

Abstract Submitted
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Velocities and Temperatures of Jupiter's Great Red Spot and the New Red Oval and Implications for Global Climate Change PHILIP MARCUS, UC Berkeley, SUSHIL SHETTY, XYLAR ASAY-DAVIS — In 1998 - 2000 three jovian White Oval vortices near 34°S merged and formed a new Oval. It turned from white to red in 2005. The reason for the color change is unknown but may signify a temperature change. Because the color changed one thermal time, or 7 years, after the mergers, it may indicate the global climate change that was predicted to occur after the mergers (based on the assumption that the chaotic mixing of heat due to the oscillatory motions of the White Ovals ceased after their mergers, so that latitudes near 34°S became barriers to meridional heat transport.) We inferred vertical thermal structure from velocity measurements of the vortices (derived from cloud displacements). We report differences in aspect ratios, areas and peak velocities of the GRS and the Oval(s) from 1979, 2000, and 2006. We compare the areas of the clouds associated with the vortices with the areas enclosed by their outermost closed streamlines, and with the areas of the vortices' potential vorticity anomalies. We discuss the implications of our findings to Jovian climate.

Philip Marcus
UC Berkeley

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