

USC nanosatellite blasts off from Cape Canaveral on SpaceX launch

December 13 2010



This USC-built cubesat unit is now part of MAYFLOWER satellite in earth orbit. Credit: SERC/CAERUS

and went perfectly -- December 8 at Cape Canaveral, with the newly developed Falcon 9 heavy lift vehicle sending into earth orbit a packet of nanosatellites, including a unit that the USC Viterbi School's Information Sciences Institute (ISI) and its Department of Astronautical Engineering's Space Engineering Research Center (SERC) jointly played a key role in developing.

This was only the second flight of SpaceX's Falcon 9 and the first commercial flight of a recoverable capsule, the Dragon. By demonstrating the ability to carry astronauts to the [International Space Station](#) (ISS), the launch was widely regarded as a breakthrough for the

private space industry.

The orbiting packet, a three-unit "cubesat" called "MAYFLOWER," is a Next Generation Technology Nanosatellite that is a joint effort between USC, Northrop Grumman's NOVAWORKS Division and other companies. USC supplied one of the three units, named CAERUS (the Greek word for "opportunity") to support communications.

MAYFLOWER is now orbiting around the earth about every 90 minutes at an altitude of more than 300 kilometers.

The CAERUS team included David Barnhart, who originated space projects at ISI, and Senior Design Engineer Tim Barrett. Technical specialists are Will Bezouska, Michael Aherne and Jeff Sachs.

Working with a host of undergraduate and graduate students from the Viterbi School's Department of Astronautical Engineering and other engineering departments, the team delivered CAERUS just 14 weeks after receiving authorization to proceed on the project.

USC Professors Joseph Kunc and Daniel Erwin led the campus teams from the Department of Astronautical Engineering and SERC. A joint effort between Astronautics and ISI, SERC's expertise and student involvement provided critical support for the rapid ground-station development timeline.

"We are proud to be associated with a paradigm shift in space flight," said Yannis C. Yortsos, dean of the Viterbi School.

"It was indeed a great day for USC," said Joseph Sullivan, associate director at Information Sciences Institute. "The first flight is the hardest to achieve."

"It is amazing what can be accomplished in an 'engineering teaching hospital' environment by students with a passion for space," said Kunc.

The SERC and ISI will go back into space in 2011 with a different satellite project, another three-unit [cubesat](#), this one called AENEAS, that also is being developed at ISI with SERC. CAERUS components and software are similar to AENEAS, allowing USC a very rare risk mitigation test of its hardware – the 'opportunity' referred to in the CAERUS name -- before delivery of AENEAS.

More information: <http://www.isi.edu/projects/serc/caerus>

Provided by University of Southern California

Citation: USC nanosatellite blasts off from Cape Canaveral on SpaceX launch (2010, December 13) retrieved 10 April 2024 from <https://phys.org/news/2010-12-usc-nanosatellite-blasts-cape-canaveral.html>

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