Supplement to

“Regional Geoid of the Weddell Sea, Antarctica, from Heterogeneous Ground-based Gravity Data”

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Description of data grid

- grid domain: 70°W–0°W, 82°S–62°S, spacing 0.125° (7.5') by 0.041667° (2.5')
- order of records: one record per line in scanline format (west to east, north to south)

column	quantity	unit	tide system	reference ellipsoid
1	longitude	degrees	not applicable	WGS84
2	latitude	degrees	not applicable	WGS84
3	height anomaly	m	tide-free	WGS84
4	geoid	m	mean-tide	Topex
5	geoid–quasigeoid separation	m	not applicable	not applicable
6	estimated uncertainty	m	not applicable	not applicable

Reference for this dataset

Schwabe, J; Scheinert, M (2014): Regional Geoid of the Weddell Sea, Antarctica, from Heterogeneous Ground-based Gravity Data. *Journal of Geodesy*, under review.

Citation for this dataset

Schwabe, J; Scheinert, M (2014): Improved geoid solution for the Weddell Sea region. doi:10.1594/PANGAEA.816380, *Supplement to:* **Schwabe, J; Scheinert, M (2014):** Regional Geoid of the Weddell Sea, Antarctica, from Heterogeneous Ground-based Gravity Data. *Journal of Geodesy*, under review.

Data

1. Ground-based (airborne, shipborne and land) gravity data
    - IceBridge BGM-3 Gravimeter L2 Geolocated Free Air Anomalies, release version 1.05
    - USAC airborne gravity mission
    - BAS data archives (airborne and land gravity, mainly Antarctic Peninsula)
    - R/V Polarstern shipborne gravity (ADGRAV project)
    - compilation of airborne, shipborne and land gravimeter data by VNIIO/AWI

    For references of the used datasets see Table 3 in Schwabe and Scheinert (2014)
2. EGM2008 gridded 5' mean gravity anomalies (Pavlis et al., 2012) in the marine areas

Methodology

- Remove-compute-restore using least-squares collocation
- background model: GO_CONS_GCF_2_DIR_R4 (Bruinsma et al, 2013) up to d/o 220
- residual terrain model from Bedmap2, wavelength of reference topography 80 km

References

Bruinsma, SL; Förste, C; Abrikosov, O; Marty, J-C; Rio, M-H; Mulet, S; Bonvalot, S (2013): The new ESA satellite-only gravity field model via the direct approach. *Geophysical Research Letters*, 40 (14), 3607-3612, doi: 10.1002/grl.50716.

Fretwell, P et al. (2013): Bedmap2: improved ice bed, surface and thickness datasets for Antarctica. *The Cryosphere*, 7 (1), 375-393, doi: 10.5194/tc-7-375-2013.

Pavlis, NK; Holmes, SA; Kenyon, SC; Factor, JK (2012): The development and evaluation of the Earth Gravitational Model 2008 (EGM2008). *Journal of Geophysical Research*, 117 (B4), B04406, doi: 10.1029/2011JB008916.