



## **Monitoring of the planetary electromagnetic environment**

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The latest space research projects set high emphasis on the investigation and qualitative/quantitative survey of the electromagnetic and plasma environment of the Earth and other planets. The dynamics of the electromagnetic signal and source activity, the interaction between the planetary, interplanetary and solar plasma environment make the main focus of interest. The research programs try to find answers for some basic questions regarding the structure and physics of the Earth and other planets (including the effects and influence of the Sun on the space weather, differences of the planetary magnetic field and field variations/turbulences/transients in the case of several planets of the solar system, differences/similarities of the densities and content of the atmospheres if they exist, coupling mechanism between the planetary and interplanetary processes, possible tectonic and/or volcanic activity, etc.). As a very effective tool, wideband monitoring of the general electromagnetic environment and activity around the planets, mapping and classification of significant e.m. events (noise-like, discrete, transient, etc.) is considered (on board an orbiter, balloon or a lander unit). Our groups participate either in the hardware development of electric and magnetic field component sensors (SAS instruments), or the evaluation and theoretical modeling of the recorded data. The SAS2 has been implemented and successfully operates on board of Compass2 satellite launched in 2006, further versions of equipment are planned to be installed on board of ISS-Obstanovka, on board of Volcano series of 16 satellites,

on board of Chibis, and – hopefully - in the Venus Entry Probe Mission), meanwhile we have been developing a software package in the frame of BepiColombo Mercury Mission in order to identify transient short duration UWB signals in the Hermean magnetosphere. Furthermore we have been taking participation in the evaluation and interpretation of data recording by DEMETER satellite. All these activities make a part of the whole European efforts in the space research for getting more precise and refined knowledge about our solar system and space environment.