



Cluster operations in support of SWARM and first results

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The measure of the Earth's magnetic field is perturbed by the external electric currents flowing in the magnetosphere and the ionosphere. One of the SWARM prime scientific objectives is to investigate the influence of these currents, including the ring current and field aligned currents (FAC). To help disentangle their effects, special operations have been designed and coordinated with the ESA Cluster mission. This unique constellation of four satellites enable the measure of these currents at higher altitudes better than any previous mission. The complementarity of these two missions was foreseen at the beginning of the SWARM mission design, about 10 years ago. The 2014 special operations in support of SWARM is in other words a forward-looking idea becoming reality. We will first briefly recall a few scientific highlights of the Cluster mission, related to the first measure of currents in space by a constellation of four satellites. We will then talk about the 2014 special operations designed and executed in support of SWARM. We will then present future special operations that are planned to be executed by Cluster up to 2018 in support of SWARM. Preliminary results already obtained will be also evoked.