our understanding of Io's atmosphere and corona, and provides a foundation for interpreting energetic particle measurements from current and future missions to the Jovian system.

B14 - Ganymede's auroral patches

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Abstract

Ganymede was observed on June 7, 2021, by Juno's Ultraviolet Spectrograph, which recorded the aurora at high spatial resolution and reported the presence of auroral sub-structures. The auroral emission mainly comes from two oxygen lines at 130.4 and 135.6 nm, which are excited under electron precipitation from the surrounding space environment. We produced longitude–latitude projections of the oxygen emission from Ganymede's atmosphere, where we discovered small-scale auroral patches on the leading, downstream side of the moon. Their typical size is ~50 km, and they have a brightness of up to ~200 Rayleigh. We adopted a magnetic field model of Ganymede's magnetosphere based on Juno data to determine the regions magnetically connected to the aurora, and we reported that these features map approximately to the downstream reconnection region, and seemingly resemble the terrestrial and Jovian mesoscale auroral structures associated with sub-storms and dawn storms, respectively. This could indicate that magnetospheres of celestial bodies in general can host similar physical process(es) despite their different conditions and dynamics.