



## Weather on Jupiter: from Surface to Depth

Jupiter represents a class of planets whose major composition is hydrogen and helium, with a few condensable species forming visible clouds high up. The most recent observation of Jupiter's atmosphere by the Juno spacecraft contradicts what one would infer from the standard picture of Jovian atmospheric dynamics. Specifically, a clustering of cyclonic vortices was observed on either pole of Jupiter. They exist without an ocean or solid surface underneath, and they have endured as unique individuals since their discovery in August 2017. Besides, the ammonia gas, a chemically inert tracer, is not well mixed down to 100 bars of pressure for some unknown reason. These observations cast doubts on whether we truly understand the most basic principles of atmospheric circulation. Answers to questions like "How does the heat transfer through the atmosphere?", "What determines the stability of the troposphere?" become elusive when one moves away from Earth's condition. In this talk, I will present two theories regarding Jovian atmospheric circulation. One explains the stability of the polar vortices and the other illustrates why some tracer gases are depleted.



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**Zoom Link:** <https://fsu.zoom.us/j/92048205278?pwd=ZnJaTkFDSDGxPdW5FM1IRZmVaME0xQT09>

**Please Contact Zhaohua Wu if you have any question.**