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## Calibration and Characterisation of GRACE-FO Magnetometers

**Ingo Michaelis**, Kevin Marcel Styp-Rekowski, Jan Rauberg, Martin Rother, Guram Kervalishvili, and Monika Korte

GFZ German Research Centre For Geosciences

Magnetic field data from satellite missions play a significant role in characterizing and understanding space weather conditions. Satellite magnetic field observations from different altitudes and local times are necessary to disentangle the complex processes contributing to each observation of Earth's magnetic field and study the various individual processes. While the dedicated magnetic field satellite missions give good global data coverage at first sight, the coverage is still sparse if simultaneous observations from several different altitudes and with a good local time coverage are desired. Moreover, gaps between dedicated magnetic field satellite missions, such as between the CHAMP and Swarm missions from 2010 to 2013, exist and might occur again in the future. Many satellites non-dedicated for magnetic field measurements, e.g. GRACE-FO, carry so-called platform magnetometers (PlatMags) that are part of the attitude and orbit control system (AOCS). These satellites have a variety of mission goals and the PlatMags are additional instrumentation for navigational use.

Using analytical and machine learning tools and additional satellite telemetry data we can remove artificial disturbances from the satellite magnetometers and calibrate PlatMags for scientific use.