National Aeronautics and Space Administration

Sentinel-6B

Press Kit / November 2025

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Introduction

An accurate picture of local and global sea levels is crucial to weather and storm forecasting, securing coastal property and infrastructure, and helping to optimize commercial activities such as shipping and undersea pipeline operations. A series of satellites started collecting sea level measurements in the early 1990s, led by NASA and domestic and international partners.

The launch of Sentinel-6B will extend this gold-standard dataset into its fourth decade. The spacecraft's twin, the Sentinel-6 Michael Freilich satellite, which preceded it into space in November 2020. The pair make up the international Sentinel-6/Jason-CS (Continuity of Service) mission, which is designed to measure sea levels down to roughly an inch for about 90% of the world's oceans. Sentinel-6B will also extend the record of atmospheric temperatures, begun by Sentinel-6 Michael Freilich, out to a decade.

The Sentinel-6/Jason-CS mission was jointly developed by NASA, ESA (European Space Agency), EUMETSAT (the European Organisation for the Exploitation of Meteorological Satellites), and the National Oceanic and Atmospheric Administration (NOAA), with funding support from the European Commission and technical support from the French space agency CNES (Centre National d'Études Spatiales). It marks the first international involvement in Copernicus, the European Union's Earth Observation Programme.

Sentinel-6B will launch from Vandenberg Space Force Base in California no earlier than Nov. 16, 2025. Additional updates can be found on the mission's blog.

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6 Things to Know About Sentinel-6B

The rate of sea level rise has more than doubled since the early 1990s, according to a decades-long series of satellite measurements. The Sentinel-6B satellite will be the latest to add to this long-term dataset that's become the reference against which measurements from other sea level satellites are compared. Sentinel-6B carries an instrument to measure sea level for nearly the entire globe, three instruments to help determine the precise position and orientation of the satellite, and one to measure atmospheric temperature and humidity. How will Sentinel-6B further humanity's knowledge of the ocean and Earth system and help communities prepare for a changing world? Here are six things to know:

SENTINEL-6B

NASA • ESA • NOAA • EUMETSAT
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1. Sentinel-6B will deliver data on about 90% of Earth’s ocean, providing direct benefits to humanity.

Sentinel-6B will contribute to a multidecade dataset that is the gold standard for sea level measurements from space. This data is key to helping improve public safety, city planning, and protecting commercial and defense interests.

Pioneered by NASA and its partners, that dataset enables users in government, industry, and the research community to sharpen their understanding of how sea levels change over time. Combined with information from other NASA satellites, data from Sentinel-6/Jason-CS is vital for tracking how heat and energy move through Earth’s seas and atmosphere, as well as for monitoring ocean features such as currents and eddies. As with its predecessor, Sentinel-6B’s measurements will come courtesy of a radar altimeter instrument that will measure sea levels for nearly all of Earth’s ocean, providing information on large currents that can aid in commercial and naval navigation, search and rescue, and the tracking of debris and pollutants from disasters at sea.

Earth’s changing ocean will affect coastal communities in places including Florida and the Bahamas. Credit: NASA

2. Data from the Sentinel-6/Jason-CS mission is helping NASA prepare for the next phase of space exploration.

The better we understand Earth, the better NASA can carry out its mission to explore the universe. Data from the Sentinel-6/Jason-CS mission is used to refine the Goddard Earth Observing System atmospheric forecast models, which the NASA Engineering Safety Center uses to plan safer reentry of astronauts returning from Artemis missions.

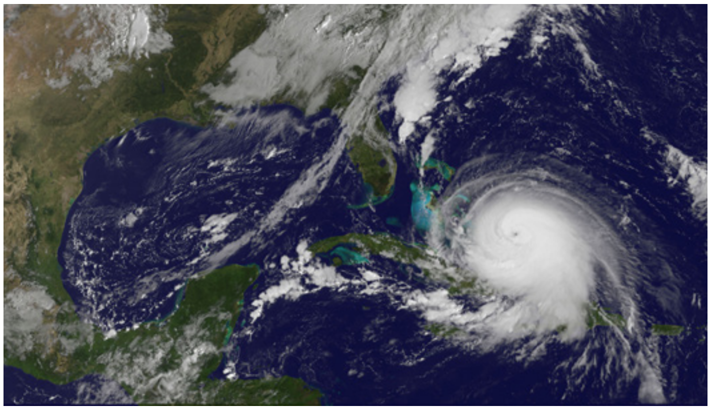
The ocean and atmosphere data from Sentinel-6/Jason-CS helps keep returning Artemis astronauts safe. Credit: NASA/Kenny Allen

Additionally, changes to Earth’s ocean, observed by satellites, can have measurable effects beyond our planet. For instance, while the Moon influences ocean tides on Earth, changes in those tides can also exert a small influence on the Moon. Data from Sentinel-6/Jason-CS can help improve understanding of this relationship, knowledge that can contribute to future lunar exploration missions.

3. The Sentinel-6/Jason-CS mission helps the U.S. respond to challenges by putting actionable information into the hands of decision-makers.

Coastal communities, such as Hampton, Virginia, will experience an increase in high-tide flooding in the near-future as Earth's oceans change. Credit: Aileen Devlin/Virginia Sea Grant

Ocean data, including sea level information, from Sentinel-6B will help keep military infrastructure safe. Credit: Navy Petty Officer 2nd Class Matthew Bakerian



Ocean data from the Sentinel-6/Jason-CS mission helps meteorologists forecast whether a hurricane will intensify — information crucial for communities in the path of the extreme storm. Credit: NOAA

Data collected by the mission helps city planners, as well as local and state governments, to make informed decisions on protecting coastal infrastructure, real estate, and energy facilities. The mission's sea level data also improves weather predictions critical to meteorologists, as well as to commercial and recreational navigation. By enhancing weather prediction models, data provided by Sentinel-6/Jason-CS improves forecasts of hurricane development, including the likelihood of storm intensification, which can aid disaster preparedness and response. Sentinel-6B will extend that legacy.

4. Data from Sentinel-6B will help support national security efforts.

The ocean and atmosphere measurements from Sentinel-6B will enable decision-makers to better protect coastal military installations and provide crucial weather data and information on ocean conditions to the U.S. Department of War. The satellite will do so by feeding near-real-time data on ocean and atmosphere conditions to models that provide weather and ocean forecasts.

5. The Sentinel-6/Jason-CS mission is focused on direct observation of sea levels, which is critical to protecting coastlines, where nearly half of the world's population lives.

Because sea level rise varies from one area to another, some coastlines are more vulnerable than others to flooding, erosion, and saltwater contamination of underground freshwater supplies, the latter of which threatens farmland and drinking water. Sea level measurements from the mission form the basis for U.S. flood predictions for coastal infrastructure, real estate, energy storage sites, and other coastal assets. Knowing which regions are more vulnerable to these risks will enable U.S. industries and emergency managers to make better-informed decisions about transportation and commercial infrastructure, land-use planning, water management, and adaptation strategies.

6. The international collaboration behind Sentinel-6/Jason-CS enables the pooling of capabilities, resources, and expertise.

The multidecadal dataset that this mission supports is the result of years of close work between NASA and several collaborators, including ESA, CNES, EUMETSAT, and NOAA. Such partnerships deliver cost-effective capabilities and solutions by pooling expertise and resources, leading to highly accurate and impactful global data use by commercial industries and government agencies including the U.S. military.

Engineers and technicians from Sentinel-6/Jason-CS mission partners worked together to build and test both Sentinel-6 Michael Freilich (pictured) and Sentinel-6B. Credit: ESA/Bill Simpson

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Products and Events

News Releases, Features, Advisories, and Blogs

Progress reports on Sentinel-6B's road to launch, including the latest information on launch dates, can be found at science.nasa.gov/blogs/sentinel-6.

News, updates, and feature stories about the Sentinel-6B mission are available at science.nasa.gov/mission/sentinel-6B.

Interviews with team members from the Sentinel-6B mission may be arranged by calling the JPL newsroom at **+1-818-354-5011** or filling out this form.

Video and Images

Video and images related to the Sentinel-6B satellite are available at:

— https://www.nasa.gov/sentinel-6

— https://go.nasa.gov/Sentinel6Gallery

— Read NASA's image use policy.

— Read JPL's image use policy.

How to Watch

Watch key coverage on NASA+. Learn how to watch NASA content through a variety of platforms, including social media at https://www.nasa.gov/ways-to-watch/.

Programming will also be streamed live on the agency's website nasa.gov/live, YouTube.com/NASA, the NASA app, and NASA social media channels. (On-demand recordings will also be available on YouTube after live events have finished.)

For more information about NASA's live programming schedule, visit plus.nasa.gov/scheduled-events.

Live Launch Feed

A live video feed of key launch activities and commentary from mission control at Vandenberg Space Force Base will be broadcast. Media outlets interested in a "clean feed" of the launch without NASA TV commentary should contact nasa-dl-nasaplus-programming@mail.nasa.gov.

Audio Only

Audio only of launch coverage will be carried on the NASA "V" circuits, which may be accessed by dialing **+1-321-867-1220**, **-1240**, or **-7135**. On launch day, "mission audio" — the launch conductor's countdown activities without NASA TV launch commentary — will be carried on **+1-321-867-7135**.

On-Site Media Logistics

Read NASA's media accreditation policy.

Due to the lapse in federal government funding, NASA was not able to offer an opportunity for in-person media coverage of this launch. Closer to launch, NASA will release a launch-coverage advisory with additional information.

Media without credentials can call the JPL newsroom at **+1-818-354-5011** to see if off-site interviews can be arranged.

Sentinel-6B on the Web

https://science.nasa.gov/mission/sentinel-6B/

Social Media

Join the conversation and get mission updates from these accounts:

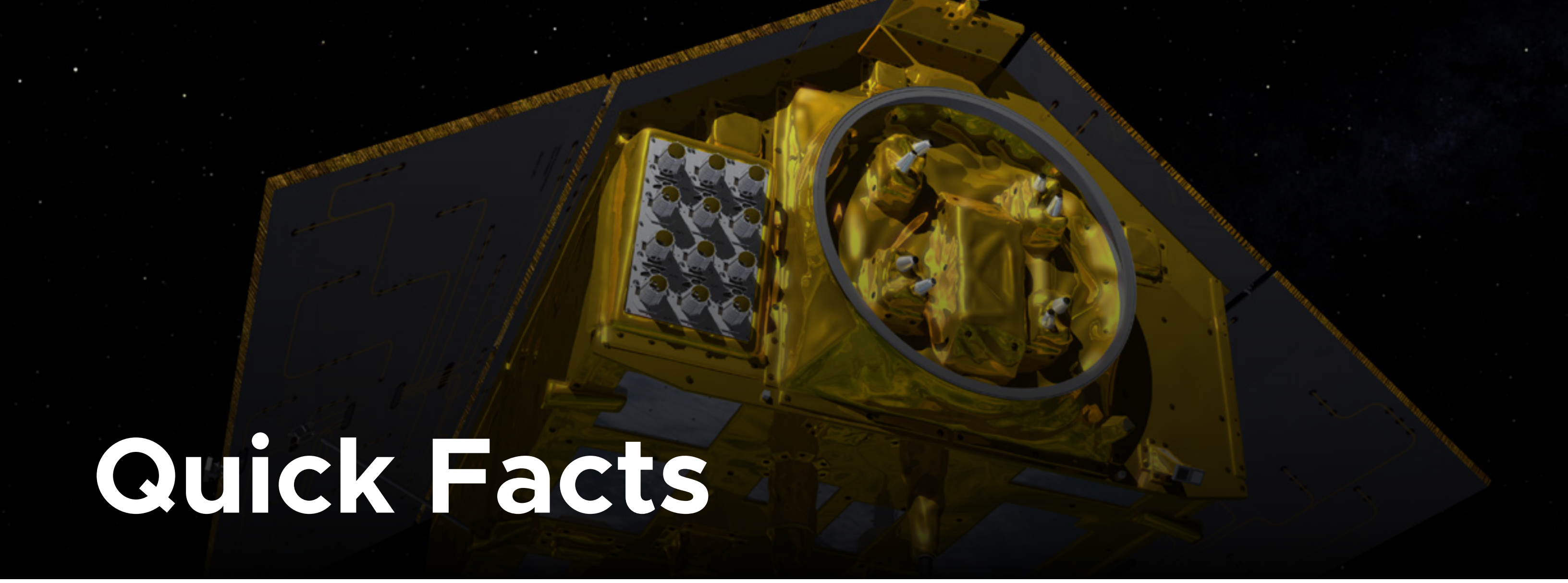
— **X:** @NASAEarth, @NASAJPL, @NASA

— **Facebook:** @NASAEarth, @NASAJPL, @NASA

— **Instagram:** @NASAEarth, @NASAJPL, @NASA

Eyes on the Earth

Shortly after launch, the public can follow the Sentinel-6B satellite in real time as it orbits Earth through NASA's Eyes on Earth at https://eyes.nasa.gov/apps/earth/#/



Quick Facts

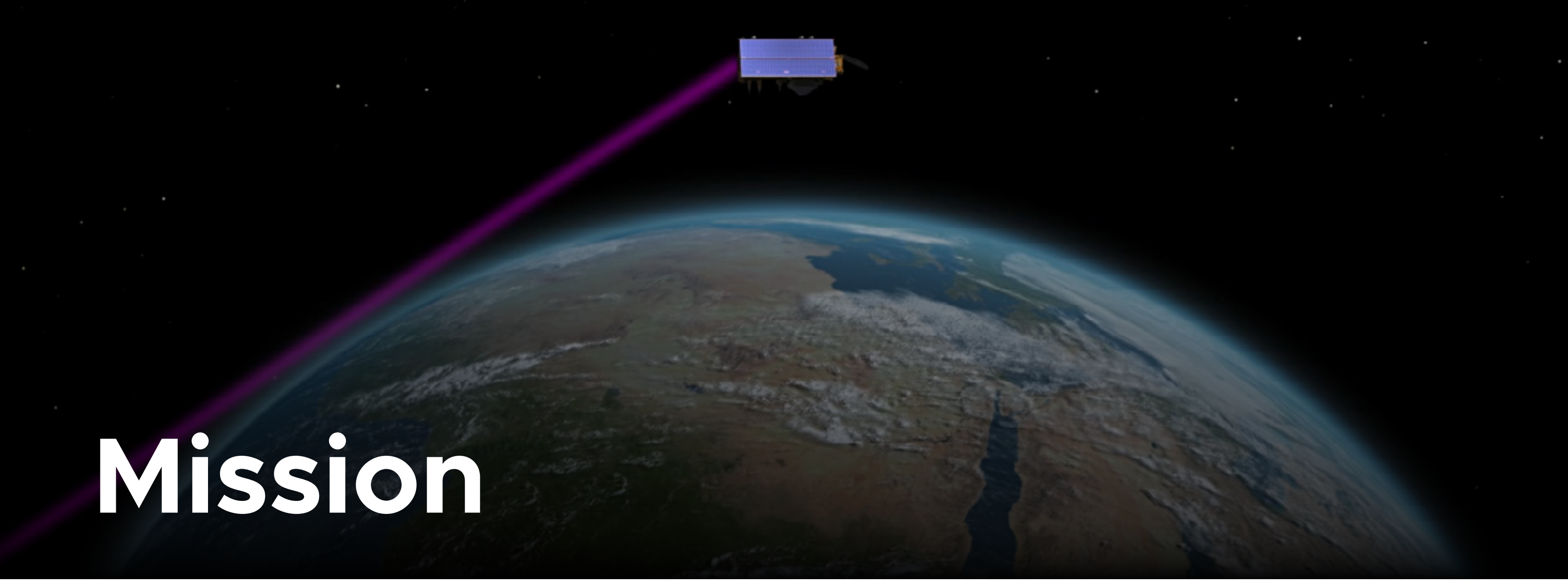
Spacecraft

- **Size:** 19.1 feet (5.82 meters) long (including the AMR-C instrument); 7.74 feet (2.36 meters) high (including the communications antennas); 14.2 feet (4.33 meters) wide (with solar panels deployed).
- **Mass:** 2,623 pounds (1,190 kilograms), including onboard propellant at launch.
- **Power:** Two fixed solar arrays, plus two deployable solar panels.
- **Batteries:** 200-amp-hour battery consisting of 1,152 lithium-ion cells.
- **Instruments:** Radar altimeter, Advanced Microwave Radiometer for Climate, Global Navigation Satellite System for Radio Occultation (GNSS-RO), laser retroreflector, Doppler Orbitography and Radiopositioning Integrated by Satellite (DORIS), and Global Navigation Satellite System for Precise Orbit Determination (GNSS-POD).

Sentinel-6B gets boxed up in preparation for shipment from Germany to the U.S., where it will launch from Vandenberg Space Force Base. Credit: ESA

Mission

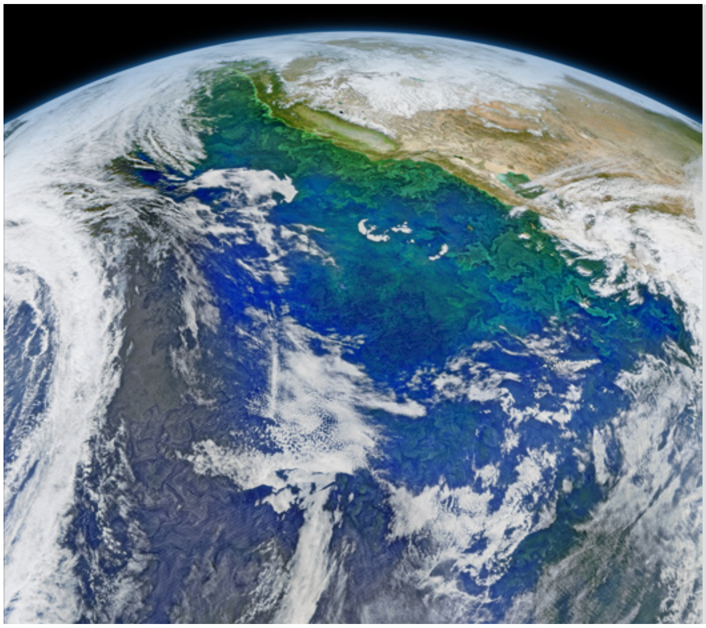
- **Launch:** No earlier than Nov. 16, 2025.
- **Launch Location:** Vandenberg Space Force Base, California.
- **Prime mission:** 5½ years.
- **Orbital altitude:** 830 miles (1,336 kilometers).
- **Orbit's inclination to Earth's equator:** 66 degrees (non-Sun-synchronous orbit).
- **Orbit duration:** 112 minutes, 26 seconds.
- **Orbits per day:** Approximately 13.
- **Velocity:** 4.5 miles per second (7.2 kilometers per second) or 16,100 mph (26,000 kph).
- **International Collaboration:** Partnership between NASA (U.S.), ESA (Europe), EUMETSAT (Europe), and NOAA (U.S.), with technical support from CNES (France).
- **Budget:** NASA investment for both Sentinel-6 Michael Freilich and Sentinel-6B: Approximately $500 million.



Mission

Overview

Earth’s ocean is changing. To understand what that means for the planet and for humanity, scientists need a long view. For over 30 years, an uninterrupted series of satellites has orbited Earth, tracking sea levels. The Sentinel-6 Michael Freilich satellite, which launched in November 2020, and its twin, Sentinel-6B, which is set to launch no earlier than Nov. 16, 2025, are both part of a joint U.S.-European effort and will add another 10 years of sea surface height measurements to that dataset. Sentinel-6B has a prime mission of 5½ years, like its predecessor, which was named in honor of former NASA Earth Science Division Director Michael Freilich, who substantially contributed to the mission’s realization.



Sentinel-6B will provide high-resolution data on sea levels and atmospheric characteristics that can help communities around the world prepare for the future. Credit: NASA/Goddard/Suomi-NPP/VIIRS

Identical to Sentinel-6 Michael Freilich, Sentinel-6B is launching five years after its twin to study sea level from an orbit 830 miles (1,336 kilometers) above the planet’s surface. Along with measuring global sea level rise and ocean circulation, the satellites record vertical profiles of atmospheric temperature and humidity. The data helps scientists to forecast how much the ocean could encroach on coastlines, improve weather forecasts and hurricane predictions, and advance the study of ocean tides and phenomena like El Niño and La Niña.

As with its predecessor, Sentinel-6B will follow in the flight path of four previous U.S.-European missions focused on sea level. The first, TOPEX/Poseidon, launched in 1992. It was followed in 2001 by Jason-1, then OSTM/Jason-2 in 2008, and then by Jason-3 in 2016. Sentinel-6 Michael Freilich launched in 2020.

When Sentinel-6B reaches orbit, it will fly about 30 seconds behind the Sentinel-6 Michael Freilich satellite. Scientists and engineers will spend about a year cross-calibrating the data collected by the two spacecraft. Following this, Sentinel-6 Michael Freilich will be moved into a different orbit. It will continue collecting sea level data, but researchers plan to use measurements from Sentinel-6 Michael Freilich for slightly different purposes, such as helping to map seafloor features. Sentinel-6B will take over the role of providing primary sea level measurements.

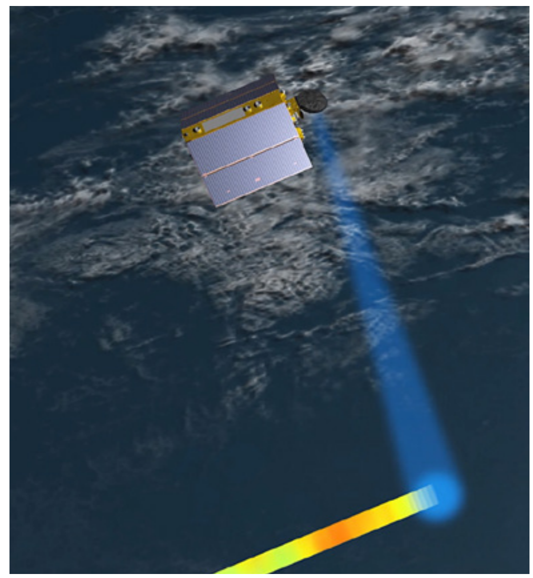
The Sentinel-6/Jason-CS mission was jointly developed by ESA (European Space Agency), EUMETSAT (European Organisation for the Exploitation of Meteorological Satellites), NASA, and the National Oceanic and Atmospheric Administration (NOAA), with funding support from the European Commission and technical support from the French space agency CNES (Centre National d'Études Spatiales).

What's Up With Sea Level?

Sea level measurements form the basis for U.S. flood predictions for coastal infrastructure, real estate, energy storage sites, and other coastal assets.

The ocean absorbs more than 90% of the excess heat from the planet. Seawater expands as it heats up, generally accounting for about a third of modern-day global average sea level rise. Melting ice from glaciers and ice sheets accounts for the rest.

Because sea level rise varies from one area to another, meaning that some coastlines are more vulnerable than others to flooding, erosion, and saltwater contamination of underground freshwater supplies, the latter of which threatens farmland and drinking water. Knowing which regions are more vulnerable to these risks enables U.S. industries and emergency managers to make better-informed decisions about transportation and commercial infrastructure, land-use planning, water management, and adaptation strategies.



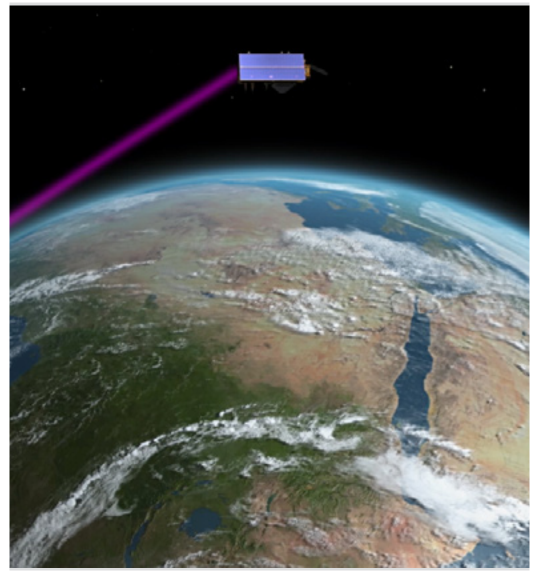
Sentinel-6B, depicted in an artist's concept, will contribute to a sea level dataset that's been compiled over 30 years. Credit: NASA/JPL-Caltech

Like its predecessors, Sentinel-6B will measure sea level with an altimeter. The instrument works by bouncing electromagnetic signals off the ocean's surface and measuring the time it takes for the pulses to return, as well as the strength of the return signal. From that data, researchers can extract information on sea surface height, wave height, and how steep the waves are. The measurements enable them to forecast marine weather and hurricane intensification, as well as track features such as small coastal currents and eddies that pinch off from larger currents like the Gulf Stream. These ocean features can influence storms such as hurricanes, so tracking them is important for the safety of coastal communities and infrastructure.

The Sentinel-6/Jason-CS mission also gives researchers a better understanding of phenomena like El Niño and its counterpart, La Niña. Triggered by a huge fluctuation in the winds that blow across the equatorial Pacific Ocean, El Niño can shift ocean currents and global weather patterns, bringing torrential rain to the Southwestern U.S. and leading to droughts in Asia and Australia. La Niña can have the opposite effect. Data from Sentinel-6 Michael Freilich and its predecessors demonstrated just how far-reaching the effects of El Niño and La Niña can be, including dropping global sea levels by 0.4 inches (1 centimeter) during a particularly strong La Niña in 2010.

A Bird's-Eye View of the Atmosphere

A secondary science objective of Sentinel-6B is to gather vertical profiles of atmospheric temperature and humidity. The instrument responsible for these measurements, the Global Navigation Satellite System - Radio Occultation (GNSS-RO) sensor, can see down through Earth's atmosphere to within 1,640 feet (500 meters) of the surface, even through heavy rain and thick clouds.



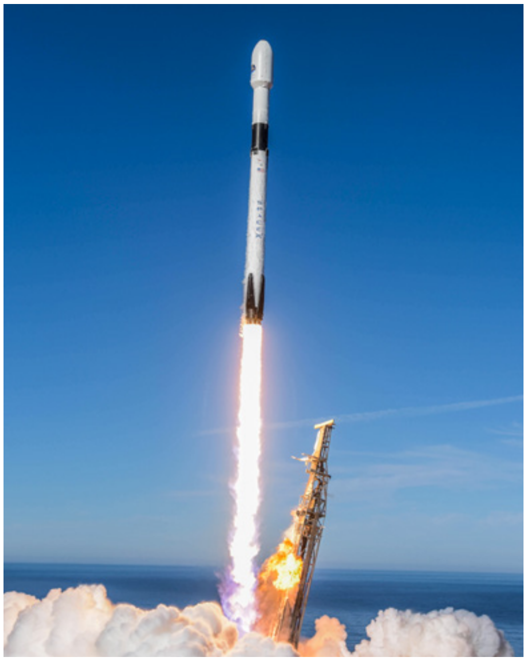
An instrument on Sentinel-6B will track radio signals from orbiting navigation satellites to measure physical properties of Earth's atmosphere. Credit: NASA-JPL/Caltech

Temperature and humidity drive what happens in the planet's atmosphere, shaping weather patterns and storm formation. Improving the accuracy of this information is key to refining forecasts.

Meteorologists feed data, including air temperature, humidity, and wind speed and direction, into computer models to formulate their weather forecasts. The information comes from a variety of sources, among them satellite-based radiometers, weather balloons, and instruments aboard commercial airliners. But each platform has its limitations. In some cases, researchers may need to compensate for biases in the data. For example, air temperature readings from a thermometer on an airplane can be influenced by its immediate surroundings.

Data from the GNSS-RO doesn't have these constraints. The instrument on the Sentinel-6/Jason-CS satellites provides globally distributed vertical profiles, and its data isn't biased by things such as proximity to airplane fuselages. Meteorologists can incorporate accurate atmospheric temperature and humidity data into their models within three hours after Sentinel-6 Michael Freilich collects it, and the same will be true for its successor. They can also use that information as a reference point for correcting data from similar atmospheric instruments.

The GNSS-RO instrument derives its measurements by analyzing radio signals from global navigation satellites. As these radio signals travel through layers of Earth's atmosphere, they bend and slow down by varying degrees. The GNSS-RO measures these changes, and researchers can then derive atmospheric characteristics such as temperature and humidity at different altitudes. The technology in this instrument was developed at JPL and has been included on other satellite missions.



A Falcon 9 rocket carrying the Sentinel-6 Michael Freilich satellite launches from Vandenberg Air Force Base on Nov. 21, 2020. Credit: USAF 30th Space Wing/Anthony Men

This artist's concept shows the first stage of the Falcon 9 rocket boosting the Sentinel-6B satellite into space before Main Engine Cut Off (MECO). Credit: SpaceX

Launch Events and Mission Phases

Launch site and vehicle

The Sentinel-6B satellite will be launched aboard a SpaceX Falcon 9 Full Thrust rocket from Space Launch Complex 4E (SLC-4E) at Vandenberg Space Force Base in California.

Launch timing

The Sentinel-6B spacecraft will launch no earlier than 9:21 p.m. PST on Nov. 16, 2025 (12:21 a.m. EST on Nov. 17, 2025). The launch date is based on the readiness of the satellite, the Falcon 9 launch vehicle, and the Western Test Range at Vandenberg Space Force Base. The 20-second launch window on subsequent days opens earlier by approximately 12 to 13 minutes each day.

Launch sequence

The two-stage Falcon 9 rocket will launch Sentinel-6B from SLC-4E down an initial flight azimuth of 151 degrees from true north, carrying it in a south-southeast direction over the Pacific Ocean off the California coastline.

Key events after launch

— Two minutes, 13 seconds (L+2:13 minutes): Main engine cutoff (MECO), second stage separation and then second-engine start 1 (SES1) will occur in quick succession. The reusable Falcon 9 first stage then begins its automated boost-back to the launch site for a powered landing.

— L+2:48 minutes: After protecting the satellite as the rocket traveled through the atmosphere, the launch vehicle's nose cone will separate and be jettisoned.

— L+8:31 minutes: Stage-II engine cutoff (SECO1), launch vehicle and spacecraft are in parking orbit.

— L+51:57 minutes: Stage-II first restart (SES2) for a 11-second burn, followed by stage-II engine cutoff (SECO2).

— L+57:09 minutes: Launch vehicle and spacecraft separation.

— ~L+1 hour, 4 minutes: Satellite will begin solar panel deployment.

— ~L+1 hour, 32 minutes: Planned first contact for satellite telemetry downlink by ground stations in northern Canada.

For current information about the launch, see the mission's blog.

Orbital characteristics

The spacecraft will be launched into a non-Sun-synchronous orbit with an inclination of 66 degrees with an orbital period of 112 minutes, 26 seconds. This orbit was chosen because it is the same as previous sea level missions (the TOPEX/Poseidon, Jason-1, OSTM/Jason-2, and Jason-3 satellites), ensuring data consistency for long-term sea level time series. Like its predecessors, Sentinel-6B's non-Sun-synchronous orbit was chosen to allow the spacecraft to pass over locations at different times of the day and night, allowing it to measure local sea level changes that may vary throughout the 24-hour cycle, such as the tides.

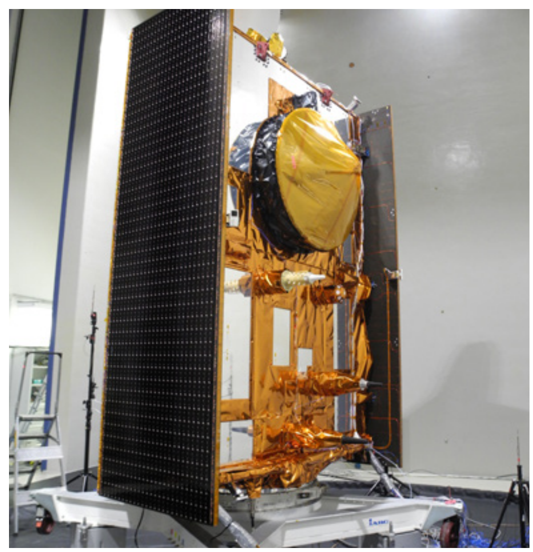
Ground system

Satellite antennas located in Kiruna (Sweden), Inuvik (Canada), and Fairbanks (U.S.) are the ground stations that will provide X- and S-band communications with the Sentinel-6B spacecraft during commissioning and through the routine operations phase. The Kiruna and Inuvik ground station coverage is provided by EUMETSAT; the Fairbanks ground station coverage is provided by NOAA.

Spacecraft

Satellite bus

The Sentinel-6B spacecraft was built by Airbus Defence and Space in Friedrichshafen, Germany. It is 19.1 feet (5.82 meters) long (including the AMR-C instrument); 7.74 feet (2.36 meters) high (including the communications antennas); 14.2 feet (4.33 meters) wide (with solar panels deployed), and weighs 2,623 pounds (1,190 kilograms) including onboard propellant.



The Sentinel-6B satellite undergoes acoustic testing in a facility in Germany in 2025. Credit: Airbus Defence and Space

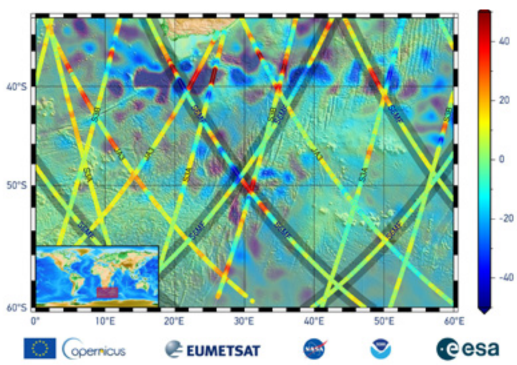
Power system

The electrical system of the Sentinel-6B satellite comprises all the necessary hardware to operate the spacecraft while allowing the onboard systems to execute the software. The electrical power subsystem generates energy via sunlight collected by the 188.4-square-foot (17.5-square-meter) body-mounted solar arrays. Each array consists of gallium arsenide (GaAs) solar cells that cover the top and sides of the satellite like a tent. Excess energy is stored in a lithium-ion battery (based on 1,152 cells, split into two modules) with a total capacity of approximately 200 amp-hours. The system provides an average of 1 kilowatt of electrical power in orbit.

Thermal control

A spacecraft's thermal control subsystems keep it, and the science instruments it carries, within allowable temperature limits. The Sentinel-6B spacecraft utilizes a combination of passive- and active-con-

Inuvik Ground Station Facility in northern Canada is part of a network of antenna complexes that will receive data transmitted from Sentinel-6B. Copyright: SSC



A graphic visualizes sea level measurements taken in 2020 by Sentinel-6 Michael Freilich and three earlier satellites over the ocean off the southern tip of Africa. Credit: EUMETSAT

trol elements to achieve this. The passive elements include multilayer insulation blankets and dedicated radiators covered with secondary surface mirrors that radiate heat away from the spacecraft. The main structure is partly painted black internally to minimize temperature gradients inside the spacecraft. For active temperature control, heaters are installed in dedicated areas.

Telecommunications

Communication between the satellite and the ground is accomplished using microwave S- and X-band transmitters and antennas located on the nadir (Earth-facing) panel of the spacecraft.

The tracking, telemetry, and command system is composed of two permanently active receivers and two transmitters (one that is permanently active and one that acts as backup to be used only in contingencies) that allow conventional S-band communications with Earth, providing an uplink data rate of up to 32 kilobits per second and a downlink data rate of 1 megabit per second.

In addition, the payload data handling and transmission (PDHT) system has its own X-band antenna that is only used to transmit scientific and telemetry data to the ground at a downlink data rate of 150 Mbps.

Onboard data handling

The Sentinel-6B onboard data handling systems provide the central processor and mass memory software resources for the spacecraft and management of the science data.

The data handling subsystem is in charge of the overall spacecraft command and control. It provides necessary input and output capabilities for the attitude and orbit control system as well as for power and thermal systems operations. In addition, it performs spacecraft health functions, including fault detection, isolation, and recovery operations.

The PDHT system includes the mass memory and formatting unit (MMFU), a standalone solid mass memory unit that is based on SDRAM (synchronous dynamic random-access memory) technology, providing 352 gigabytes of data storage. The MMFU also processes the science data and links it to the X-band subsystem, which then transmits it to ground stations via the X-band antenna.

Attitude and orbit control subsystem

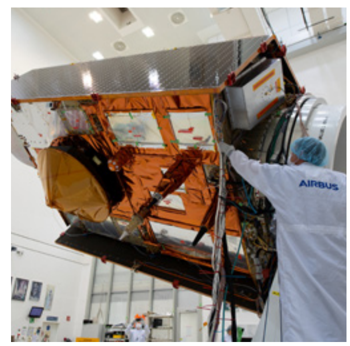
The satellite's attitude, or orientation and orbit control, is managed by a system consisting of sensors, actuators, and software. Subsystems include reaction wheels, magnetic torquers, magnetometers, a coarse Earth and Sun sensor, a rate measurement unit, a star tracker, and precise orbit determination (POD) instruments. They work together to provide three-axis stabilized Earth-pointing attitude control during all mission modes, and they measure spacecraft rates and orbital position.

The POD instruments include a Global Navigation Satellite System (GNSS) and Precise Orbit Determination receiver (GNSS-POD), a Doppler Orbitography and Radiopositioning Integrated by Satellite (DORIS) instrument, and a laser retroreflector array (LRA). These instruments work in concert to determine the exact orbital position of the satellite so that sea level measurements can be made by the altimeter to a high degree of accuracy and precision. Although not required to meet mission requirements, the GNSS-Radio Occultation (GNSS-RO) instrument also produces data that can be optionally used by scientists to further improve the estimate of the satellite orbit.

Instruments

Poseidon-4 SAR Altimeter

The scientific heart of the mission, the Poseidon-4 synthetic aperture radar (SAR) altimeter measures the height of seawater by bouncing radar pulses off Earth's ocean and precisely timing how long those pulses take to travel back to the spacecraft. The instrument is also used to determine significant wave height and wind speed.



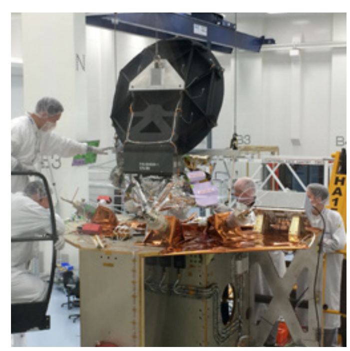
The altimeter on Sentinel-6 Michael Freilich is visible on the underside of the satellite as a cone-shaped object covered in gold-colored material. Credit: ESA - S. Corvaja

Advanced Microwave Radiometer for Climate (AMR-C)

Water vapor affects the radar signals from the altimeter instrument, which can make the height of the water it's measuring appear higher or lower than it actually is. The radiometer measurements of water vapor between the satellite and Earth's surface are required to correct for this effect.

Global Navigation Satellite System - Radio Occultation (GNSS-RO)

This instrument, known as GNSS-RO, measures the physical properties of Earth's atmosphere, including temperature, pressure, and water vapor content. It does so by detecting the extent to which the planet's atmosphere refracts the radio signals from global navigation satellites as the spacecraft disappear beyond the limb of Earth.



Workers in a clean room in Germany lower the microwave radiometer onto the Sentinel-6 Michael Freilich satellite bus as they attach the instrument to the spacecraft. Credit: Airbus

Precise Orbit Determination (POD) Package

Precisely determining the position of the Sentinel-6B spacecraft in orbit is of paramount importance when recording extremely small variations in sea level data (on the millimeter scale). To achieve this, Sentinel-6B carries a state-of-the-art precise orbit determination package that works in conjunction with the mission's science instruments to accurately define its position in space and time.

The four instruments composing this package include the Doppler Orbitography and Radiopositioning Integrated by Satellite (DORIS), the laser retroreflector array (LRA), the GNSS-RO, and the Global Navigation Satellite System - Precise Orbit Determination (GNSS-POD).

Management

The Sentinel-6/Jason-CS mission is a partnership between NASA, ESA (the European Space Agency), EUMETSAT (European Organisation for the Exploitation of Meteorological Satellites), and the National Oceanic and Atmospheric Administration (NOAA), with funding support from the European Commission and support from French space agency CNES (Centre National d'Études Spatiales). NASA's Jet Propulsion Laboratory, a division of Caltech in Pasadena, California, manages the mission for the Earth Science Division (ESD) in the Science Mission Directorate (SMD) at NASA Headquarters in Washington.

At NASA JPL, **Parag Vaze** is the project manager and **John Oswald** is the deputy project manager. **Josh Willis** is the project scientist.

At NASA Headquarters, **Nicola Fox** is the associate administrator for SMD. **Karen St. Germain** is the director of ESD. **Jamie Wicks** is program executive for Sentinel-6/Jason-CS, and **Nadya Vinogradova Shiffer** is program scientist for Sentinel-6/Jason-CS.

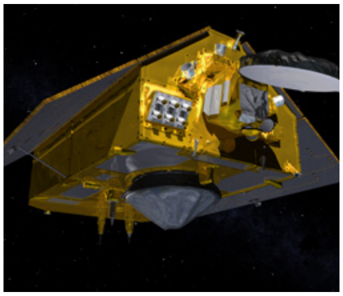
At ESA, **Pierrik Vuilleumier** is the project manager, and **Alejandro Egido** is the mission scientist.

At EUMETSAT, **Julia Figa Saldana** is the project manager, and **Remko Scharroo** is the project scientist.

At NOAA, **Chris Sisko** is the project manager, and **Eric Leuliette** is the project scientist.

Appendix

Gallery



Images

- Spacecraft: https://go.nasa.gov/Sentinel6Gallery
- NASA Headquarters Flickr feed: https://www.flickr.com/photos/nasahqphoto/
- NASA Image and Video Library: https://images.nasa.gov/
- ESA Photo Library: https://www.esa.int/ESA_Multimedia/Missions/Sentinel-6/(result_type)/images

Note: Requires registration and approval for access.

Videos and Animations

Mission overview

https://www.youtube.com/watch?v=3_lbADMwD7A

Explainer videos

New U.S.-European Satellite Tracking Sea Level Rise

https://youtu.be/ErRLf6d2anI

NASA Instrument Uses GPS to Improve Weather Forecasts

https://youtu.be/uiwyIs8YITs

JPL-produced animation

https://www.esa.int/ESA_Multimedia/Missions/Sentinel-6/(result_type)/images

Historical Sea Level Missions

In addition to the Sentinel-6/Jason-CS mission, past joint U.S.-European sea level missions are listed below. Each item includes mission name, duration, and partners.

TOPEX/Poseidon: 1992-2006; NASA; France's National Centre for Space Studies (CNES).

Jason-1: 2001-2013; NASA; CNES.

OSTM/Jason-2: 2008-2019; NASA; NOAA; CNES; EUMETSAT.

Jason-3: 2016-current; NASA; NOAA; CNES; EUMETSAT.

Sentinel-6 Michael Freilich: 2020-current; NASA, ESA, EUMETSAT, CNES, NOAA