

21st IAA SYMPOSIUM ON SMALL SATELLITE MISSIONS (B4)
Small Space Science Missions (2)

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EU:CROPIS: A DLR – COMPACT SATELLITE MISSION

Abstract

Following its constitution, the DLR – Institute of Space Systems is continuously developing new concepts for space missions in order to improve and develop a sustainable end-to-end system competence for scientific satellite missions. In this context the new program of DLR-Compact Satellites shall serve for a holistic coverage of complete small satellite missions, thus facilitating the development of new DLR-technologies and capabilities, but also providing a free accessible platform for space based research and science.

The current selected mission is dedicated to life science and shall demonstrate the long term utilization of biological regenerative closed loop life support systems as sink of carbon dioxide and as source of oxygen and food under different levels of gravity. In order to allow the variation of gravity levels a spin stabilized satellite design was selected. Stabilization and attitude control is implemented by a magnetic torquer based system. Since the payload consists of biological systems the experiment is hosted inside a pressurized vessel. The satellite will be operated at an orbit (SSO) of app. 600km altitude (LTAN) with a mission operational time of 24 months.

The mission is managed by the DLR-Institute in Bremen and supported by a PI-Team with international members. PDR has been passed in December 2013 and launch is scheduled for 2016 on Falcon 9.

The paper gives an overview on programmatic status, scientific goals, technology of the actual design and an outlook on future missions of the DLR Compact Satellite Program.