



Vertical distribution of H₃⁺ at mid-to-low latitudes in the Jupiter atmosphere with Juno/JIRAM

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The NASA Juno spacecraft is studying Jupiter's atmosphere in depth since August 2016. The Jupiter Infrared Auroral Mapper (JIRAM) experiment, one of the scientific instruments on board Juno, is composed of a two broad-band imager and an infrared spectrometer, dedicated to the auroral and chemical composition of the Jupiter's atmosphere. In particular, JIRAM spectrometer has made observations of the trihydrogen cation (H₃⁺) emissions at auroral region latitudes (Adriani et al. 2017; Dinelli et al. 2017) and at mid-to-equatorial latitudes (Migliorini et al., submitted) across the Jupiter's planetary disc in the spectral band 2-5 μ m. We focus on limb observations of the planet from 60° North to 60° South latitudes, to investigate the vertical distribution of the H₃⁺ emissions as a function of latitude across Jupiter's dayside. H₃⁺ volume mixing ratio (VMR) and atmospheric temperatures were retrieved from the H₃⁺ emission features in the 3-4 μ m spectral band, while H₃⁺ concentration was derived by combining the previous quantities. Here we discuss results obtained from data acquired during the first and fifth Juno orbit around Jupiter, in August 2016 and February 2017 respectively. Differences between North and South hemispheres are also discussed.

Acknowledgments

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References

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