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HORIZONS MISSION – CHALLENGES AND HIGHLIGHTS

Abstract

After his first spaceflight and his 6 months stay on ISS in 2014, ESA astronaut Alexander Gerst is returning to the outpost in orbit this year. His second mission to the International Space Station is named “horizons” and contains interesting tasks and experiments for him like Airway Monitoring, GRIP/GRASP, SpaceTex, MagVector-2, Metabolic Space and Myotones, along with a whole educational outreach program.

Compared to the “blue dot” mission in 2014 a number of challenges have to be overcome especially in the planning of the mission:

- Alexander Gerst will be ISS Commander in the last two months of his 5 months stay in orbit. During this period less time for experiments is available leading to less flexibility in planning.
- Shortly before the mission the launch was postponed by more than a month reducing the time on orbit significantly. Hence, the experiment and activity planning had to be reworked in a short timeframe.
- Some major events or milestones of his stay in orbit, e.g. a possible EVA or a possible extension of his stay on-board could come up in the course of the ongoing mission. In this case the Columbus Flight Control will react as fast as possible to ensure a highly successful mission.

The preparation phases and the first part of the execution phase of both missions will be compared. The challenges in the preparation of the horizons mission will be shown and the progressive solutions found by the Col-CC flight control team will be explained. Also some highlights of the first phase of the horizons mission will be presented.

The paper will focus mainly on the planning and preparation phase of the horizons mission together with the preparation of the ISS Increments 55/56 and 57/58 at GSOC/Col-CC.