

Payload rockets take flight at Spaceport America

BY KEVIN ROBINSON-AVILA | NMBW SENIOR REPORTER

Tourists might have to wait another couple of years to travel into space, but rockets are already flying at the New Mexico Spaceport.

In May, UP Aerospace Inc. will launch its third educational rocket into suborbit with experiments from nearly 1,000 students in three states. And in December, UP will fly more payloads for the Air Force Research Laboratory (AFRL) in Albuquerque.

Texas-based Armadillo Aerospace LLC plans multiple low-altitude launches in May with a new test vehicle it's using to gather data for the construction and launch of passenger rockets to space. In addition, it will fly a different vehicle it built to test vertical takeoff and landing technology for NASA's CRuSR initiative (Commercial Reusable Suborbital Research Program), said Neil Milburn, vice president for program management.

"One of our goals is to start launching out there on a monthly basis for NASA, and to conduct experiments with our test bed rocket to develop our future passenger vehicle," Milburn said. "Those flights will eventually lead to suborbital launches for NASA and other companies. We think there's a pretty good market out there for commercial and scientific payloads."

While the public spotlight remains riveted on Virgin Galactic's plans to shuttle paying passengers to space, major progress is taking place on the ground at Spaceport America.

Construction at the facility, located about 45 miles north of Las Cruces near Upham, is steadily advancing.

Efforts are under way to build the infrastructure needed for the herds of tourists expected to flock to the spaceport once it opens (see related story, page 5).

Space companies, government agencies and educational institutions are working together to inspire students to study and train to become the next generation of workers needed to guide the emerging commercial space industry.

UP Aerospace President Jerry Larson said a groundswell is under way among students, teachers and spaceport supporters.

"Since we started these launches in 2009, we've flown educational experi-

ments prepared by 3,500 students in 25 states," Larson said.

The New Mexico Space Grant Consortium at New Mexico State University sponsors the annual launches and works with educators and students to help them prepare experiments for UP's SpaceLoft rockets.

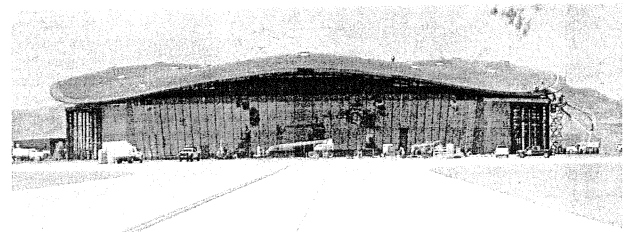
The consortium received a \$2 million grant from NASA last summer to work with 2,500 middle school students from New Mexico, Arizona and Texas. The students competed to get payloads on the SL-5, which will launch from the Spaceport May 20.

Middle school students created 138 experiments in the competition. Twenty-one of those will fly on the SpaceLoft, along with payloads from high school and college students, said consortium Director Pat Hynes.

The payloads include 35 sensors to measure electromagnetic fields, carbon dioxide, radiation, acceleration, temperature and pressure. Some experiments will test consumer products in space, such as placing a cell and satellite phone on the rocket to measure functionality, Hynes said.

Larson said the SpaceLoft flights are building more demand for suborbital payload services.

The AFRL is placing a data package on the SL-5 to measure rocket performance in preparation for another UP flight in De-



The Spaceport's terminal hangar is under construction in southern New Mexico.

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An entrance to the Spaceport's vertical launch pad, where UP conducts its operations.

ember.

"SL-6 will be an exclusive vehicle for the Air Force," Larson said. "They're buying the entire ride."

UP has racked up enough experience to turn the SpaceLoft into a reusable rocket, Larson said. Until now, it cost about \$250,000 to build and fly a new vehicle for each launch. But the SL-5 will be recovered and reflowed for SL-6.

"Our first flight in 2006 tumbled out of control and was a miserable failure, but

we've made great progress toward flawless flights," Larson said. "Having a reusable vehicle brings down costs."

Armadillo is also building reusable payload rockets at the spaceport through the CRuSR program.

"NASA has contracted some low-altitude flights ... but we're not publishing the dates for security reasons," Milburn said.

The company is experimenting with another rocket that eventually will fly tourists to suborbit. In September, it signed an agreement with Virginia-based Space Adventures Ltd. – which previously placed paying passengers on shuttles to the international space station – to market seats for Armadillo's future tourist rocket.

But Virgin Galactic is drawing the most public attention.

The company expects to begin suborbital passenger flights at the spaceport within about two years, said Vice President for Special Projects Will Pomerantz at an April 25 luncheon in Albuquerque.

Testing continues in the Mojave desert in California, where Virgin has conducted nearly 60 flights with the "WhiteKnightTwo," the mothership that will carry the small SpaceShipTwo passenger rocket on its underbelly. Virgin has done five test drops with SpaceShipTwo, which is designed to break away from the mothership to fly to suborbit, 64 miles above the Earth's surface.

"Probably within a year, test pilots will begin flying to space," Pomerantz said. "Maybe six months to a year after that, we'll begin commercial services."

Meanwhile, the first phase of spaceport construction is almost done, said Spaceport Authority Executive Director Christine Anderson. The runway was inaugurated last fall, and crews are finishing work on the terminal hangar and the operations center.

Phase two will see the construction of welcome centers for visitors, a new southern road to the spaceport from Las Cruces and installation of a permanent power source.

"In my mind, Virgin's first launch will mark the grand opening, or unveiling," Anderson said. "But there's a lot already happening at the spaceport."

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