



## Morphology and dynamics of the Venus upper cloud layer

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Venus is completely covered by a thick cloud layer whose upper part is composed of sulfuric acid and some unknown aerosols<sup>1</sup>. The cloud tops are in fast retrograde rotation (super-rotation), but what is driving this super-rotation is unknown<sup>2</sup>. Here we report observations of Venus with the Venus Monitoring Camera<sup>3</sup> (VMC) on board the Venus Express spacecraft. Taking advantage of the VMC high resolution imaging and the polar orbit we investigate both global and small scale properties of these clouds, their temporal and latitudinal variations, and derive wind velocities. The Southern polar region is highly variable and can change dramatically on time scales as short as one day, perhaps arising from the injection of SO<sub>2</sub> into the mesosphere. The convective cells in the vicinity of the sub-solar point are much smaller than previously inferred<sup>4,5,6</sup>, which we interpret as indicating that they are confined to the upper cloud layer, contrary to previous conclusions<sup>7,8</sup>, but consistent with more recent study<sup>9</sup>.

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