
- While for GFZ GRACE RL05a monthly solutions up to degree/order 90 have been provided, the following two versions of GFZ GRACE RL06 monthly solutions are provided: (1) up to degree/order 60 and (2) up to degree/order 96 (in case of sufficient satellite ground track coverage).
- The uncertainties of the spherical harmonic coefficients provided with the GFZ GRACE RL06 gravity field solutions have not been calibrated and represent the formal errors.

User Recommendations:

- ***C_{20}* coefficient:** The GRACE SDS recommends the replacement of the native GRACE C_{20} coefficient with that from SLR. Therefore, GRACE Technical Note TN-11 [5] is provided and contains a GRACE RL06-compatible SLR-C_{20} solution. Another GRACE RL06-compatible SLR-C_{20} solution has recently been published by König et al. [6].
- ***C_{30}* coefficient:** For the last 7 months of the GFZ GRACE RL06 time series (November 2016 through June 2017) which have to be processed with accelerometer transplant data for GRACE-B (see also **Comment 6)** further below), the C_{30} coefficient shows comparatively more variability relative to the long-term C_{30} climatology derived from the rest of the time series. Therefore, it is provisionally recommended that users assess the impact on regional mass budgets by substituting the C_{30} coefficient of these solutions with one derived from SLR

(similar to the C_{20} approach). A candidate C_{30} replacement value is provided in Technical Note TN-14 ([7], [8]).

- ***C_{21} / S_{21}* coefficients:** For the last 7 months of the GFZ GRACE RL06 time series (November 2016 through June 2017) which have to be processed with accelerometer transplant data for GRACE-B (see also **Comment 6)** further below), the coefficients C_{21} and S_{21} show significantly larger variability compared to the rest of the time series. It is therefore recommended to pay special attention when using these solutions for applications where these coefficients are known to be of significant importance.

Products:

There are usually 6 Level-2 product files available for each month where **YYYY** corresponds to a 4-digit year and **DDD** corresponds to a 3-digit day of year (for details regarding the product names see the Level-2 Gravity Field Product User Handbook [3]):

GSM-2_YYYYDDD-YYYYDDD_GRAC_GFZOP_BA01_0600
Unconstrained monthly gravity field solution estimated up to degree/order 60.

GSM-2_YYYYDDD-YYYYDDD_GRAC_GFZOP_BB01_0600
Unconstrained monthly gravity field solution estimated up to degree/order 96.
Note that for months with short-period repeat orbits, this solution might not always be published.

GAA-2_YYYYDDD-YYYYDDD_GRAC_GFZOP_BC01_0600
The average of the "atm" coefficients from the AOD1B RL06 product up to degree/order 180 over the same time span as the GSM products.

GAB-2_YYYYDDD-YYYYDDD_GRAC_GFZOP_BC01_0600
The average of the "ocn" coefficients from the AOD1B RL06 product up to degree/order 180 over the same time span as the GSM products.

GAC-2_YYYYDDD-YYYYDDD_GRAC_GFZOP_BC01_0600
The average of the "glo" coefficients from the AOD1B RL06 product up to degree/order 180 over the same time span as the GSM products; these harmonic coefficients are used as background model during Level-2 processing.

GAD-2_YYYYDDD-YYYYDDD_GRAC_GFZOP_BC01_0600
The average of the "oba" coefficients from the AOD1B RL06 product up to degree/order 180 over the same time span as the GSM products.

Note that the GAA/GAB/GAC/GAD products contain coefficients for degree 0 and 1; however, these coefficients are not used in the GFZ Level-2 processing.

Also note that the averaging of the GAA/GAB/GAC/GAD products is computed over entire days, regardless of whether the full day (as opposed to a partial day) was included in Level-2 processing.

For further details about AOD1B see the Product Description Document for AOD1B Release 06 [9].

Citation:

Please use the following reference when using the time series of GFZ RL06 Level-2 products:

Dahle, Christoph; Murböck, Michael; Flechtner, Frank; Dobslaw, Henryk; Michalak, Grzegorz; Neumayer, Karl H.; Abrykosov, Oleh; Reinhold, Anton; König, Rolf; Sulzbach, Roman; Förste, Christoph (2019). The GFZ GRACE RL06 Monthly Gravity Field Time Series: Processing Details and Quality Assessment. Remote Sens. 11(18):2116. https://doi.org/10.3390/rs11182116

The GFZ RL06 Level-2 products are published as data publication via GFZ Data Services:

GSM-Products:
Dahle, Christoph; Flechtner, Frank; Murböck, Michael; Michalak, Grzegorz; Neumayer, Hans; Abrykosov, Oleh; Reinhold, Anton; König, Rolf (2018): GRACE Geopotential GSM Coefficients GFZ RL06. V. 6.0. GFZ Data Services. http://doi.org/10.5880/GFZ.GRACE_06_GSM

GAA-Products:
Dobslaw, Henryk; Dill, Robert; Dahle, Christoph (2018): GRACE Geopotential GAA Coefficients GFZ RL06. V. 6.0. GFZ Data Services. http://doi.org/10.5880/GFZ.GRACE_06_GAA

GAB-Products:
Dobslaw, Henryk; Dill, Robert; Dahle, Christoph (2018): GRACE Geopotential GAB Coefficients GFZ RL06. V. 6.0. GFZ Data Services. http://doi.org/10.5880/GFZ.GRACE_06_GAB

GAC-Products:
Dobslaw, Henryk; Dill, Robert; Dahle, Christoph (2018): GRACE Geopotential GAC Coefficients GFZ RL06. V. 6.0. GFZ Data Services. http://doi.org/10.5880/GFZ.GRACE_06_GAC

GAD-Products:
Dobslaw, Henryk; Dill, Robert; Dahle, Christoph (2018): GRACE Geopotential GAD Coefficients GFZ RL06. V. 6.0. GFZ Data Services. http://doi.org/10.5880/GFZ.GRACE_06_GAD

Overview of available solutions:

The following table shows the currently available monthly Level-2 GFZ RL06 products, where

- ***Release Date*** is chronologically starting from first provision of GFZ RL06 data till today.
- ***Product Name*** is in agreement with the Level-2 Gravity Field Product User Handbook [3].
- ***Month*** is the calendar month the Level-2 products are assigned to (usually one complete month of data is used, exact start and end epochs are provided in the Level-2 product headers).
- ***Reference epoch*** is the proper mean epoch of the Level-2 products taking into account complete or partial days between start and end epoch which were not used during the generation of the Level-2 products; the reference epoch is given in civilian date and UTC time (rounded to minutes).

- ***Arcs & Days*** are the number of orbital arcs used for the generation of the Level-2 products and the accumulated number of actual days over these orbital arcs (i.e. the amount of days where GRACE data has been incorporated in the Level-2 processing).
- ***Max. d/o*** is the maximum degree and order for the corresponding Level-2 product.
- ***GAx*** is yes, if the corresponding GAA, GAB, GAC and GAD products are available, too (nominal case).
- ***Comments***, which are explained in detail further below, are provided in case of exceptional occurrences.

Release Date	*Product Name*	*Month*	*Reference epoch*	*Arcs & Days*	*Max. d/o*	*GAx*	*Comments*
26.06.2019	GSM-2_2017143-2017180_GRAC_GFZOP_BA01_0600 GSM-2_2017143-2017180_GRAC_GFZOP_BB01_0600	2017-06	17-06-10 T15:11	43 36.17	60x60 96x96	Yes	5), 6)
26.06.2019	GSM-2_2017122-2017142_GRAC_GFZOP_BA01_0600 GSM-2_2017122-2017142_GRAC_GFZOP_BB01_0600	2017-05	17-05-13 T02:11	24 19.64	60x60 96x96	Yes	5)
26.06.2019	GSM-2_2017100-2017128_GRAC_GFZOP_BA01_0600 GSM-2_2017100-2017128_GRAC_GFZOP_BB01_0600	2017-04	17-04-24 T17:06	30 27.90	60x60 96x96	Yes	5), 6)
26.06.2019	GSM-2_2017076-2017104_GRAC_GFZOP_BA01_0600 GSM-2_2017076-2017104_GRAC_GFZOP_BB01_0600	2017-03	17-03-31 T15:49	31 26.98	60x60 96x96	Yes	5), 6)
26.06.2019	GSM-2_2017007-2017032_GRAC_GFZOP_BA01_0600 GSM-2_2017007-2017032_GRAC_GFZOP_BB01_0600	2017-01	17-01-20 T00:05	29 24.46	60x60 96x96	Yes	5), 6)
26.06.2019	GSM-2_2016346-2017006_GRAC_GFZOP_BA01_0600 GSM-2_2016346-2017006_GRAC_GFZOP_BB01_0600	2016-12	16-12-24 T02:54	30 25.57	60x60 96x96	Yes	5), 6)
26.06.2019	GSM-2_2016319-2016345_GRAC_GFZOP_BA01_0600 GSM-2_2016319-2016345_GRAC_GFZOP_BB01_0600	2016-11	16-11-28 T11:37	39 24.57	60x60 96x96	Yes	5), 6)
22.03.2019	GSM-2_2002335-2002365_GRAC_GFZOP_BA01_0600 GSM-2_2002335-2002365_GRAC_GFZOP_BB01_0600	2002-12	02-12-17 T07:37	60 20.72	60x60 96x96	Yes	
22.03.2019	GSM-2_2002305-2002334_GRAC_GFZOP_BA01_0600 GSM-2_2002305-2002334_GRAC_GFZOP_BB01_0600	2002-11	02-11-15 T15:36	47 24.49	60x60 96x96	Yes	
22.03.2019	GSM-2_2002274-2002304_GRAC_GFZOP_BA01_0600 GSM-2_2002274-2002304_GRAC_GFZOP_BB01_0600	2002-10	02-10-16 T06:24	48 29.22	60x60 96x96	Yes	
22.03.2019	GSM-2_2002244-2002273_GRAC_GFZOP_BA01_0600 GSM-2_2002244-2002273_GRAC_GFZOP_BB01_0600	2002-09	02-09-15 T10:48	49 26.39	60x60 96x96	Yes	
22.03.2019	GSM-2_2002213-2002243_GRAC_GFZOP_BA01_0600 GSM-2_2002213-2002243_GRAC_GFZOP_BB01_0600	2002-08	02-08-15 T09:53	44 28.08	60x60 96x96	Yes	
22.03.2019	GSM-2_2002122-2002137_GRAC_GFZOP_BA01_0600 GSM-2_2002122-2002137_GRAC_GFZOP_BB01_0600	2002-05	02-05-09 T14:24	18 12.77	60x60 96x96	Yes	
22.03.2019	GSM-2_2002095-2002120_GRAC_GFZOP_BA01_0600 GSM-2_2002095-2002120_GRAC_GFZOP_BB01_0600	2002-04	02-04-17 T17:28	30 15.44	60x60 96x96	Yes	
19.12.2018	GSM-2_2016221-2016247_GRAC_GFZOP_BA01_0600 GSM-2_2016221-2016247_GRAC_GFZOP_BB01_0600	2016-08	16-08-21 T13:28	28 24.95	60x60 96x96	Yes	
19.12.2018	GSM-2_2016183-2016211_GRAC_GFZOP_BA01_0600 GSM-2_2016183-2016211_GRAC_GFZOP_BB01_0600	2016-07	16-07-15 T14:44	31 28.23	60x60 96x96	Yes	
19.12.2018	GSM-2_2016153-2016182_GRAC_GFZOP_BA01_0600 GSM-2_2016153-2016182_GRAC_GFZOP_BB01_0600	2016-06	16-06-15 T05:12	35 29.70	60x60 96x96	Yes	
19.12.2018	GSM-2_2016129-2016152_GRAC_GFZOP_BA01_0600 GSM-2_2016129-2016152_GRAC_GFZOP_BB01_0600	2016-05	16-05-19 T22:16	26 22.87	60x60 96x96	Yes	
19.12.2018	GSM-2_2016061-2016091_GRAC_GFZOP_BA01_0600 GSM-2_2016061-2016091_GRAC_GFZOP_BB01_0600	2016-03	16-03-17 T06:11	34 29.87	60x60 96x96	Yes	
19.12.2018	GSM-2_2016029-2016060_GRAC_GFZOP_BA01_0600 GSM-2_2016029-2016060_GRAC_GFZOP_BB01_0600	2016-02	16-02-13 T10:57	36 31.78	60x60 96x96	Yes	
19.12.2018	GSM-2_2016004-2016028_GRAC_GFZOP_BA01_0600 GSM-2_2016004-2016028_GRAC_GFZOP_BB01_0600	2016-01	16-01-16 T11:46	26 24.22	60x60 96x96	Yes	

Release Date	*Product Name*	*Month*	*Reference epoch*	*Arcs & Days*	*Max. d/o*	*GAx*	*Comments*
19.12.2018	GSM-2_2015346-2016003_GRAC_GFZOP_BA01_0600 GSM-2_2015346-2016003_GRAC_GFZOP_BB01_0600	2015-12	15-12-23 T02:33	26 22.52	60x60 96x96	Yes	
19.12.2018	GSM-2_2015244-2015270_GRAC_GFZOP_BA01_0600 GSM-2_2015244-2015270_GRAC_GFZOP_BB01_0600	2015-09	15-09-14 T03:46	30 26.41	60x60 96x96	Yes	
19.12.2018	GSM-2_2015213-2015243_GRAC_GFZOP_BA01_0600 GSM-2_2015213-2015243_GRAC_GFZOP_BB01_0600	2015-08	15-08-16 T00:20	34 30.60	60x60 96x96	Yes	
19.12.2018	GSM-2_2015180-2015212_GRAC_GFZOP_BA01_0600 GSM-2_2015180-2015212_GRAC_GFZOP_BB01_0600	2015-07	15-07-16 T23:00	28 25.17	60x60 96x96	Yes	
19.12.2018	GSM-2_2015102-2015131_GRAC_GFZOP_BA01_0600 GSM-2_2015102-2015131_GRAC_GFZOP_BB01_0600	2015-05	15-04-27 T11:15	33 29.04	60x60 96x96	Yes	
19.12.2018	GSM-2_2015091-2015120_GRAC_GFZOP_BA01_0600 GSM-2_2015091-2015120_GRAC_GFZOP_BB01_0600	2015-04	15-04-16 T16:41	33 29.86	60x60 96x96	Yes	
19.12.2018	GSM-2_2015060-2015090_GRAC_GFZOP_BA01_0600 GSM-2_2015060-2015090_GRAC_GFZOP_BB01_0600	2015-03	15-03-16 T16:29	37 30.44	60x60 96x96	Yes	
19.12.2018	GSM-2_2015032-2015059_GRAC_GFZOP_BA01_0600 GSM-2_2015032-2015059_GRAC_GFZOP_BB01_0600	2015-02	15-02-15 T13:45	35 27.12	60x60 96x96	Yes	4)
19.12.2018	GSM-2_2015013-2015031_GRAC_GFZOP_BA01_0600 GSM-2_2015013-2015031_GRAC_GFZOP_BB01_0600	2015-01	15-01-21 T20:13	21 18.55	60x60 96x96	Yes	4)
13.11.2018	GSM-2_2003335-2003365_GRAC_GFZOP_BA01_0600 GSM-2_2003335-2003365_GRAC_GFZOP_BB01_0600	2003-12	03-12-16 T08:56	41 29.25	60x60 96x96	Yes	
13.11.2018	GSM-2_2003305-2003334_GRAC_GFZOP_BA01_0600 GSM-2_2003305-2003334_GRAC_GFZOP_BB01_0600	2003-11	03-11-16 T23:45	44 27.88	60x60 96x96	Yes	
13.11.2018	GSM-2_2003274-2003304_GRAC_GFZOP_BA01_0600 GSM-2_2003274-2003304_GRAC_GFZOP_BB01_0600	2003-10	03-10-16 T20:41	38 30.30	60x60 96x96	Yes	
13.11.2018	GSM-2_2003244-2003273_GRAC_GFZOP_BA01_0600 GSM-2_2003244-2003273_GRAC_GFZOP_BB01_0600	2003-09	03-09-16 T22:40	40 29.34	60x60 96x96	Yes	
13.11.2018	GSM-2_2003213-2003243_GRAC_GFZOP_BA01_0600 GSM-2_2003213-2003243_GRAC_GFZOP_BB01_0600	2003-08	03-08-15 T17:28	39 28.61	60x60 96x96	Yes	
13.11.2018	GSM-2_2003182-2003212_GRAC_GFZOP_BA01_0600 GSM-2_2003182-2003212_GRAC_GFZOP_BB01_0600	2003-07	03-07-15 T11:37	42 30.10	60x60 96x96	Yes	
13.11.2018	GSM-2_2003121-2003141_GRAC_GFZOP_BA01_0600 GSM-2_2003121-2003141_GRAC_GFZOP_BB01_0600	2003-05	03-05-10 T22:25	29 19.62	60x60 96x96	Yes	
13.11.2018	GSM-2_2003091-2003120_GRAC_GFZOP_BA01_0600 GSM-2_2003091-2003120_GRAC_GFZOP_BB01_0600	2003-04	03-04-16 T00:01	43 28.54	60x60 96x96	Yes	
13.11.2018	GSM-2_2003060-2003090_GRAC_GFZOP_BA01_0600 GSM-2_2003060-2003090_GRAC_GFZOP_BB01_0600	2003-03	03-03-15 T15:38	52 26.84	60x60 96x96	Yes	
13.11.2018	GSM-2_2003032-2003059_GRAC_GFZOP_BA01_0600 GSM-2_2003032-2003059_GRAC_GFZOP_BB01_0600	2003-02	03-02-14 T19:30	61 22.97	60x60 96x96	Yes	
13.11.2018	GSM-2_2003001-2003031_GRAC_GFZOP_BA01_0600 GSM-2_2003001-2003031_GRAC_GFZOP_BB01_0600	2003-01	03-01-15 T02:59	61 18.15	60x60 96x96	Yes	
08.10.2018	GSM-2_2014305-2014334_GRAC_GFZOP_BA01_0600 GSM-2_2014305-2014334_GRAC_GFZOP_BB01_0600	2014-11	14-11-16 T08:46	37 29.82	60x60 96x96	Yes	
08.10.2018	GSM-2_2014274-2014304_GRAC_GFZOP_BA01_0600 GSM-2_2014274-2014304_GRAC_GFZOP_BB01_0600	2014-10	14-10-14 T07:18	37 30.76	60x60 96x96	Yes	
08.10.2018	GSM-2_2014244-2014273_GRAC_GFZOP_BA01_0600 GSM-2_2014244-2014273_GRAC_GFZOP_BB01_0600	2014-09	14-09-17 T13:37	49 28.31	60x60 96x96	Yes	
08.10.2018	GSM-2_2014213-2014243_GRAC_GFZOP_BA01_0600 GSM-2_2014213-2014243_GRAC_GFZOP_BB01_0600	2014-08	14-08-15 T19:38	40 30.09	60x60 96x96	Yes	
08.10.2018	GSM-2_2014152-2014175_GRAC_GFZOP_BA01_0600 GSM-2_2014152-2014175_GRAC_GFZOP_BB01_0600	2014-06	14-06-13 T07:42	28 23.52	60x60 96x96	Yes	
08.10.2018	GSM-2_2014121-2014151_GRAC_GFZOP_BA01_0600 GSM-2_2014121-2014151_GRAC_GFZOP_BB01_0600	2014-05	14-05-16 T18:22	34 30.67	60x60 96x96	Yes	
08.10.2018	GSM-2_2014091-2014120_GRAC_GFZOP_BA01_0600 GSM-2_2014091-2014120_GRAC_GFZOP_BB01_0600	2014-04	14-04-15 T21:39	36 28.15	60x60 96x96	Yes	

Release Date	*Product Name*	*Month*	*Reference epoch*	*Arcs & Days*	*Max. d/o*	*GAx*	*Comments*
08.10.2018	GSM-2_2014060-2014090_GRAC_GFZOP_BA01_0600 GSM-2_2014060-2014090_GRAC_GFZOP_BB01_0600	2014-03	14-03-17 T02:21	36 30.08	60x60 96x96	Yes	
08.10.2018	GSM-2_2014001-2014017_GRAC_GFZOP_BA01_0600 GSM-2_2014001-2014017_GRAC_GFZOP_BB01_0600	2014-01	14-01-09 T20:04	19 16.14	60x60 96x96	Yes	3)
08.10.2018	GSM-2_2013335-2013365_GRAC_GFZOP_BA01_0600 GSM-2_2013335-2013365_GRAC_GFZOP_BB01_0600	2013-12	13-12-14 T12:23	31 27.02	60x60 96x96	Yes	3)
08.10.2018	GSM-2_2013305-2013334_GRAC_GFZOP_BA01_0600 GSM-2_2013305-2013334_GRAC_GFZOP_BB01_0600	2013-11	13-11-16 T02:09	38 29.15	60x60 96x96	Yes	
08.10.2018	GSM-2_2013274-2013304_GRAC_GFZOP_BA01_0600 GSM-2_2013274-2013304_GRAC_GFZOP_BB01_0600	2013-10	13-10-17 T01:16	38 30.33	60x60 96x96	Yes	
08.10.2018	GSM-2_2013182-2013212_GRAC_GFZOP_BA01_0600 GSM-2_2013182-2013212_GRAC_GFZOP_BB01_0600	2013-07	13-07-16 T18:47	32 30.99	60x60 96x96	Yes	
08.10.2018	GSM-2_2013152-2013181_GRAC_GFZOP_BA01_0600 GSM-2_2013152-2013181_GRAC_GFZOP_BB01_0600	2013-06	13-06-16 T18:40	36 28.60	60x60 96x96	Yes	
08.10.2018	GSM-2_2013121-2013151_GRAC_GFZOP_BA01_0600 GSM-2_2013121-2013151_GRAC_GFZOP_BB01_0600	2013-05	13-05-16 T07:38	33 30.67	60x60 96x96	Yes	
08.10.2018	GSM-2_2013101-2013120_GRAC_GFZOP_BA01_0600 GSM-2_2013101-2013120_GRAC_GFZOP_BB01_0600	2013-04	13-04-21 T00:20	20 19.45	60x60 96x96	Yes	
08.10.2018	GSM-2_2013032-2013057_GRAC_GFZOP_BA01_0600 GSM-2_2013032-2013057_GRAC_GFZOP_BB01_0600	2013-02	13-02-13 T14:04	29 25.34	60x60 96x96	Yes	
08.10.2018	GSM-2_2013001-2013031_GRAC_GFZOP_BA01_0600 GSM-2_2013001-2013031_GRAC_GFZOP_BB01_0600	2013-01	13-01-15 T17:49	33 30.50	60x60 96x96	Yes	
08.10.2018	GSM-2_2012336-2012366_GRAC_GFZOP_BA01_0600 GSM-2_2012336-2012366_GRAC_GFZOP_BB01_0600	2012-12	12-12-16 T20:08	35 28.33	60x60 96x96	Yes	
08.10.2018	GSM-2_2012311-2012335_GRAC_GFZOP_BA01_0600 GSM-2_2012311-2012335_GRAC_GFZOP_BB01_0600	2012-11	12-11-18 T14:17	29 24.39	60x60 96x96	Yes	
08.10.2018	GSM-2_2012245-2012269_GRAC_GFZOP_BA01_0600 GSM-2_2012245-2012269_GRAC_GFZOP_BB01_0600	2012-09	12-09-13 T11:46	26 24.13	60x60 96x96	Yes	
08.10.2018	GSM-2_2012214-2012244_GRAC_GFZOP_BA01_0600 GSM-2_2012214-2012244_GRAC_GFZOP_BB01_0600	2012-08	12-08-16 T05:41	37 30.72	60x60 96x96	Yes	
08.10.2018	GSM-2_2012183-2012213_GRAC_GFZOP_BA01_0600 GSM-2_2012183-2012213_GRAC_GFZOP_BB01_0600	2012-07	12-07-16 T16:59	36 29.89	60x60 96x96	Yes	
08.10.2018	GSM-2_2012153-2012182_GRAC_GFZOP_BA01_0600 GSM-2_2012153-2012182_GRAC_GFZOP_BB01_0600	2012-06	12-06-16 T09:30	31 29.94	60x60 96x96	Yes	2)
08.10.2018	GSM-2_2012080-2012109_GRAC_GFZOP_BA01_0600 GSM-2_2012080-2012109_GRAC_GFZOP_BB01_0600	2012-04	12-04-03 T12:02	37 29.87	60x60 96x96	Yes	2)
08.10.2018	GSM-2_2012061-2012091_GRAC_GFZOP_BA01_0600 GSM-2_2012061-2012091_GRAC_GFZOP_BB01_0600	2012-03	12-03-17 T10:47	39 30.59	60x60 96x96	Yes	
08.10.2018	GSM-2_2012032-2012060_GRAC_GFZOP_BA01_0600 GSM-2_2012032-2012060_GRAC_GFZOP_BB01_0600	2012-02	12-02-16 T00:40	37 27.89	60x60 96x96	Yes	
08.10.2018	GSM-2_2012001-2012031_GRAC_GFZOP_BA01_0600 GSM-2_2012001-2012031_GRAC_GFZOP_BB01_0600	2012-01	12-01-17 T08:05	37 30.76	60x60 96x96	Yes	
08.10.2018	GSM-2_2011347-2012011_GRAC_GFZOP_BA01_0600 GSM-2_2011347-2012011_GRAC_GFZOP_BB01_0600	2011-12	11-12-29 T05:33	29 26.93	60x60 96x96	Yes	
08.10.2018	GSM-2_2011289-2011319_GRAC_GFZOP_BA01_0600 GSM-2_2011289-2011319_GRAC_GFZOP_BB01_0600	2011-11	11-10-31 T16:35	34 30.57	60x60 96x96	Yes	
08.10.2018	GSM-2_2011274-2011304_GRAC_GFZOP_BA01_0600 GSM-2_2011274-2011304_GRAC_GFZOP_BB01_0600	2011-10	11-10-16 T19:35	32 30.58	60x60 96x96	Yes	
08.10.2018	GSM-2_2011244-2011273_GRAC_GFZOP_BA01_0600 GSM-2_2011244-2011273_GRAC_GFZOP_BB01_0600	2011-09	11-09-15 T23:52	38 29.15	60x60 96x96	Yes	
08.10.2018	GSM-2_2011213-2011243_GRAC_GFZOP_BA01_0600 GSM-2_2011213-2011243_GRAC_GFZOP_BB01_0600	2011-08	11-08-17 T12:53	40 30.59	60x60 96x96	Yes	
08.10.2018	GSM-2_2011186-2011212_GRAC_GFZOP_BA01_0600 GSM-2_2011186-2011212_GRAC_GFZOP_BB01_0600	2011-07	11-07-18 T00:20	29 26.76	60x60 96x96	Yes	

Release Date	*Product Name*	*Month*	*Reference epoch*	*Arcs & Days*	*Max. d/o*	*GAx*	*Comments*
08.10.2018	GSM-2_2011121-2011151_GRAC_GFZOP_BA01_0600 GSM-2_2011121-2011151_GRAC_GFZOP_BB01_0600	2011-05	11-05-16 T00:45	49 28.85	60x60 96x96	Yes	
08.10.2018	GSM-2_2011091-2011120_GRAC_GFZOP_BA01_0600 GSM-2_2011091-2011120_GRAC_GFZOP_BB01_0600	2011-04	11-04-15 T11:25	38 27.82	60x60 96x96	Yes	
08.10.2018	GSM-2_2011060-2011090_GRAC_GFZOP_BA01_0600 GSM-2_2011060-2011090_GRAC_GFZOP_BB01_0600	2011-03	11-03-16 T05:18	52 27.17	60x60 96x96	Yes	
08.10.2018	GSM-2_2011039-2011059_GRAC_GFZOP_BA01_0600 GSM-2_2011039-2011059_GRAC_GFZOP_BB01_0600	2011-02	11-02-18 T11:47	23 20.72	60x60 96x96	Yes	
03.08.2018	GSM-2_2010335-2010361_GRAC_GFZOP_BA01_0600 GSM-2_2010335-2010361_GRAC_GFZOP_BB01_0600	2010-12	10-12-14 T13:44	30 26.91	60x60 96x96	Yes	
03.08.2018	GSM-2_2010305-2010334_GRAC_GFZOP_BA01_0600 GSM-2_2010305-2010334_GRAC_GFZOP_BB01_0600	2010-11	10-11-15 T14:13	31 29.52	60x60 96x96	Yes	
03.08.2018	GSM-2_2010274-2010304_GRAC_GFZOP_BA01_0600 GSM-2_2010274-2010304_GRAC_GFZOP_BB01_0600	2010-10	10-10-16 T10:00	37 30.08	60x60 96x96	Yes	
03.08.2018	GSM-2_2010244-2010273_GRAC_GFZOP_BA01_0600 GSM-2_2010244-2010273_GRAC_GFZOP_BB01_0600	2010-09	10-09-15 T16:28	35 29.68	60x60 96x96	Yes	
03.08.2018	GSM-2_2010213-2010243_GRAC_GFZOP_BA01_0600 GSM-2_2010213-2010243_GRAC_GFZOP_BB01_0600	2010-08	10-08-16 T07:46	36 30.51	60x60 96x96	Yes	
03.08.2018	GSM-2_2010182-2010212_GRAC_GFZOP_BA01_0600 GSM-2_2010182-2010212_GRAC_GFZOP_BB01_0600	2010-07	10-07-16 T11:17	35 30.81	60x60 96x96	Yes	
03.08.2018	GSM-2_2010152-2010181_GRAC_GFZOP_BA01_0600 GSM-2_2010152-2010181_GRAC_GFZOP_BB01_0600	2010-06	10-06-15 T21:30	33 28.88	60x60 96x96	Yes	
03.08.2018	GSM-2_2010121-2010151_GRAC_GFZOP_BA01_0600 GSM-2_2010121-2010151_GRAC_GFZOP_BB01_0600	2010-05	10-05-16 T16:31	36 30.29	60x60 96x96	Yes	
03.08.2018	GSM-2_2010091-2010120_GRAC_GFZOP_BA01_0600 GSM-2_2010091-2010120_GRAC_GFZOP_BB01_0600	2010-04	10-04-15 T23:56	30 29.85	60x60 96x96	Yes	
03.08.2018	GSM-2_2010060-2010090_GRAC_GFZOP_BA01_0600 GSM-2_2010060-2010090_GRAC_GFZOP_BB01_0600	2010-03	10-03-16 T18:47	33 29.47	60x60 96x96	Yes	
03.08.2018	GSM-2_2010032-2010059_GRAC_GFZOP_BA01_0600 GSM-2_2010032-2010059_GRAC_GFZOP_BB01_0600	2010-02	10-02-14 T04:32	31 27.87	60x60 96x96	Yes	
03.08.2018	GSM-2_2010001-2010031_GRAC_GFZOP_BA01_0600 GSM-2_2010001-2010031_GRAC_GFZOP_BB01_0600	2010-01	10-01-16 T14:08	33 30.96	60x60 96x96	Yes	
03.08.2018	GSM-2_2009335-2009365_GRAC_GFZOP_BA01_0600 GSM-2_2009335-2009365_GRAC_GFZOP_BB01_0600	2009-12	09-12-16 T17:10	36 30.46	60x60 96x96	Yes	
03.08.2018	GSM-2_2009305-2009334_GRAC_GFZOP_BA01_0600 GSM-2_2009305-2009334_GRAC_GFZOP_BB01_0600	2009-11	09-11-16 T04:22	31 29.98	60x60 96x96	Yes	
03.08.2018	GSM-2_2009274-2009304_GRAC_GFZOP_BA01_0600 GSM-2_2009274-2009304_GRAC_GFZOP_BB01_0600	2009-10	09-10-16 T16:34	37 30.75	60x60 96x96	Yes	
03.08.2018	GSM-2_2009244-2009273_GRAC_GFZOP_BA01_0600 GSM-2_2009244-2009273_GRAC_GFZOP_BB01_0600	2009-09	09-09-15 T18:52	32 29.85	60x60 96x96	Yes	
03.08.2018	GSM-2_2009213-2009243_GRAC_GFZOP_BA01_0600 GSM-2_2009213-2009243_GRAC_GFZOP_BB01_0600	2009-08	09-08-16 T08:27	36 30.35	60x60 96x96	Yes	
03.08.2018	GSM-2_2009182-2009212_GRAC_GFZOP_BA01_0600 GSM-2_2009182-2009212_GRAC_GFZOP_BB01_0600	2009-07	09-07-17 T17:36	38 30.20	60x60 96x96	Yes	
03.08.2018	GSM-2_2009152-2009181_GRAC_GFZOP_BA01_0600 GSM-2_2009152-2009181_GRAC_GFZOP_BB01_0600	2009-06	09-06-15 T09:29	34 29.18	60x60 96x96	Yes	
03.08.2018	GSM-2_2009121-2009151_GRAC_GFZOP_BA01_0600 GSM-2_2009121-2009151_GRAC_GFZOP_BB01_0600	2009-05	09-05-16 T03:46	32 30.98	60x60 96x96	Yes	
03.08.2018	GSM-2_2009091-2009120_GRAC_GFZOP_BA01_0600 GSM-2_2009091-2009120_GRAC_GFZOP_BB01_0600	2009-04	09-04-15 T23:13	35 29.54	60x60 96x96	Yes	
03.08.2018	GSM-2_2009060-2009090_GRAC_GFZOP_BA01_0600 GSM-2_2009060-2009090_GRAC_GFZOP_BB01_0600	2009-03	09-03-15 T15:39	37 29.45	60x60 96x96	Yes	
03.08.2018	GSM-2_2009032-2009059_GRAC_GFZOP_BA01_0600 GSM-2_2009032-2009059_GRAC_GFZOP_BB01_0600	2009-02	09-02-15 T01:17	33 27.90	60x60 96x96	Yes	

Release Date	*Product Name*	*Month*	*Reference epoch*	*Arcs & Days*	*Max. d/o*	*GAx*	*Comments*
03.08.2018	GSM-2_2009001-2009031_GRAC_GFZOP_BA01_0600 GSM-2_2009001-2009031_GRAC_GFZOP_BB01_0600	2009-01	09-01-15 T21:01	33 30.61	60x60 96x96	Yes	
03.08.2018	GSM-2_2008336-2008366_GRAC_GFZOP_BA01_0600 GSM-2_2008336-2008366_GRAC_GFZOP_BB01_0600	2008-12	08-12-16 T13:59	35 30.81	60x60 96x96	Yes	
03.08.2018	GSM-2_2008306-2008335_GRAC_GFZOP_BA01_0600 GSM-2_2008306-2008335_GRAC_GFZOP_BB01_0600	2008-11	08-11-15 T13:13	33 29.18	60x60 96x96	Yes	
03.08.2018	GSM-2_2008275-2008305_GRAC_GFZOP_BA01_0600 GSM-2_2008275-2008305_GRAC_GFZOP_BB01_0600	2008-10	08-10-16 T21:16	35 30.87	60x60 96x96	Yes	
03.08.2018	GSM-2_2008245-2008274_GRAC_GFZOP_BA01_0600 GSM-2_2008245-2008274_GRAC_GFZOP_BB01_0600	2008-09	08-09-14 T10:38	36 29.27	60x60 96x96	Yes	
03.08.2018	GSM-2_2008214-2008244_GRAC_GFZOP_BA01_0600 GSM-2_2008214-2008244_GRAC_GFZOP_BB01_0600	2008-08	08-08-16 T02:57	33 30.77	60x60 96x96	Yes	
03.08.2018	GSM-2_2008183-2008213_GRAC_GFZOP_BA01_0600 GSM-2_2008183-2008213_GRAC_GFZOP_BB01_0600	2008-07	08-07-16 T09:16	37 30.04	60x60 96x96	Yes	
03.08.2018	GSM-2_2008153-2008182_GRAC_GFZOP_BA01_0600 GSM-2_2008153-2008182_GRAC_GFZOP_BB01_0600	2008-06	08-06-17 T01:16	36 29.87	60x60 96x96	Yes	
03.08.2018	GSM-2_2008122-2008152_GRAC_GFZOP_BA01_0600 GSM-2_2008122-2008152_GRAC_GFZOP_BB01_0600	2008-05	08-05-15 T15:20	35 30.71	60x60 96x96	Yes	
03.08.2018	GSM-2_2008092-2008121_GRAC_GFZOP_BA01_0600 GSM-2_2008092-2008121_GRAC_GFZOP_BB01_0600	2008-04	08-04-15 T13:58	31 27.90	60x60 96x96	Yes	
03.08.2018	GSM-2_2008061-2008091_GRAC_GFZOP_BA01_0600 GSM-2_2008061-2008091_GRAC_GFZOP_BB01_0600	2008-03	08-03-16 T08:56	36 30.57	60x60 96x96	Yes	
03.08.2018	GSM-2_2008032-2008060_GRAC_GFZOP_BA01_0600 GSM-2_2008032-2008060_GRAC_GFZOP_BB01_0600	2008-02	08-02-15 T23:16	31 28.31	60x60 96x96	Yes	
03.08.2018	GSM-2_2008001-2008031_GRAC_GFZOP_BA01_0600 GSM-2_2008001-2008031_GRAC_GFZOP_BB01_0600	2008-01	08-01-16 T18:21	33 30.94	60x60 96x96	Yes	
03.08.2018	GSM-2_2007335-2007365_GRAC_GFZOP_BA01_0600 GSM-2_2007335-2007365_GRAC_GFZOP_BB01_0600	2007-12	07-12-15 T01:49	39 30.76	60x60 96x96	Yes	
03.08.2018	GSM-2_2007305-2007334_GRAC_GFZOP_BA01_0600 GSM-2_2007305-2007334_GRAC_GFZOP_BB01_0600	2007-11	07-11-15 T03:13	30 26.29	60x60 96x96	Yes	
03.08.2018	GSM-2_2007274-2007304_GRAC_GFZOP_BA01_0600 GSM-2_2007274-2007304_GRAC_GFZOP_BB01_0600	2007-10	07-10-16 T06:39	37 28.56	60x60 96x96	Yes	
03.08.2018	GSM-2_2007244-2007273_GRAC_GFZOP_BA01_0600 GSM-2_2007244-2007273_GRAC_GFZOP_BB01_0600	2007-09	07-09-16 T08:17	35 29.62	60x60 96x96	Yes	
03.08.2018	GSM-2_2007213-2007243_GRAC_GFZOP_BA01_0600 GSM-2_2007213-2007243_GRAC_GFZOP_BB01_0600	2007-08	07-08-16 T07:46	35 30.82	60x60 96x96	Yes	
03.08.2018	GSM-2_2007182-2007212_GRAC_GFZOP_BA01_0600 GSM-2_2007182-2007212_GRAC_GFZOP_BB01_0600	2007-07	07-07-16 T21:33	32 30.89	60x60 96x96	Yes	
03.08.2018	GSM-2_2007152-2007181_GRAC_GFZOP_BA01_0600 GSM-2_2007152-2007181_GRAC_GFZOP_BB01_0600	2007-06	07-06-16 T15:51	37 28.36	60x60 96x96	Yes	
03.08.2018	GSM-2_2007121-2007151_GRAC_GFZOP_BA01_0600 GSM-2_2007121-2007151_GRAC_GFZOP_BB01_0600	2007-05	07-05-16 T01:34	41 30.08	60x60 96x96	Yes	
03.08.2018	GSM-2_2007091-2007120_GRAC_GFZOP_BA01_0600 GSM-2_2007091-2007120_GRAC_GFZOP_BB01_0600	2007-04	07-04-14 T11:36	41 28.58	60x60 96x96	Yes	
03.08.2018	GSM-2_2007060-2007090_GRAC_GFZOP_BA01_0600 GSM-2_2007060-2007090_GRAC_GFZOP_BB01_0600	2007-03	07-03-15 T03:49	40 30.64	60x60 96x96	Yes	
03.08.2018	GSM-2_2007032-2007059_GRAC_GFZOP_BA01_0600 GSM-2_2007032-2007059_GRAC_GFZOP_BB01_0600	2007-02	07-02-15 T18:10	35 26.67	60x60 96x96	Yes	
03.08.2018	GSM-2_2007001-2007031_GRAC_GFZOP_BA01_0600 GSM-2_2007001-2007031_GRAC_GFZOP_BB01_0600	2007-01	07-01-15 T22:32	30 27.05	60x60 96x96	Yes	
03.08.2018	GSM-2_2006335-2006365_GRAC_GFZOP_BA01_0600 GSM-2_2006335-2006365_GRAC_GFZOP_BB01_0600	2006-12	06-12-15 T12:56	28 27.82	60x60 96x96	Yes	
03.08.2018	GSM-2_2006305-2006334_GRAC_GFZOP_BA01_0600 GSM-2_2006305-2006334_GRAC_GFZOP_BB01_0600	2006-11	06-11-16 T15:05	32 29.96	60x60 96x96	Yes	

Release Date	*Product Name*	*Month*	*Reference epoch*	*Arcs & Days*	*Max. d/o*	*GAx*	*Comments*
03.08.2018	GSM-2_2006274-2006304_GRAC_GFZOP_BA01_0600 GSM-2_2006274-2006304_GRAC_GFZOP_BB01_0600	2006-10	06-10-15 T02:42	37 28.90	60x60 96x96	Yes	
03.08.2018	GSM-2_2006244-2006273_GRAC_GFZOP_BA01_0600 GSM-2_2006244-2006273_GRAC_GFZOP_BB01_0600	2006-09	06-09-16 T00:34	38 27.12	60x60 96x96	Yes	
03.08.2018	GSM-2_2006213-2006243_GRAC_GFZOP_BA01_0600 GSM-2_2006213-2006243_GRAC_GFZOP_BB01_0600	2006-08	06-08-16 T15:45	43 30.46	60x60 96x96	Yes	
03.08.2018	GSM-2_2006182-2006212_GRAC_GFZOP_BA01_0600 GSM-2_2006182-2006212_GRAC_GFZOP_BB01_0600	2006-07	06-07-16 T07:38	40 30.33	60x60 96x96	Yes	
03.08.2018	GSM-2_2006152-2006181_GRAC_GFZOP_BA01_0600 GSM-2_2006152-2006181_GRAC_GFZOP_BB01_0600	2006-06	06-06-15 T22:22	38 26.15	60x60 96x96	Yes	
03.08.2018	GSM-2_2006121-2006151_GRAC_GFZOP_BA01_0600 GSM-2_2006121-2006151_GRAC_GFZOP_BB01_0600	2006-05	06-05-16 T20:30	44 30.44	60x60 96x96	Yes	
03.08.2018	GSM-2_2006091-2006120_GRAC_GFZOP_BA01_0600 GSM-2_2006091-2006120_GRAC_GFZOP_BB01_0600	2006-04	06-04-15 T07:34	39 29.40	60x60 96x96	Yes	
03.08.2018	GSM-2_2006060-2006090_GRAC_GFZOP_BA01_0600 GSM-2_2006060-2006090_GRAC_GFZOP_BB01_0600	2006-03	06-03-15 T22:31	38 28.95	60x60 96x96	Yes	
03.08.2018	GSM-2_2006032-2006059_GRAC_GFZOP_BA01_0600 GSM-2_2006032-2006059_GRAC_GFZOP_BB01_0600	2006-02	06-02-14 T06:21	37 26.71	60x60 96x96	Yes	
03.08.2018	GSM-2_2006001-2006031_GRAC_GFZOP_BA01_0600 GSM-2_2006001-2006031_GRAC_GFZOP_BB01_0600	2006-01	06-01-17 T13:42	42 29.75	60x60 96x96	Yes	
03.08.2018	GSM-2_2005335-2005365_GRAC_GFZOP_BA01_0600 GSM-2_2005335-2005365_GRAC_GFZOP_BB01_0600	2005-12	05-12-17 T10:47	36 25.70	60x60 96x96	Yes	
03.08.2018	GSM-2_2005305-2005334_GRAC_GFZOP_BA01_0600 GSM-2_2005305-2005334_GRAC_GFZOP_BB01_0600	2005-11	05-11-16 T04:19	40 28.99	60x60 96x96	Yes	
03.08.2018	GSM-2_2005274-2005304_GRAC_GFZOP_BA01_0600 GSM-2_2005274-2005304_GRAC_GFZOP_BB01_0600	2005-10	05-10-16 T01:27	39 29.60	60x60 96x96	Yes	
03.08.2018	GSM-2_2005244-2005273_GRAC_GFZOP_BA01_0600 GSM-2_2005244-2005273_GRAC_GFZOP_BB01_0600	2005-09	05-09-16 T06:32	36 28.50	60x60 96x96	Yes	
03.08.2018	GSM-2_2005213-2005243_GRAC_GFZOP_BA01_0600 GSM-2_2005213-2005243_GRAC_GFZOP_BB01_0600	2005-08	05-08-16 T17:05	41 30.44	60x60 96x96	Yes	
03.08.2018	GSM-2_2005182-2005212_GRAC_GFZOP_BA01_0600 GSM-2_2005182-2005212_GRAC_GFZOP_BB01_0600	2005-07	05-07-16 T14:25	39 30.53	60x60 96x96	Yes	
03.08.2018	GSM-2_2005152-2005181_GRAC_GFZOP_BA01_0600 GSM-2_2005152-2005181_GRAC_GFZOP_BB01_0600	2005-06	05-06-15 T08:59	41 29.50	60x60 96x96	Yes	
03.08.2018	GSM-2_2005121-2005151_GRAC_GFZOP_BA01_0600 GSM-2_2005121-2005151_GRAC_GFZOP_BB01_0600	2005-05	05-05-16 T20:53	39 30.14	60x60 96x96	Yes	
03.08.2018	GSM-2_2005091-2005120_GRAC_GFZOP_BA01_0600 GSM-2_2005091-2005120_GRAC_GFZOP_BB01_0600	2005-04	05-04-16 T06:39	40 29.33	60x60 96x96	Yes	
03.08.2018	GSM-2_2005061-2005090_GRAC_GFZOP_BA01_0600 GSM-2_2005061-2005090_GRAC_GFZOP_BB01_0600	2005-03	05-03-17 T15:57	36 25.69	60x60 96x96	Yes	
03.08.2018	GSM-2_2005032-2005059_GRAC_GFZOP_BA01_0600 GSM-2_2005032-2005059_GRAC_GFZOP_BB01_0600	2005-02	05-02-13 T01:24	37 22.88	60x60 96x96	Yes	
03.08.2018	GSM-2_2005001-2005031_GRAC_GFZOP_BA01_0600 GSM-2_2005001-2005031_GRAC_GFZOP_BB01_0600	2005-01	05-01-16 T21:39	41 30.59	60x60 96x96	Yes	
03.08.2018	GSM-2_2004336-2004366_GRAC_GFZOP_BA01_0600 GSM-2_2004336-2004366_GRAC_GFZOP_BB01_0600	2004-12	04-12-15 T20:12	41 26.99	60x60 96x96	Yes	
03.08.2018	GSM-2_2004306-2004335_GRAC_GFZOP_BA01_0600 GSM-2_2004306-2004335_GRAC_GFZOP_BB01_0600	2004-11	04-11-15 T07:06	44 28.45	60x60 96x96	Yes	
03.08.2018	GSM-2_2004275-2004305_GRAC_GFZOP_BA01_0600 GSM-2_2004275-2004305_GRAC_GFZOP_BB01_0600	2004-10	04-10-15 T23:27	44 29.98	60x60 96x96	Yes	1)
03.08.2018	GSM-2_2004245-2004274_GRAC_GFZOP_BA01_0600 GSM-2_2004245-2004274_GRAC_GFZOP_BB01_0600	2004-09	04-09-16 T05:47	40 29.20	60x60 96x96	Yes	1)
03.08.2018	GSM-2_2004214-2004244_GRAC_GFZOP_BA01_0600 GSM-2_2004214-2004244_GRAC_GFZOP_BB01_0600	2004-08	04-08-15 T03:47	48 29.87	60x60 96x96	Yes	1)

Release Date	*Product Name*	*Month*	*Reference epoch*	*Arcs & Days*	*Max. d/o*	*GAx*	*Comments*
03.08.2018	GSM-2_2004183-2004213_GRAC_GFZOP_BA01_0600 GSM-2_2004183-2004213_GRAC_GFZOP_BB01_0600	2004-07	04-07-16 T10:54	38 30.54	60x60 96x96	Yes	
03.08.2018	GSM-2_2004153-2004182_GRAC_GFZOP_BA01_0600 GSM-2_2004153-2004182_GRAC_GFZOP_BB01_0600	2004-06	04-06-15 T20:04	36 29.48	60x60 96x96	Yes	
03.08.2018	GSM-2_2004122-2004152_GRAC_GFZOP_BA01_0600 GSM-2_2004122-2004152_GRAC_GFZOP_BB01_0600	2004-05	04-05-17 T01:57	38 22.53	60x60 96x96	Yes	
03.08.2018	GSM-2_2004092-2004121_GRAC_GFZOP_BA01_0600 GSM-2_2004092-2004121_GRAC_GFZOP_BB01_0600	2004-04	04-04-16 T01:58	36 28.34	60x60 96x96	Yes	
03.08.2018	GSM-2_2004061-2004091_GRAC_GFZOP_BA01_0600 GSM-2_2004061-2004091_GRAC_GFZOP_BB01_0600	2004-03	04-03-16 T11:40	38 29.73	60x60 96x96	Yes	
03.08.2018	GSM-2_2004035-2004060_GRAC_GFZOP_BA01_0600 GSM-2_2004035-2004060_GRAC_GFZOP_BB01_0600	2004-02	04-02-17 T12:28	33 25.06	60x60 96x96	Yes	
03.08.2018	GSM-2_2004001-2004013_GRAC_GFZOP_BA01_0600 GSM-2_2004001-2004013_GRAC_GFZOP_BB01_0600	2004-01	04-01-07 T14:34	17 11.98	60x60 96x96	Yes	

Comments:

1) The GRACE satellites are passing through a 61/4 [rev./day] repeat orbit which peaks in September 2004. Due to this the observability of the spherical harmonic coefficients is reduced and more aggressive than usual post-processing techniques might be required.
2) The GRACE satellites are passing through a 46/3 [rev./day] repeat orbit which peaks in May 2012. Due to this the observability of the spherical harmonic coefficients is reduced and more aggressive than usual post-processing techniques might be required.
3) The GRACE satellites are passing through a 77/5 [rev./day] repeat orbit which peaks in December 2013. Due to this the observability of the spherical harmonic coefficients is reduced and more aggressive than usual post-processing techniques might be required.
4) The GRACE satellites are passing through a 31/2 [rev./day] repeat orbit which peaks in February 2015. Due to this the observability of the spherical harmonic coefficients is reduced and more aggressive than usual post-processing techniques might be required.
5) For this solution, the processing strategy differs from the usual GFZ GRACE RL06 processing strategy (see also [1], [2]) as follows: Instead of only estimating accelerometer scale factors, a fully-populated accelerometer scale factor matrix is estimated once per arc. For the additional parameters, i.e. the off-diagonal elements of this matrix, an a priori sigma of 1E-03 is applied as constraint.
6) Accelerometer data for GRACE-B is unavailable and is derived using the accelerometer data from GRACE-A (accelerometer transplant). This month may exhibit higher amounts of noise and more aggressive than usual post-processing techniques might be required.

References:

[1] Dahle, C.; Murböck, M.; Flechtner, F.; Dobslaw, H.; Michalak, G.; Neumayer, K. H.; Abrykosov, O.; Reinhold, A.; König, R.; Sulzbach, R.; Förste, C. (2019): *The GFZ GRACE RL06 Monthly Gravity Field Time Series: Processing Details and Quality Assessment*. Remote Sensing, 11(18):2116. DOI: https://doi.org/10.3390/rs11182116

[2] Dahle, C.; Flechtner, F.; Murböck, M.; Michalak, G.; Neumayer, H.; Abrykosov, O.; Reinhold, A.; König, R. (2018): *GRACE 327-743 (Gravity Recovery and Climate Experiment), GFZ Level-2 Processing Standards Document for Level-2 Product Release 06 (Rev. 1.0, October 26, 2018), (Scientific Technical Report STR - Data; 18/04)*, Potsdam: GFZ German Research Centre for Geosciences. DOI: http://doi.org/10.2312/GFZ.b103-18048

[3] Bettadpur, S.: *Level-2 Gravity Field Product User Handbook (v. 4.0)*. Center for Space Research, The University of Texas, April 2018. GRACE 327-734

[4] Wahr, J.; Nerem, R. S.; Bettadpur, S. V. (2015): *The pole tide and its effect on GRACE time-variable gravity measurements: Implications for estimates of surface mass variations*. Journal of Geophysical Research: Solid Earth 120, 6, 4597-4615. DOI: http://doi.org/10.1002/2015JB011986

[5] GRACE Technical Note 11: *Monthly estimates of C20 from 5 SLR satellites based on GRACE RL06 models*, ftp://isdcftp.gfz-potsdam.de/grace/DOCUMENTS/TECHNICAL_NOTES/TN-11_C20_SLR_RL06.txt

[6] König, R.; Schreiner, P.; Dahle, C. (2019): *Monthly estimates of C(2,0) generated by GFZ from SLR satellites based on GFZ GRACE/GRACE-FO RL06 background models. V. 1.0*. GFZ Data Services. DOI: http://doi.org/10.5880/GFZ.GRAVIS_06_C20_SLR

[7] Loomis, B. D.; Rachlin, K. E.; Luthcke, S. B. (2019): *Improved Earth oblateness rate reveals increased ice sheet losses and mass-driven sea level rise.* Geophysical Research Letters, 46. DOI: https://doi.org/10.1029/2019GL082929

[8] GRACE Technical Note 14: *NASA GSFC SLR C20 and C30 solutions*, ftp://isdcftp.gfz-potsdam.de/grace-fo/DOCUMENTS/TECHNICAL_NOTES/TN-14_C30_C20_SLR_GSFC.txt

[9] Dobslaw, H.; Bergmann-Wolf, I.; Dill, R.; Poropat, L.; Flechtner, F.: *Product Description Document for AOD1B Release 06 (v. 6.1)*. GFZ German Research Centre for Geosciences, October 2017. GRACE 327-750