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Simultaneous Juno observations of the ultraviolet Jovian aurora and electron in situ downward flux measurements during Juno perijove passes

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The Juno mission provides opportunities near each perijove to measure the auroral electron energy flux in the loss cone flux with the Jupiter Energetic-particle Detector Instrument

(JEDI) and compare it with the far ultraviolet H_2 emissions at Juno's magnetic footprint collected simultaneously with the Ultraviolet Spectrograph (UVS) spectral imager. Analysis of FUV images provides the auroral H_2 total brightness and the FUV color ratio along the Juno magnetic footprint during several perijove passes in both hemispheres. The electron energy flux interacting with the Jovian upper atmosphere is determined by scaling the brightness of the unabsorbed H_2 emission.

The color ratio gives an estimate of the mean energy of the auroral electrons precipitating into the atmosphere. The H_2 intensity and the variations of the FUV color ratio have been compared with the characteristics of the electron precipitation measured by the JEDI instrument within a limited time delay relative to the UV intensity measurements. Significant differences are observed between the *in situ* and the remotely measured energy fluxes. Possible reasons for these differences may stem from the altitude of the spacecraft relative to the region of electron acceleration, the presence of parallel electric field or from uncertainties in the mapping of the magnetic field line from Juno. The importance of these factors will be discussed.