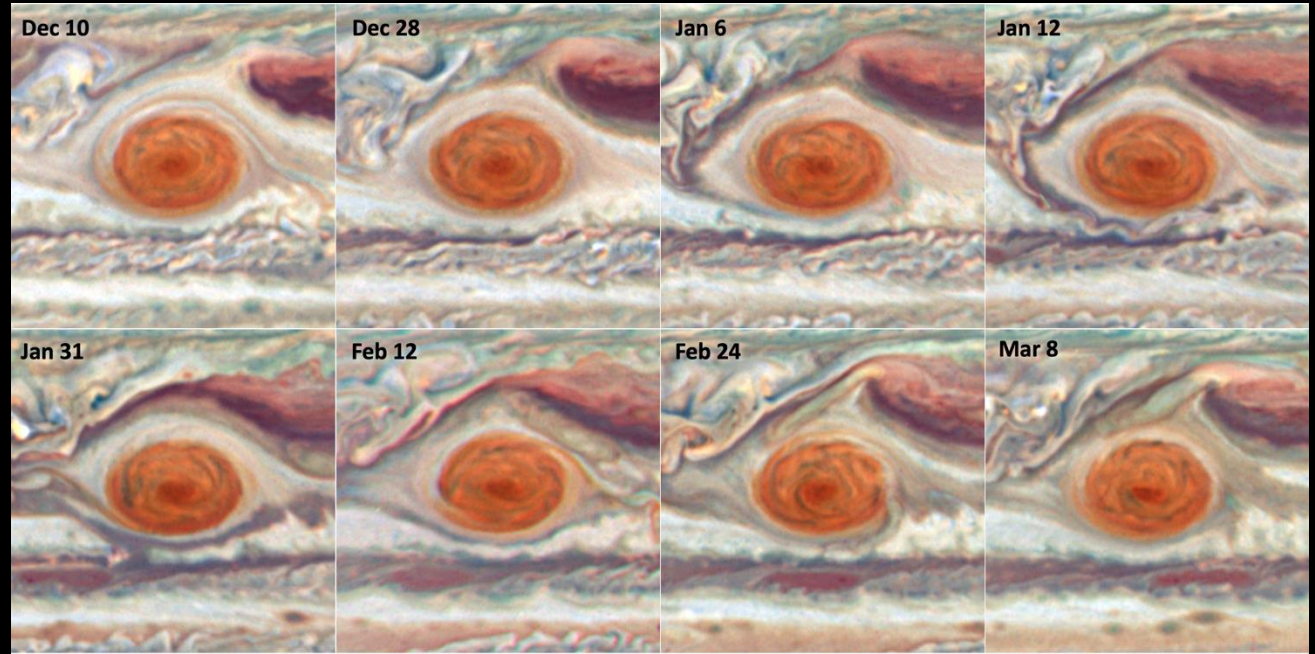


Oscillations of Jupiter's Great Red Spot

Jupiter's Great Red Spot (GRS) was observed with the Hubble Space Telescope on eight dates from December 2023 to March 2024. This program searched for correlations in the GRS size, shape, color, and winds with its known 90-day drift oscillation (see animation).

Results show that the GRS size and shape oscillate with a 90-day period, having a larger width when it is drifting slower. The core of the GRS exhibited a small increase in UV brightness in phase with the width oscillation; it is brightest when the GRS is largest.

The collar of the GRS was also found to change its red coloration but is out of phase with the other oscillations. Theory predicts that 2-dimensional size oscillations should be balanced by commensurate changes in interior storm velocities. However, the GRS does not obey this balance, indicating that it has a more substantial 3-dimensional structure.



Above: Color composite maps of the GRS over a 90-day period
Credit: NASA / STScI/ A. Simon

Right: animation showing the simultaneous changes occurring in drift rate, size, shape, and color. Color is exaggerated.

Credit: NASA / A. Simon / M. Wong

