SwRI-designed miniature spacecraft selected to fly on rocket's test flight in 2018

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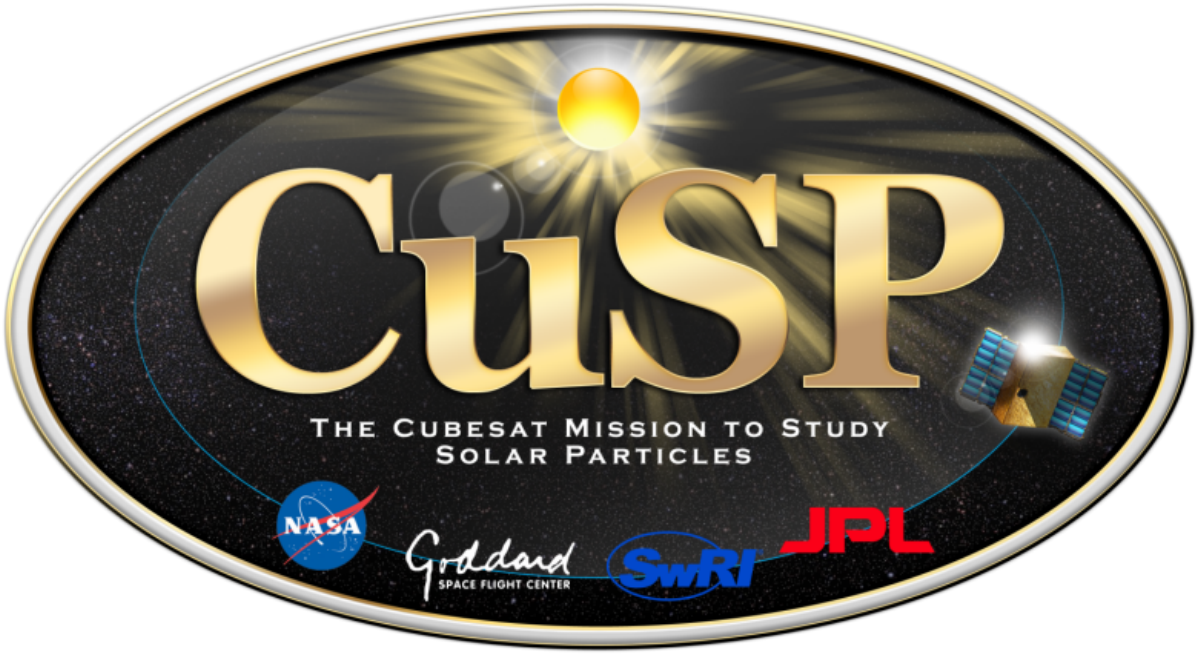

Southwest Research Institute is leading the development of the CubeSat to study Solar Particles (CuSP), a microsatellite to study interplanetary magnetic fields and energetic particles in the solar wind. CuSP is one of a dozen shoebox-size payloads, called CubeSats, that will hitchhike into interplanetary space during the first unmanned test flight of NASA's giant new Space Launch System (SLS). Credit: Southwest Research

NASA announced that a miniature solar particle research spacecraft to

be built by Southwest Research Institute (SwRI) will launch aboard NASA's Exploration Mission 1 (EM-1) rocket in 2018.

The CubeSat to study Solar Particles (CuSP) is one of a dozen shoebox-size payloads, called CubeSats, that will hitchhike into interplanetary space aboard EM-1, the first unmanned test flight of NASA's giant new Space Launch System (SLS). The SLS rocket is designed to eventually carry astronauts to the Moon and Mars aboard the Orion spacecraft.

Equipped with three miniaturized but highly capable scientific instruments, the CuSP microsatellite will observe interplanetary magnetic fields and energetic particles in the solar wind. Dr. Mihir Desai of SwRI's Space Science and Engineering Division is principal investigator of CuSP and leads the development of the Suprathermal Ion Spectrograph, which will detect low-energy solar energetic particles. The Miniaturized Electron and Proton Telescope, developed by NASA's Goddard Space Flight Center, will measure high-energy solar energetic particles. The Vector Helium Magnetometer, being built by NASA's Jet Propulsion Laboratory, will measure the strength and direction of magnetic fields.

"This is a valuable opportunity to add to our knowledge of solar energetic particles and space weather by taking advantage of the SLS launch," Desai said. Space weather, caused by interactions between the solar wind and the Earth's magnetic field, can stress power grids and impact space technology. "CuSP will observe solar events in interplanetary space and give us significant insight into what drives space weather, helping scientists to improve their simulations."

Originally known as CuSPP, for CubeSat to study Solar Particles over the Poles, the satellite was designed to fly in low-Earth orbit, studying solar particles near Earth's poles. When NASA announced plans to fly CubeSats on SLS test flights, the team realized they had an opportunity

to conduct interplanetary space weather research for a fraction of the usual cost. With a small amount of additional funding by NASA's Heliophysics Technology and Instrument Development for Science program, the team is reconfiguring CuSP for interplanetary operations.

Provided by Southwest Research Institute