

15th SYMPOSIUM ON SMALL SATELLITE MISSIONS (B4)
Small Earth Observation Missions (4)

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FUTURE SMALL SATELLITE EO MISSIONS BASED ON TET

Abstract

The TET-1 mission is a national program funded by the German Space Agency. TET Phase C/D ended with a successful Flight Acceptance Review December 2010. After transport to the cosmodrome Baikonur, a 40 days launch campaign followed.

The goal of TET is the support of German industry and research institutes with the On-Orbit Verification (OOV) of new and innovative satellite technologies. For this purpose regular and reliable flight opportunities shall be offered which can be realized on short notice. In total, 11 different payloads were selected to be demonstrated on TET-1. These include optical experiments such as an infrared camera as well as novel solar cells, batteries, on-board computers, GPS receivers and a propulsion system. Finally, TET with its new standardized bus and modular payload supply system shall also serve as standardized platform for On-Orbit-Verification purposes in the future. The payload compartment is large enough to accommodate even complex experiments (or EO-payloads), and the bus performance is powerful enough to provide challenging mission requirements, too, as it will be demonstrated for the IR-payload onboard TET-1.

Based on the TET-1 heritage Kayser-Threde together with its industrial partners have performed further studies to upgrade TET to a more flexible EO-satellite system having now specific features on board like an OCS, a higher data rate capability, a higher power budget and another upgraded elements allowing a more efficient recurring and thus commercialisation approach for future missions needing a higher platform performance.

With the demonstration of the TET-1 EO-capability and the possibility for the TET platform upgrade there is a clear way forward on the horizon for small, responsive and efficient EO-missions. Either for single applications or in the frame of constellations, such TET-based micro-satellites are easy to adapt to various EO-payloads and will be key elements for future EO missions.

The paper will present impressions and results from the TET-1 LEOP commission phase, outline the upgrade features of TET and will provide an outlook of future EO applications.