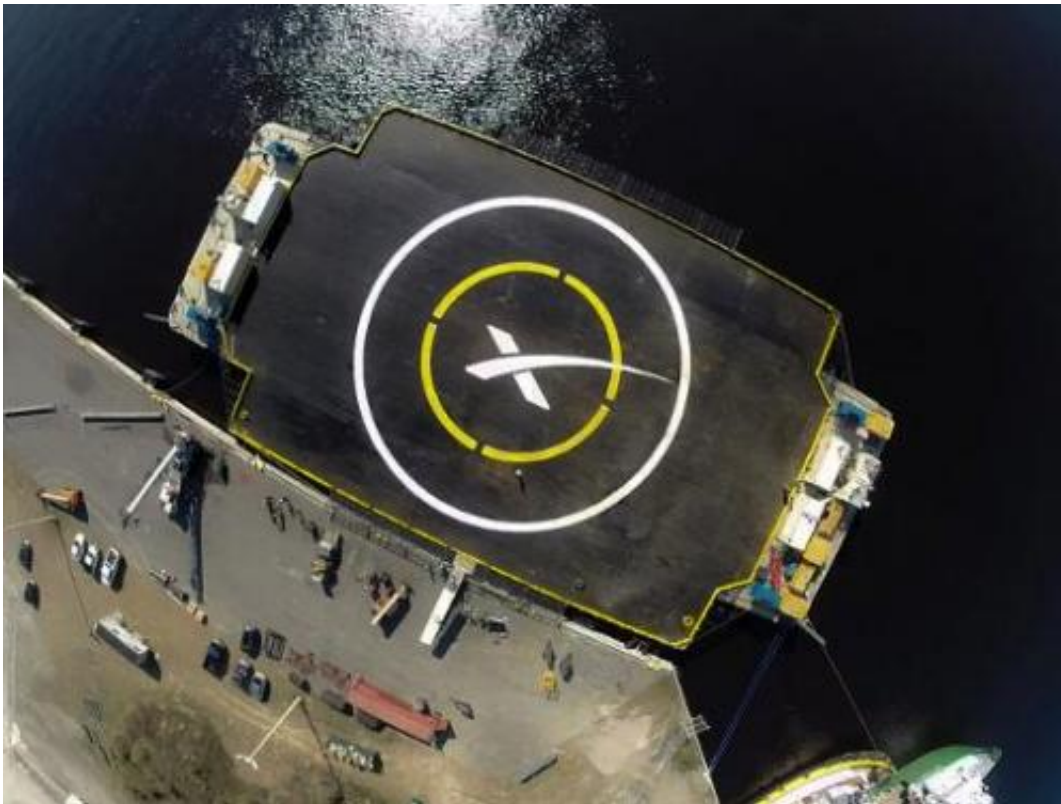


SpaceX to try ocean platform landing of Falcon rocket (Update)

January 5 2015, by Kerry Sheridan



This undated SpaceX photo obtained January 5, 2015 shows SpaceX's "autonomous spaceport drone ship" floating in the Atlantic Ocean, about 200 miles east of Jacksonville, Florida

SpaceX aims to propel modern rocket science into a brave new era Tuesday by landing a key part of its Falcon 9 rocket on a floating platform in the Atlantic Ocean.

Billionaire Internet entrepreneur Elon Musk, who heads the California-based company, said on Reddit late Monday he has "no idea" if the attempt will work, after previously giving the bid a 50-50 chance of success.

"I pretty much made that up. I have no idea :)" he wrote in an "Ask Me Anything" session.

The experiment involves the first-ever attempt at guiding the powerful first stage of the rocket to landing spot about 200 miles (322 kilometers) off the coast of northern Florida after launching from Cape Canaveral at 6:20 am (1120 GMT).

SpaceX hopes the effort will transform the rocket industry from one that creates parts worth millions of dollars that are left to fall into the ocean after blastoff, to one that reuses its assets much the way commercial airlines fly the same planes again and again.

"A fully and rapidly reusable rocket—which has never been done before—is the pivotal breakthrough needed to substantially reduce the cost of space access," said a company statement.

Guided rocket return

The attempt will come after the Falcon 9 launches from NASA pad early Tuesday, carrying the unmanned Dragon cargo vessel which is packed with supplies and equipment for the six astronauts living at the International Space Station.

The rocket will separate, as it usually does, allowing the second stage to continue propelling the spaceship to orbit.

But this time, SpaceX will relight the engines on the 14-story tall Falcon

9 first stage.

Then, three separate engine burns should guide and slow the rocket down so it can land upright on the 300 by 100 foot (91 by 30 meter) platform, which SpaceX is calling an "autonomous spaceport drone ship."

Extra fins have been added to the rocket to help it maneuver.



This undated SpaceX photo obtained January 5, 2015 from NASA shows the Dragon spacecraft and its Falcon 9 rocket as they are rolled to the launch pad ahead of the static firing test for the rocket

"The grid fins are super important for landing with precision," Musk wrote on Reddit.

"The aerodynamic forces are way too strong for the nitrogen thrusters. In particular, achieving pitch trim is hopeless. Our atmosphere is like molasses at Mach 4!"

The company has already shown in two tests that it could execute some control over the return the first stage of the Falcon 9, slowing it down to a hover before allowing it to splash into the ocean.

This time, no personnel will be within a distance of about 10 miles from the landing platform, said Hans Koenigsmann, vice president for Mission Assurance at SpaceX.

He also said that real-time updates are not likely even though there are cameras on the rocket to capture the experimental landing.

"It is very difficult to hit a platform of that size," he said at a NASA briefing on Monday.

"If you look at it from almost 150 miles up in suborbit, it looks like a very small place to land on."

SpaceX had described the challenge as going from a landing accuracy of 10 kilometers in past tests to 10 meters in this attempt.

In the final moments, gravity should help the rocket set itself down on the platform.



In this October 9, 2014 photo, Tesla founder and chief executive Elon Musk is in Los Angeles

"The center of gravity is pretty low for the booster, as all the engines and residual propellant is at the bottom," Musk wrote.

Heaviest load yet

The launch was initially supposed to take place last month. But SpaceX postponed it on December 18 after a launchpad static test fire was a "tad short" and the team decided to exercise caution and postpone until the New Year, Koenigsmann said.

If the company's fifth contracted launch with NASA to the ISS goes ahead as planned Tuesday—and weather is 70-percent favorable for launch—the Dragon cargo ship should arrive at the ISS on January 8.

The supply ship is carrying its heaviest load yet—1.8 pressurized metric tons of "much-needed cargo," said ISS program manager Mike Suffredini.

"The SpaceX folks have used quite a bit of ingenuity to help us put items in all the little cracks and crevices as we kind of lean on the Dragon vehicle to supply ISS here for the next little while until the Orbital folks are flying again," he told reporters.

SpaceX has a \$1.6 billion contract with NASA for 12 missions to supply the space station and return cargo to Earth.

Orbital Sciences also has a \$1.9 billion contract with NASA to supply the space station.

However, an engine failure on Orbital's Antares rocket in October cost the company \$200 million in lost parts and postponed its remaining launches until further notice.

© 2015 AFP

Citation: SpaceX to try ocean platform landing of Falcon rocket (Update) (2015, January 5) retrieved 27 April 2024 from

<https://phys.org/news/2015-01-spacex-ocean-platform-falcon-rocket.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.