Changelog

GFZ GravIS RL06 Continental Water Storage Anomalies

Created: 16 January 2025

This document lists changes that occurred to the data set Boergens et al. (2019), https://doi.org/10.5880/GFZ.GRAVIS_06_L3_TWS

V. 0001:

- Initial version.

V. 0002 (09 June 2020):

- The list of authors has been changed from "*Zhang, L., Dobslaw, H., Dill, R., Boergens, E.*" to "*Boergens, E., Dobslaw, H., Dill, R.*".
- The input data has been changed from GFZ RL06 Level-2B Products *V.0001* to *V.0002* (Dahle & Murböck, 2019).
- The NetCDF variable name 'error_tws' has been renamed to 'std_tws'; the modeling of the corresponding uncertainties has been updated and is now based on Boergens et al. (2020).
- An additional variable 'leakage' has been added; this variable contains a correction for spatial leakage of the water storage data according to Dobslaw et al. (2020).

V. 0003 (09 September 2020):

- In the variable 'tws', TWS residuals filtered with VDK2 are used for months with exceptional high standard deviation (larger than two times the mean of the monthly standard deviation).
- The uncertainties of the variable 'std_tws' are now computed only from the residual signal over the continents (instead of over the continents and oceans).
- The variable 'leakage' now employs the scaling factor as reported in Dobslaw et al. (2020).

V. 0004 (09 December 2021):

- Change of reference surface to ellipsoid as defined in IERS Conventions (2010) Tab 1.1.
- The variable 'std_tws' is now computed from TWS residuals over the open ocean (distance to coast > 1000 km).
- Change of time series uncertainties due to updated covariance model parameters according to Boergens et al. (2022).

V. 0005 (21 April 2023):

- The input data has been changed from GFZ RL06 Level-2B Products *V.0002* to *V.0003* (Dahle & Murböck, 2019).
- Change of land-ocean-mask.

V. 0006 (16 January 2025):

- The input data has been changed from GFZ RL06 Level-2B Products *V.0003* to *V.0004* (Dahle & Murböck, 2019).
- The TWS grids provided in NetCDF format are no longer divided into yearly batches, but are distributed in one NetCDF file containing the entire time series.

References:

Boergens, E., Dobslaw, H., Dill, R., Thomas, M., Dahle, C., Murböck, M., Flechtner, F. (2020): Modelling spatial covariances for terrestrial water storage variations verified with synthetic GRACE-FO data. International Journal on Geomathematics, 11, 24. https://doi.org/10.1007/s13137-020-00160-0

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Dahle, C., Murböck, M. (2019): Post-processed GRACE/GRACE-FO Geopotential GSM Coefficients GFZ RL06 (Level-2B Product). V. 0004. GFZ Data Services. https://doi.org/10.5880/GFZ.GRAVIS_06_L2B

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