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The Philae Science Mission – A Preview

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Abstract

The PHILAE Science Mission is based on measurements from 10 scientific instruments, i.e. the α-particle and X-ray spectrometer APXS, the visible camera and near-infrared spectrometer CIVA, the radio sounding experiment CONSERT, the molecule mass spectrometer and gas chromatograph COSAC, the accelerometer and thermal probe MUPUS, the light elements and isotope mass spectrometer and gas chromatograph PTOLEMY, the down-looking camera ROLIS, the magnetometer and plasma package ROMAP, the drill system SD2, and the acoustic and electric probe and dust impact sensor SESAME. The measurements are performed during 4 mission phase, i.e. during the pre-landing phase (PDCS) while the lander is still attached to the ROSETTA orbiter, during the separation, descent and landing phase (SDL), during the First Science Sequence (FSS) within about 3 days after landing and during a Long-Term Science phase (LTS) which follows the FSS immediately or after a short hibernation period depending on the landing site and the related power situation of the lander. The PDCS and SDL phase only a subset of the lander instruments will be active with scientific measurements, i.e. CIVA, CONSERT, PTOLEMY, ROMAP and SESAME during PDCS and CIVA, CONSERT, ROLIS, and ROMAP during SDL. The FSS and LTS phases will utilize all 10 PHILAE instruments for science. The presentations provides an overview of the PHILAE observations during the various mission phases, outlines the expected results and comments on the impact of the landing sites for the PHILAE science.