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Author: Mr. Johannes Weppler
Deutsches Zentrum für Luft- und Raumfahrt e.V. (DLR), Germany

A RETROSPECTIVE ON THE BLUE DOT MISSION OF ALEXANDER GERST

Abstract

The International Space Station (ISS) is the largest structure that has ever been put into space by mankind. It is a world class laboratory for science in a multitude fields and it serves as the stepping stone for technological advancements that will support future exploration of our Solar System. The ISS is built and operated by the United States of America, Russia, Japan, Canada, and 13 European nations. Hence it is also one of the biggest collaborative projects in spaceflight. European participation within the ISS programme is managed by the European Space Agency (ESA). Germany contributes about 37 percent to the funding of the European share of ISS costs. Besides the monetary contribution, Germany and its industry also took a leading part in major hardware elements. The Columbus laboratory module was built in Germany and four of the five European cargo vessels, the Automated Transfer Vehicle (ATV), were assembled in Germany. With the conclusion of the ATV programme in 2015, German industry will lead the development of the European Service Module (ESM) for the new U.S. Multi-purpose Crew Vehicle (MPCV). The ESM is based upon ATV technologies. A strong utilization of the assets aboard the ISS is also a key feature of the German space policy. From the days before the space station, the German microgravity science community has continuously flourished, resulting in a share of about 50 per cent in utilization of the European scientific assets on ISS. Furthermore a majority of the hardware for these assets is developed and built in Germany. From May 28 to November 10, 2014 German ESA astronaut Alexander Gerst lived and worked aboard ISS. It was the third visit of a German national to the orbital outpost. Two of these missions were long duration missions of almost six months each. Germany is the biggest contributor to ESA's ISS programme. Mr Gerst conducted more than 35 European experiments in various scientific fields. He also installed an important scientific payload, the Electro-magnetic Levitator (EML) in the Columbus module. The activities of Mr Gerst in space triggered huge attention among the German general public and media. A broad range of social media activities allowed people on Earth to take part in his mission. This paper will give an overview about the science that was done by Mr Gerst and about the activities in the area of education and public outreach that accompanied his mission.