

The World Digital Magnetic Anomaly Map (WDMAM) : version 2.1

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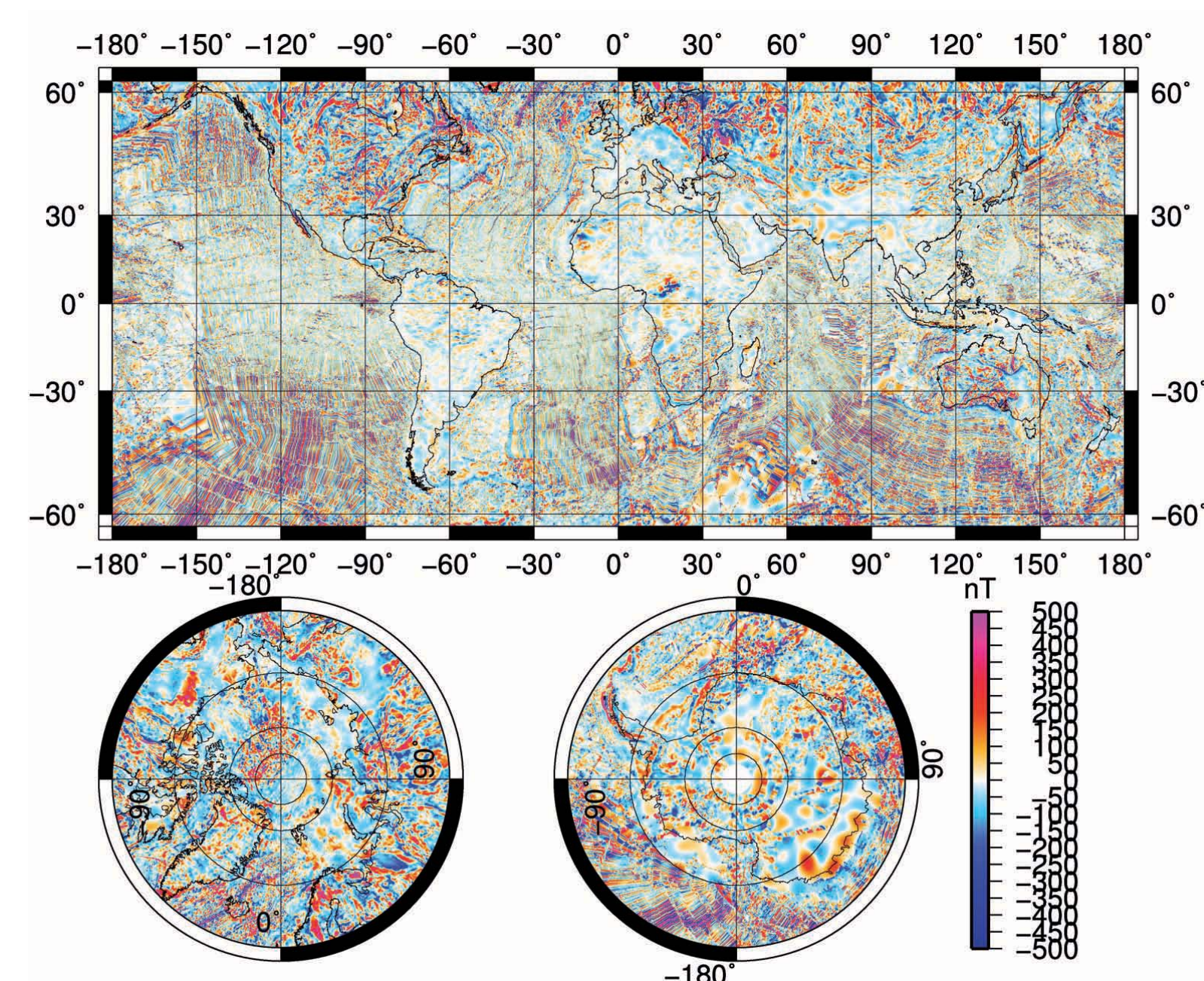


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WDMAM 2.0 (2015)

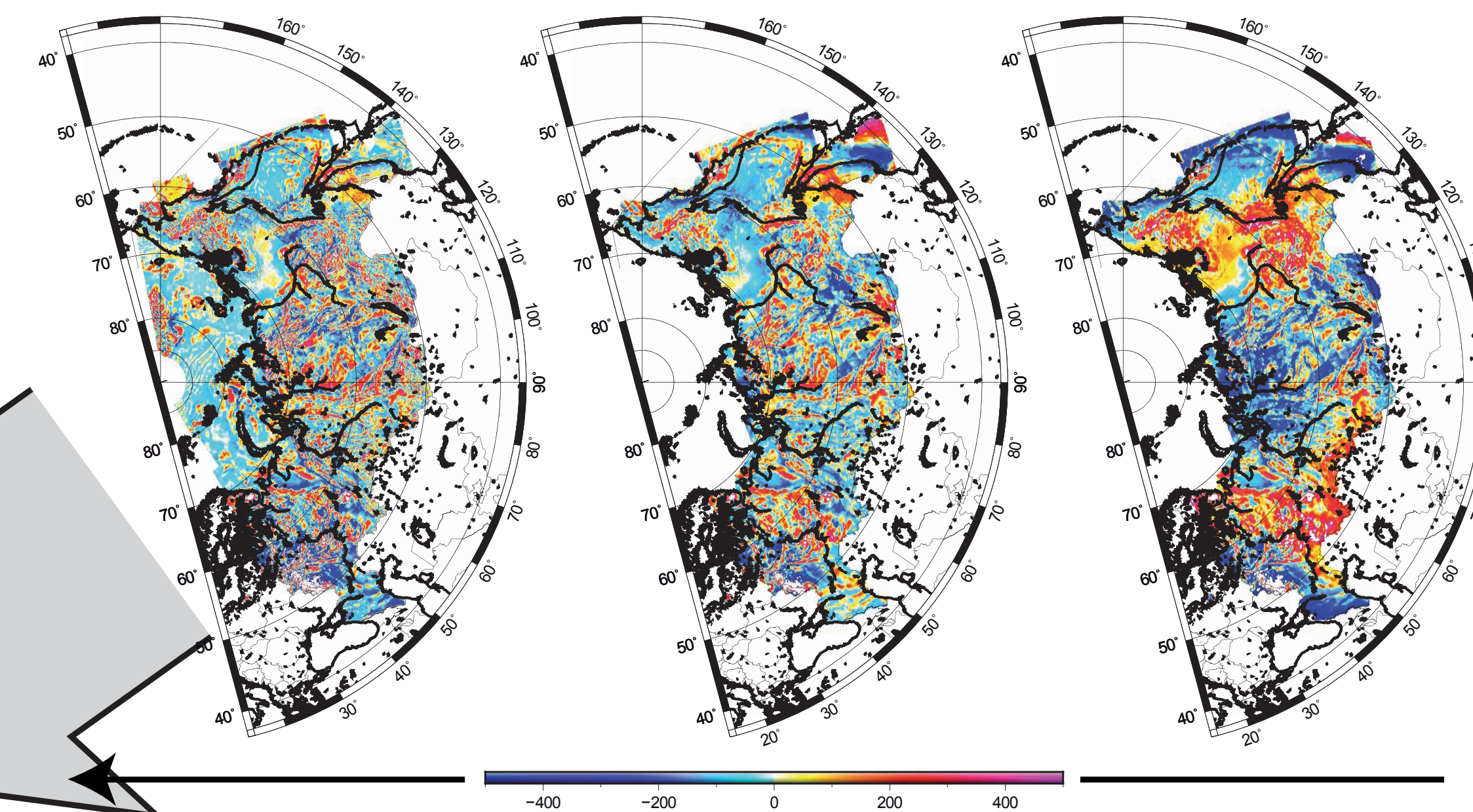
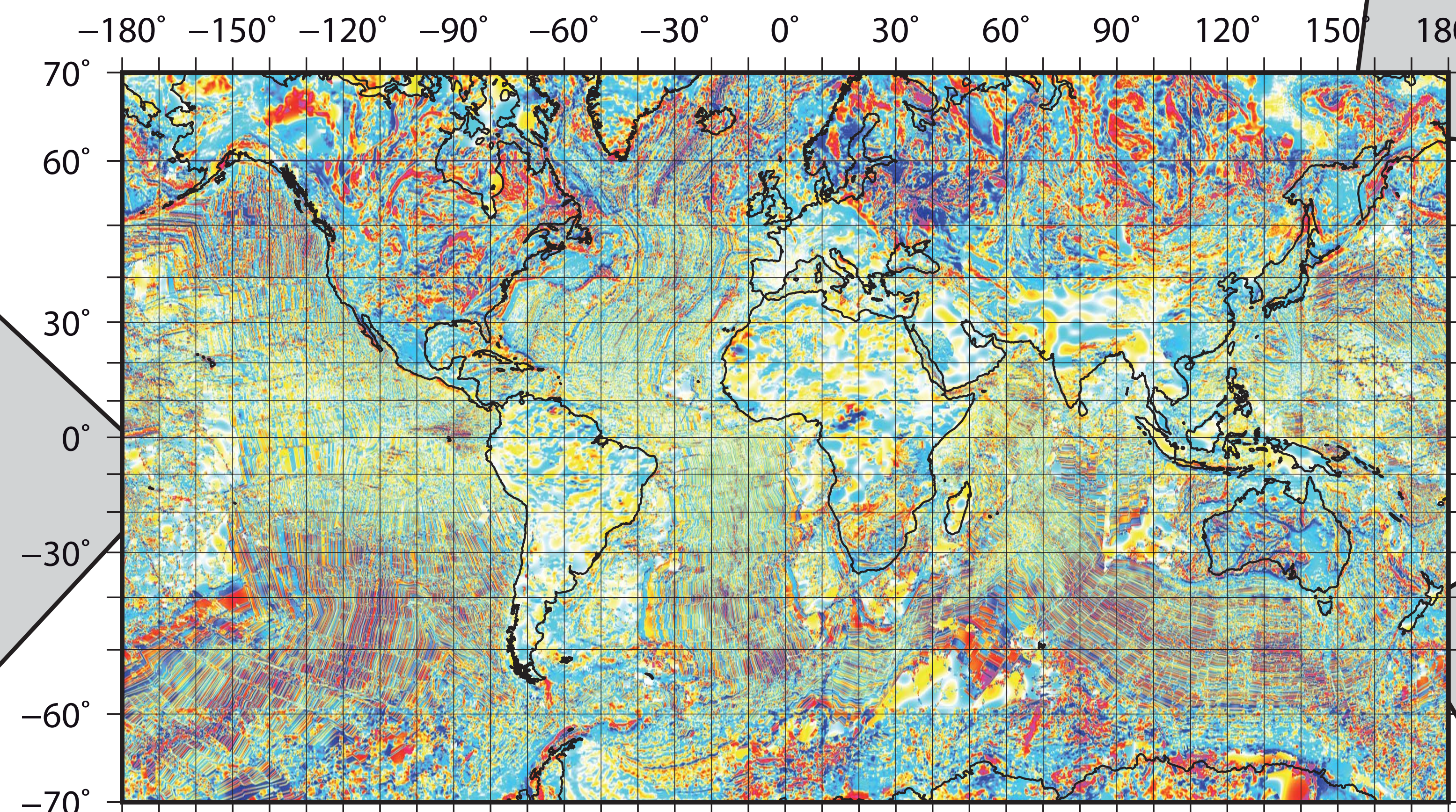


Abstract

The World Digital Magnetic Anomaly Map (WDMAM) is an initiative of the IAGA (International Association of Geomagnetism and Aeronomy) supported by the CGMW (Commission for the Geological Map of the World) of UNESCO. The second version was released in 2015 (Dyment et al., 2015; Lesur et al., 2016), and mandate was given to the authors to update this version 2.0 using the same methodology as often as newly available data would make it necessary. Five better datasets justify the preparation and release of version 2.1: (1) the complete digital aeromagnetic map of Brasil made available to CGMW by Agência Nacional do Petróleo, Gás Natural e Biocombustíveis; (2) an improved version of the aeromagnetic map of Russia prepared at VSEGEI; (3) the second version of the Antarctic Digital Magnetic Anomaly map (ADMAM; Golynsky et al., 2018) which construction results from a remarkable international effort during and after the Second International Polar Year; (4) a new map of the Caribbean plate and Gulf of Mexico resulting from the compilation and re-processing of existing marine and aeromagnetic data in the area (Garcia, 2018); and (5) a new compilation of marine magnetic data worldwide. The new map shows significant improvements over the previous versions and will be shortly available at wdmam.org.

wdmam.org

WDMAM 2.1 (provisional; release mid2020)



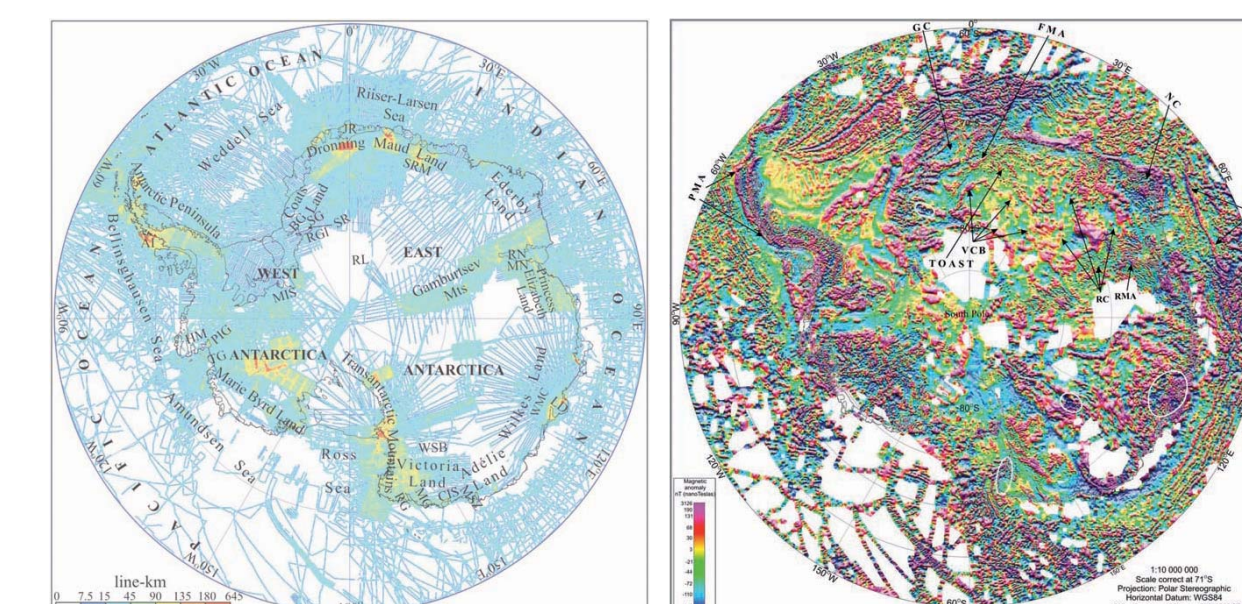
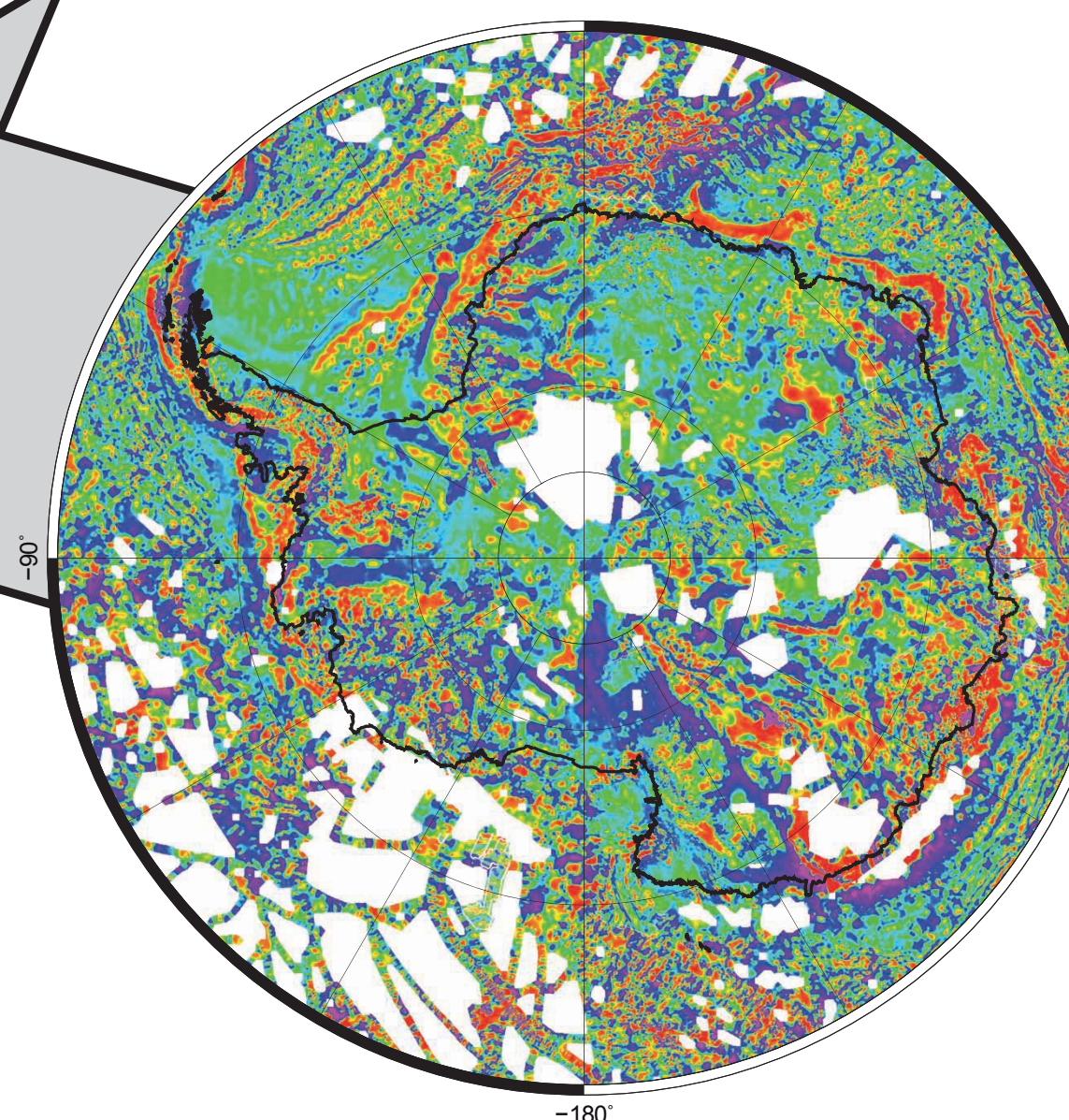
Russia

From right to left:
- original data from VSEGEI
- long wavelength removed for WDMAM 1 and 2.0
- revised by VSEGEI for WDMAM 2.1

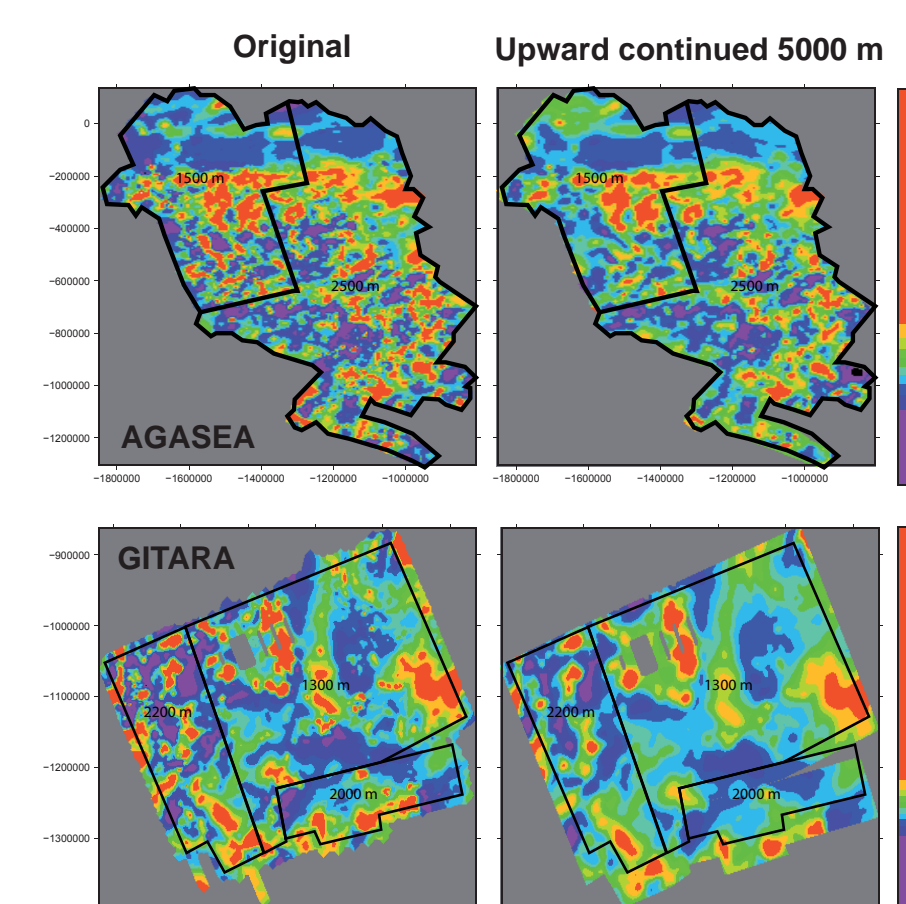
Antarctica (ADMAM)

Perhaps the most remarkable improvement between WDMAM 2.0 and 2.1 is the junction of ADMAM 2, which includes a tremendously larger amount of aeromagnetic data over Antarctica. We upward-continued the surveys for which altitudes are provided to 5 km. For consistency with other areas, the sea-level will be kept as reference in oceanic areas.

ADMAM 2 at 5 km



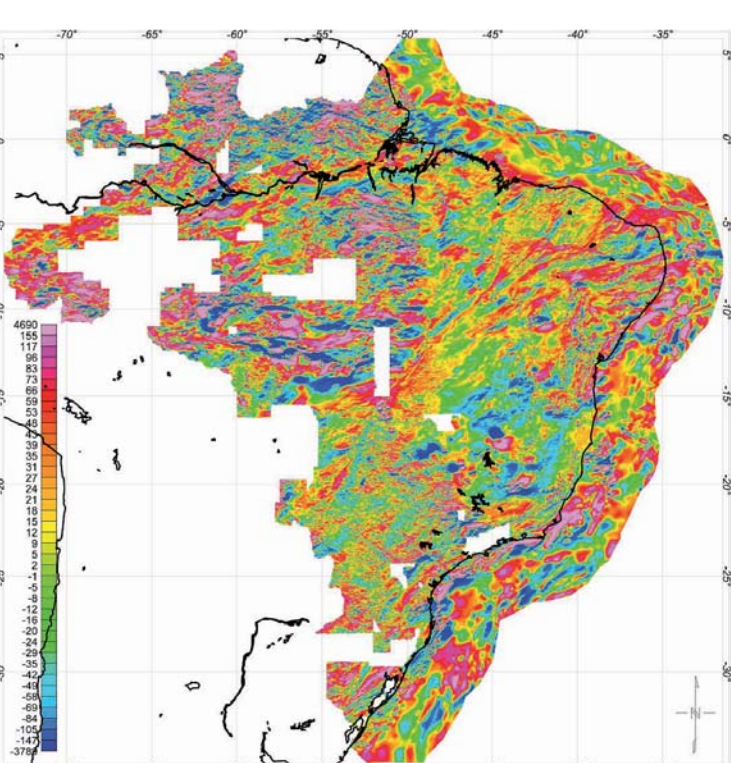
ADMAM 2 (Golynsky et al., 2018)



Upward continuation to 5 km

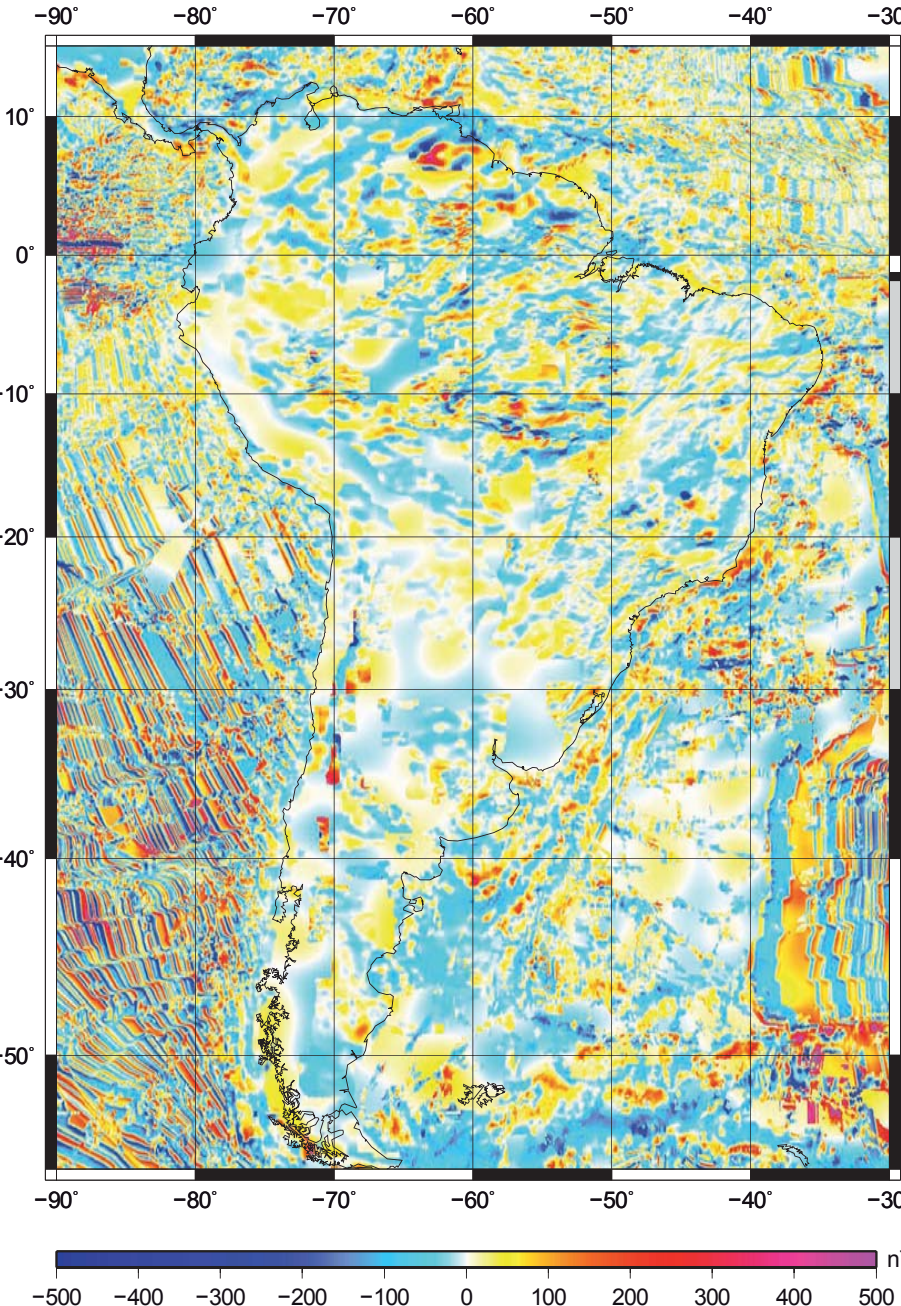
Brazil

PROCESSING

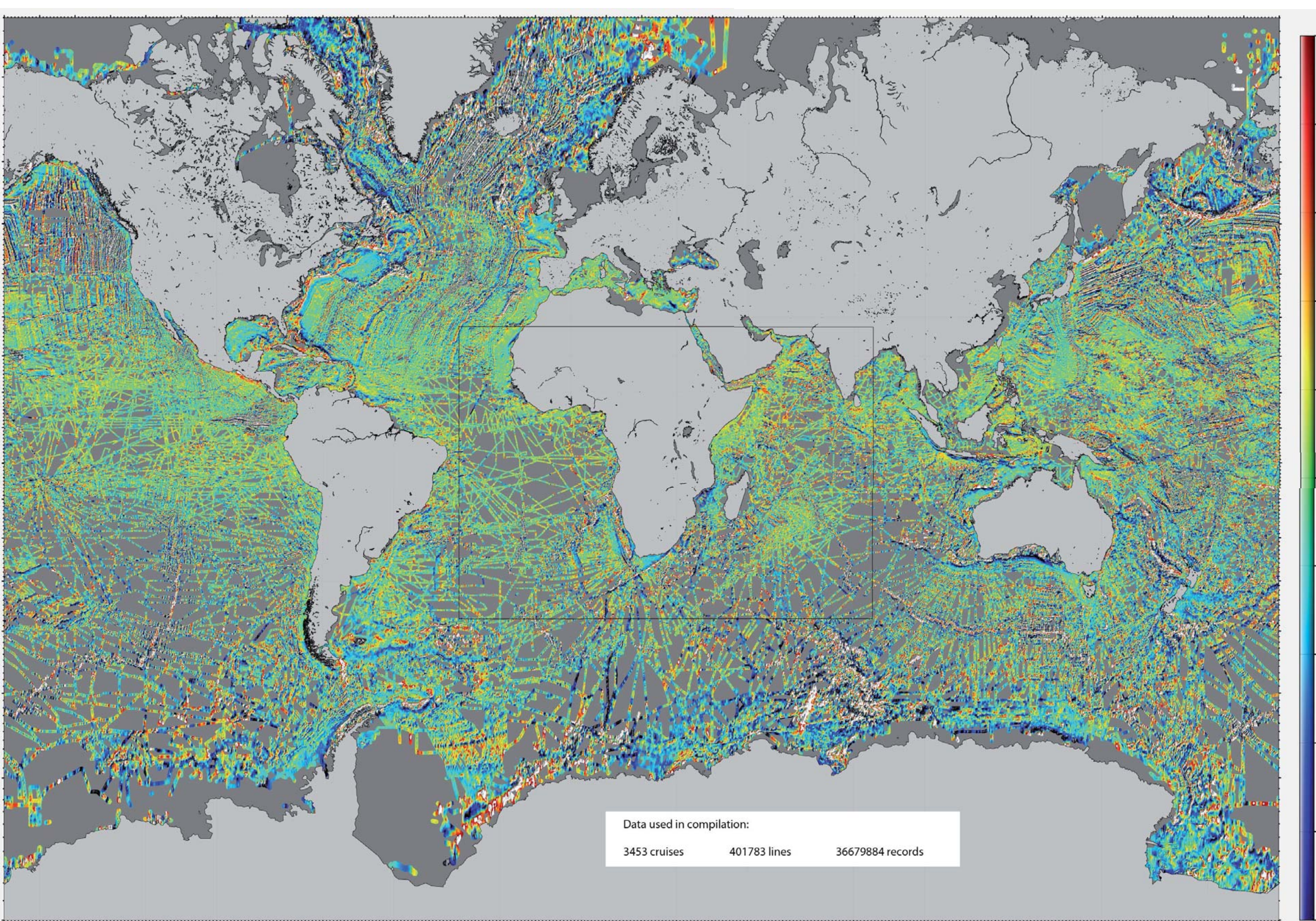


Aeromagnetic map of Brazil (courtesy of CPRM & ANP)
Initial map: 1x1 km sampling, altitude 1 km

Filtering smaller wavelengths
Resampling in 5 x 5 km areas
Upward continuation to 5 km
Merge with WDMAM v. 2.0



New compilation of marine magnetic data



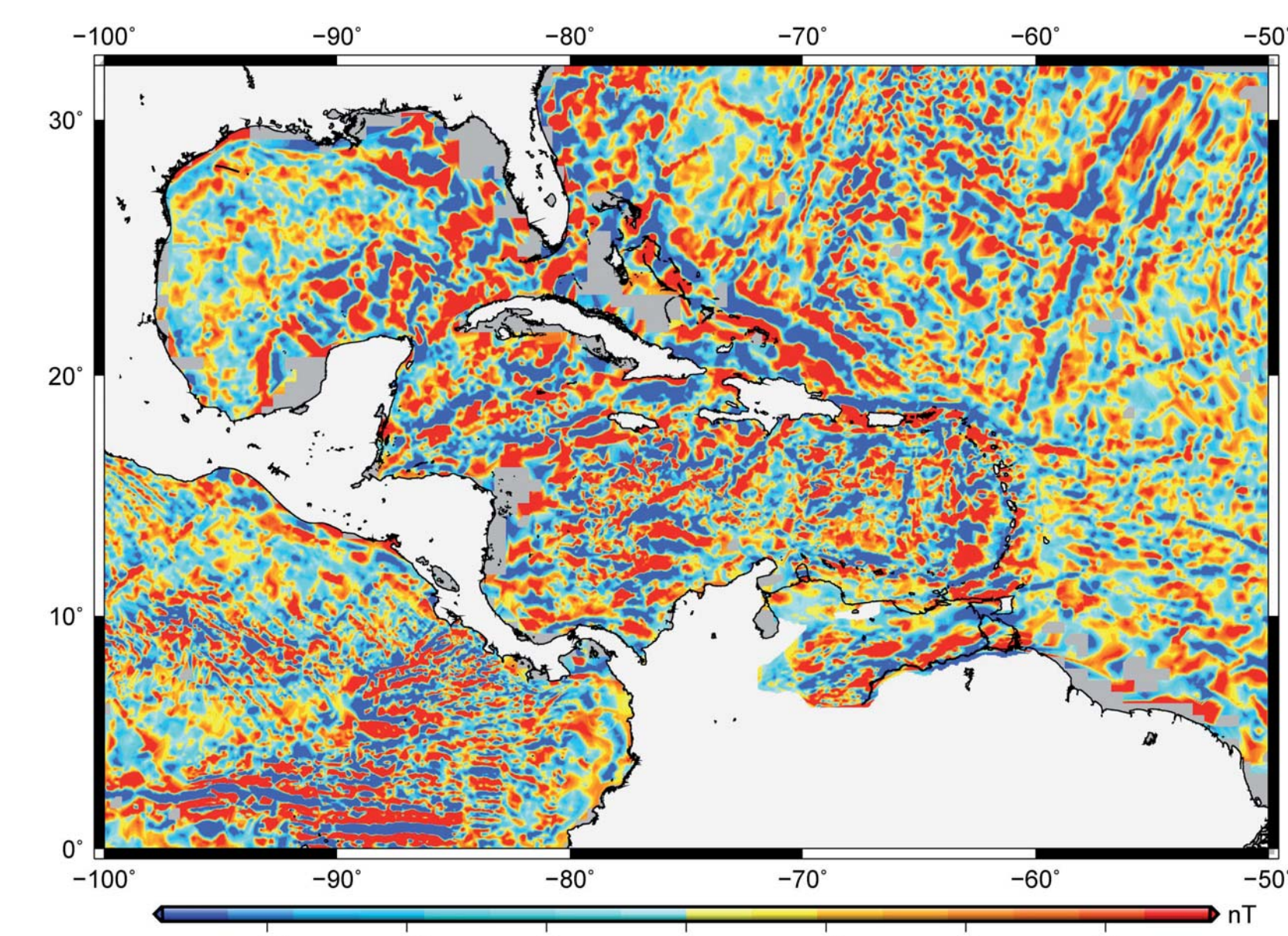
Data used in compilation:
3453 cruises 401783 lines 3667984 records

Feel free to comment or provide additional data... by e-mail to jdy@ipgp.fr

References

Garcia, A. (2018), Magnetic anomalies and plate tectonic history of the Caribbean Plate and the Gulf of Mexico, PhD Thesis, IPGP, defended September 10th, 2018, 235 pp.
Golynsky, A.V. et al. (2018): New magnetic anomaly map of the Antarctic. Geophysical Research Letters, 45(13), 6437-6449, <https://doi.org/10.1029/2018GL078153>

Caribbean



Garcia, 2018. Integration in progress...

