



Ultra-relativistic electron emissions as seen with the MWR experiment on Juno

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In Jupiter's very strong magnetic field, ultra-relativistic electrons trapped near the equator and close to the planet ($R_j < 4$) release energy via synchrotron emission, which at low microwave frequencies dominates the planetary radiation signature. The Jovian microwave radiation environment is mapped directly with the MWR experiment on Juno at 6 wavelengths from 2 cm to 50 cm with every spin of the spacecraft. Synchrotron data collected with the MWR Radiometer is used to improve the atmospheric measurements, and to provide new constraints on existing synchrotron emission models, in particular in refining the electron energy distribution parameters as captured by empirical and physics-based simulations. The data from early science passes is processed to generate global radiation maps, presented here in the context of assessing the performance of existing empirical models.