

C. LARRABEE (LARRY) WINTER

a. Professional Preparation

Ph.D. (1982) Applied Mathematics, University of Arizona
M.S. (1980) Applied Mathematics, University of Arizona
M.S. (1976) Geoscience, University of Arizona
B.A. (1970) Philosophy with honors, University of Arizona

b. Appointments

2003 – Present: NCAR
Deputy Director
2000– Present: University of Arizona, Tucson
Adjunct Professor, Department of Hydrology and Water Resources
1990 - 2003: Los Alamos National Laboratory
Governor's Science Advisor, Office of the Governor, State Capitol, Santa Fe, NM
Leader, Computer Research and Applications Group, Computing and
Computational Sciences Division
Leader, Geoanalysis Group, Earth and Environmental Sciences Division
Leader, Applied Mathematics and Statistics Team, Theoretical Division
1985 - 1990: SAIC Advanced Computing Division, Tucson, AZ
Chief Scientist
1983 - 1985: Idaho State University, Pocatello, ID
Assistant Professor of Mathematics and Computer Science
1980 – 1983: University of Arizona, Tucson, AZ
Post-Doctoral Associate, Department of Hydrology and Water Resources

c. Publications

Winter CL, Guadagnini A, Nychka D, and Tartakovsky, DM, "Multivariate sensitivity analysis of saturated flow through simulated highly heterogeneous groundwater aquifers", *J. Comp. Physics* 217 (1) 166-175 Sep. 1, 2006.
Winter CL, Tartakovsky DM, Guadagnini A, "Moment differential equations for flow in highly heterogeneous porous media", *Surveys in Geophysics* 24 (1): 81-106 2003.
Winter CL, Tartakovsky DM. "Groundwater flow in heterogeneous composite aquifers", *Water Resources Research* 38 (8): Art. No. 1148 Aug 17, 2002.
Winter CL, Tartakovsky DM, Guadagnini A, "Numerical solutions of moment equations for flow in heterogeneous composite aquifers", *Water Resources Research* 38 (5): Art. No. 1055 May 2002.
Winter CL, Tartakovsky DM, "Mean flow in composite porous media", *Geophysical Research Letters* 27 (12): 1759-1762 Jun. 15, 2000.

ii. Other Significant Publications

Winter CL, Tartakovsky DM, "Theoretical foundation for conductivity scaling", *Geophysical Research Letters* 28 (23): 4367-4369 Dec. 1, 2001.
Tartakovsky DM, Winter CL, "Dynamics of free surfaces in random porous media, *SIAM Journal on Applied Mathematics* 61 (6): 1857-1876 May 22, 2001.
Zhang DX, Winter CL, "Nonstationary stochastic analysis of steady state flow through variably saturated, heterogeneous media", *Water Resources Research* 34 (5): 1091-1100 May 1998.
Neuman SP, Winter CL, Newman CM, "Stochastic theory of field-scale Fickian dispersion in anisotropic porous media", *Water Resources Research* 23 (3): 453-466 Mar. 1987.
Winter CL, Newman CM, Neuman SP, "A perturbation expansion for diffusion in random velocity field", *SIAM Journal on Applied Mathematics* 44 (2): 411-424 1984.

d. Synergistic Activities

- Chair of Advisory Board for the National Ecological Observatory Network (NEON)
- Member of The Institute of Arctic and Alpine Research (INSTAAR) Scientific Advisory Committee

- Member of Executive Committee and Advisory Board to SAHRA (Sustainability of semi-Arid Hydrology and Riparian Areas), NSF Science and Technology Center for Sustainable Hydrology, University of Arizona
- Chair of New Mexico EPSCoR Committee (Experimental Program to Stimulate Competitive Research)
- Workshops and Sessions Organized:
 - Rio Grande Basin Modeling, J. Hogan, F. Phillips, and C.L. Winter, NSF Science and Technology Center for Sustainable Hydrology, Taos, NM, May 2002.
 - Flow and Transport in Highly Heterogeneous Random Porous Media, C.L. Winter and A. Guadagnini, European Geophysical Society, Annual Meeting, Nice, FR, April 2002.
 - Computational Models of River Basins, J. Roads and C.L. Winter, NSF Science and Technology Center for Sustainable Hydrology, Scripps Institute of Oceanography, La Jolla, CA, September 1998.
 - Science of the Rio Grande, E. Springer and C.L. Winter, Coupled Environmental Modeling, Los Alamos National Laboratory, Albuquerque, NM, August 1997.
- Editorial Duties
 - Winter, C.L. and A. Guadagnini, Flow and transport through highly heterogeneous porous media, special edition of the Journal of Hydrology, in press.
 - Member, Editorial Board of Journal of Neural Network Computing (1989-1990).

e. Collaborators and Other Affiliations

i. Co-authors:

University of Arizona: Rosangela Sviercoski, Arthur Warrick

Politecnico di Milano, Dipartimento di Ingegneria Idraulica (DIAR): Laura Guadagnini, Alberto Guadagnini

NCAR: Doug Nychka

Los Alamos National Laboratory: Daniel Tartakovsky, Everett Springer. Keeley Costigan, Patricia Fasel, Sue Mniowski, George Zyvoloski

ii. Advisors: Charles M. Newman, Courant Institute of Mathematical Sciences; Shlomo P. Neuman, University of Arizona

iii. Graduate students and Postdoctoral Associates:

Post-Docs

Regan Murray, Applied Math, UA

Daniel Tartakovsky, Hydrology, UA

Dongxiao Zhang, Hydrology, UA

Selene Bestul, Computer Sci, UMd

Grad Students

Anne Jost, Hydrogeology, University of Paris VI

Rosangela Sviercoski, Applied Math, UA

Eric Casillas-Morales, Hydrology, UA

Ming Lu, Hydrology, UA

David Kuijt, Computer Sci, UMd

Oskar Levin, Hydrology, UA