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Ganymede as Observed by JIRAM During the Juno Flyby of 7 June 2021

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Since Juno's orbit insertion at Jupiter until today, the JIRAM spectro-imager observed Ganymede over 5000 times, both with its infrared imaging subsystem and with its slit spectrometer sensitive to the 2-5 μm spectral range. This dataset makes Ganymede the most observed Galilean satellite by Juno. Towards the end of 2019, during perijove 24, JIRAM achieved a maximum spatial resolution of 23 km/px. But during the latest flyby, which occurred on June 7, 2021, during perijove 34, JIRAM observed Ganymede from a much shorter distance, namely between 1053 and 2558 km from the surface, yielding unprecedented pixel resolution values between 0.25 and 0.61 km/px (average value 0.36 km/px), which is 92 times better than the previous flyby and 3 to 7 times better than the most resolved hyperspectral image ever acquired in the past by the Galileo/NIMS instrument at Ganymede. Here we discuss the infrared images and spectra that JIRAM was able to acquire during this flyby, with an emphasis on the preliminary spectroscopic results and the distribution of the chemical species detectable in the spectra. These results are important also in preparation for future measurements to be returned by the ESA JUICE mission, which aims to achieve near-global coverage of Ganymede in the 2030s.

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