

Atsa team successfully fits observatory camera in XCOR spacecraft

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Planetary Science Institute scientists and undergraduate students from The Citadel and other South Carolina colleges visited XCOR Aerospace in Mojave, Calif., to fit the Atsa Suborbital Observatory Mark I camera in an engineering model of the Lynx Mark I spacecraft.

The Atsa project will use a reusable suborbital spacecraft equipped with a specially designed telescope to provide low-cost space-based observations above the limiting atmosphere of Earth, while avoiding some operational constraints of satellite telescope systems such as the inability to observe objects close to the sun.

PSI Senior Scientist Faith Vilas and PSI Associate Research Scientist Luke Sollitt, who is an Assistant Professor of Physics at The Citadel, are the inventors of Atsa. Vilas, Atsa Project Scientist, and Sollitt, Atsa Deputy Project Scientist, led the four-day project at XCOR, assisted by Danielle Barrett of Trident Technical College, Todd Rhodes of Francis Marion University, Daniel Pittman from The Citadel and Larry Smith of Fidem Technica, who provides mechanical engineering support to the Atsa team.

"The visit to XCOR was to do a first fit test of the Atsa Armrest Camera, which is the [engineering test](#) bed for the Atsa Suborbital Observatory. The AAC is a small, hand-guided camera that is designed to demonstrate target acquisition and tracking for human-tended suborbital astronomy, and will acquire multispectral images of targets such as Venus and Mercury in the visible to near-infrared spectral range

– out to about 900 nanometers," Vilas said. "The test was very successful: the AAC will indeed fit into the Lynx cockpit and be useable."

"We learned a great many lessons about payload accommodation on the Lynx, about the integration process, and about what changes we need to incorporate to finish a flight-ready instrument," Sollitt said. "We look forward to returning in a few months with the next version of the AAC to do fit testing with the flight cockpit."

ATSA team members also met with Dick Rutan, XCOR's founding test pilot, who was first to fly non-stop around the world with Jeanna Yeager in the Voyager aircraft in 1986.

"We are extremely pleased to be teamed with PSI on this cutting-edge project," said XCOR Program Manager Khaki Rodway. "The capabilities of Lynx allow PSI investigators to fly frequent, flexible Atsa missions a time that suits their research needs. Those factors shorten development time of the camera and enable acquisition of innovative data."

"Atsa is a true reflection of what Lynx and XCOR are all about, and that's why we enjoy partnering with them," said XCOR Chief Operating Officer Andrew Nelson. "Lynx will be known for aircraft-like operations: no engine overhaul or vehicle restoration between flights. That means we can match partners like PSI in speed and reliability. We respect products and solutions that are extremely reliable, reusable and affordable. And Atsa hits all three of those notes. In the end, more flights for less money equal many more observations."

PSI and XCOR Aerospace are operating under a Memorandum of Understanding that will see PSI flying Atsa on XCOR's current and future models of Lynx spacecraft. Atsa telescope operations will

commence immediately after the spacecraft's main engine cutoff.

Provided by Planetary Science Institute

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