



## The evolution of Jupiter polar cyclones

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JIRAM (the Jovian InfraRed Auroral Mapper) is an infrared camera and spectrometer on board Juno. JIRAM operates in the 2-5  $\mu\text{m}$  spectral range and is built to observe both Jupiter's infrared aurora and its atmosphere. Since 2016, JIRAM has performed several observations of the polar regions of the planet, thanks to the unique orbital design of the Juno mission. In the north polar region, Juno discovered, in 2017, the presence of an eight-cyclone structure around a single polar cyclone; to the south, a polar cyclone is surrounded by five circumpolar cyclones. The stability of these structures has been monitored for almost 4 years. Recent observations, made at the end of 2019, showed that the configuration of the South Pole has temporarily changed: the structure moved in a hexagon for a few months, before returning to its original pentagonal shape. To the north, there are significant hints that the octagonal shape may have been lost for a similar period of time.

We find that all cyclones show a very slow, westward drift as a rigid ensemble, and, in addition, they oscillate around their rest position with similar timescales. These oscillations seem to propagate from cyclone to cyclone. The implications of these transient deviations from the symmetrical forms, which appear to be an apparent condition of equilibrium, are discussed.