

# Russian rocket engines suspected in launch blast

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An unmanned Orbital Sciences Corp.'s Antares rocket explodes shortly after takeoff at Wallops Flight Facility on Wallops Island, Va. on Tuesday, Oct. 28, 2014. No injuries were reported following the first catastrophic launch in NASA's commercial spaceflight effort. (AP Photo/Eastern Shore News, Jay Diem)

Crews searched for scorched wreckage along the Virginia coast Wednesday in hopes of determining why an unmanned commercial rocket exploded in a blow to NASA's strategy of using private

companies to send supplies and, eventually, astronauts to the International Space Station.

The 140-foot (42.6-meter) Antares rocket, operated by Orbital Sciences Corp., blew up 15 seconds after liftoff Tuesday, lighting up the night sky and raining flaming debris on the launch site. No one was injured, but the \$200 million-plus mission was a total loss.

The blast not only incinerated the cargo—2½ tons of space station food, clothes, equipment and science experiments dreamed up by schoolchildren—but dealt a setback to the commercial spaceflight effort championed by NASA and the White House even before the shuttle was retired.

It was the first failure after an unbroken string of successful commercial cargo flights to the space station since 2012—three by Orbital and five by SpaceX, the other U.S. company hired by the space agency to deliver supplies.

Although the cause of the blast is still unknown, several outside experts cast suspicion on the 1960s-era Russian-built engines used in the rocket's first stage. Orbital Sciences chairman David Thompson himself said that the Russian engines had presented "some serious technical and supply challenges in the past."

He said he expects the investigation to zero in on the cause within a week or so. The launch pad appeared to have been spared major damage.

As for launching again, Thompson said he expects a delay of at least three months in the company's next flight to the space station, which had been set for April.

"We are certainly disappointed by this failure, but in no way are we

discouraged or dissuaded from our objectives," he told investors in a phone conference.

Former NASA Administrator Michael Griffin, who helped spearhead the commercial cargo effort, noted that the Antares rocket was still in development. He and others associated with the space agency went into the program knowing that failures were likely.



This image taken from video provided by NASA TV shows Orbital Sciences Corp.'s unmanned rocket blowing up over the launch complex at Wallops Island, Va., just six seconds after liftoff. The company says no one was believed to be hurt and the damage appeared to be limited to the facilities. (AP Photo/NASA TV)

In another few years, NASA hopes to launch astronauts again from U.S. soil—aboard commercially supplied spacecraft.

Orbital Sciences has never intended to fly anything more for NASA than

cargo. The political fallout from the blast is more likely to affect SpaceX and Boeing, both of which are under NASA contract to fly Americans to the space station by 2017.

"We can't allow the one incident of the Antares vehicle loss to smear space commercialization in Washington and on the Hill," Boston-based space analyst Charles Lurio said in an email.

The mood was somber 260 miles (418 kilometers) up, according to space station astronaut Butch Wilmore. He and his five crewmates were watching a live video feed of the launch and saw the whole thing.

"It's a great loss," Wilmore said, quickly adding that the station pantry contains four to six months' worth of food and that there is plenty of research to go around.

Debris—potentially hazardous because of fuel—plummeted into the Atlantic and onto the launch site, igniting fires. Helicopters took to the air at first light Wednesday to track down remnants. Authorities warned people to avoid touching any debris that might wash ashore.

Ash and other debris covered Chrissy Mullen's house, patio and yard on Chincoteague Island a few miles away. She spent the morning cleaning up.

"We thought it was raining, but then we're getting particles out of our hair," she said. "The ash, the debris that was hitting our head was a little freaky."



Spectators in Chincoteague, Va. watch the fireball from the explosion of the unmanned Orbital Sciences Corp.'s Antares rocket and Cygnus cargo capsule seconds after liftoff from Wallops Island, Va. on Tuesday, Oct. 28, 2014. No injuries were reported following the first catastrophic launch in NASA's commercial spaceflight effort. (AP Photo/The Virginian-Pilot, Rich-Joseph Facun)

Just hours after the accident, Russia launched a supply ship from Kazakhstan on a previously scheduled flight to the space station, and it docked smoothly. Another load of supplies should be on the way in December, delivered by SpaceX from Cape Canaveral, Florida.

NASA is paying \$1.9 billion to Dulles, Virginia-based Orbital Sciences for eight cargo hauls and \$1.6 billion to California's SpaceX for 12 shipments. Tuesday's flight was insured.

Even before Tuesday's failure, Orbital Sciences had been reviewing

alternatives to the Russian-made engines, Thompson said. The company recently had selected a different main propulsion system for use in another couple of years, and the switch may be accelerated if the Russian engines are the culprit, he said.

The AJ26 engines—modified and tested in the U.S.—originally were designed for the massive Soviet rockets meant to take cosmonauts to the moon during the late 1960s.



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Three years ago, an AJ26 leaked kerosene fuel and ignited on the test stand at a NASA center in Mississippi. Just this past May, another of the engines exploded during a test firing there.

In 2012, SpaceX's billionaire founder and CEO, Elon Musk, called the Antares rocket "a punchline to a joke" because of the Russian engines. SpaceX, by contrast, makes its own rocket parts.

"I mean they start with engines that were literally made in the '60s and, like, packed away in Siberia somewhere," Musk said in an interview with Wired magazine.

**More information:** Orbital Sciences: [www.orbital.com](http://www.orbital.com)

NASA: [www.nasa.gov/offices/c3po/home](http://www.nasa.gov/offices/c3po/home)

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