

UCAR Trustee Candidate Robert E. Dickinson

The Nominating Committee is pleased to nominate Robert Dickinson for the UCAR Board of Trustees. Dr. Dickinson would bring to the Board a balanced and well-informed perspective rooted in significant experience at both NCAR and universities, as well as national and international leadership and service.



Dr. Dickinson's scientific career has been primarily focused on improving our understanding of land surface/atmosphere interactions and, most recently, the use of satellite data to advance that topic. He has been actively engaged in the use and development of NCAR models over many years. Dr. Dickinson is a recipient of our field's highest awards, including the Meisinger, Charney, and Rossby Awards from the AMS and the AGU's Reville Medal. His broad background will be especially valuable on the Board as NCAR strives to embrace an Earth systems approach, while maintaining core strength and excellence in the atmospheric sciences.

Dr. Dickinson's distinguished scientific contributions are accompanied by a remarkable record of service to the atmospheric science community, including recent leadership roles at AAAS, AGU (as president 2002-2004), the American Institute of Physics, CLIVAR, and the National Research Council. This experience highly recommends him as a member of the Board.

PERSONAL STATEMENT

I have been close to NCAR programs for 40 years, 22 of which I was a scientist there. Much of what I do now, which involves climate modeling and the role of land in climate models, was initiated and shaped while at NCAR. I have worked closely with NCAR scientists since leaving to promote the success of the community climate modeling activities. For nearly a decade I worked toward the development of the more advanced land surface model that is now used as part of the Community Climate System Model.

My current research programs funded by NASA, DOE, and NSF has largely been focused on various aspects of improving the understanding and data used for this land component. Through my recent service as President of the American Geophysical Union, and through other community activities I have continued to increase my familiarity with the wide range of activities involved in scientific research and gained a better recognition

of the most urgent and pressing issues facing institutions and national and international science.

Through service on the UCAR board, I would be able to further contribute to the continued strength of NCAR.

BIOGRAPHICAL INFORMATION

Education

1966 Ph.D: Meteorology, Massachusetts Institute of Technology

1962 MS: Meteorology, Massachusetts Institute of Technology

1961 BA: Chemistry and Physics, Harvard University

Professional Positions

2000- : Endowed Chair, Georgia Power/Georgia Research Alliance

1999- : Professor, Georgia Institute of Technology, Atlanta, GA

1993-1999: Regents Professor, University of Arizona, Tucson, AZ

1990-1993: Professor, University of Arizona, Tucson, AZ

1968-1990: Scientist, National Center for Atmospheric Research, Boulder, CO

1966-1968: Research Associate, Massachusetts Institute of Technology, Cambridge, MA

Honors and Awards

2004: Honorary Membership in European Geosciences Union (EGU)

2003: ISI Web of Knowledge List, *ISI HighlyCited.com*

2002: Honorary Membership in the European Geophysical Society (EGS)

2002: Member, National Academy of Engineering

1996: Roger Revelle Medal, American Geophysical Union

1996: Rossby Award, American Meteorological Society

1995: G. Unger Vetlesen, Lamont-Doherty Earth Observatory of Columbia University

1992: Physics Distinguished Achievement Award for Outstanding Publication Contribution

1988: Jule G. Charney Award, American Meteorological Society

1988: Member, National Academy of Science

1987: Fellow, American Geophysical Union

1984: Fellow, American Association for the Advancement of Science

1973: Meisinger Award, American Meteorological Society

Professional Organizations and Committees

2002-2004: President - American Geophysical Union; 2000-2002: President-elect

2004-2007: American Institute of Physics (AIP) Governing Board, Member of Audit Committee

2004: Member, LTER National Advisory Board

2004: Chair, External Advisory Committee, Center for Ocean-Land-Atmosphere Studies (COLA)

2002: Oak Ridge National Laboratory - Global Change Research Advisory Panel

2001: Co-Chair, The Global Carbon Project, An IGBP-IHDP- WCRP Joint Project

2001-2002: Chair, Atmospheric and Hydrospheric Sciences Section, AAAS

2001-2002: Co-Chair, Programme on Climate Variability and Predictability (CLIVAR)

2001-2002: Member, Committee on the Science of Climate Change, National Research Council

2000: Chair, Center for Clouds, Chemistry and Climate External Advisory Panel

Recent Selected Publications:

2005

- Dickinson, R.E., K.W. Oleson, G. Bonan, F. Hoffman, P. Thornton, M. Vertenstein, Z-L. Yang, and X. Zeng, 2005. The Community Land Model and Its Climate Statistics as a Component of the Community Climate System Model. Submitted for JCLI CCSM special issue.
- Jin, M, R. E. Dickinson, D-L. Zhang, 2005: the Footprint of Urban Areas on Global Climate as Characterized by MODIS. *J. Clim.* **18**, 1551-1565.
- Gao, F., C.B. Schaaf, A. H. Strahler, A. Roesch, W. Lucht, and R. Dickinson, 2005: MODIS bidirectional reflectance distribution function and albedo Climate Modeling Grid products and the variability of albedo for major global vegetation types. *JGR*, **110**, D11041, doi:10.1029/2005-JD005190.
- Wang, Z., M. Barlage, Z., Zeng, R. Dickinson, and C. Schaaf, 2005: The solar zenith angle dependence of desert albedo. *GRL*, **32**, 105403, doi: 10.1029/2004GL021835.
- Yu, H., R. Fu, R.E. Dickinson, Y. Zhang, M. Chen, and H. Wang, 2005. Influences of Smoke on Warm Clouds over the Amazon as Inferred from MODFIS Retrievals and their Interactions with Dynamics and Thermodynamics. Submitted to *JGR – Atmos.*

2004

- Dai, Y., R. E. Dickinson, and Y.-P. Wang, 2004: A two-big-leaf model for canopy temperature, photosynthesis and stomatal conductance. *J. Clim* **17**, No. 12, 2281-2299.
- Tian, Y., R.E. Dickinson, L. Zhou, X. Zeng, Y. Dai, R.B. Myneni, Y. Knyazikhin, X., Zhang, M. Friedl, H. Yu, W. Wu, and M. Shaikh, 2004: Comparison of seasonal and spatial variations of leaf area index and fraction of absorbed photosynthetically active radiation from Moderate Resolution Imaging Spectroradiometer (MODIS) and Common Land Model. *J. Geophys. Res.*, **109**, doi:10.1029/2003JD003777.
- Tian, Y., R. E. Dickinson, L., Zhou, R. B. Myneni, M., Friedl, C.B. Schaaf, M., Carroll, and F. Gao, 2004: Land boundary conditions from MODIS data and consequences for the albedo of a climate model. *Geophys. Res. Lett.* **31(5)**, L5504, 10.1029/2003GL019104.
- Tian, Y., R. E. Dickinson, L. Zhou, and M. Shaikh, 2004: Impact of new land boundary conditions from modis data on the climatology of land surface variables. *J. Geophys. Res.*, **109**, D20115, doi: 10.1029/2003JD004499.
- Wang, A. X. Zeng, S.S.P. Shen, Q-C. Zeng, R. E. Dickinson, 2004. Timescales of Land Surface Hydrology. Submitted to *J. Hydrometeorol.*
- Wang, Z., X. Zeng, M. Barlage, R.E. Dickinson, F. Gao, and C.B. Schaaf, 2004: Using MODIS BRDF and albedo data to evaluate global model land surface albedo. *J. Hydrometeorol*, **5**, 3-14.
- Wu, W., and R. E. Dickinson, 2004: Time scales of layered soil moisture memory in the context of land-atmosphere interaction. *J. Clim.*, **17**, 2752-2964.
- Yu, H., R.E. Dickinson, M. Chin, M. Zhou, Y.J. Kaufman, L. Zhou, Y. Tian, O. Dubovik, and B.N. Holben, 2004: Direct radiative effect of aerosols as determined from a combination of MODIS retrievals and GOCART simulations. *J. Geophys. Res.*, **109**, DO3206, doi:10.1029/2003JD003914.
- Zeng, X.-D., S.S.P. Shen, X. Zeng, and R.E. Dickinson, 2004: Multiple equilibrium states and the abrupt transitions in a dynamical system of soil water interacting with vegetation. *Geophys. Res. Lett.* **31(5)**, L05501, 10.1029/2003GL018910.
- Zhou, L., R.E. Dickinson, Y. Tian, J. Fang, Q. Li, R.K. Kaufmann, C.J. Tucker, and R.B. Myneni, 2004: Evidence for a significant urbanization effect on climate in China, *Proc. Natl. Acad. Sci.*, *101(26)*, 9540-9544.