



MicroCameras and Photometers (MCP) on board TARANIS satellite

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TARANIS (Tool for the Analysis of Radiations from lightNings and Sprites) is a CNES micro satellite. Its main objective is to study impulsive transfers of energy between the Earth atmosphere and the space environment. It will be sun-synchronous at an altitude of 700 km. It will be launched from end-2018 for at least 2 years. Its payload is composed of several electromagnetic instruments in different wavelengths (from gamma-rays to radio waves including optical). TARANIS instruments are currently in calibration and qualification phase.

The purpose of this poster is to present the MicroCameras and Photometers (MCP) scientific objectives and the sensor design, to show the performances of this instrument using the recent characterization, and at last to promote its products.

The MicroCameras, developed by Sodern, are dedicated to the spatial description of TLEs and their parent lightning. They are able to differentiate sprite and lightning thanks to two narrow bands ([757-767 nm] and [772-782 nm]) that provide simultaneous pairs of images of an Event. Simulation results of the differentiation method will be shown. After calibration and tests, the MicroCameras are now delivered to CNES for integration on the payload.

The Photometers, developed by Bertin Technologies, will provide temporal measurements and spectral characteristics of TLEs and lightning. There are key instrument because of their capability to detect on-board TLEs and then switch all the instruments of the scientific payload in their high resolution acquisition mode. Photometers use four spectral bands in the [170-260 nm], [332-342 nm], [757-767 nm] and [600-900 nm] and have the same field of view as cameras. The on-board TLE detection algorithm remote-controlled parameters have been tuned before launch using the electronic board and simulated or real events waveforms. The Photometers are now in the calibration and test phase. They will be delivered for integration in mid-2017.