

Juno/JEDI observations of energetic particles in Jupiter's polar magnetosphere

D. K. Haggerty (1), B. H. Mauk (1), C. Paranicas (1), G. Clark (1), P. Kollmann (1), A. M. Rymer (1), S. J. Bolton (2), J. E. P. Connerney (3), S. M. Levin (4), and T. E. Cravens (5)

(1) The Johns Hopkins University Applied Physics Laboratory, Laurel, MD United States (dennis.haggerty@jhuapl.edu)

(2) Southwest Research Institute, San Antonio, TX, United States

(3) NASA Goddard Space Flight Center, Greenbelt, MD, United States

(4) Jet Propulsion Laboratory, Pasadena, CA, United States

(5) The University of Kansas, Lawrence, KS, United States

Abstract

The Juno spacecraft's polar orbit provides an exceptional opportunity to study the high latitude magnetosphere in the largest and most dynamic auroral region in the solar system. The Jupiter Energetic particle Detector Instruments (JEDI) have SSD telescopes with multiple look directions and additional time-of-flight capabilities to measure ions and electrons from ~ 6 keV to ~20 MeV. These instruments resolve major ion species from ~30 keV/n, with coarser mass resolution for lower energy ions. JEDI instruments observed energetic heavy ions up to 20 MeV precipitating into the auroral regions during the first few Juno perijoves, with the intensity and spatial locations varying from one pass to the next. Precipitating energetic heavy ions are believed to be the source population for Jupiter's x-ray aurora. We report on the new observations of precipitating energetic heavy ions in the Jovian auroral regions. We will also compare and contrast the observations from each of the auroral passes.