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ANITA2 FLIGHT MODEL DEVELOPMENT – A STATUS REPORT OF THE MULTICOMPONENT ISS AIR ANALYSER

Abstract

ANITA (Analysing Interferometer for Ambient Air) is an instrument to measure trace gases on the ISS with high spectral and time resolution quasi on-line on the ISS. ANITA2 follows the European precursor mission ANITA1, which in 2007 and 2008 successfully operated on the ISS for 11 months. ANITA1 delivered information on the air conditions analysing in parallel 32 of the most important trace gases in the cabin atmosphere. The data have shown the benefits of in-situ measurements in a manned space cabin atmosphere.

In 2016 OHB System and SINTEF were awarded the contract to develop the ANITA2 flight model by ESA, following some years of bread boarding of critical subsystems. The new system is characterised by a significant reduction in mass, volume and power consumption, as well as an improved characteristics in gas analysis sensitivity. The novel, sophisticated analysis S/W is further improved, employing statistical and non-linear calibration and analysis methods.

As for ANITA1, the programme is planned to be a joint ESA/NASA project. It will pave the way into the future, as a precursor system for manned exploration missions, e. g. to Mars and the Moon.

The paper gives a progress report on the instrument development activities and will highlight status and achievements.

The work described is performed under contract of the European Space Agency ESA.