



Four years of operation of Swarm's absolute magnetometers, lessons learnt, science achieved and prospect

Gauthier Hulot (1), Pierre Vigneron (1), Pierre Deram (1), Piedavide Coïsson (1), Jean-Michel Léger (2), and Thomas Jager (2)

(1) Institut de Physique du Globe de Paris, Sorbonne Paris Cité, Université Paris Diderot, UMR 7154 CNRS/INSU, Paris, France (gh@ipgp.fr), (2) CEA, Léti, MINATEC Campus, Grenoble, France

ESA Swarm satellites carry a magnetometry payload consisting of an absolute scalar magnetometer (ASM), a relative flux gate vector magnetometer (VFM), and a set of star trackers (STR). The primary role of the ASM is to provide precise 1 Hz absolute field intensity measurements, while the VFM and STR provide the additional data needed to accurately reconstruct the vector field. This magnetometry payload has provided a remarkable set of vector data, which has extensively been used for multiple investigations, as illustrated by the many results presented in this session. Each ASM instrument, however, can also produce its own self-calibrated 1 Hz experimental vector data, and if requested, 250 Hz scalar burst mode. Self-calibrated 1 Hz experimental vector data have routinely been produced ever since launch, except for short periods of time during commissioning, when burst mode data were produced. In this talk, we will give an overview of the type of science that can be achieved with both these datasets, illustrate the added value they bring to the Swarm mission, and briefly discuss the possibility they revealed for designing a nanosatellite mission that could be launched in the near-future for complementing and enhancing the science return of the now extended Swarm mission.