

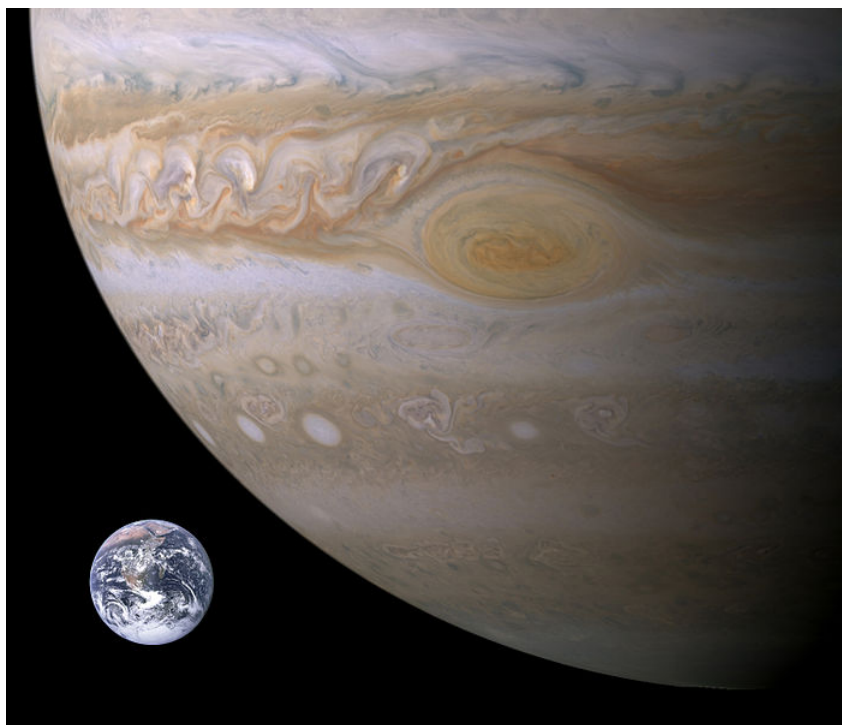
7.3: Storms of Jupiter

Storms of Jupiter

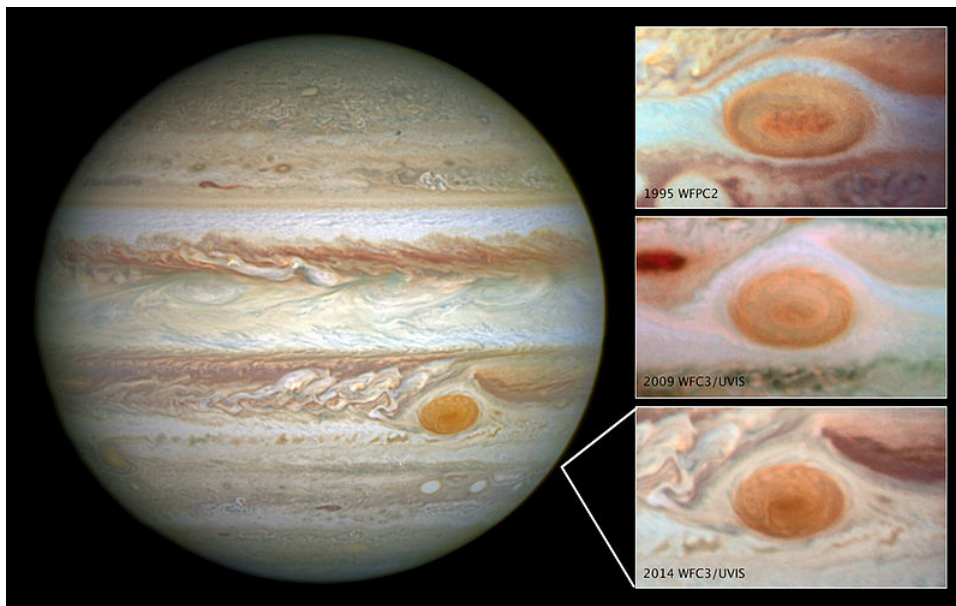
The Gas Giant planets in our Solar System — Jupiter, Saturn, Uranus, and Neptune — are primarily spheres of methane, ammonia, hydrogen sulfide, some water, and helium. Jupiter — our Solar System's giant world — has a variety of strong weather patterns and storms in its atmosphere. The **Great Red Spot**, or **GRS**, was first seen about 300 years ago. So, this feature is one that has been spinning at least 300 years. Imagine any hurricane lasting 300 years!

So, is this a tropical cyclone like we experience on Earth? No... first this is a high-pressure system, versus our low-pressure hurricanes and typhoons on Earth.

There is little water in Jupiter's atmosphere. And, you will note other differences in the GRS compared to tropical cyclones. Besides, a long duration storm with fast winds of 250 to 400 miles per hour, this is truly a GREAT Red Spot. From side-to-side, the GRS is 16,000 miles across. This is TWO EARTH'S. Talk about a serious cyclone... a diameter of 16,000, maximum sustained winds of 400 miles per hour, and storm duration of at least 300 years. Where could you hide from such a monster? And, could you build a shelter or for Jupiter, a spacecraft that would survive these winds?

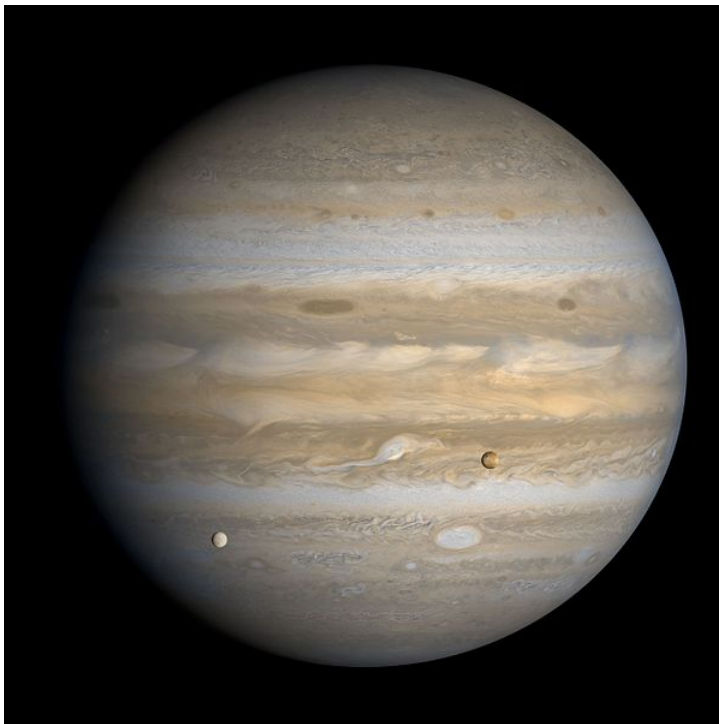


A to-scale size comparison between Earth and Jupiter's Great Red Spot. [” Jupiter, Earth size comparison ” byBrian0918 , in the [Public Domain](#)]

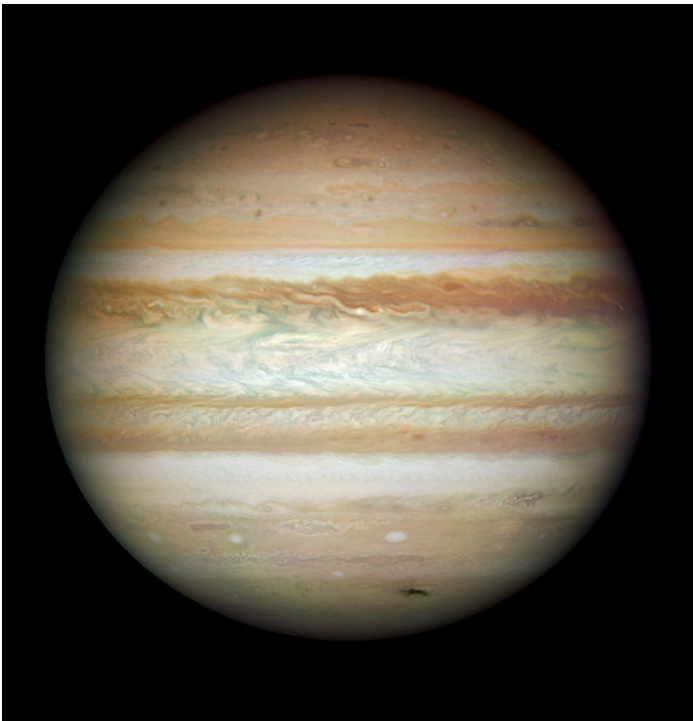


Jupiter and a number of atmospheric storms, including the Great Red Spot; lower right on Jupiter. [“NASA14135-Jupiter...” by A. Simon, in the [Public Domain](#)]

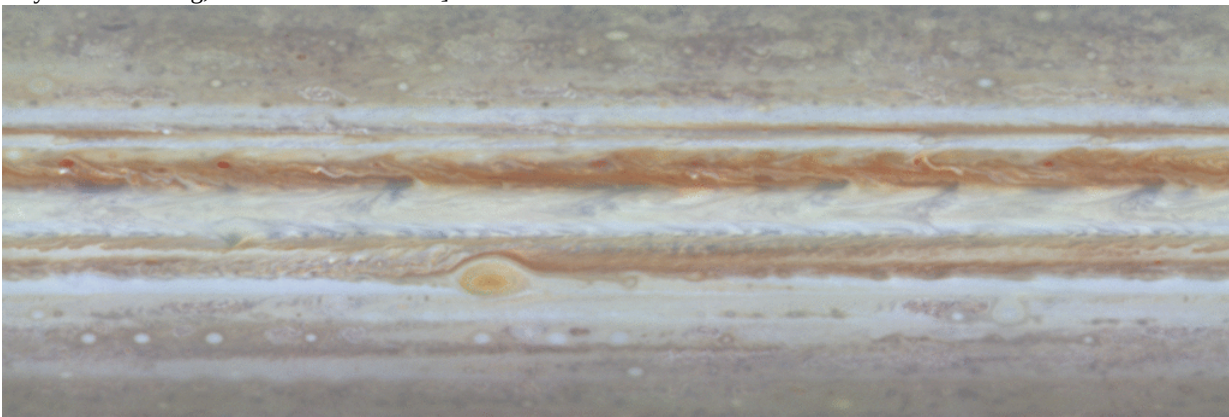
Jupiter’s atmosphere is filled with a lot of smaller storms that do come and go, much like our tropical cyclones. You can easily see these festoons, as they are called, in any of the Jupiter images. Festoons look like whirls and waves in the Jovian atmosphere. When we look at Jupiter, we can see these features, even with small telescopes. And you can track these changes over time, like changes in our own weather here in Earth.



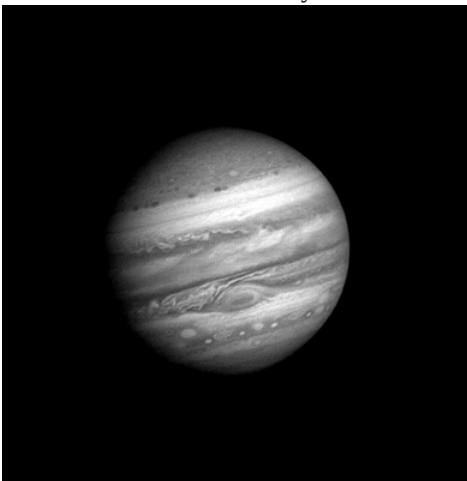
A Voyager 1 image of Jupiter, showing the many storms in the Jovian atmosphere, as well as two of Jupiter’s moons (Europa on the left, Io on the right). [” Voyager 1 Image of Jupiter with Io and Europa ” by Bjorn Jonsson, in the [Public Domain](#)]



A true color Hubble Space Telescope image of Jupiter, showing the numerous Jovian atmospheric storms. [“Jupiter on 2009-07-23” by Michael Wong, in the [Public Domain](#)]

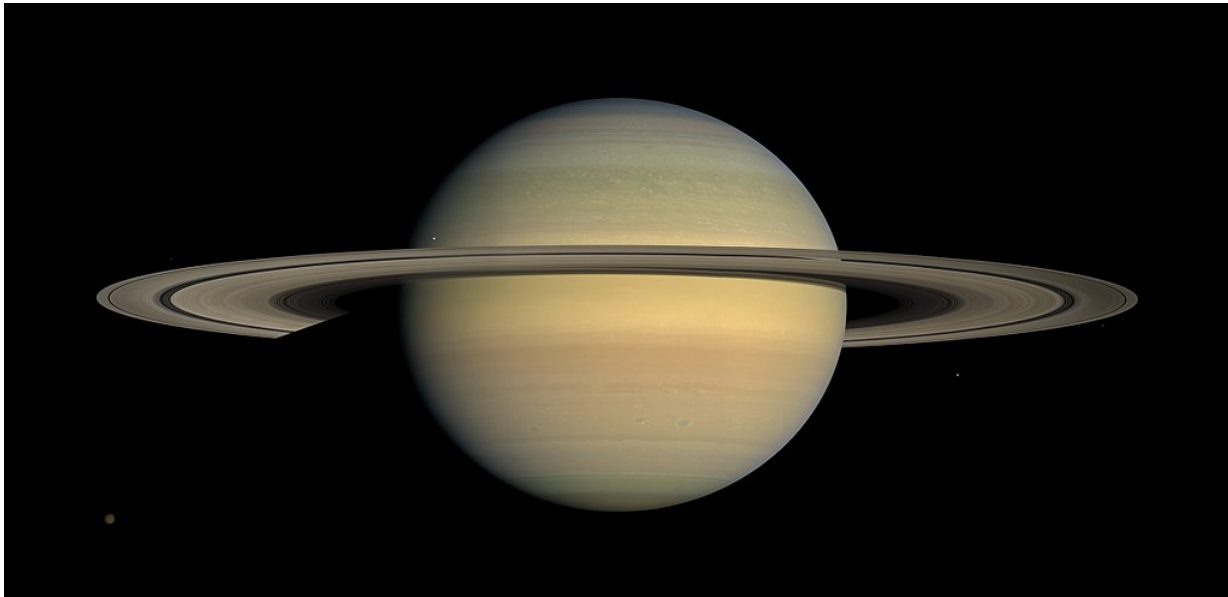


As can be seen by this NASA/JPL/University of Arizona-produced video clip, Jupiter’s atmosphere is always in motion. [” Jupiter surface motion animation ” by NASA/JPL/University of Arizona, in the [Public Domain](#)]



The Voyager 1 space probe captured the images for this time-lapse video of Jupiter's storms over a 28-day period. [“Voyager 58M to 31M reduced” by NASA, in the [Public Domain](#)]

The other Gas Giant planets in our Solar System — Saturn, Uranus, and Neptune — do not exhibit as strong or numerous storms as Jupiter. This is because these planets are further from the Sun than Jupiter, this receive less heat. Yet all three do occasionally exhibit Jovian-like storms.



The ringed planet Saturn. Storms in Saturn's atmosphere are not as pronounced as in Jupiter's atmosphere. [“Saturn during Equinox” by NASA / JPL / Space Science Institute, in the [Public Domain](#)]

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