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SYSTEM UPGRADES PREPARE COLUMBUS FOR A NEW DECADE

**Abstract**

ESA intends to support ISS operations for 10 additional years until 2030. To get the European Columbus module ready for the new decade, several new subsystems are momentarily ready to launch or in development:

- ColKa Band Antenna
- Columbus LAN Switches MkII
- Payload Lan Switches MkII
- Columbus Network Monitoring and Administration Unit
- Network Attached Storage Unit
- General Interface Adapter
- New Payload Racks

The main effort lies in the modernization of the data management system. Equipment will be exchanged in favour of newer generations. The network will be enhanced, provided services improved and on board LAN monitoring, LAN security and switch configuration capability added. The Columbus module is upgraded to pave the way for new commercial payloads and concepts which will fundamentally change the prerequisites and broaden the horizon of microgravity research. The Bioreactor Express concept and the Bartolomeo platform are two prime examples of what awaits the module in these coming years. Additionally, new payloads like EDR MkII and ER-10B are launched in the near future. The integration of this large number of new subsystems, payloads and concepts is a major challenge not only for the Flight Control Team but also for the Ground Segment Team, the Engineering Team and the Stowage and Maintenance Team. In parallel to the ongoing standard crew support, e.g. for the Beyond mission with Luca Parmitano, the FCT has to prepare and execute complex high-profile activities like the Cycle 15 software upgrade in January 2020 or the installation and commissioning of the ColKa Band antenna in Spring 2020. This paper is focusing on the preparation work of the FCT, summarizes the first results of the on board upgrades and provides an outlook on the future activities planned in the course of the Columbus on-board modernisation as well as on synergies towards deep space operations and exploration.