

Jason-3 Mission

Mission Overview

With this mission, SpaceX's Falcon 9 rocket will deliver the Jason-3 satellite to low-Earth orbit for the U.S. National Oceanic and Atmospheric Administration (NOAA), National Aeronautics and Space Administration (NASA), French space agency Centre National d'Etudes Spatiales (CNES) and the European Organisation for the Exploitation of Meteorological Satellites (EUMETSAT).

The Jason-3 launch is targeted for a 10:42am PT launch on January 17, 2016 from Space Launch Complex 4E at Vandenberg Air Force Base, California. If all goes as planned, the Jason-3 satellite will be deployed approximately an hour after launch. There is a back-up launch opportunity on January 18 at 10:31am PT.

This mission also marks an experimental landing of the first stage on the SpaceX drone ship "Just Read the Instructions". The landing of the first stage is a secondary test objective.

Payload

Jason-3 is the newest satellite in a series designed to maintain long-term satellite altimetry observations of global sea surface height. These data provide critical ocean information that forecasters need to predict devastating hurricanes and severe weather before they arrive onshore. Over the long term, Jason-3 will help track global sea level rise, an increasing threat to the resilience of coastal communities and to the health of our environment.

Jason-3's highly accurate altimetry measurements will be used for a variety of scientific, commercial and operational applications, including:

- Hurricane intensity forecasting
- Surface wave forecasting for offshore operators
- Forecasting tides and currents for commercial shipping and ship routing
- Coastal forecasting for response to environmental problems like oil spills and harmful algal blooms
- Coastal modeling crucial for marine mammal and coral reef research
- El Niño and La Niña forecasting

Jason-3 is the fourth mission in a U.S.-European series of satellite missions that measure the height of the ocean surface. The mission will extend the time series of ocean surface topography measurements (the hills and valleys of the ocean surface) begun by the TOPEX/Poseidon satellite mission in 1992 and continuing through Jason-1 (launched in 2001) and the currently operating OSTM/Jason-2 (launched in 2008) missions. These measurements provide scientists with critical information about circulation patterns in the ocean and about both global and regional changes in sea level and the climate implications of a warming world.



Official SpaceX Jason-3 mission patch



Mission Timeline (times are approximate)

COUNTDOWN

| Hour/Min | Events |
|------------|--|
| - 10:00 | Falcon 9 is powered on |
| - 03:45 | Commence loading RP-1 (rocket grade kerosene) |
| - 03:00 | Commence loading liquid oxygen (LOX) |
| - 00:13 | Terminal count poll |
| - 00:10 | Falcon 9 terminal count autosequence started |
| - 00:02 | SpaceX Launch Director verifies go for launch |
| - 00:02 | Range Control Officer (USAF) verifies range is go for launch |
| - 00:01 | Command flight computer to begin final prelaunch checks |
| - 00:00:40 | Pressurize propellant tanks |
| - 00:00:03 | Engine controller commands engine ignition sequence to start |
| 00:00:00 | Falcon 9 liftoff |

LAUNCH AND FIRST-STAGE LANDING

| Hour/Min | Events |
|----------|--|
| 00:01:18 | Max Q (moment of peak mechanical stress on the rocket) |
| 00:02:34 | 1st stage engine shutdown/main engine cutoff (MECO) |
| 00:02:37 | 1st and 2nd stages separate |
| 00:02:45 | 2nd stage engine starts |
| 00:03:12 | Fairing deployment |
| 00:04:25 | 1st stage boostback burn |
| 00:07 | 1st stage re-entry burn |
| 00:08:30 | 1st stage landing burn |
| 00:09 | 2nd stage engine cutoff (SECO) |
| 00:55 | 2nd stage engine re-start for short burn |
| 00:56 | Jason-3 deployment |

Launch Facility

Space Launch Complex 4E at Vandenberg Air Force Base, California

SpaceX's Space Launch Complex 4E at Vandenberg Air Force Base has a long history dating back to the early 1960s. Originally an Atlas launch pad activated in 1962, 4E was in active use until a 2005 Titan IV launch. SpaceX's groundbreaking was in July 2011, and the pad was completed in November 2012 in just 17 months. SpaceX took advantage of some existing infrastructure, but implemented extensive modifications and reconstruction of the pad. Part of the renovation included tearing down a 30+ story mobile service tower and a 20+ story umbilical tower, and 97% of these units were recycled.

The complex consists of a concrete launch pad/apron and a flame exhaust duct. Surrounding the pad are fuel storage tanks and the integration hangar. Before launch, Falcon 9's stages, SpaceX's fairing and the launch payload are housed inside the hangar. A crane/lift system moves Falcon into a transporter-erector system and the fairing and its payload are mated to the rocket. The vehicle is rolled from hangar to launch pad shortly before launch to minimize exposure to the elements.

Resources

SPACE X CONTACT | John Taylor, Director of Communications, 310-363-6703, media@spacex.com.

PHOTOS | High-resolution photos will be posted at spacex.com/media and flickr.com/spacexphotos.

WEBCAST | Launch webcast will be live at spacex.com/webcast approximately 20 min before launch.