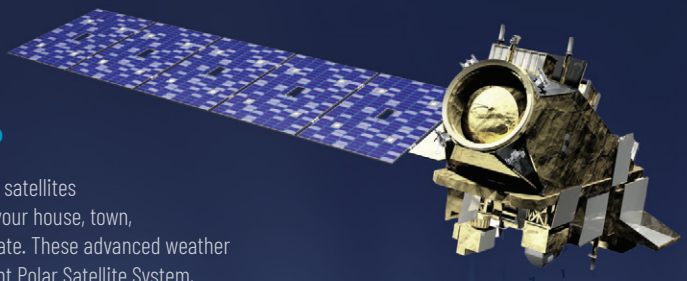
JPSS

Joint Polar Satellite System

Data from JPSS are used by the National Weather Service to forecast weather 3 to 7 days in advance.



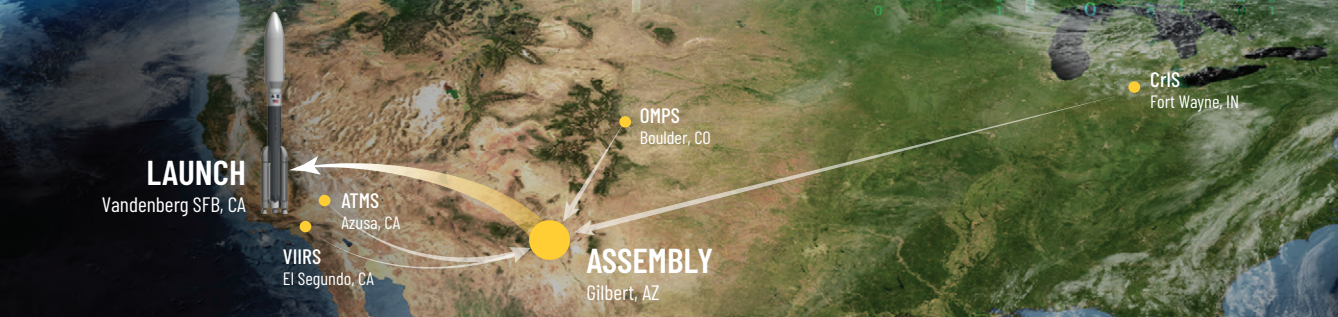
What is JPSS?

Every day and every night, satellites collecting data pass over your house, town, neighborhood, city, and state. These advanced weather satellites make up the Joint Polar Satellite System, which will monitor the Earth from 2011 into the 2030s.

JPSS-2 is scheduled to launch in 2022.

JPSS also helps scientists across the world study Earth. The data helps scientists forecast severe weather events such as blizzards, hurricanes, and tornadoes. Using data from JPSS, we know when to bring an umbrella, put on sunscreen, or stay safe from a storm.

Instrument	Measure and detect...
ATMS	Advanced Technology Microwave Sounder
OMPS	Ozone Mapping and Profiler Suite
CrIS	Cross-track Infrared Sounder
VIIRS	Visible Infrared Imaging Radiometer Suite



Where is JPSS-2 Built and Launched?

JPSS satellites aren't built in just one place.

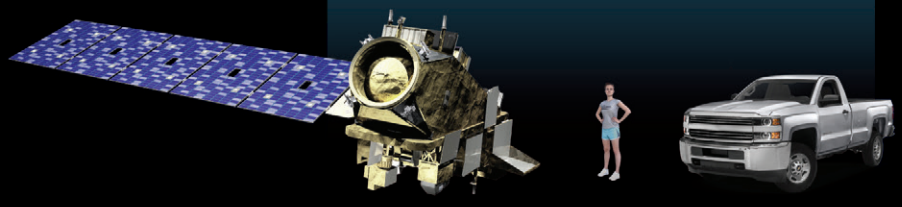
The spacecraft bus (the satellite's main body) and four instruments are built across the country. When all the pieces are built, they are put together and tested in Arizona. After the engineers test the satellite to make sure all the parts work properly together, it is shipped to California for launch.

JPSS-2 will launch from Vandenberg Space Force Base in California on an Atlas-V rocket. The satellite needs to launch from the West Coast in order to get into the right position for a polar orbit.

How Big is JPSS?

JPSS-2 is about 14 feet long and about 7 feet across.

The satellite weighs approximately 5,750 pounds (2,600 kilograms). JPSS-2 is 35 feet long when the solar array is open (the panels that power the satellite using the Sun's energy). JPSS-2 is about the size and weight of a pick-up truck.



Why Does it Need a Polar Orbit?

JPSS orbit Earth traveling over the North and South Poles 14 times a day. This is called a polar orbit. As JPSS passes over the poles, the Earth spins underneath, allowing JPSS to observe the entire Earth twice per day, once in sunlight and once in the dark.

JPSS orbits 512 miles above the Earth, travelling at approximately 17,000 miles per hour. It takes JPSS approximately 7 minutes to travel from the southern tip of Florida to the northern tip of Maine, and about 90 minutes to travel all the way around the Earth.

High-Earth Orbit Geostationary 22,370 miles

JPSS Low-Earth Orbit Polar-orbiting 512 miles

International Space Station 240 miles

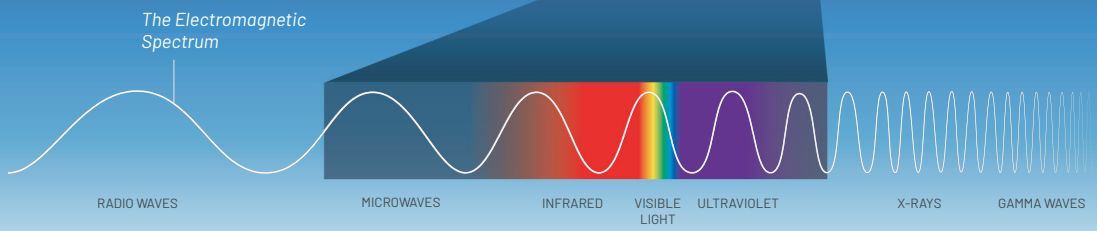
Aurora Borealis 100 miles

Weather balloon 20 miles

Commercial airplane 7 miles

How Does JPSS Look at the Earth?

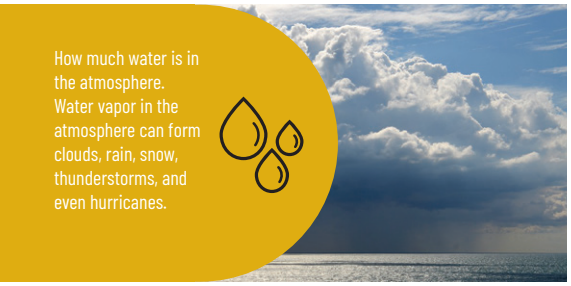
JPSS collects data about the Earth by measuring microwave, infrared, visible, and ultraviolet light and uses radio waves to send weather data to ground stations near the North and South Poles.



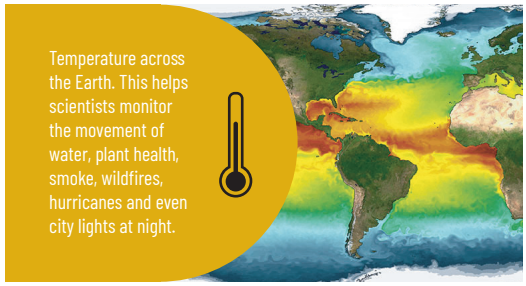
What Does JPSS Do? How Does JPSS Help Us?

JPSS monitors the land, oceans and atmosphere 24 hours a day in order to collect important information about Earth and its weather, including:

How much water is in the atmosphere. Water vapor in the atmosphere can form clouds, rain, snow, thunderstorms, and even hurricanes.

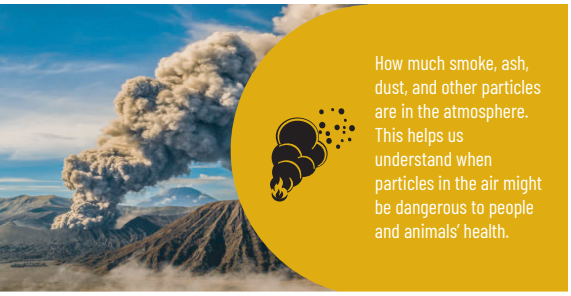


Temperature across the Earth. This helps scientists monitor the movement of water, plant health, smoke, wildfires, hurricanes and even city lights at night.

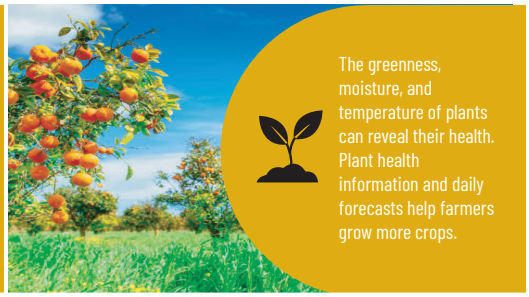


The health of the Ozone Layer, the part of the atmosphere protecting Earth from the Sun's harmful ultraviolet light.

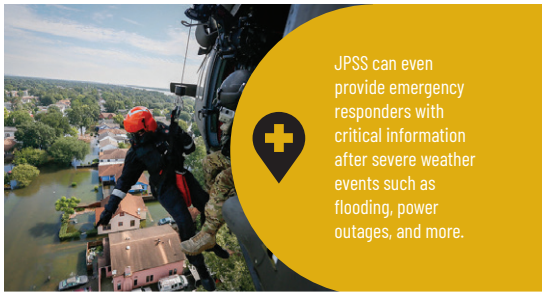
How much smoke, ash, dust, and other particles are in the atmosphere. This helps us understand when particles in the air might be dangerous to people and animals' health.



The greenness, moisture, and temperature of plants can reveal their health. Plant health information and daily forecasts help farmers grow more crops.



JPSS can even provide emergency responders with critical information after severe weather events such as flooding, power outages, and more.



Thanks, JPSS!

While these satellites are crucial to our ability to predict the weather, they also do so much more to help us in our everyday lives.

Joint Polar Satellite System (JPSS)
JPSS is a collaborative program between the National Oceanic and Atmospheric Administration (NOAA) and its acquisition agent, National Aeronautics and Space Administration (NASA).

For more STEM activities, visit:
https://www.jpss.noaa.gov/education.html

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