

## Radio & Space Plasma Physics Group Publications

Group authors are shown boldface

### Calendar Year 2011

#### *Refereed research papers*

- 11-1 Ågren, K., **D.J. Andrews**, S.C. Buchert, A.J. Coates, **S.W.H. Cowley**, M.K. Dougherty, N.J.T. Edberg, P. Garnier, G.R. Lewis, R. Modolo, H. Opgenoorth, **G. Provan**, L. Rosenqvist, D.L. Talboys, J.-E. Wahlund, and A. Wellbrock, Detection of ionospheric currents at Titan, *J. Geophys. Res.*, **116**, A04313, doi:10.1029/2010JA0016100, 2011.
- 11-2 **Andrews, D.J.**, B. Cecconi, **S.W.H. Cowley**, M.K. Dougherty, L. Lamy, **G. Provan**, and P. Zarka, Planetary period oscillations in Saturn's magnetosphere: Evidence in magnetic field phase data for rotational modulation of Saturn kilometric radiation emissions, *J. Geophys. Res.*, **116**, A09206, doi: 10.1029/2011JA016636, 2011.
- 11-3 Arridge, C.S., N. André, K.K. Khurana, C.T. Russell, **S.W.H. Cowley**, **G. Provan**, **D.J. Andrews**, C.M. Jackman, A.J. Coates, E.C. Sittler, M.K. Dougherty, and D.T. Young, Periodic motion of Saturn's nightside plasma sheet, *J. Geophys. Res.*, **116**, A11205, doi:10.1029/2011JA016827, 2011.
- 11-4 Badman, S.V., N. Achilleos, K.H. Baines, R.H. Brown, E.J. Bunce, M.K. Dougherty, **H. Melin**, **J.D. Nichols**, and **T.S. Stallard**, Location of Saturn's northern infrared aurora determined from Cassini VIMS images, *Geophys. Res. Lett.*, **38**, L03102, doi:10.1029/2010GL046193, 2011.
- 11-5 Badman, S.V., C. Tao, A. Grocott, S. Kasahara, **H. Melin**, R.H. Brown, K.H. Baines, M. Fujimoto, **T. Stallard**, Cassini VIMS observations of latitudinal and hemispheric variations in Saturn's infrared auroral intensity, *Icarus*, **216**, 2, 367-375, doi:10.1016/j.icarus.2011.09.031, 2011.
- 11-6 Belenkaya, E.S., **S.W.H. Cowley**, **J.D. Nichols**, M.S. Blokhina, and V.V. Kalegaev, Magnetospheric mapping of the dayside UV auroral oval at Saturn using simultaneous HST images, Cassini IMF data, and a global magnetic field model, *Ann. Geophys.*, **29**, 1233-1246, 2011.
- 11-7 Blagoveshchenskaya, N.F., T.D. Borisova, **T.K. Yeoman**, M.T. Rietveld, I.M. Ivanova, and L.J. Baddeley, Artificial small-scale field-aligned irregularities in the high latitude F region of the ionosphere induced by an X-mode HF heater wave, *Geophys. Res. Lett.*, **38**, L08802, doi:10.1029/2011GL046724, 2011.
- 11-8 Blagoveshchenskaya, N.F., T.D. Borisova, **T.K. Yeoman**, and M.T. Rietveld, The effects of modification of a high-latitude ionosphere by high-power HF radio waves. Part 1. Results of multi-instrument ground-based observations, *Radiophys. Quant. Electr.*, **53**, 512-531, 2011.

- 11-9 Blagoveshchenskaya, N.F., T.D. Borisova, V.A. Kornienko, M.T. Rietveld, **T.K. Yeoman**, **D.M. Wright**, M. Rother, H. Lühr, E.V. Mishin, C. Roth, V.L. Frolov, M. Parot, and J.L. Rauch, Phenomena in the high latitude ionosphere induced by powerful HF radio waves from EISCAT/heating facility: Part 2. Results of simultaneous satellite and ground-based observations, *Radiophys. Quant. Electr.*, **54**, 89-101, 2011.
- 11-10 Boakes, P.D., **S.E. Milan**, G.A. Abel, M.P. Freeman, G. Chisham, and B. Hubert, A superposed epoch investigation of the relation between magnetospheric solar wind driving and substorm dynamics with geosynchronous particle injection signatures, *J. Geophys. Res.*, **116**, A01214, doi:10.1029/2010JA016007, 2011.
- 11-11 De Larquier, S., J.M. Ruohoniemi, J.B.H. Baker, N. Ravindran-Varrier and **M. Lester**, First observations of the mid-latitude evening anomaly using SuperDARN radars, *J. Geophys. Res.*, **116**, A10321, doi:10.1029/2011JA016787, 2011.
- 11-12 Edberg, N.J.T., K. Ågren, J.-E. Wahlund, M.W. Morooka, **D.J. Andrews**, **S.W.H. Cowley**, A. Wellbrock, A.J. Coates, C. Bertucci, and M.K. Dougherty, Structured ionospheric outflow during the Cassini T55-59 Titan flybys, *Planet. Space. Sci.*, **59**, 788-797, 2011.
- 11-13 Edberg, N.J.T., H. Nilsson, Y. Futaana G. Stenberg, **M. Lester**, **S.W.H. Cowley**, J.G. Luhmann, T.R. McEnulty, H.J. Opgenoorth, A. Fedorov, S. Barabash, and T.L. Zhang, Atmospheric erosion of Venus during stormy space weather, *J. Geophys. Res.*, **116**, A09308, doi:10.1029/2011JA016749, 2011.
- 11-14 Farrugia, C.J., L.-J. Chen, R.B. Torbert, D.J. Southwood, **S.W.H. Cowley**, A. Vrublevskis, C. Mouikis, A. Viavads, M. André, P. Décréau, H. Vaith, C.J. Owen, D.J. Sibeck, E. Lucek, and C.J. Smith, 'Crater' flux transfer events: Highroad to the X-line?, *J. Geophys. Res.*, **116**, A02204, doi:10.1029/2010JA015495, 2011.
- 11-15 Forsyth, C., **M. Lester**, A.N. Fazakerley, C.J. Owen and A.P. Walsh, On the effect of line current width and relative position on multi-spacecraft curlometer technique, *Planet. Space Sci.*, **59**, 598 - 605, 2011.
- 11-16 Gillies, D.M., K.A. McWilliams, J.-P. St.Maurice, and **S.E. Milan**, Global-scale observations of ionospheric convection during geomagnetic storms, *J. Geophys. Res.*, **116**, A12238, doi:10.1029/2011JA017086, 2011.
- 11-17 **Grocott, A.**, **S.E. Milan**, J.B.H. Baker, M.P. Freeman, **M. Lester**, and **T.K. Yeoman**, Dynamic sub-auroral ionospheric electric fields observed by the Falkland Islands radar during the course of a geomagnetic storm, *J. Geophys. Res.*, **116**, A11202, doi:10.1029/2011JA016763, 2011.
- 11-18 Gurnett, D.A., A.M. Persoon, J.B. Groene, W.S. Kurth, M.W. Morooka, J.-E. Wahlund, and **J.D. Nichols**, The rotation of plasma at high latitudes in Saturn's magnetosphere and its relation to the eccentric rotation of the northern and southern auroral ovals, *Geophys. Res. Lett.*, **38**, L21203. doi:10.1029/2011GL049547, 2011.
- 11-19 Hibbins, R.E., M.P. Freeman, **S.E. Milan**, and J.M. Ruohoniemi, Winds and tides in the mid-latitude southern hemisphere upper mesosphere recorded with the Falkland Islands SuperDARN radar, *Ann. Geophys.*, **29**, 1985-1996, 2011.
- 11-20 **Hutchinson J.A.**, **D.M. Wright** and **S.E. Milan**, Geomagnetic storms over the last solar cycle: A superposed epoch analysis, *J. Geophys. Res.*, **116**, A09211, doi:10.1029/2011JA016463, 2011.

- 11-21 Jackman, C.M., J.A. Slavin, and **S.W.H. Cowley**, Cassini observations of plasmoid structure and dynamics: Implications for the role of magnetic reconnection in magnetospheric circulation at Saturn, *J. Geophys. Res.*, **116**, A10212, doi:10.1029/2011JA016682, 2011.
- 11-22 Karpachev, A.T., G.F. Deminova, N. Beloff, T.D. Carozzi, P.F. Denisenko, **M. Lester**, T. Karhunen, Asymmetric response of the topside ionosphere to large-scale IGW generated during the November 30, 1979, substorm, *J. Atmos. Solar Terr. Phys.*, **73**, 567-577, doi:10.1016/j.jastp.2010.11.014, 2011.
- 11-23 **Kellett, S.**, C.S. Arridge, E.J. Bunce, A.J. Coates, **S.W.H. Cowley**, M.K. Dougherty, A.M. Persoon, N. Sergis, and R.J. Wilson, Saturn's ring current: Local time dependence and temporal variability, *J. Geophys. Res.*, **116**, A05220, doi:10.1029/2010JA016216, 2011.
- 11-24 Kurth, W.S., D.A. Gurnett, J.D. Meniotti, R.L. Mutel, M.G. Kivelson, E.J. Bunce, **S.W.H. Cowley**, D.L. Talboys, M.K. Dougherty, C. Arridge, A. Coates, S. Grimald, L. Lamy, P. Zarka, B. Cecconi, P. Schippers, N. Andre, P. Louarn, D. Mitchell, J.S. Leisner, and M. Morooka, A close encounter with a Saturn kilometric radiation source region, in *Planetary Radio Emissions VII*, edited by H.O. Rucker, W.S. Kurth, P. Louarn, and G. Fischer, Österreichische Akademie der Wissenschaften, Wien, Austria, ISBN 978-3-7001-7152-6, pp.75-85, 2011.
- 11-25 **Melin, H., T. Stallard**, S. Miller, M.B. Lystrup, L.M. Trafton, T.C. Booth, C. Rivers, New limits on H3+ abundance on Neptune using Keck NIRSPEC, *Mon. Not. R. Astron. Soc.*, **410**, 641-644, 2011.
- 11-26 **Melin, H., T. Stallard**, S. Miller, L.M. Trafton, Th. Encrenaz, T.R. Geballe, Seasonal variability in the Ionosphere of Uranus, *Ap. J.*, **729**, doi:10.1088/0004-637X/729/2/134, 2011.
- 11-27 **Melin, H., T. Stallard**, S. Miller, J. Gustin, M. Galand, S.V. Badman, W.R. Pryor, J. O'Donoghue, R.H. Brown, and K.H. Baines, Simultaneous Cassini VIMS and UVIS observations of Saturn's southern aurora: Comparing emissions from H, H2 and H3+ at a high spatial resolution, *Geophys. Res. Lett.*, **38**, L15203, doi:10.1029/2011GL048457, 2011.
- 11-28 Meredith, N.P., R.B. Horne, **M.M. Lam**, M.H. Denton, J.E. Borovsky, and J.C. Green, Energetic electron precipitation during high-speed solar wind stream driven storms, *J. Geophys. Res.*, **116**, A05223, doi:10.1029/2010JA016293, 2011.
- 11-29 **Milan, S.E.**, and J.A. Slavin, An assessment of the length and variability of Mercury's magnetotail, *Planet. Space Sci.*, **59**, 2048-2065, doi:10.1016/j.pss.2001.05.007, 2011.
- 11-30 **Nichols, J.D.**, Magnetosphere-ionosphere coupling at Jupiter-like exoplanets with internal plasma sources: implications for detectability of auroral radio emissions, *Mon. Not. R. Astron. Soc.*, **414**, 2125-2138, doi:10.1111/j.1365-2966.2011.18528.x, 2011.
- 11-31 **Nichols, J.D.**, Magnetosphere-ionosphere coupling in Jupiter's middle magnetosphere: computations including a self-consistent current sheet magnetic field model. *J. Geophys. Res.*, **116**, A10232, doi:10.1029/2011JA016922, 2011.
- 11-32 Oksavik, K., J. Moen, E.H. Rekaa, H.C. Carlson, and **M. Lester**, Reversed flow events in the cusp ionosphere detected by SuperDARN, *J. Geophys. Res.*, **116**, A12303, doi:10.1029/2011JA016788, 2011.

- 11-33 **Provan, G., D.J. Andrews**, B. Cecconi, **S.W.H. Cowley**, M.K. Dougherty, L. Lamy, and P. Zarka, Magnetospheric period magnetic field oscillations at Saturn: Origin of equatorial phase ‘jitter’ through superposition of southern- and northern-period oscillations, *J. Geophys. Res.*, **116**, A04225, doi:10.1029/2010JA016213, 2011.
- 11-34 Pryor, W.R., A.M. Rymer, D.G. Mitchell, T.W. Hill, D.T. Young, J. Saur, G.H. Jones, S. Jacobsen, **S.W.H. Cowley**, B.H. Mauk, A.J. Coates, J. Gustin, D. Grodent, J.-C. Gérard, L. Lamy, **J.D. Nichols**, S.M. Krimigis, L.W. Esposito, M.K. Dougherty, A.J. Jouchoux, A.I.F. Stewart, W.E. McClintock, G.M. Holsclaw, J.M. Ajello, J.E. Colwell, A.R. Hendrix, F.J. Cray, J.T. Clarke, and X. Zhou, The Enceladus auroral footprint at Saturn, *Nature*, **472**, 331-333, 2011.
- 11-35 Radioti, A., D. Grodent, J.-C. Gérard, **S.E. Milan**, B. Bonford, J. Gustin, and W. Pryor, Bifurcations of the main auroral ring at Saturn: ionospheric signatures of consecutive reconnection events at the magnetopause, *J. Geophys. Res.*, **116**, A11209, doi:10.1029/2011JA016661, 2011.
- 11-36 Talboys, D.L., E.J. Bunce, **S.W.H. Cowley**, C.S. Arridge, A.J. Coates, and M.K. Dougherty, Statistical characteristics of field-aligned currents in Saturn’s nightside magnetosphere, *J. Geophys. Res.*, **116**, A04213, doi:10.1029/2009JA016102, 2011.
- 11-37 **Vickers, H.**, and **T.R. Robinson**, Observations of unusually broadened HF radar spectra from heater-induced artificial plasma irregularities, *J. Geophys. Res.*, **116**, A05301, doi:10.1029/2010JA015516, 2011.
- 11-38 Wild, J.A., E.E. Woodfield, E. Donovan, **R.C. Fear**, **A. Grocott**, **M. Lester**, A.N. Fazakerley, E. Lucek, A. Kadokura, K. Hosokawa, C. Carlson, J.P. McFadden, K.-H. Glassmeier, V. Angelopoulos, and G. Bjornsson, Midnight sector observations of auroral omega bands, *J. Geophys. Res.*, **116**, A00130, doi:10.1029/2010JA015874, 2011.
- 11-39 **Williams, A.O.**, N.J.T. Edberg, **S.E. Milan**, **M. Lester**, M. Franz, and J.A. Davies, Tracking solar wind structures from the Sun through to the orbit of Mars using ACE, MEX, VEX and STEREO, *J. Geophys. Res.*, **116**, A08103, doi:10.1029/2010JA015719, 2011.
- 11-40 Zhang, Q., Z. Beichen, R.-Y. Liu, M. Dunlop, M. Lockwood, J. Moen, H-G. Yang, H. Hu, Z.-J. Hu, I. McCrea, and **M. Lester**, On the importance of IMF  $|B_y|$  on polar cap patch formation, *J. Geophys. Res.*, **116**, A05308, doi:10.1029/2010JA016287, 2011.
- 11-41 Zhang, Q.-H., M.W. Dunlop, R.-Y. Liu, H.-G. Yang, H.-Q. Hu, B.-C. Zhang, **M. Lester**, Y.V. Bogdanova, I.W. McCrea, Z.-J. Hu, S.R. Crothers, C. La Hoz, and C.P. Nielsen, Coordinated Cluster/Double Star and ground-based observations of dayside reconnection signatures on 11 February 2004, *Ann. Geophysicae*, **29**, 1827-1847, 2011.

*Unrefereed research papers*

- 11-42 **Cowley, S.W.H.**, Book review: “Numerical Modeling of Space Plasma Flows: ASTRONUM-2009 (ASP Conference Series Vol. 429)” edited by N.V. Pogorelov, E. Audit, and G.P. Zank, *The Observatory*, **131**, 45-46, 2011.
- 11-43 **Davey, E.A.**, **M. Lester**, **S.E. Milan**, and **R.C. Fear**, Magnetic fields in a flap!, *Astron. & Geophys.*, **52**, 4.17-4.19, 2011.

- 11-44 **Hutchinson, J.A., D.M. Wright, S.E. Milan, A. Grocott,** and P. D. Boakes, A novel radar technique to study geomagnetic storms: superposed latitude-time-velocity plots, *Astron. & Geophys.*, **52**, 4.20-4.23, 2011.
- 11-45 Odzimek, A., M. Kubicki, **M. Lester,** and **A. Grocott,** Relation between the SuperDARN ionospheric potential and ground electric field at polar station Hornsund, *Proc. of XIV Int. Conf. on Atmos. Elec.*, Rio de Janeiro, Brazil, August 2011.
- 11-46 **Robinson, T.R.,** Book review, “Modern Plasma Physics Volume 1: Physical kinetics of turbulent plasmas”, by P. H. Diamond et al., *The Observatory*, Feb., 2011.

*Ph.D. and M.Phil. Theses*

- 11-47 **Kellett, S.,** Cassini observations of the ring current in Saturn’s magnetosphere, Ph.D. thesis, University of Leicester, 2011.
- 11-48 **Yuan, K.,** Investigations of ionospheric Alfvén resonators of both of the two hemispheres, Ph.D. thesis, University of Leicester, 2011.
- 11-49 **Andrews, D.J,** Planetary-period oscillations in Saturn’s magnetosphere, Ph.D. thesis, University of Leicester, 2011.