



On-ground calibration of the BEPICOLOMBO/SIMBIO-SYS at instrument level

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The Mercury Planetary Orbiter/BepiColombo carries an integrated suite of instruments, the Spectrometer and Imagers for MPO BepiColombo-Integrated Observatory SYStem (SIMBIO-SYS). SIMBIO-SYS has 3 channels: a stereo imaging system (STC), a high-resolution imager (HRIC) and a visible–near-infrared imaging spectrometer (VIHI). SIMBIO-SYS will scan the surface of Mercury with these three channels and determine the physical, morphological and compositional properties of the entire planet. Before integration on the S/C, an on-ground calibration at the channels and at the instrument levels will be performed so as to describe the instrumental responses as a function of various parameters that might evolve while the instruments will be operating [1]. The Institut d'Astrophysique Spatiale (IAS) is responsible for the on-ground instrument calibration at the instrument level. During the 4 weeks of calibration campaign planned for June 2012, the instrument will be maintained in a mechanical and thermal environment simulating the space conditions. Four Optical stimuli (QTH lamp, Integrating Sphere, BlackBody with variable temperature from 50 to 1200°C and Monochromator), are placed over an optical bench to illuminate the four channels so as to make the radiometric calibration, straylight monitoring, as well as spectral proofing based on laboratory mineral samples. The instrument will be mounted on a hexapod placed inside a thermal vacuum chamber during the calibration campaign. The hexapod will move the channels within the well-characterized incoming beam. We will present the key activities of the preparation of this calibration: the derivation of the instrument radiometric model, the implementation of the optical, mechanical and software interfaces of the calibration assembly, the characterization of the optical bench and the definition of the calibration procedures.