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EDUCATION

- 1970 PhD in Meteorology, University of California, Los Angeles
 Thesis: Geomagnetic Crochets and Ionospheric Tidal Winds
- 1965 BS in Physics, University of California, Los Angeles

EMPLOYMENT

- 1983 - present Scientist, NCAR
- 1980 - 1983 Physicist, Space Environment Laboratory,
 National Oceanic and Atmospheric Administration (NOAA)
- 1976 - 1980 NRC-NOAA Senior Resident Research Associate
 and CIRES Research Associate, NOAA Space Environment Laboratory
- 1972 - 1973 &
1974 - 1976 Visiting Scientist, NCAR High Altitude Observatory
- 1973 - 1974 NATO Postdoctoral Fellow in Science,
 Laboratoire de Physique de l'Exosphère, Université Paris VI
- 1971 - 1972 NRC-AFSC Resident Research Associate,
 Air Force Cambridge Research Laboratories
- 1970 - 1971 Assistant Research Meteorologist,
 Department of Meteorology, University of California, Los Angeles

PROFESSIONAL SERVICE

- 2007 - 2009 Member, NASA Living With a Star TR&T Steering Committee
- 2006 - 2008 Aeronomy Secretary, Space Physics and Aeronomy section,
 American Geophysical Union (AGU)
- 2002 - 2005 Senior Editor, Journal of Geophysical Research - Space Physics
- 2002 - 2006 Member, Climate And Weather of the Sun-Earth System Science Steering
 Committee, Scientific Committee on Solar-Terrestrial Physics (SCOSTEP)
- 2000 - 2003 Member, Coupling, Energetics, and Dynamics of Atmospheric Regions
 (CEDAR) Science Steering Committee
- 1998 - 2004 Member, Science and Technology Definition Team,
 NASA Geospace Electrodynamics Connections mission
- 1997 - 2001 Associate Editor, Journal of Geophysical Research
- 1994 - 1996 Member, Scientific Advisory Committee,
 European Incoherent Scatter Scientific Association
- 1993 - 1996 Member, Committee on Solar and Space Physics
 National Research Council (NRC)

- 1993 - 1997 Associate Editor, Journal of Geomagnetism and Geoelectricity
- 1991 - 1999 Scientific Discipline Representative, Scientific Committee on Solar-Terrestrial Physics (SCOSTEP)
- 1991 - 1995 Chairman, Division II on Aeronomic Phenomena
International Association of Geomagnetism and Aeronomy (IAGA)
- 1989 - 1995 Member, Comité français “Anneé de l’électrojet équatorial”
- 1988 - 1990 Member, Steering Committee for Geospace Environmental Modeling (GEM)
- 1987 - 1991 Co-Chairman, IAGA Division II on Aeronomic Phenomena
- 1986 Co-Organizer, International Symposium on Large-Scale Processes in the Ionosphere-Thermosphere System
- 1982 - 1985 Member, NRC Committee on Solar-Terrestrial Research
- 1979 - 1983 Reporter on Structure and Dynamics of the Thermosphere, IAGA Division II
- 1979 - 1981 Associate Editor, Journal of Geophysical Research

HONORS

- 2010 Mentoring Award, University Corporation for Atmospheric Research
- 2009 AGU Nicolet Lecture, “Upper Atmosphere Response to the Magnetosphere”
- 2001 Fellow, American Geophysical Union
- 1989 CEDAR Prize Lecture
“Assimilative Mapping of Ionospheric Electrodynamics”
- 1986 Japan Society for the Promotion of Science Fellowship
- 1985 NOAA Environmental Research Laboratories Distinguished Authorship,
“Thermospheric Dynamics and Electrodynamics”

PROFESSIONAL AFFILIATIONS

American Geophysical Union

American Meteorological Society

American Association for the Advancement of Science

PUBLICATIONS

1. Richmond, A.D., Relation of the westward drift of the geomagnetic field to the rotation of the earth's core, *J. Geophys. Res.*, *74*, 3013-3018, 1969.
2. Richmond, A.D., Geomagnetic crochets and ionospheric tidal winds, Ph.D. thesis, UCLA Dept. of Meteorology, 1970.
3. Richmond, A.D., Tidal winds at ionospheric heights, *Radio Sci.*, *6*, 175-189, 1971.
4. Richmond, A.D., and S.V. Venkateswaran, Geomagnetic crochets and associated ionospheric current systems, *Radio Sci.*, *6*, 139-164, 1971.
5. Richmond, A.D., Numerical model of the equatorial electrojet, AFCRL Rept. No. 72-0668, 1972.
6. Schieldge, J.P., S.V. Venkateswaran, and A.D. Richmond, The ionospheric dynamo and equatorial magnetic variations, *J. Atmos. Terr. Phys.*, *35*, 1045-1061, 1973.
7. Richmond, A.D., Equatorial electrojet - I. Development of a model including winds and instabilities, *J. Atmos. Terr. Phys.*, *35*, 1083-1103, 1973.
8. Richmond, A.D., Equatorial electrojet - II. Use of the model to study the equatorial ionosphere, *J. Atmos. Terr. Phys.*, *35*, 1105-1118, 1973.
9. Rush, C.M., and A.D. Richmond, The relationship between the structure of the equatorial anomaly and the strength of the equatorial electrojet, *J. Atmos. Terr. Phys.*, *35*, 1171-1180, 1973.
10. Richmond, A.D., Self-induced motions of thermal plasma in the magnetosphere and the stability of the plasmopause, *Radio Sci.*, *8*, 1019-1027, 1973.
11. Richmond, A.D., The computation of magnetic effects of field-aligned magnetospheric currents, *J. Atmos. Terr. Phys.*, *36*, 245-252, 1974.
12. Richmond, A.D., Energy relations of atmospheric tides and their significance to approximate methods of solution for tides with dissipative forces, *J. Atmos. Sci.*, *32*, 980-987, 1975.
13. Richmond, A.D., and S. Matsushita, Thermospheric response to a magnetic substorm, *J. Geophys. Res.*, *80*, 2839-2850, 1975.
14. Fambitakoye O., P.N. Mayaud, and A.D. Richmond, Equatorial electrojet and regular daily variation S_R - III. Comparison of observations with a physical model, *J. Atmos. Terr. Phys.*, *38*, 113-121, 1976.
15. Gagnepain, J., M. Crochet, and A.D. Richmond, Theory of longitudinal gradients in the equatorial electrojet, *J. Atmos. Terr. Phys.*, *38*, 279-286, 1976.

16. Richmond, A.D., Electric field in the ionosphere and plasmasphere on quiet days, *J. Geophys. Res.*, *81*, 1447-1450, 1976.
17. Richmond, A.D., S. Matsushita, and J.D. Tarpley, On the production mechanism of electric currents and fields in the ionosphere, *J. Geophys. Res.*, *81*, 547-555, 1976.
18. Gagnepain, J., M. Crochet, and A.D. Richmond, Comparison of equatorial electrojet models, *J. Atmos. Terr. Phys.*, *39*, 1119-1124, 1977.
19. Paul, M.P., S. Matsushita, and A.D. Richmond, Ionospheric storm of 4-5 August 1972 in the Asia-Australia-Pacific sector, *J. Atmos. Terr. Phys.*, *39*, 43-50, 1977.
20. Lyons, L.R., and A.D. Richmond, Low-latitude, E-region ionization by energetic ring current particles, *J. Geophys. Res.*, *83*, 2201-2204, 1978.
21. Richmond, A.D., The nature of gravity wave ducting in the thermosphere, *J. Geophys. Res.*, *83*, 1385-1389, 1978.
22. Richmond, A.D., Gravity wave production, propagation, and dissipation in the thermosphere, *J. Geophys. Res.*, *83*, 4131-4145, 1978.
23. Roble, R.G., A.D. Richmond, W.L. Oliver, and R.M. Harper, Ionospheric effects of the gravity wave launched by the September 19, 1974 sudden commencement, *J. Geophys. Res.*, *83*, 999-1009, 1978.
24. Kroehl, H.W., and A.D. Richmond, Magnetic substorm characteristics described by magnetic potential maps for 26-28 March 1976, in *Dynamics of the Magnetosphere*, (S.-I. Akasofu, ed.), D. Reidel Publishing Company, Hingham, Massachusetts, 269-286, 1979.
25. Marriott, R.T., A.D. Richmond, and S.V. Venkateswaran, The quiet-time equatorial electrojet and counter-electrojet, *J. Geomag. Geoelec.*, *31*, 311-340, 1979.
26. Richmond, A.D., Large-amplitude gravity wave energy production and dissipation in the thermosphere, *J. Geophys. Res.*, *84*, 1880-1890, 1979.
27. Richmond, A.D., Thermospheric heating in a magnetic storm: Dynamic transport of energy from high to low latitudes, *J. Geophys. Res.*, *84*, 5259-5266, 1979.
28. Richmond, A.D., Ionospheric wind dynamo theory: A review, *J. Geomag. Geoelec.*, *31*, 287-310, 1979.
29. Richmond, A.D., and R.G. Roble, Dynamic effects of aurora-generated gravity waves on the midlatitude ionosphere, *J. Atmos. Terr. Phys.*, *41*, 841-852, 1979.
30. Richmond, A.D., H.W. Kroehl, M.A. Henning, and Y. Kamide, Magnetic potential plots over the northern hemisphere for 26-28 March 1976, in *World Data Center A for Solar Terrestrial Physics, Report UAG-71*, NOAA, National Geophysical Data Center, Boulder, Colorado, 115 pp., 1979.

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34. Roble, R.G., and A.D. Richmond, The earth's thermosphere, in *Space Science-Solar Wind and Geomagnetic Field* (S.-I. Akasofu and Y. Kamide, eds.), Nihon Keizai Shimbun, Tokyo, 100-111, 1981.
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36. Kamide, Y., and A.D. Richmond, Ionospheric conductivity dependence of electric fields and currents estimated from ground magnetic observations, *J. Geophys. Res.*, *87*, 8331-8337, 1982.
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39. Kamide, Y., and A.D. Richmond, Estimation of electric fields and currents from ground-based magnetometer data, in *Magnetospheric Currents*, (T.A. Potemra, ed.), American Geophysical Union, Washington, D.C., 67-76, 1983.
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- contributions by U.S. scientists from 1979 to 1982, *Rev. Geophys. Space Phys.*, *21*, 234-241, 1983.
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 48. Richmond, A.D., Upper atmospheric electric field sources, in *The Atmospheric Electrical Environment*, National Research Council, Washington, D.C., 195-205, 1986.
 49. Kamide, Y., and A.D. Richmond, Comment on "Ionospheric convection associated with discrete levels of particle precipitation," *Geophys. Res. Lett.*, *14*, 158-159, 1987.
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 51. Richmond, A.D., The ionosphere, in *The Solar Wind and the Earth*, (S.-I. Akasofu and Y. Kamide, eds.), Terra Scientific Publishing Company, Tokyo, 123-140, 1987.
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 53. Ahn, B.-H., E. Friis-Christensen, D.J. Gorney, Y. Kamide, H.W. Kroehl, P.F. Mizera, A.D. Richmond, C.G. Sucksdorf, and C.D. Wells, Numerical modeling of polar ionospheric electrodynamics for July 23-24, 1983 utilizing ionospheric

conductances deduced from DMSP X-ray images, in *World Data Center A for Solar-Terrestrial Physics, Report UAG-97*, NOAA, National Geophysical Data Center, Boulder, Colorado, 133 pp., 1988.

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83. Knipp, D.J., B.A. Emery, A.D. Richmond, and M.R. Hairston, Mapping ionospheric convection response to IMF B_y negative and B_z positive conditions, *J. Atmos. Terr. Phys.*, *56*, 223-235, 1994.
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- W.F. Denig, H.W. Kroehl, L.R. Lyons, J.M. Ruohoniemi, E. Friis-Christensen, H. Opgenoorth, M.A.L. Persson, R.P. Lepping, A.S. Rodger, T. Hughes, A. McEwin, S. Dennis, R. Morris, G. Burns, and L. Tomlinson, Interhemispheric asymmetry of the high-latitude ionospheric convection pattern, *J. Geophys. Res.*, *99*, 6491-6510, 1994.
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