



Launch Services Program

In 1998, the launch vehicle programs at several NASA centers were consolidated and established as the Launch Services Program (LSP) at the agency's Kennedy Space Center in Florida. The program brings together technology, business, procurement, engineering best practices, strategic planning, studies and cutting-edge techniques -- all instrumental components for the U.S. to have a dependable and secure Earth-to-space bridge that is dedicated to launching all types of spacecraft.

The LSP skilled workforce strives to facilitate and reinvigorate America's space program by providing reliable, competitive and user-friendly launch services in the commercial arena to satisfy agencywide space transportation requirements and maximize the opportunity for mission success.

The LSP Fleet

All expendable rockets use the same basic technology to get into space -- two or more rocket-powered stages, which fall away when their engine burns are completed. Whatever a rocket carries above the final discarded stage is considered the payload. Currently, LSP uses four rockets to launch payloads into low-Earth orbit or on deep space missions.

Atlas V

The United Launch Alliance (ULA) offers multiple configurations of the Atlas V rocket to carry payloads ranging from four- to five-meter-diameter fairing in size. That is more volume than an average single-family home. Up to five solid rocket boosters can be added to the rocket to increase its performance. The Atlas V can carry a payload weighing up to 41,570 pounds (18,850 kilograms) to low-Earth orbit.

Delta II, Delta IV and Delta IV Heavy

Since 1960, the Delta family of vehicles has been upgraded several times throughout the years. The Delta II and the Delta IV, including the Heavy configuration most recently produced by ULA, has solid motors, liquid-fueled first and second stages, and a solid-propellant third stage. The final two launches of the Delta II will be for LSP. They are the Joint Polar Satellite System-1 (JPSS-1), and the Ice, Cloud and land Elevation Satellite-2 (ICESat-2). The Delta IV Heavy will be used to launch the Parker Solar Probe. The Delta IV can carry payloads weighing up to 30,440 pounds (13,810 kilograms) to geostationary transfer orbit. The Delta IV Heavy can carry payloads weighing up to 62,520 pounds (28,370 kilograms) into low-Earth orbit, depending on vehicle configuration.

Falcon 9

Falcon 9 is a reusable two-stage rocket designed and manufactured by SpaceX for the safe and reliable transport of satellites and the Dragon spacecraft into orbit. Falcon 9 is capable of carrying payloads weighing up to 50,265 pounds (22,800 kilograms) into low-Earth orbit and up to 18,300 pounds (8,300 kilograms) into geostationary transfer orbit.

Pegasus XL

Orbital ATK produces the Pegasus XL, a small expendable rocket that attaches beneath the company's L-1011 Stargazer aircraft, is carried to 39,000 feet and released for launch. It is the only airborne-launched rocket. The Pegasus XL can carry a payload up to 992 pounds (450 kilograms) to low-Earth orbit. The rocket weighs about 51,000 pounds (23,133 kilograms) and measures 55.4 feet (16.9 meters) in length and 50 inches (1.27 meters) in diameter. Pegasus has a wing span of 22 feet (6.7 meters).



An artist illustration of the rockets used by the Launch Services Program. From left, are the Orbital ATK Pegasus XL attached beneath the company's L-1011 Stargazer aircraft, the United Launch Alliance (ULA) Delta II and Atlas V, the SpaceX Falcon 9, and the ULA Delta IV Heavy. Image credit: NASA

Selected Historical Missions

Origins, Spectral Interpretation, Resource Identification, and Security-Regolith Explorer (OSIRIS-REx)

OSIRIS-REx launched atop a United Launch Alliance Atlas V rocket Sept. 8, 2016, from Cape Canaveral Air Force Station in Florida on a seven-year mission to and from a nearby asteroid. The groundbreaking mission is the first U.S. mission to travel to near-Earth asteroid Bennu, map its surface using 3-D laser imaging, retrieve samples from the surface and return to Earth. The spacecraft will spend the first two years of the mission cruising to Bennu, arriving in August 2018.

Joint Altimetry Satellite Oceanography Network-3 (Jason-3)

Jason-3 is the fourth mission in the U.S.-European series of satellite missions that measure the height of the ocean surface. The satellite launched aboard a SpaceX Falcon 9 on Jan. 17, 2016, from Vandenberg Air Force Base in California. The mission extended the time series of ocean surface topography measurements begun by the TOPEX/Poseidon satellite mission in 1992, and continuing through the Jason-1 (launched in 2001), to the currently operating OSTM/Jason-2 (launched in 2008).

Juno

NASA's solar-powered Juno spacecraft launched aboard an Atlas V rocket Aug. 5, 2011, from Space Launch Complex 41 at Cape Canaveral Air Force Station in Florida, to begin a five-year journey to Jupiter. Juno will orbit Jupiter's poles 33 times and use its eight science instruments to find out more about the gas giant's origins, structure, atmosphere and magnetosphere, and investigate the existence of a solid planetary core. Juno recently made its fifth flyby over Jupiter's mysterious cloud tops March 27. At the time of closest approach, the spacecraft was about 2,700 miles above the planet's cloud tops, traveling at a speed of about 129,000 miles per hour relative to the gas-giant planet.

Mars Science Laboratory (MSL) - Curiosity

NASA's Curiosity rover launched aboard an Atlas V rocket from Space Launch Complex 41 at Cape Canaveral Air Force Station on Nov. 6, 2011. The rover landed on Mars on Aug. 6, 2012. Curiosity is designed to assess whether Mars ever had an environment able to support small life forms, called microbes. Its mission is to determine the planet's habitability. Most recently, Curiosity sent back images of what appear to be dust devils on the Martian surface.

For the latest information on current missions, visit:

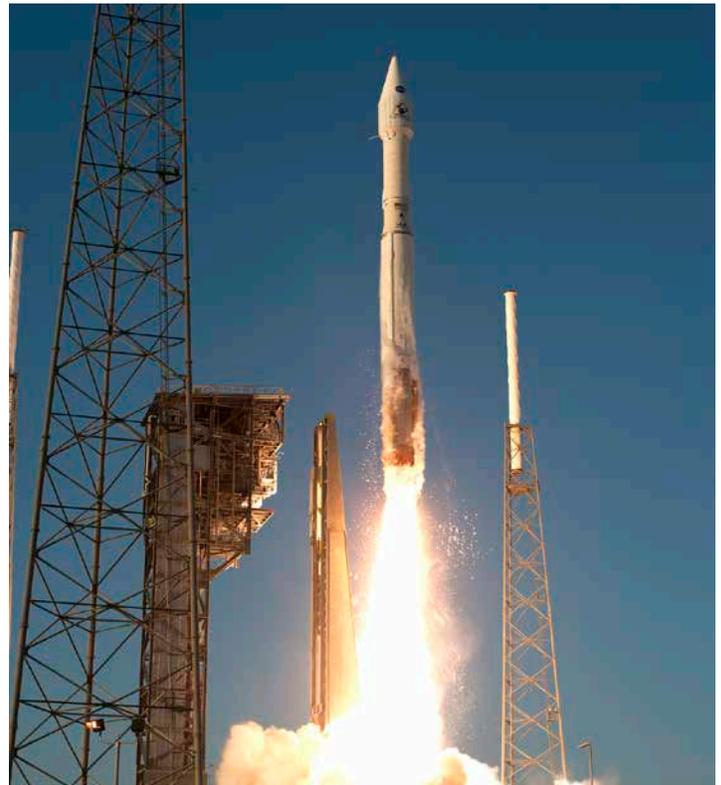
<https://www.nasa.gov/centers/kennedy/launchingrockets/index.html>.

National Aeronautics and Space Administration

John F. Kennedy Space Center
Kennedy Space Center, FL 32899

www.nasa.gov

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A United Launch Alliance Atlas V rocket lifted off Sept. 8, 2016, at 7:05 p.m. EDT, from Space Launch Complex 41 at Cape Canaveral Air Force Station in Florida, carrying NASA's OSIRIS-REx spacecraft. Photo credit: NASA/Sandy Joseph and Tim Terry



With NASA's Mars Science Laboratory (MSL) spacecraft sealed inside its payload fairing, the United Launch Alliance Atlas V rocket rides a pillar of smoke and flames as it lifts off from Space Launch Complex-41 on Cape Canaveral Air Force Station in Florida at 10:02 a.m. EST Nov. 26. MSL's components include a car-sized rover, Curiosity, which has 10 science instruments designed to search for signs of life, including methane, and help determine if the gas is from a biological or geological source. Photo credit: NASA