

MISSION

A United Launch Alliance (ULA) Atlas V 541 rocket will deliver the GOES-S spacecraft, the second in the Geostationary Operational Environmental Satellite-R series, into an optimized geosynchronous transfer orbit. Liftoff will occur from Space Launch Complex-41 (SLC-41) at Cape Canaveral Air Force Station (CCAFS), Florida.

GOES satellites, a collaborative effort between NOAA and NASA to develop, launch and operate the spacecraft, have played a vital role in weather forecasting, storm tracking and meteorologi-



LAUNCH VEHICLE

Payload Fairing (PLF)

The spacecraft is encapsulated in a 5-m (17-ft) diameter short payload fairing. The 5-m PLF is a sandwich composite structure made with a vented aluminum-honeycomb core and graphite-epoxy face sheets. The bisector (two-piece shell) PLF encapsulates both the Centaur and the satellite. The vehicle's height with the 5-m short PLF is approximately 197 ft.

Centaur

The Centaur second stage is 10 ft in diameter and 41.5 ft in length. Its propellant tanks are constructed of pressure-stabilized, corrosion resistant stainless steel. Centaur is a cryogenic vehicle, fueled with liquid hydrogen and liquid oxygen. Powered by an RL10C-1 engine producing 22,900 lb of thrust. The cryogenic tanks are insulated with a combination of helium-purged blankets, radiation shields, and spray-on foam insulation (SOFI). The Centaur forward adapter (CFA) provides structural mountings for the fault-tolerant avionics system and structural and electrical interfaces with the spacecraft.

Booster

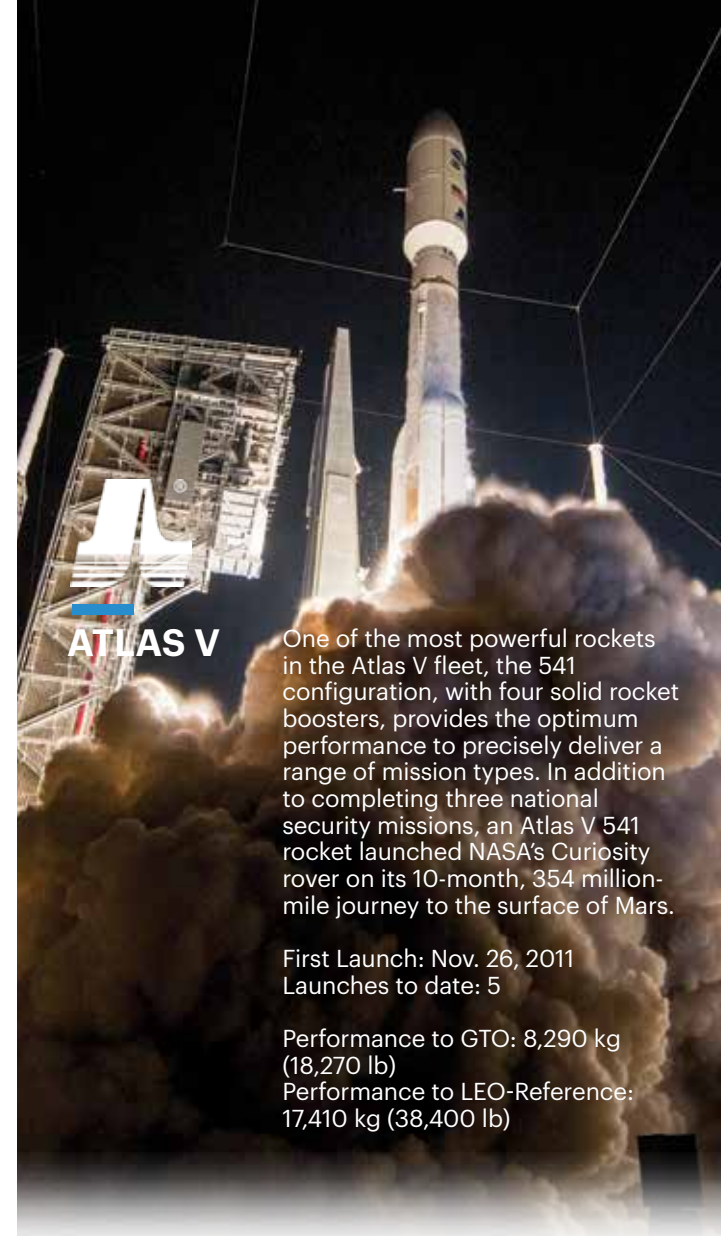
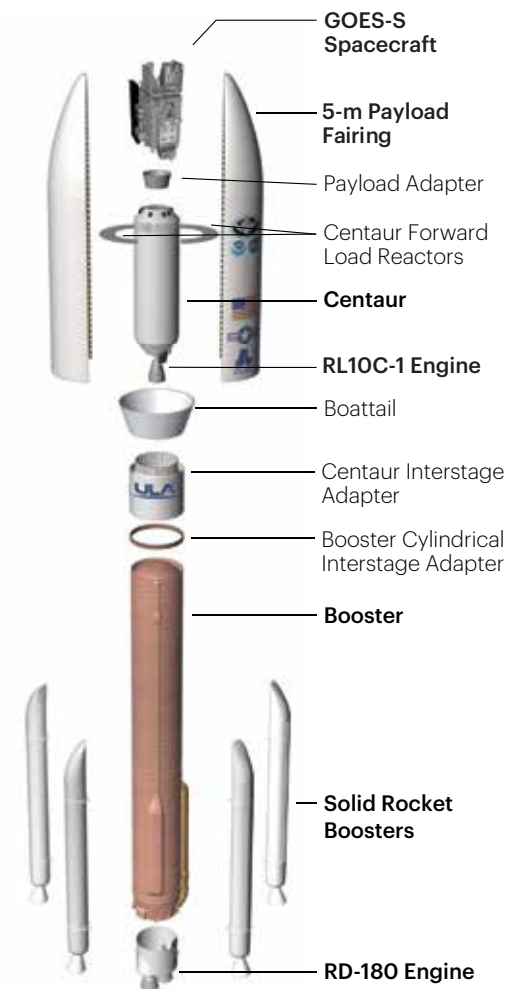
The booster is 12.5 ft in diameter and 106.5 ft in length. The booster's tanks are structurally rigid and constructed of isogrid aluminum barrels, spun-formed aluminum domes, and intertank skirts. Booster propulsion is provided by the RD-180 engine system (a single engine with two thrust chambers). The RD-180 burns RP-1 (Rocket Propellant-1 or highly purified kerosene) and liquid oxygen, and delivers 860,200 lb of thrust at sea level. Four solid rocket boosters (SRBs) generate the additional power required at liftoff, each providing 348,500 lb of thrust. The booster is controlled by the Centaur avionics system, which provides guidance, flight control, and vehicle sequencing functions during the booster and Centaur phases of flight.

cal research since the first GOES was launched on a Delta rocket in 1975. ULA's Atlas and Delta rockets have launched every GOES satellite.

GOES-S will be operated from a vantage point 22,300 miles above Earth to cover the western United States, Alaska and Hawaii, providing unprecedented advancements in the clarity and timeliness of observations over the region. The satellite's instruments will collect vivid imagery every 30 seconds and detailed atmospheric measurements to monitor weather patterns and severe storms. Once operational, the satellite will be renamed GOES-West to track storm systems, lightning, wildfires, dense fog and other hazards that threaten the western U.S.

It will work in tandem with the GOES-R satellite that was successfully launched by an Atlas V on Nov. 19, 2016, and now operates as the GOES-East observatory.

The next-generation GOES-R series, built by Lockheed Martin, scans the Earth five times faster at four times the image resolution, with triple the number of data channels than previous GOES satellites for more reliable forecasts.



One of the most powerful rockets in the Atlas V fleet, the 541 configuration, with four solid rocket boosters, provides the optimum performance to precisely deliver a range of mission types. In addition to completing three national security missions, an Atlas V 541 rocket launched NASA's Curiosity rover on its 10-month, 354 million-mile journey to the surface of Mars.

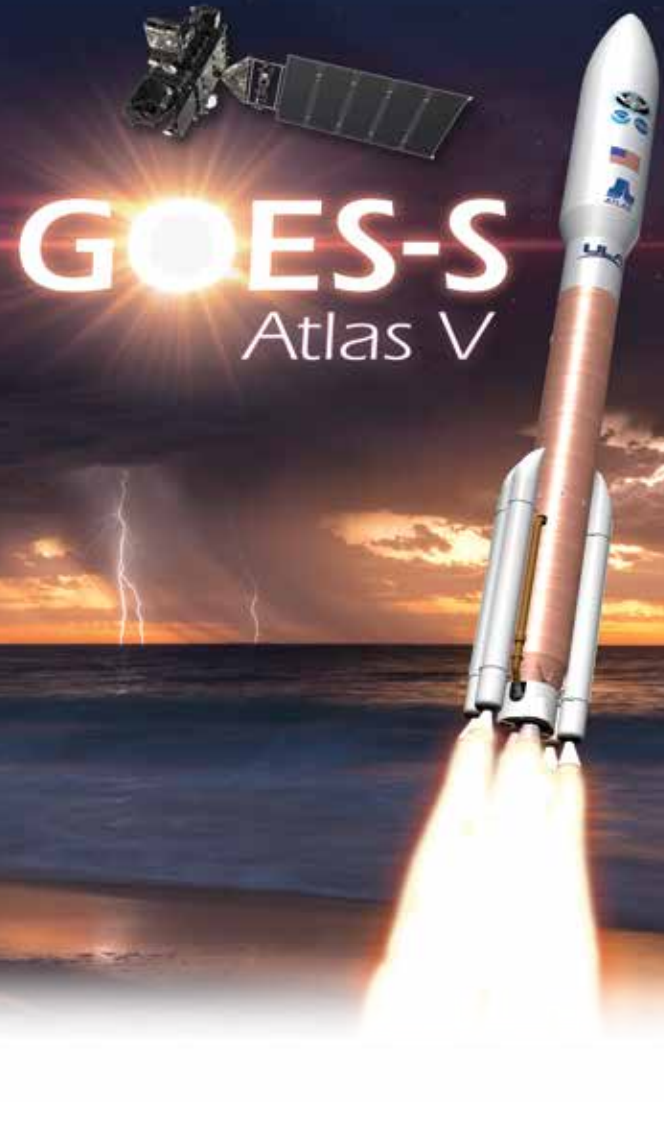
First Launch: Nov. 26, 2011
Launches to date: 5

Performance to GTO: 8,290 kg (18,270 lb)
Performance to LEO-Reference: 17,410 kg (38,400 lb)

MISSION SUCCESS

With more than a century of combined heritage, United Launch Alliance is the nation's most experienced and reliable launch service provider. ULA has successfully delivered more than 120 satellites to orbit that provide critical capabilities for troops in the field, aid meteorologists in tracking severe weather, enable personal device-based GPS navigation and unlock the mysteries of our solar system.

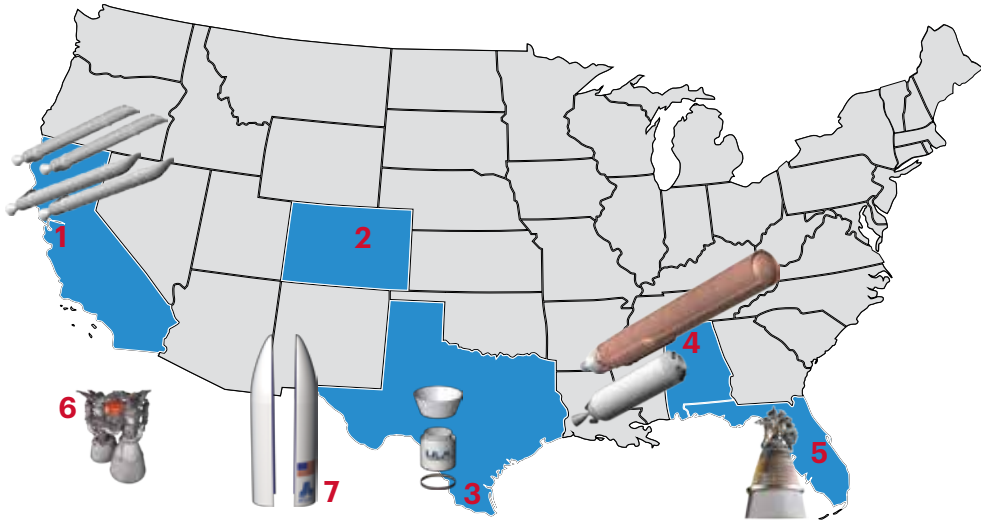
MISSION OVERVIEW



ulalaunch.com

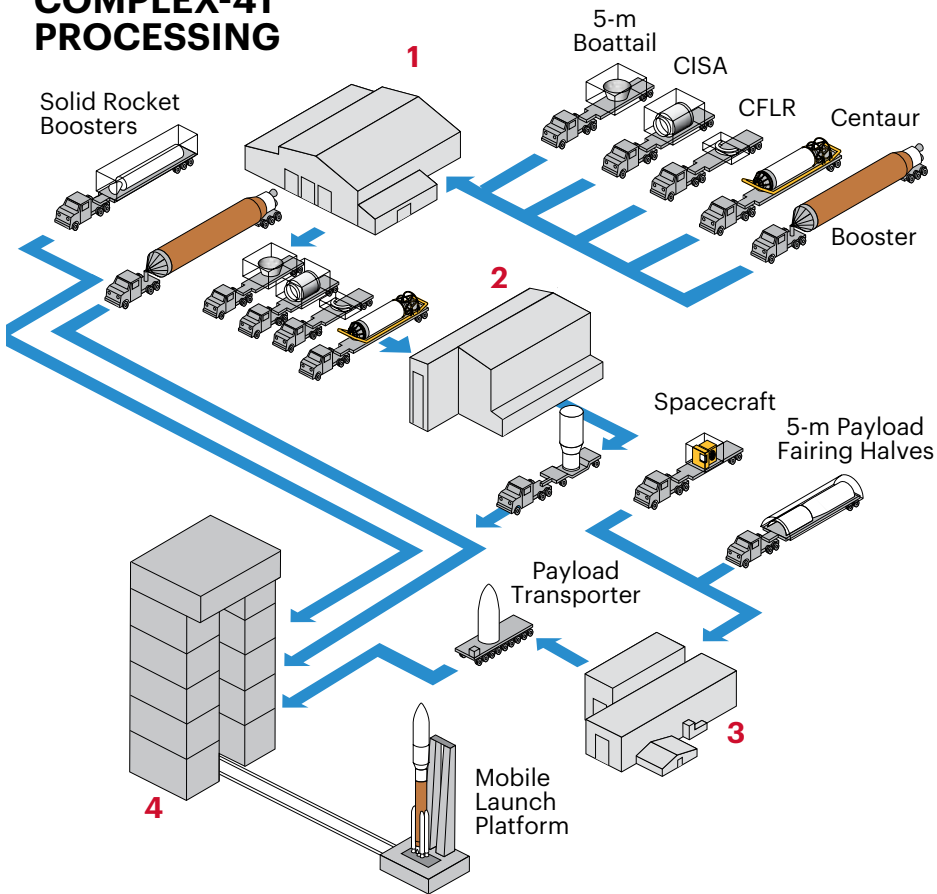
Copyright © 2018 United Launch Alliance, LLC. All Rights Reserved.

PRODUCTION



- 1 Sacramento, CA**
Solid Rocket Booster Fabrication at Aerojet Rocketdyne
- 2 Denver, CO**
ULA Headquarters & Design Center Engineering
- 3 Harlingen, TX**
Payload Adapter, Booster Adapter & Centaur Adapter Fabrication
- 4 Decatur, AL**
Booster Fabrication & Final Assembly, Centaur Tank Fabrication & Final Assembly
- 5 West Palm Beach, FL**
RL10C Engine Fabrication at Aerojet Rocketdyne
- 6 Khimki, Russia**
RD-180 Engine Fabrication at NPO Energomash
- 7 Zurich, Switzerland**
5-m Payload Fairing Fabrication at RUAG Space

SPACE LAUNCH COMPLEX-41 PROCESSING



- 1 Atlas Spaceflight Operations Center (ASOC)**
Launch Control Center and Mission Director's Center
- 2 Delta Operations Center**
ISA, Centaur, Boattail & Vertical Integration
- 3 Spacecraft Processing Facility**
Spacecraft processing, testing and encapsulation
- 4 Vertical Integration Facility**
Launch vehicle integration and testing, spacecraft mate and integrated operations

FLIGHT PROFILE

