

The TechEdSat-N Series: A Collaborative Technology Development Platform in the Nano-Satellite Form Factor

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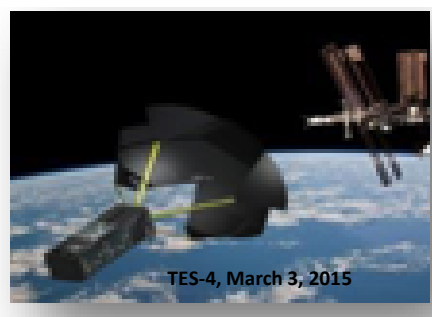
The TechEdSat-1 was the first U.S. cubesat to be deployed from the ISS. This permitted the initiation of a flight series that has recently de-orbited the 6th nano-satellite with subsequent numbers 7-10 under development. The nano-satellites range from 1U to 6U (TechEdSat-8) but have the critical ISS Safety design features standardized in order to focus on the particular experiment objectives. Incremental experimental development has included unique communication subsystems such as command/control of the nanosatellite through email commands -as well as a recent record for Wifi transmission. Also, the thermophysics of controlled drag devices (Exo-Brake) has been developed which will prelude sample return and planetary exploration applications. The successful ‘rapid incremental experiment’ approach has also been incorporated into collaborations with academia, permitting professors/student interns to be exposed to the rigors of space mission hardware design and execution. The TechEdSat-8, a linear 6U configuration, allows for 5 different groups to contribute an ‘experiment, sensor, or sub-system’ through a well-defined common interface. Lastly, the flying laboratory concept is helpful in developing future interplanetary nano-satellite subsystems which will advance exploration goals by allowing rapid demonstration/validation first in LEO.



TES 1 Oct 4, 2012 (1st deployment)



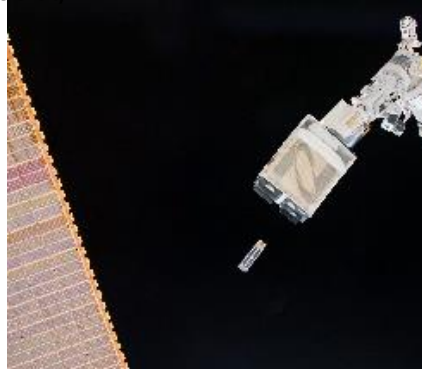
TES-3 Aug 3, 2013 (6 wk de-orbit)



TES-4, March 3, 2015



TES-5 March 6, 2017



TES-6 Nov. 21, 2017