



The Search-coil Magnetometer for the THOR mission

Fouad Sahraoui (1), Guillaume Jannet (2), Jean-louis Pinçon (2), Malik Mansour (1), Gilles Chalumeau (2), Michel Chabassière (2), Tedjani Hachemi (2), Alexis Jeandet (1), Pierre Henri (2), Olivier Le Contel (1), and Laurence Rezeau (1)

(1) Laboratoire de Physique des Plasmas, CNRS-Ecole Polytechnique, Palaiseau, France
(fouad.sahraoui@lpp.polytechnique.fr), (2) Laboratoire de Physique de de Chimie de l'Environnement et de l'Espace, CNRS, Orléans, France

Turbulence Heating ObserveR (THOR) is the first mission ever flown in space that is fully dedicated to plasma turbulence. The search-coil magnetometer (SCM) of THOR is a triaxial dual-band antenna dedicated to measuring the magnetic field fluctuations in the frequency range [1Hz,4kHz] and [1,200]kHz. THOR/SCM has a long heritage from earlier space missions such as Cluster, Themis, MMS, BepiColombo, Taranis, Solar orbiter and Solar Probe. In comparison to those missions, the SCM of THOR has a higher sensitivity level, which makes it capable of measuring very low amplitude magnetic fluctuations, in particular in the solar wind. Those measurements are crucial to address the problem of turbulence and energy dissipation at electron scales, a central goal of the THOR mission.