



Suomi National Polar-orbiting Partnership MISSION

The Suomi National Polar-orbiting Partnership (NPP) mission is the bridge between the nation's Earth Observing System satellites and the next-generation Joint Polar Satellite System (JPSS). The mission hosts a suite of advanced-technology remote sensing instruments that provide critical weather and climate data for the nation.



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Overview

Suomi NPP helps scientists understand and monitor our environment on Earth. This polar-orbiting satellite is also helping NASA continue its long record of environmental monitoring established by the Earth Observing System. The Suomi NPP data record provides critical information about clouds, oceans, vegetation, ice and atmosphere, while also supplying meteorologists with vital near-term weather data.

Suomi NPP flies a suite of remote sensing instruments, which measure the Earth's atmospheric and sea surface temperatures, humidity sounding, land and ocean biological activity and cloud and aerosol properties.

Launched Oct. 28, 2011, Suomi NPP is providing critical climate data collection requirements as the nation awaits launch of JPSS around 2017. JPSS is already in development at Ball Aerospace.

Our Role

Under contract to NASA's Goddard Space Flight Center, Ball built the Suomi NPP spacecraft bus and the onboard Ozone Mapping and Profiler Suite (OMPS) instrument.

The Suomi NPP spacecraft was built under fixed-price terms using Ball Configurable Platform (BCP) 2000, one of several BCP models designed for cost-effective, remote sensing applications.

Its proven design accommodates a wide range of payloads, including optical applications with sub-meter resolutions and synthetic aperture radar. The Suomi NPP spacecraft bus is the eighth of 11 spacecraft built by Ball on the same BCP core architecture. In all, this architecture has more than 50 years of successful on-orbit operations. The BCP was designed to accommodate a wide variety of Earth-observing payloads that require precision pointing control, flexible high-data throughput and downlinks and controlled re-entry.

Ball integrated all five of Suomi NPP's instruments and performed satellite-level testing and launch support.

Quick Facts

- Suomi NPP's orbit is sun-synchronous
- The satellite flies at an altitude of 512 miles (824 km)
- Suomi NPP orbits Earth 14 times a day, producing coverage of nearly the entire Earth
- The spacecraft bus was built on BCP 2000
- The satellite is 4.028 meters by 2.610 meters by 2.206 meters
- Suomi NPP weighs 4,600 pounds (2,100 kg)
- The design life is five years
- 1553 and FireWire data networks support high payload data rates
- The satellite was launched Oct. 28, 2011 aboard a United Launch Alliance Delta II rocket from Vandenberg Air Force Base, Calif.
- Bus commissioning was complete Nov. 5, 2011

Suomi NPP Instruments

The five instruments manifested for flight on the Suomi NPP spacecraft trace their heritage to instruments on NASA's Terra, Aqua and Aura missions, on NOAA's Polar Operational Environmental Satellite spacecraft and on DoD's Defense Meteorological Satellite Program. The five instruments include:

- The Visible/Infrared Imager Radiometer Suite (VIIRS)
- The Cross-track Infrared Sounder (CrIS)
- The Advanced Technology Microwave Sounder (ATMS)
- The Ozone Mapping and Profiler Suite (OMPS)
- The Clouds and Earth's Radiant Energy System (CERES)

