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A Bright Spot on Venus

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In July 2009 the ultraviolet images of Venus captured by the Venus Monitoring Camera (VMC) on Venus Express showed an anomalously bright feature. The brightness was about 30% higher than generally observed on Venus. Although the initial detection was made in the images acquired on the same date (19 July 2009) that several amateur images also reported a bright spot on Venus, the brightening was present about four days earlier. The bright anomaly remained localized to an area centered at approximately 40° S and 151° longitude with a radial extent of $\sim$ 400 km. The VMC images were being acquired every 30 minutes, and they bright core region indicates an oscillatory behavior in the peak brightness region. The bright core gradually dissipated over the next several orbits.

This brightening was quite distinct from an earlier major event observed in January 2007 when a very large portion of the southern hemisphere brightened and then quickly returned to normal appearance. The July brightening was not seen in images acquired through other VMC filters, thus the cause of the brightening is a puzzle. The change in the reflective properties of a limited region suggests an unusual trigger. A dynamical (convective) cause is possible but there can be other origins also. A volcanic eruption is one possibility, a solar wind connection is another, an external impact cannot be ruled out either. The challenge is to identify the cause of the brightening from the limited observations available.