

List of Publications W. Jeffrey Hughes

- Hughes, W.J., The effect of two periodic conductivity anomalies on geomagnetic micropulsation measurements. *Geophys. J. R. Astr. Soc.* 31, 407, 1973.
- Hughes, W.J., The effect on micropulsations of a localized conductivity anomaly. *Geophys. J. R. Astr. Soc.*, 36, 641, 1974.
- Hughes, W.J., and Southwood, D.J., Effect of atmosphere and ionosphere on magnetospheric micropulsation signals. *Nature*, 248, 493, 1974.
- Hughes, W.J., On how the lithosphere, atmosphere and ionosphere affect magnetospheric micropulsations. Ph.D. Thesis, University of London, 1974.
- Hughes, W.J., The polarization of micropulsations and geoelectric structure. *Geophys. J. R. Astr. Soc.*, 38, 95, 1974.
- Hughes, W.J., The effect of the atmosphere and ionosphere on long period magnetospheric micropulsations. *Planet. Space Sci.*, 22, 1157, 1974.
- Hughes, W.J., and Wait, J.R., Effective wave tilt and surface impedance over a laterally inhomogeneous two-layer Earth. *Radio Science*, 10, 1001, 1975.
- Hughes, W.J., and Wait, J.R., Electromagnetic induction over a two-layer Earth with a sinusoidal overburden. *Pure App. Geophys.*, 113, 591, 1975.
- Hughes, W.J., and Southwood, D.J., The screening of micropulsation signals by the atmosphere and ionosphere. *J. Geophys. Res.*, V81, 3234, 1976.
- Hughes, W.J., and Southwood, D.J., An illustration of modification of geomagnetic pulsation structure by the ionosphere. *J. Geophys. Res.*, V81, 3241, 1976.
- Hughes, W.J., McPherron, and Russel, C.T., Multiple satellite observations of pulsation resonance structure in the magnetosphere. *J. Geophys. Res.*, V82, 492, 1977.
- Arthur, C.W., McPherron, R.L., and Hughes, W.J., A statistical study of pc3 magnetic pulsations at synchronous orbit, ATS 6. *J. Geophys. Res.*, V82, 1149, 1977.
- Hughes, W.J., Comment on: "Hydromagnetic Waves in a Non-Uniform Plasma," by E. Kupfer. *J. Geophys.*, 43, V829, 1977.
- Hughes, W.J., McPherron, R.L., and Barfield, J.N., Geomagnetic pulsations observed simultaneously on three geostationary satellites. *J. Geophys. Res.*, V83, 1109, 1978.
- Newton, R.S., Southwood, D.J., and Hughes, W.J., Damping of geomagnetic pulsations by the ionosphere. *Planet. Space Sci.*, 26, 201, 1978.

- Hughes, W.J., Southwood, D.J., Mauk, B.H., McPherron, R. L., and Barfield, J.N., Alfvén waves generated by an inverted plasma energy distribution. *Nature*, 275, 43, 1978.
- Southwood, D.J., and Hughes, W.J., Source induced vertical components in geomagnetic pulsation signals. *Planet Space Sci.*, 26, 715, 1978.
- Hughes, W.J., McPherron, R. L., and Barfield, J.N., Mauk, B.H., A compressional pc4 pulsation observed by three satellites in geostationary orbit near local midnight. *Planet Space Sci.*, 27, V841, 1979.
- Hughes, W.J., Multiple satellite studies of ULF waves. In *Proceedings of the International Workshop on Selected Topics of the Magnetospheric Physics*; Japanese IMS Committee, Tokyo, 1979.
- Mier-Jedrezejowicz, W.A.C. and Hughes, W.J., Phase skipping in pulsation signals. *J. Geophys. Res.*, V85, 6888, 1980.
- Hughes, W.J. Multisatellite observations of geomagnetic pulsations. *J. Geomag. Geoelec.*, 32, Suppl. II, SII41, 1980.
- Singer, H.J., Hughes, W.J., and Russell, C.T., Standing Alfvén waves observed by ISEE 1 and 2: Radial extent and harmonic. *J. Geophys. Res.*, V87, 3519, 1982.
- Nopper, R.W., Hughes, W.J., MacLennan, C.G., and McPherron, R.L., Impulse excited pulsations during the July 27, 1977 event. *J. Geophys. Res.*, V87, 5911, 1982.
- Hughes, W.J., Pulsation research during the I.M.S. *Rev. Geophys. Space Phys.*, 20, 641, 1982.
- Cowley, S.W.H., and Hughes, W.J., Observations of an I.M.F. effect in the Y magnetic field component at geostationary orbit. *Planet. Space Sci.*, 31, 73, 1983.
- Southwood, D.J., and Hughes, W.J., Theory of hydromagnetic waves in the magnetosphere. *Space Sci. Rev.*, 35, 301, 1983.
- Hughes, W.J., Hydromagnetic waves in the magnetosphere. *Rev. Geophys. Space Phys.*, 21, 508, 1983.
- Hughes, W.J., Waves in magnetospheric plasmas: Editorial. *Geophys. Res. Lett.* 10, 601, 1983.
- Singer, H.J., Hughes, W.J., Fougere, P.F., and Knecht, D. J., The localization of pi2 pulsations: Ground satellite observations. *J. Geophys. Res.*, V88, 7029, 1983.
- Hughes, W.J., Hydromagnetic waves in the magnetosphere, in *Solar-Terrestrial Physics: Principles and Theoretical Foundations* (R.L. Carovillano and J.M. Forbes, Eds.). D. Reidel, Dordrecht, 1983.
- Lester, M., Hughes, W.J., and Singer, H.J., Polarization patterns of pi2 magnetic pulsations and the substorm current wedge. *J. Geophys. Res.*, V88, 7958, 1983.
- Hughes, W.J., and Grad, R.J.L., A second-harmonic geomagnetic field line resonance at the inner edge of the plasma sheet; GEOS 1 ISEE 1 and ISEE 2 observations. *J. Geophys. Res.*, V89, 2755, 1984.
- Sutcliffe, P.R., Walker, A.D.M., Smits, D.P., Hughes, W.J., and Goertz, C., Magnetic signatures during the magnetospheric substorm of 27 July 1979. *S. Afr. J. Phys.*, 7, 7, 1984.

- Lester, M., Hughes, W.J., and Singer, H.J., Longitudinal structure in pi2 pulsations and the substorm current wedge. *J. Geophys. Res.*, V89, 5489, 1984.
- Takahashi, K., McPherron, R.L., and Hughes, W.J., Multispacecraft observations of azimuthally polarized pc 3-4 magnetic pulsations, *J. Geophys. Res.*, V89, 6758, 1984.
- Singer, H.J., Hughes, W.J., Russell, C.T., and Grad, R.J.L., Magnetospheric pulsations observed by ISSE 1 and 2 satellites. *Proc. Conf. Achievements of the IMS*, p. 619, ESA SP-217, Paris 1984.
- Lester, M., Hughes, W.J., and Singer, H.J., Pi2 pulsations and the substorm current wedge: ground observations. *Proc. Conf. Achievements of the IMS*, p. 673, ESA SP-217, Paris 1984.
- Singer, H.J., Knecht, D.J., Hughes, W.J., Gelpi, C., and Lester, M., Ground satellite observations of substorm related pi2 pulsations and current systems. *Proc. Conf. Achievements of the IMS*, p. 679, ESA SP-217, Paris 1984.
- Southwood, D.J., and Hughes, W.J., Concerning the structure of pi2 pulsations. *J. Geophys. Res.*, 90, 386, 1985.
- Daly, R.A., and Hughes, W.J., The effect of hydromagnetic waves on the shape of the plasmopause boundary. *J. Geophys. Res.*, 90, 537, 1985.
- Hughes, W.J., and Singer, H.J., Midlatitude pi2 pulsations, geosynchronous substorm onset signatures and auroral zone currents on 22 March 1979: CDAW-6 *J Geophys. Res.*, 90, 1297, 1985.
- Gelpi, C., Hughes, W.J., Singer, H.J., and Lester, M., Midlatitudes pi2 polarization pattern and synchronous orbit magnetic activity. *J. Geophys. Res.*, 90, 6451, 1985.
- Hughes, W.J. Smits, D.P., Cattell, C.A., and Russell, C.T., Multisatellite investigations of substorm onsets. *Adv. Space Res.*, 5, 159, 1985.
- Singer, H.J., Hughes, W.J., Gelpi, C., and Ledley, B.G., Magnetic disturbances in the vicinity of synchronous orbit and the substorm current wedge: a case study. *J. Geophys. Res.*, 90, 9583, 1985.
- Gelpi, C., Hughes, W.J., and Singer, H.J., Longitudinal phase and polarization characteristics in mid latitude pi2 pulsations. *J. Geophys. Res.*, 90, 9905, 1985.
- Smits, D.P., Hughes, W.J., Cattell, C.A., and Russell, C.T., Observations of field-aligned currents, waves and electric fields at substorm onset. *J. Geophys. Res.*, 91, 121, 1986.
- Edwin, P.M., Roberts, B., and Hughes, W.J., Dispersive ducting of MHD waves in the plasma sheet: A source of pi2 wave bursts. *Geophys. Res. Lett.*, 13, 373, 1986.
- Cowley, S.W.H., and Hughes, W.J., A definitive test of the Primdahl-Spangslev hypotheses concerning the nature of the solar wind-magnetosphere interactions. *Planet. Space Sci.*, 34, 745, 1986.
- Hughes, W.J., and Cowley, S.W.H., Observation of IMF associated magnetic field perturbations in the GSM X component at geostationary orbit, in *Solar Wind-Magnetosphere Coupling*, (Y. Kamide and J.A. Slavin, Eds.) p. 691, D. Reidel, Dordrecht, 1986.

- Murphy, N., Slavin, J.A., Baker, D.N., and Hughes, W.J., Enhancements of energetic ions associated with travelling compression regions in the deep geomagnetic tail. *J. Geophys. Res.*, 92, 64, 1987.
- Gelpi, C., Singer, H.J., and Hughes, W.J., A comparison of magnetic signatures and DMSP auroral images at substorm onset: 3 case studies. *J. Geophys. Res.*, 92, 2447, 1987.
- Gledhill, J.A., Dore, I.S., Goertz, C.K., Haggard, R., Hughes, W.J., Scourfield, M.W.J., Smits, D.P., Stoker, P.H., Sutcliffe, P.R., Wakerley, P.A., and Walker, A.D.M., A magnetospheric substorm observed at Sanae, Antarctica, *J. Geophys. Res.*, 92, 2461, 1987.
- Hughes, W.J., and Sibeck, D.G., On the three-dimensional structure of plasmoids, *Geophys. Res. Lett.*, 14, 636, 1987.
- Crowley, G., Hughes, W.J., and Jones, T.B., Observational evidence of cavity modes in the Earth's magnetosphere, *J. Geophys. Res.*, 92, 12,233, 1987.
- Hughes, W.J., Multisatellite observations of field-aligned current systems, *Adv. Space Res.*, V8, (9) 321, 1988.
- Ludlow, G.R., Cornilleau-Wehrin, N., Hughes, W.J., and Singer, H.J., Simultaneous Observation of a Pc1 Pulsation by the AFGL Magnetometer Network and GEOS 1, *J. Geophys. Res.*, 94, 6633, 1989.
- Slavin, J.A., Baker, D.N., Craven, J.D., Elphic, R.C., Fairfield, D.H., Frank, L.A., Galvin, A.B., Hughes, W.J., Manka, R.H., Mitchel, D.G., Richardson, I.G., Sanderson, T.R., Sibeck, D.J., Smith, E.J., and Zwickl, R.D., CDAW V8 observations of plasmoid signatures in the geomagnetic tail: An assessment, *J. Geophys. Res.*, 94, 15153, 1989.
- Lester, M., Singer, H.J., Smits, D.P., and Hughes, W.J., Pi2 pulsations and the substorm current wedge -- low latitude polarization, *J. Geophys. Res.*, 94, 17133, 1989.
- Kivelson, M.G., and Hughes, W.J., On the threshold for triggering substorms, *Planet. Sci.*, 38, 211, 1990.
- Moldwin, M.B., and Hughes, W.J., A 2 ½ dimensional magnetic field model of plasmoids, in *The Physics of Magnetic Flux Ropes*, (C.T. Russell, E.R. Priest, and L.C. Lee, Eds.), AGU Mono. Ser., v 58, p. 663, American Geophysical Union, Washington, DC, 1990.
- Hughes, W.J., Waves on the magnetopause and their signature on the ground, in *Report of the GEM Workshop on Ionospheric Signatures of Cusp, Magnetopause and Boundary Layer Processes*, (T.J. Rosenberg, Ed.), p. 33, Univ. Maryland, College Park, 1990.
- Mendillo, M., Baumgardner, J., Flynn, B., and Hughes, W.J., The extended sodium nebula of Jupiter, *Nature*, 348, 312, 1990.
- Ludlow, G.R., Hughes, J.W., Engebretson, M.J., Slavin, J.A., Sugirura, M., and Singer, H.J., Ion cyclotron waves near L=4.6: a ground-satellite correlation study, *J. Geophys. Res.*, 96, 1451, 1991.
- Moldwin, M.B., and Hughes, W.J., Plasmoids as magnetic flux ropes, *J. Geophys. Res.*, 96, 14051, 1991.
- Moldwin, M.B., and Hughes, W.J., Multisatellite observations of plasmoids: IMP V8 and ISEE 3, *Geophys. Res. Lett.*, 19, 1081, 1992.

- Basinka, E.W., Burke, W.J., Maynard, N.C., Hughes, W.J., Winningham, J.D., and Hanson, W.B., Small scale electrodynamics of the cusp with northward interplanetary magnetic field, *J. Geophys. Res.*, *97*, 6369, 1992.
- Moldwin, M.B., and Hughes, W.J., Plasmoid observations in the distant plasma sheet boundary layer, *Geophys. Res. Lett.*, *19*, 1911, 1992.
- Paranicas, C., Hughes, W.J., Singer, H.J., and Anderson, R.R., Banded electrostatic emissions observed by the CRRES plasma wave experiment, *J. Geophys. Res.*, *97*, 13889, 1992.
- Moldwin, M.B., and Hughes, W.J., On the formation and evolution of plasmoids: a survey of ISEE 3 Geotail data, *J. Geophys. Res.*, *97*, 19259, 1992.
- Singer, H.J., Hughes, W.J., and Anderson, R.R., Advances in substorm physics from CRRES, *Adv. Space Res.*, *13*, (4) 203, 1993.
- Moldwin, M.B., and Hughes, W.J., Geomagnetic substorm association of plasmoids, *J. Geophys. Res.*, *98*, V81, 1993.
- Ludlow, G.R., and Hughes, W.J., The ion cyclotron group delay for source regions near the plasmopause, *J. Geophys. Res.*, *98*, 7561, 1993.
- Hughes, W.J., (Editor), *Outstanding Questions in Geotail and Substorm Physics*, Report of the GEM Workshop on the Physics of the Tail and Substorms. Boston University, May 1993.
- Moldwin, M.B., and Hughes, W.J., Observations of earthward and tailward propagating flux rope plasmoids: Expanding the plasmoid model of geomagnetic substorms, *J. Geophys. Res.*, *99*, 183, 1994.
- Shodhan, S., Crooker, N.U., Hughes, W.J., and Siscoe, G. L., Heliospheric Current Sheet Inclinations predicted from source surface maps, *J. Geophys. Res.*, *99*, 2531, 1994.
- Greenspan, E.E., Burke, W.J., Rich, F.J., Hughes, W.J., and Heelis, R.A., DMSP F8 observations of the mid-latitude and low-latitude topside ionosphere near solar minimum, *J. Geophys. Res.*, *99*, 3817, 1994.
- Fraser, B.J., Singer, H.J., Hughes, W.J., Anderson, R.R., and Wygant, J.R., Electromagnetic ion cyclotron harmonic waves near the plasmopause, *Adv. Space Res.*, *5*, 255-258, 1994
- Hughes, W.J., Magnetospheric ULF Waves: A tutorial with a historical perspective, in *Solar Wind Sources of ULF Waves*, (M.J. Engbretson, K. Takahashi, and M. Scholer, Eds.), AGU Geophys. Mono. Ser., v81, p. 1, Am. Geophys. Un., 1994.
- Basinka, E.M., Burke, W.J., Maynard, N.C., Hughes, W.J., Knudsen, D.J., and Slavin, J.A., Electric and magnetic fluctuations at high latitudes in the dayside ionosphere during southward IMF, in *Solar Wind Sources of ULF Waves*, (M.J. Engbretson, K. Takahashi, and M. Scholer, Eds.), AGU Geophys. Mono. Ser., v81, p. 387, Am. Geophys. Un., 1994.
- Rasinkangas, Mursula, K., Kremser, G., Singer, H.J., Fraser, B.J., Korth, A., and Hughes, W.J., in *Solar Wind Sources of ULF Waves*, (M.J. Engbretson, K. Takahashi, and M. Scholer, Eds.), AGU Geophys. Mono. Ser., v81, p. 417, Am. Geophys. Un., 1994.

- Hughes, W.J., (Editor), *Strategies for the Tail and Substorm Campaign*, Report of the GEM Workshop on the Physics of the Tail and Substorms. Boston University, April 1994.
- Hughes, W.J., ULF Waves in the Cusp and Cleft: Signatures of Boundary Layer Processes, in *Physical Signatures of Magnetospheric Boundary Layer Processes*, (J.A. Holtet, and A. Egeland, Eds.) p. 349, Kluwer Acad. Pub., Dordrecht, 1994.
- Singer, H.J., and Hughes, W.J., Magnetic Field Observations of the Ring Current by CRRES, in *Proceedings of the International Conference on Magnetic Storms*, (Y. Kamide, Ed.) p. 33, Nagoya University Solar-Terrestrial Environment Laboratory, Nagoya, Japan, 1995.
- Hughes, W.J., The Magnetopause, Magnetotail, and Magnetic Reconnection, in *Introduction to Space Physics* (M.G. Kivelson and C.T. Russel, Eds.), pp. 227-287, Camb. Univ. Press., New York, 1995.
- Hughes, W.J., Engebretson, M.J., and Zesta, E., Ground Observations of Transient Cusp Phenomena: Initial Results from MACCS, in *Physics of the Magnetopause*, (P. Song, B.U.O. Sonnerup, and M.F. Thomsen, Eds.) AGU Geophys. Mono. Ser., v90, p. 427, Am. Geophys. Un., Washington DC. 1995.
- Engebretson, M.J., Hughes, W.J., Alford, J.L., Zesta, E., Cahill, L.J., Arnoldy, R.L., and Reeves, G.D., MACCS Observations of the Spatial Extent of Broadband ULF Magnetic Pulsations at Cusp/Cleft Latitudes, *J. Geophys. Res.*, *100*, 19371, 1995.
- Bristow, W.A., Sibeck, D.G., Jacquy, C., Greenwald, R.A., Sofko, G.J., Mukai, T., Yamamoto, T., Kokubun, S., Hughes, T.J., Hughes, W.J., Zesta, E., and Engebretson, M.J., Observations of Convection Vortices using the SuperDARN HF Radars, *J. Geophys. Res.*, *100*, 19743, 1995.
- Angelopoulos, V., Mitchell, D.G., Williams, D.J., McEntire, R.W., Lui, A.T.Y., Decker, R.B., Krimigis, S.M., Roelof, E.C., Christon, S.P., Kokubun, S., Yamamoto, T., Hughes, W.J., Samson, J.C., Friis-Christensen, E., and Hayashi, K., Growth and Evolution of a Plasmoid Associated with a Small, Isolated Substorm: IMP8 and GEOTAIL Measurements in the Magnetotail, *Geophys. Res. Lett.*, *22*, 3011, 1995.
- Maynard, N.C., Burke, W.J., Basinka, E.M., Erickson, G.M., Hughes, W.J., Singer, H.J., Yahnin, A., Hardy, D.A., and Mozer, F.S., Dynamics of the inner magnetosphere near times of substorm onsets, *J. Geophys. Res.*, *101*, 7705, 1996.
- Chi, P.J., Russell, C.T., Le, G., Hughes, W.J., and Singer, H.J., A synoptic Study of Pc 3, 4 Waves using the Air Force Geophysics Laboratory Magnetometer Array, *J. Geophys. Res.*, *101*, 13215, 1996.
- Angelopoulos, V., Lui, A.T.Y., McEntire, R.W., Williams, D.J., Christon, S.P., Nakamura, M., Kusaka, H., Mukai, T., Kokubun, S., Yamamoto, T., Reeves, G.D., Friis-Christensen, E., and Hughes, W.J., Anisotropy reversals in the distant magnetotail and their association with magnetospheric substorms, *J. Geomag. Geoelectr.*, *48*, 629, 1996.
- Fraser, B.J., Singer, H.J., Hughes, W.J., Wygant, J.R., Anderson, R.R., and Hu, Y.D., CRRES Pointing vector observations of electromagnetic ion cyclotron waves near the plasmopause, *J. Geophys. Res.*, *101*, 15331, 1996.
- Angelopoulos, V., Mitchell, D.G., McEntire, R.W., Williams, D.J., Lui, A.T.Y., Krimigis, S.M., Decker, R.B., Christon, S.P., Kokubun, S., Yamamoto, T., Saito, Y., Mukai, T., Mozer, F.S., Tsuruda, K.,

- Lepping, R., Reeves, G., Hughes, W.J., Friis-Christensen, E., and Troshichev, O., Tailward progression of magnetotail acceleration centers: relationship to substorm current wedge, *J. Geophys. Res.*, *101*, 24599, 1996.
- Hughes, W.J., and Engebretson, M.J., MACCS: Magnetometer Array for Cusp and Cleft Studies, in *Satellite Ground Based Coordination Sourcebook*, (M. Lockwood, H.J. Opgenoorth, M.N. Wild, and R. Stamper, Eds.) p.119, ESA-SP-1198, European Space Agency, Noordwijk, The Netherlands, 1997.
- Spence, H.E., A.M. Jorgensen, W.J. Hughes, J.F. Fennell, and J.L. Roeder, Towards Inner Magnetosphere Particle and Field Models, *Adv. Space Res.*, *20*, (3) 427, 1997.
- Dyrud, L.P., M.J. Engebretson, J.L. Posch, W.J. Hughes, H. Fukunishi, R.L. Arnoldy, P.T. Newell, and R.B. Horne, Ground Observations and Possible Source Regions of Two Types of Pc 1-2 micropulsations at very high latitudes, *J. Geophys. Res.*, *102*, 27011, 1997.
- Hughes, W.J., Book Review: *Physics of Solar System Plasmas*, by T.E. Cravens, EOS, *Trans. Am. Geophys. Un.*, *79*, 251, 1998.
- Szuberla, C.A.L., J.V. Olson, M.J. Engebretson, B.J. Fraser, S. Ables, and W.J. Hughes, Interstation Pc3 coherence at cusp latitudes, *Geophys. Res. Lett.*, *25*, 2381, 1998.
- Engebretson, M.J., K.-H. Glassmeier, M. Stellmacher, W.J. Hughes, and H. Luhr, The dependence of high-latitude Pc5 wave power on solar wind velocity and on the phase of high-speed solar wind streams, *J. Geophys. Res.*, *103*, 26271, 1998.
- Posch, J.L., M.J. Engebretson, A.T. Weatherwax, D.L. Detrick, W.J. Hughes, and C.G. MacLennan, Characteristics of broadband ULF magnetic pulsations at conjugate cusp latitude stations, *J. Geophys. Res.*, *104*, 311, 1999.
- Huang, C.-S., G.J. Sofko, D. Murr, W.J. Hughes, and T. Moretto, High-latitude ionospheric convection during strong interplanetary magnetic field B_y , *Geophys. Res. Lett.*, *26*, 405, 1999.
- Ohtani, S., G. Rostoker, K. Takahashi, V. Angelopoulos, M. Nakamura, C. Waters, H.J. Singer, S. Kokubun, K. Tsuruda, W.J. Hughes, T.A. Potemra, L.J. Zanetti, J.B. Gary, A.T.Y. Lui, and D.J. Williams, Coordinated ISTP satellite and ground observations of morningside Pc5 waves, *J. Geophys. Res.*, *104*, 2381, 1999.
- Lyatsky, W.B., G.J. Sofko, A.V. Kustov, D. Andre, W.J. Hughes, and D. L. Murr, Traveling convection vortices as seen by the SuperDARN HF radars, *J. Geophys. Res.*, *104*, 2591, 1999.
- Shiokawa, K., R.R. Anderson, I.A. Daglis, W.J. Hughes, and J.R. Wygant, Simultaneous DMSP and CRRES observations of broadband electrons during a storm-time substorm on March 25, 1991. *Phys. Chem. Earth (C)*, *24*, 281, 1999.
- Pilipenko, V.A., S.L. Shalimov, E.N. Fedorov, M.J. Engebretson, and W.J. Hughes, Coupling between field-aligned current impulses and Pi1 noise bursts, *J. Geophys. Res.*, *104*, 17419, 1999.
- Takahashi, K., W.J. Hughes, R.R. Anderson, and S.I. Solov'yev, CRRES Satellite Observations associated with low latitude Pi2 pulsations, *J. Geophys. Res.*, *104*, 17431, 1999.

- Engebretson, M.J., D.L. Murr, W.J. Hughes, H. Luhr, T. Moretto, J.L. Posch, A.T. Weatherwax, T.J. Rosenberg, C.G. MacLennan, L.J. Lanzerotti, F. Marcucci, S. Dennis, G. Burns, J. Bitterly, and M. Bitterly. A multipoint determination of the propagation velocity of a sudden commencement across the polar ionosphere. *Journal of Geophysical Research*, 104, A10, 22433, 1999.
- Pilipenko, V., E. Fedorov, N. Mazur, M.J. Engebretson, and W.J. Hughes. Magnetohydrodynamic waveguide/resonator for Pc3 ULF pulsations at cusp latitudes. *Earth Planets Space*, 51, 441, 1999.
- Solovyev, S.I., D.G. Baishev, E.S. Barkova, M.J. Engebretson, J.L. Posch, W.J. Hughes, K. Yumoto, and V.A. Pilipenko. Structure of disturbances in the dayside and nightside ionosphere during periods of negative interplanetary magnetic field B_z . *Journal of Geophysical Research*, 104, A12, 28019, 1999.
- Zesta, E., W.J. Hughes, M.J. Engebretson, T.J. Hughes, A.J. Lazarus., and K.I. Paularena. The November 9, 1993 traveling convection vortex event: A case study. *Journal of Geophysical Research*, 104, A12 28041, 1999.
- Slinker, S.P., J.A. Fedder, W.J. Hughes, J.G. Lyon. Response of the ionosphere to a density pulse in the solar wind: simulation of traveling convection vortices. *Geophysical Research Letters*, 26, 23, 3549, 1999.
- Huang, Chao-Song, D. Murr, G.J. Sofko, W.J. Hughes, T. Moretto. Ionospheric convection response to changes of interplanetary magnetic field B_z component during strong B_y component. *Journal of Geophysical Research*, 105, A3, 5231, 2000.
- Pi, Xiaoqing, M. Mendillo, W.J. Hughes, M.J. Bounsanto, D.P. Sipler, J. Kelly, Qihou Zhou, Gang Lu, and T.J. Hughes. Dynamical effects of geomagnetic storms and substorms in the middle-latitude ionosphere: An observational campaign. *Journal of Geophysical Research*, 105, A4, 7403, 2000.
- Szuberla, C.A.L., J.V. Olson, M.J. Engebretson, M.G. McHarg, and W.J. Hughes, Spatiotemporal characteristics of cusp latitude spectra. *Journal of Geophysical Research*, 105, A4, 7695, 2000.
- Huang, Chao-Song, G.J. Sofko, A.V. Kustov, J.W. MacDougall, D.A. Andre, W.J. Hughes, V.O. Papitashvili. Quasi-periodic ionospheric disturbances with a 40-min period during prolonged northward magnetic field *Geophysical Research Letters*, 27, 12, 1795, 2000.
- Murr, D.L., and W.J. Hughes, Reconfiguration Timescales of Ionospheric Convection, *Geophysical Research Letters*, 28, 2145, 2001.
- Ober, D.M., N.C. Maynard, W.J. Burke, W.K. Peterson, J.B. Sigwarth, L.A. Frank, J.D. Scudder, W.J. Hughes, and C.T. Russell, Electrodynamics of the poleward auroral border observed by Polar during a substorm on April 22, 1998, *Journal of Geophysical Research*, 106, 5927, 2001.
- Huang, C.-S., G.J. Sofko, A.V. Koustov, J.W. MacDougall, R.A. Greenwald, J.M. Ruohoniemi, J.P. Villain, M. Lester, J. Watermann, V.O. Papitashvili, and W.J. Hughes, Long-Period magnetospheric-ionospheric perturbations during northward interplanetary magnetic field, *Journal of Geophysical Research*, 106, 13,091, 2001.
- Takahashi, K., S. Ohtani, W.J. Hughes, and R.R. Anderson, CRRES observation of Pi2 pulsations: Wave-mode inside and outside the plasmasphere, *Journal of Geophysical Research*, 106, 15567, 2001. (Correction: v106, 29945, 2001)

- Lyatsky W., L.L. Cogger, B. Jackel, A.M. Hamza, W.J. Hughes, D. Murr, and O. Rasmussen, Substorm development as observed by Interball UV imager and 2-D magnetic array, *Journal of Atmospheric and Solar-Terrestrial Physics*, 63, 1609-1621, 2001
- Khan, H., S.W.H. Cowley, E. Kolesnikova, M. Lester, M.J. Brittacher, T.J. Hughes, W.J. Hughes, W.S. Kurth, D.J. McComas, L. Newitt, C.J. Owen, G.D. Reeves, H.J. Singer, C.W. Smith, D.J. Southwood, and J.F. Watermann, Observations of two complete substorm cycles during the Cassini Earth swing-by: Cassini magnetometer data in a global context, *Journal of Geophysical Research*, 106, 30141-30175, 2001
- Denton R.E., M.R. Lessard, R. Anderson, E.G. Miftakhova, and W.J. Hughes, Determining the mass density along magnetic field lines from toroidal eigenfrequencies: Polynomial expansion applied to CRRES data, *Journal of Geophysical Research*, 106, 29915-29924, 2001
- Murr, D. L., W.J. Hughes, A.S. Rodger, E. Zesta, H.U. Frey, and A.T. Weatherwax, Conjugate Observations of Traveling Convection Vortices: The Field Aligned Current System, *J. Geophys. Res.*, 107, doi:10.1029/2002JA009456, 2002.
- Zesta, E., W.J. Hughes, and M.J. Engebretson, A Statistical Study of Traveling Convection Vortices using MACCS, *J. Geophys. Res.*, 107, 1317, doi:10.1029/1999JA000386, 2002.
- Posch, J.L., M.J. Engebretson, V.A. Pilipenko, W.J. Hughes, C.T. Russell, and L.J. Lanzerotti, Characterizing the Long-period ULF response to Magnetic Storms, *Journal of Geophysical Research*, 108(A1), 1029, doi:10.1029/2002JA009386, 2003.
- Murr, D.L., and W.J. Hughes, Solar Wind Drivers of Traveling Convection Vortices, *Geophysical Research Letters*, 30(7), 1354, doi:10.1029/2002GL015498, 2003.
- Takahashi, K., D.-H. Lee, M. Nose, R.R. Anderson, and W.J. Hughes, CRRES electric field study of the radial mode structure of Pi2 pulsations, *Journal of Geophysical Research*, 108(A5), 1210, doi:10.1029/2002JA009761, 2003.
- Engebretson, M.J., J.L. Posch, and W.J. Hughes, Nonconjugate ULF Wave Power Observed by Ground Magnetometers in the Northern and Southern Dayside Cusp/Cleft/LLBL Regions, in *Earth's Low Latitude Boundary Layer*, (P.T. Newell, and T. Onsager, Eds.) AGU Geophys. Mono. Ser., v133, p. 223, American Geophys. Union, Washington DC. 2003.
- Shields, D.W., E.A. Bering III, A. Alaniz, S.E.M. Mason, W. Guo, R.L. Arnoldy, M.J. Engebretson, W.J. Hughes, D.L. Murr, L.J. Lanzerotti, and C.G. MacLennan, Multistation Studies of the simultaneous occurrence rate of Pc3 micropulsations and magnetic impulse events, *Journal of Geophysical Research*, 108(A6), 1225, doi:10.1029/2002JA009397, 2003
- Takahashi, K., R.R. Anderson, and W.J. Hughes, Pi2 pulsations with second harmonic: CRRES observations in the plasmasphere, *Journal of Geophysical Research*, 108(A6), 1242, doi:10.1029/2003JA009847, 2003.
- Takahashi, K., R.E. Denton, R.R. Anderson, W.J. Hughes, Frequencies of standing Alfvén wave harmonics and their implication for plasma mass distribution along geomagnetic field lines: Statistical analysis of CRRES data, *Journal of Geophysical Research*, 109(A8), A08202, doi:10.1029/2003JA010345, 2004.

- Hughes, W.J., and M.K. Hudson, Towards an integrated model of the space weather system, *J. Atmos. Solar-Terr Phys*, 66, 1241-1517, 2004
- Guild, T., H. Spence, L. Kepko, M. Wiltberger, C. Goodrich, J. Lyon and W.J. Hughes, Plasma sheet climatology: Geotail observations and LFM model comparisons, *J. Atmos. Solar-Terr Phys*, 66, 1351-1360, 2004
- Siscoe, G.L., D.N. Baker, R. Weigel, W.J. Hughes, and H.E. Spence, Roles of empirical modeling within CISM, *J. Atmos. Solar-Terr Phys*, 66, 1481-1489, 2004
- Jorgensen, A.M., H.E. Spence, W.J. Hughes, and H.J. Singer, A statistical study of the global structure of the ring current, *Journal of Geophysical Research*, 109(12), A12204, doi:10.1029/2003JA010090, 2004.
- Denton, R.E., K. Takahashi, I. A. Galkin, P. A. Nsumei, X. Huang, B. W. Reinisch, R. R. Anderson, M. K. Sleeper, and W. J. Hughes, The distribution of density along magnetospheric field lines, *J. Geophys. Res.*, in press, 2006.