

INTERSTELLAR

10
mysterious
UFO
sightings

An interview
with the
Stormtroopers

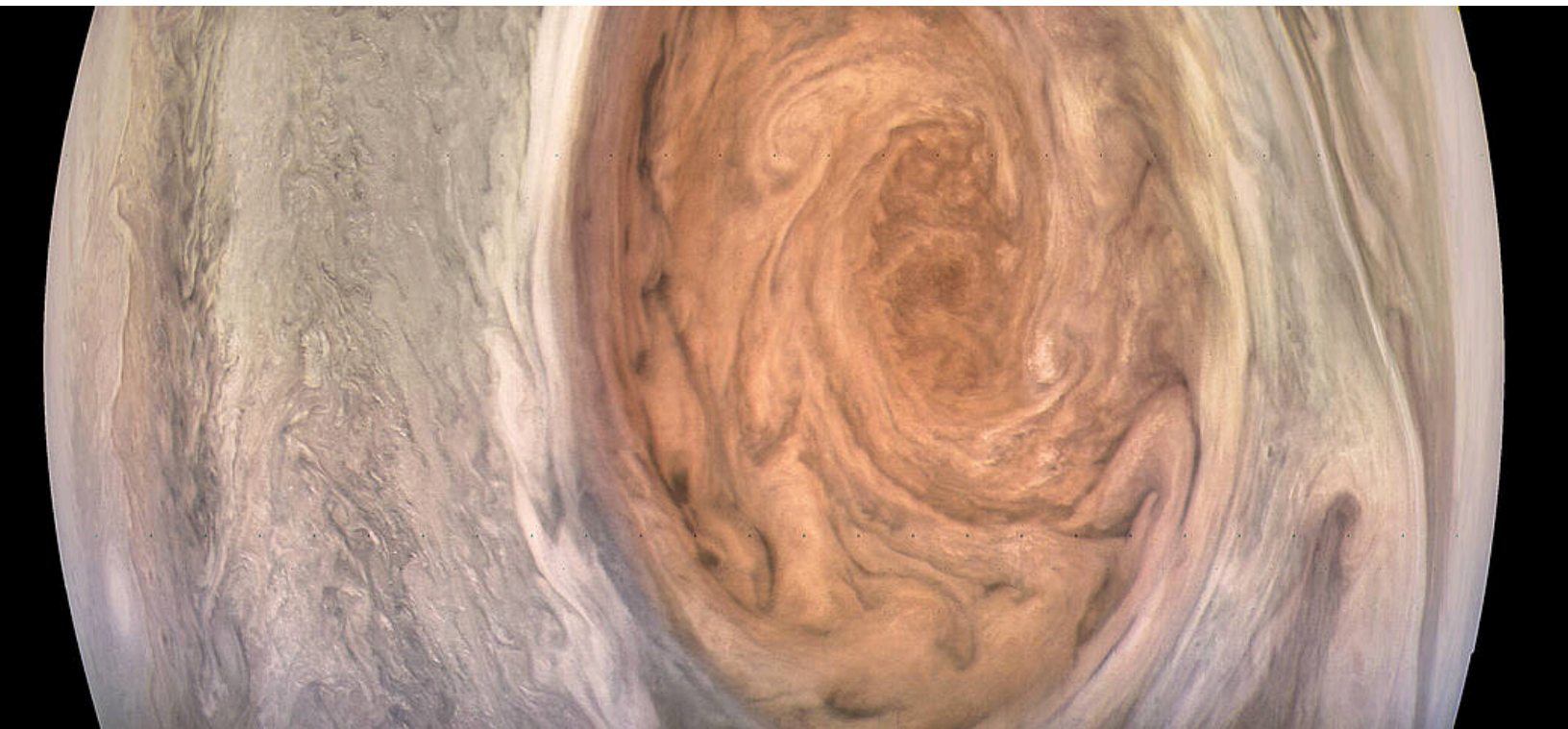
When
Juno
got up and
personal with
Jupiter



JUNO'S DATE WITH JUPITER

The probe made a close flyby
of the largest planet in our
solar system on July 10, 2017.
Story by Alison Klesman





Jupiter's Great Red Spot is one of its most iconic features. The giant storm, which has been raging in the atmosphere of the gas giant for at least hundreds of years, is larger than Earth and can be seen easily even with an amateur telescope. But despite its size and prominence, the Great Red Spot is a mystery that continues to intrigue planetary scientists. Now, NASA's Juno probe has returned the best ever images of the Great Red Spot, following its most recent close flyby of our solar system's largest planet July 10.

The pictures the probe returned are stunning. As it passed over the Great Red Spot at a height of 5,600 miles (9,000 kilometers),

Juno's imaging camera, JunoCam, snapped several apple core-shaped photos of the feature in optical light. But pretty pictures weren't Juno's only goal; all of the spacecraft's eight additional instruments recorded data during the flyby as well. Those instruments include a magnetometer, a radio and plasma wave sensor, a microwave radiometer, and an ultraviolet spectrograph. By combining the multi-wave-

length data from these state-of-the-art instruments, scientists can create a more complete model of the storm than ever before.

"These highly-anticipated images of Jupiter's Great Red Spot are the 'perfect storm' of art and science. With data from Voyager, Galileo, New Horizons, Hubble and now Juno, we have a better understanding of the composition and evolution of this iconic feature," said Jim Green, NASA's director of planetary science, in a press release.

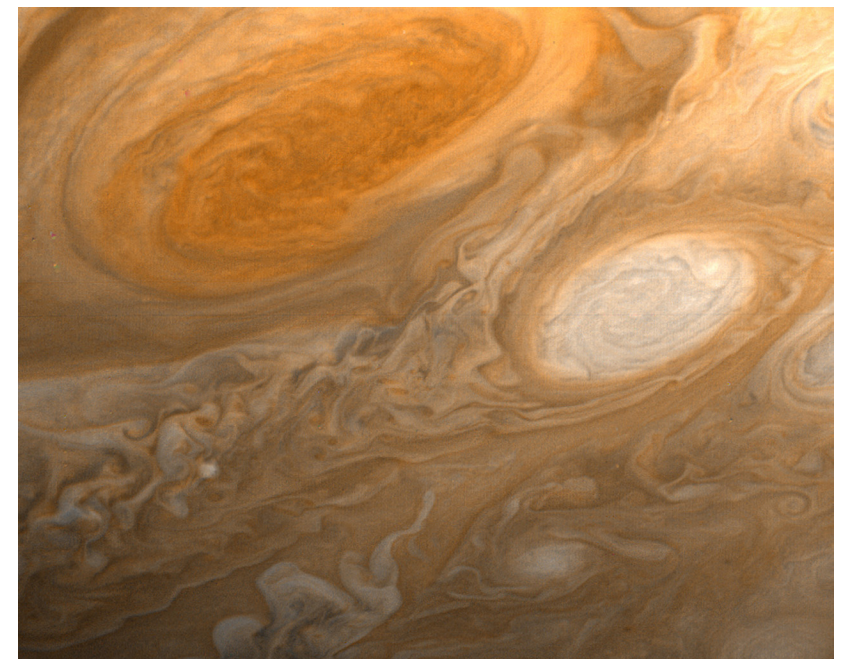
The Great Red Spot has been seen continuously since at least 1830, though it may have developed earlier. In recent decades, it has been shrinking in size; in April of this year, it measured 10,159 miles (16,350km) across, or about 1.3 Earth diameters. Its winds have been clocked at 400 miles per hour (640km/h), though its center is calm, like the eye of an earthly hurricane. Recent experiments suggest that the storm's red color is caused by a reaction in Jupiter's upper atmosphere when energetic ultraviolet photons in sunlight hit ammonia and acetylene gas.

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"For hundreds of years scientists have been observing, wondering and theorizing about Jupiter's Great Red Spot. Now we have the best pictures ever of this iconic storm," said Scott Bolton, Juno principal investigator from the Southwest Research Institute in San Antonio. Although he added that it will take time to sort through and analyze the influx of new data, the details Juno is returning are vital to understanding the storm's dynamics, both past and present.

The July 10 flyby was Juno's seventh close approach to the planet; in total, it will orbit Jupiter 37 times, with the closest pass bringing the spacecraft within about 2,100 miles (3,400km) of the cloud tops. At mission's end in 2018, Juno will plunge into the planet's atmosphere, just like the Cassini mission currently orbiting Saturn.

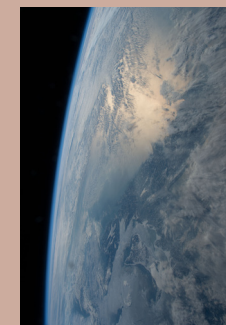
The images Juno takes are publicly available on the JunoCam website; NASA encourages citizen scientists to download and process the images, then share them on the site's photo gallery.



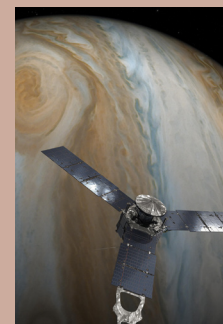
HIGHLIGHTS OF THE JUNO MISSION



Juno is launched on August 11, 2011, to measure water levels in Jupiter's atmosphere, map its magnetic and gravity fields, and explore the planet's poles.



Juno Fly's past Earth for the last time as it uses the planet's gravitational pull to propel itself towards the Jupiter. The maneuver is sometimes called Gravitational Slingshot.



Juno reaches Jupiter's orbit. Performs orbit insertion maneuver, a trick that involves firing the engines at the right time for the right duration and in the right direction.



Juno fly's by Jupiter and sends detailed images of the Great Red Spot and the poles of the planet, revealing the storms, cloud patterns and other sensitive data that is valuable for NASA.