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Swarm: ESA's Magnetic Field Mission

Rune Floberghagen (1), Roger Haagmans (2), Yvon Menard (2), and Gernot Plank (3)

(1) European Space Agency, Directorate of Earth Observation Programmes, Frascati, Italy (rune.floberghagen@esa.int), (2) European Space Agency, Directorate of Earth Observation Programmes, Noordwijk, The Netherlands, (3) Rhea for the European Space Agency, Directorate of Earth Observation Programmes, Noordwijk, The Netherlands

Swarm is the fifth Earth Explorer mission in ESA's Living Planet Programme. The objective of the Swarm mission is to provide the best ever survey of the geomagnetic field and its temporal evolution. The Mission shall deliver data that allow access to new insights into the Earth system by improving our understanding of the Earth's interior and near-Earth electro-magnetic environment. After release from a single launcher, a side-by-side flying slowly decaying lower pair of satellites will be released at an initial altitude of about 490 km together with a third satellite that will be lifted to 530 km to complete the Swarm constellation. High-precision and high-resolution measurements of the strength, direction and variation of the magnetic field, complemented by precise navigation, accelerometer and electric field measurements, will provide the observations that are required to separate and model various sources of the geomagnetic field and near-Earth current systems. The mission aims to provide a unique view into Earth core dynamics, mantle conductivity, crustal magnetisation, ionospheric and magnetospheric current systems and upper atmosphere dynamics - ranging from understanding the geodynamo to contributing to space weather. The scientific objectives and results from recent scientific studies will be presented. In addition the current status of the project, which is presently in the development phase, will be addressed. A consortium of European scientific institutes is developing a distributed processing system to produce Level 2 data products to the Swarm user community. In this presentation the setup of the system as integral part of the Swarm ground segment and the contents of the products will be addressed. The mission is scheduled for launch in 2012. More information on Swarm can be found at www.esa.int/esaLP/LPswarm.html.