

CubeSat Launch Initiative ELaNa 20

Rocket: LauncherOne

Launch Date: 1/17/2021

Nominal Orbit: ~500 x 500 km

Mission Name	Mission Description	Payload(s)	Organization(s)
PolarCube	This mission will use a 3U to collect Earth surface and atmospheric temperature data using a passive microwave radiometer operating at the 118.7503 GHz O ₂ resonant frequency. The objective is to collect brightness temperature spectra at high spatial resolution at a very low cost for remote sensing science and technology evaluation.	MiniRad radiometer	University of Colorado at Boulder, Colorado
MiTEE (Miniature Tether Electrodynamic Experiment)	The 3U will demonstrate and assess an ultra-small satellite electrodynamic tether in the space environment where the fundamental dynamics and plasma electrodynamics.	Langmuir probe Instrument	University of Michigan, Ann Arbor
CACTUS-1 (Coordinated Applied Capitol Technology University Satellite 1)	This 3U technological demonstration mission will explore the cost-saving communications and commanding innovation that will enable scientific data gathering and contribute risk parameterization and mitigation services to aid both academic and industry teams in future missions.	Project TRAPSat a debris-capturing experiment & Project HERMES an Onboard Spacecraft Hotspot Communications (OSHComm) Subsystem	Capitol Technology University
Q-PACE (CubeSat Particle Aggregation and Collision Experiment)	The 3U spacecraft that will observe a set of 0.1 mm to cm-sized particles colliding at the very low speeds made possible by its microgravity environment in orbit around the Earth.	GoPro video camera and an Experiment Test Cell	University of Central Florida
TechEdSat-7	This project is a 2U that will continue the iterative testing and demonstrating of controlled deorbiting using the Exo-Brake .	High Packing Density Exo-Brake	NASA's Ames Research Center, San Jose State University, Santa Clara University
RadFXSat-2 (Radiation Effects Satellite), also FOX-1E	1U cubesat technology demonstration mission hosts both an amateur communications payload as well as a scientific or technological payload, to operate in Low Earth Orbit based on the design of Fox 1A. The purpose of the project is to test a design for a linear transponder that could be made available to CubeSat builders.	Radiation effects experiment, Mode J linear transponder	Vanderbilt University, AMSAT
EXOCUBE-2	A 3U spacecraft will directly measure the density Hydrogen, Oxygen, Helium and Nitrogen in the upper atmosphere during its entire orbit.	Neutral Static Energy Angle Analyzer (NSEAA), the Ion Static Energy Analyzer (ISEAA), and the Total Ion Monitor (TIM)	California Polytechnic University, San Luis Obispo, sponsored by NSF (National Science Foundation)
CAPE-3 (Cajun Advanced Picosat Experiment 3)	This is an educational 1U mission that will fly the Smartphone CubeSat Classroom, a kit that allows anyone with a smartphone to set up a ground station. Interactive educational activities will give students the ability to interact with the CubeSat via an app on their smartphone, and use their smartphone to design their own CubeSat experiments.	Smartphone CubeSat	University of Louisiana, Lafayette
PICS-1, -2 (Passive Inspection CubeSat)	This mission consists of two 1U spacecraft that will demonstrate ultrafast booting and power-up operation of system electronics and the low-risk inspection of the exterior of a spacecraft by a passive, flyaway probe.	Camera array	Brigham Young University