

Jupiter's great red spot is shrinking

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The best map of wind speeds on Jupiter ever produced proves that the massive weather system known as the Great Red Spot has shrunk over the past dozen years.

Understanding cloud patterns on distant planetary surfaces, such as those at Saturn or Jupiter, is potentially confusing because clouds deform over time. Using sophisticated software, scientists at the University of California at Berkeley have been able to take the deformations into account (and the much easier-to-deal-with factor of the planet's rotation) and have calculated the best velocity maps yet for the surface of Jupiter.

Using data recorded by the Galileo and Cassini spacecraft, views of Jupiter's surface have been made that essentially factor out the planet's rotation, simplifying our impression of what is happening to the cloud decks. For mid latitudes, the velocity resolution for this mapping procedure is 3 meters-per-second. For higher latitudes, the resolution is 3-6 meters-per-second. The maps consist of tens of millions of velocity measurements.

According to Berkeley scientist Xylar Asay-Davis these maps represent the highest resolution and highest accuracy full-planet map ever produced. With this approach, such meteorological features as the Great Red Spot or the Red Oval can be monitored more carefully than before. The high-precision velocity measurements show definitively that the Great Red Spot has shrunk over the past dozen years, says Asay-Davis.

Asay-Davis's talk, "Velocity Fields of Jovian Dynamical Features using

the Advection Corrected Correlation Image Velocimetry Method" will be held on Sunday, November 23, 2008 at the 61st Annual Meeting of the American Physical Society .

Provided by American Institute of Physics

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