Geophysical Research Abstracts
Vol. 19, EGU2017-9308, 2017
EGU General Assembly 2017

New high-latitude radio emissions detected in Jupiter's magnetosphere using Juno spacecraft observations

Sadie Tetrick (1), William Kurth (1), Donald Gurnett (1), Masafumi Imai (1), George Hospodarsky (1), Scott Bolton (2), John Connerney (3), Steven Levin (4), and Barry Mauk (5)

(1) University of Iowa, Iowa City, IA, 52242, United States (george-hospodarsky@uiowa.edu), (2) Southwest Research Institute, San Antonio, TX, 78238, USA (sbolton@swri.edu), (3) Goddard Space Flight Center, Greenbelt, MD, 20771, USA (john.e.connerney@nasa.gov), (4) Jet Propulsion Laboratory, Pasadena, CA, 91109, USA (steven.m.levin@jpl.nasa.gov), (5) The Johns Hopkins University Applied Physics Laboratory, Laurel, MD 20723, USA (Barry.Mauk@jhuapl.edu)

The Juno spacecraft is currently in polar orbit around Jupiter, as of July 5, 2016. As the spacecraft passed over the high latitude regions of Jupiter for the first time on August 27, 2016, the radio and plasma wave instrument detected a new electromagnetic radio emission. This study will investigate the characteristics of this new radio emission and consider the mechanisms by which it is generated. A cross-correlation with an electron beam flux, occurring around the same time as the emission, was performed to help determine the generation mechanism. The emission's polarization and E/cB ratio have been investigated and it was found that the E/cB ratio was near 1 and there was also evidence of field-aligned guiding by density irregularities, indicating signs of ducting along the planetary magnetic field. Arguments for and against each possible mode of propagation are presented.