



SOAREX - 6
Aug 22, 2008

- High-mach Reentry Test
- Shock shock interaction analysis



SOAREX - 7
May 28, 2009

- First flight of TDRV
- Highly stable self-stabilizing reentry probe



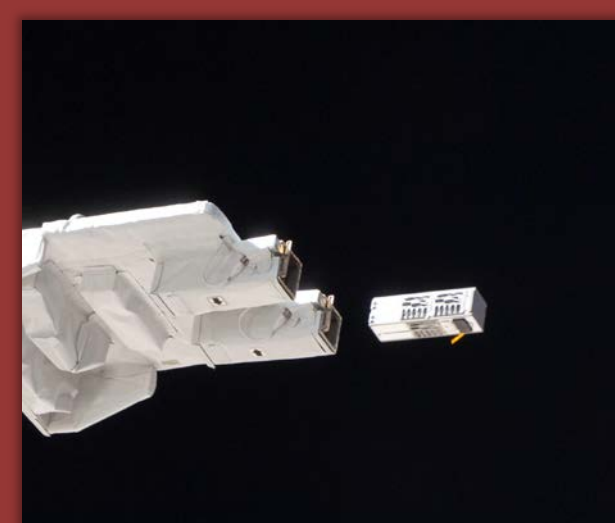
TES-1
Oct 4, 2012

- First US Cube-Sat deployed from the ISS
- System verification test



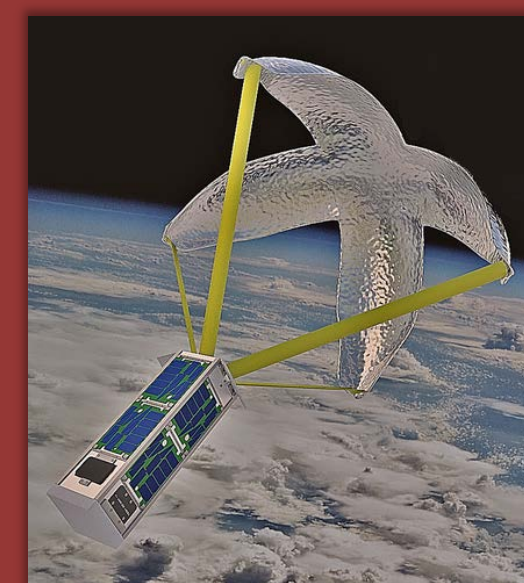
TES-2
Aug 21, 2013

- First US Cube-Sat deployed from the ISS
- System verification test



TES-3
Nov 19, 2013

- First 3U deployed from the ISS
- First Exo-Brake flight test



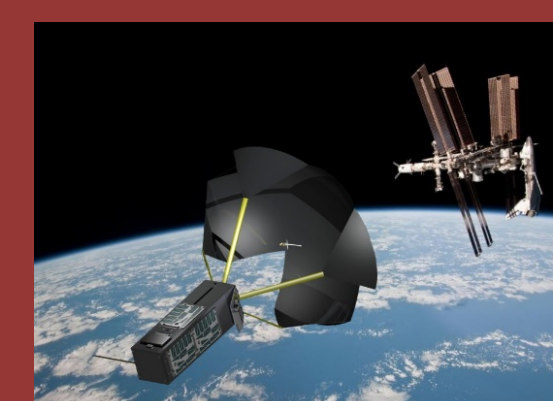
TES-4
March 3, 2014

- Evolved Exo-Brake flight test
- Flight material and subsystem investigation



SOAREX-8
Expected
July 7, 2015

- Full scale Exo-Brake flight test
- Advance COM suite



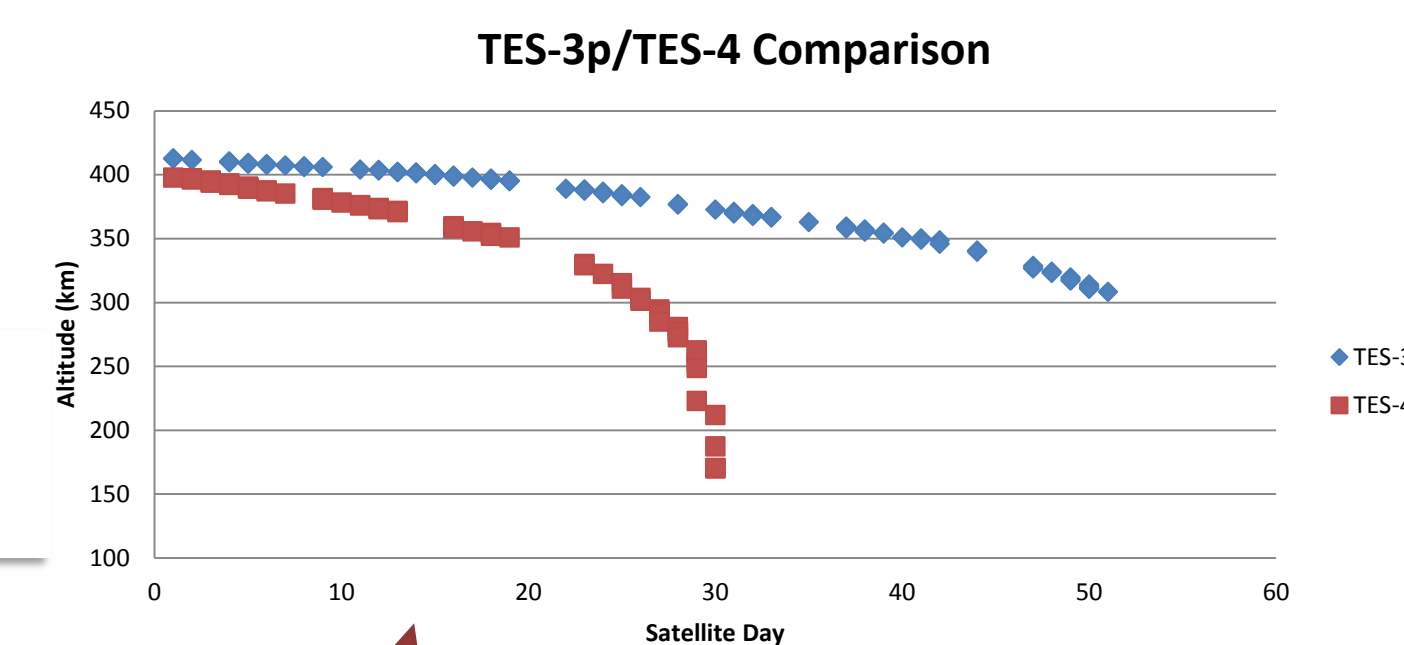
TES-5
Expected
Late 2015

- First modulated (steerable) Exo-Brake
Advanced targeting

The TechEdSat Series - A Platform for Rapidly Advancing Nano-Satellite Technologies and Capabilities

M. Murbach², P. Papadopoulos^{1,4}, D. Atkinson^{2,3}, A. Guarneros-Luna², G. Pearhill^{1,2}, M. Bodmer^{1,2}, J. Mojica², A. Reuter², M. Scales^{2,4}, K. Sok^{1,2}, J. Cortez¹, Benton¹, T. Shu^{1,4}, R. Rivas¹, J. Punzalan^{1,4}, A. Tabrizi^{1,4}, F. Tanner^{1,4}, R. Morrison, G. Nakashiki^{1,4}, J. Drew¹, J. Swenson¹, A. Tabrizi¹, J. Wheless^{1,2}, R. Shimmin¹, R. Alena¹, ¹NASA Ames Research Center, ²University of Idaho, ³NASA Jet Propulsion Laboratory, ⁴San Jose State University

RAPID DE-ORBIT:



The Team



NASA + Universities

Key Technology Advances

Exo-Brake

- Novel and 'Safe' deorbit technique

Advanced CubeSat Com

- Development of a 'TDRS-for-CubeSats'
- Obviating the need for ground stations
- Rapid command uplink capabilities
- X-Band, Advanced S-Band, Wireless Sensors through 802.15.4

ISS Design/Safety Process Nanosats

- ISS compatible design and testing process for rapid flight opportunities

SCRAMP/TDRV (Tube deployed reentry vehicle)

- Self-stabilizing reentry probe
- Shock/Shock Interaction
- Transpiration studies



Applications

ISS/Orbital Platform Sample Recovery

- Recovering up to 3kg samples

ATROMOS Mars Surface

NanoSatellite Mission Concepts

- Exploring critical, high-risk regions of Mars

