Geophysical Research Abstracts
Vol. 19, EGU2017-15671, 2017
EGU General Assembly 2017

Inter-hemispheric asymmetries in Saturn's aurora

Sarah Badman (1), Laurent Lamy (2), Emma Bunce (3), Baptiste Cecconi (2), John Clarke (4), Frank Crary (5), Michele Dougherty (6), Ulyana Dyudina (7), Joe Kinrade (1), Bill Kurth (8), Henrik Melin (3), Don Mitchell (9), Jonathan Nichols (3), Renee Prange (2), Wayne Pryor (10), Katerina Radioti (11), Patricia Schippers (2), and Philippe Zarka (2)

(1) Lancaster University, Lancaster, UK, (2) LESIA, Observatoire de Paris, Meudon, France, (3) University of Leicester, Leicester, UK, (4) Boston University, Boston, USA, (5) LASP, University of Colorado, Boulder, USA, (6) Imperial College London, UK, (7) Caltech, Pasadena, USA, (8) University of Iowa, Iowa City, USA, (9) Johns Hopkins University APL, Laurel, USA, (10) Central Arizona College, Coolidge, USA, (11) LPAP, Universite de Liege, Liege, Belgium

During two intervals in 2016 Saturn's UV aurorae were observed simultaneously in the northern, summer hemisphere by the Hubble Space Telescope and the southern, winter hemisphere by Cassini. For the first time the full auroral region was visible in both hemispheres allowing the nightside auroral morphology to be examined as well as the dayside. We find significant differences in the relative auroral intensities between the two hemispheres, particularly in the most poleward arcs observed under more active magnetospheric conditions. We propose that these asymmetries could be driven by inter-hemispheric field-aligned currents, or, considering the high latitude extent of some features, in association with enhanced auroral precipitation on newly-reconnected field lines. In the latter scenario, the lifetime of the high latitude auroral feature suggests that enhanced precipitation persists for at least 4 hours, longer than previously estimated, as the arc rotates to the nightside.