

**Norman L. Miller**  
**Geography Department, University of California – Berkeley**  
**Earth Sciences Division, Lawrence Berkeley National Laboratory**  
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### **Professional Preparation**

**B.S. Engineering Science**, University of Maryland, College Park, 1978, Meteorology Minor, Honors  
**M.S. Meteorology**, University of Wisconsin, Madison, 1981. Boundary Layer Measurements  
**Ph.D. Meteorology**, University of Wisconsin, Madison, 1987. Numerical Cloud Physics  
Dissertation: *A theoretical investigation of the collection of aerosol particles by falling snow crystals*

### **Profession Appointments**

**1998 - present, Staff Scientist and Hydroclimate Group Leader**, Earth Sciences Div, Berkeley National Lab., CA.  
**2006 – present, Adjunct Professor**, Geography Department, University of California, Berkeley, CA.  
**2000 – present, Adjunct Professor**, Hydrology and Water Resources Department, University of Arizona, Tucson, AZ.  
1993 - 1998, **Hydrometeorology Scientist**, Atmospheric Sciences Division, Lawrence Livermore National Lab., CA.  
July 1997 **Visiting Scholar**, Hydrologic Research Center, La Jolla, CA.  
Nov. 1994, Feb. 1995, Mar. 1996, **Visiting Scientist**, National Center for Atmospheric Research, Boulder, CO.  
1990 - 1992, **Meteorologist**, Atmospheric Physics and Chemistry Dept., Environmental Research Div, Argonne Nat'l Lab.  
1988 - 1990, **Postdoctoral Appointee**, Environmental Research Div., Argonne National Laboratory, IL.  
1982 – 1985, **Research Specialist**, Civil and Environmental Eng. Dept, University of Wisconsin, Madison, WI.

### **Selected Synergistic Activities**

Contributing Author of the IPCC (1995 – present) and USGCRP Assessment Reports; California Energy Commission Climate Change Panel and Science Advisor; CA Department of Water Resources Climate Change Panel and Technical Advisory Committee for the State Water Plan; SF Public Utilities Commission Climate and Water Committee; NASA Climate and Hydrology Committee Member; GEO Working Group on Water, ESSP Bioenergy and Earth Sustainability.

### **Teaching**

**Geography 171** – Special Topics in Geography, Climates of the World, Spring 2010 (Scheduled)  
**Geography 191** – Directed Independent Study, Atmospheric Modeling and Analysis, Spring 2009  
**Geography 144** – Principals of Meteorology, Fall 2008  
**Geography 257** – Special Topics in Climatology, Dynamic Climatology, Spring 2006, 2007

### **Selected Research Projects**

**P.I. and Technical Lead** CEC Regional Climate Model Enhancement and Baseline Climate Intercomparison. Project with UCB, UCSD, UCSC, LBNL, and LLNL., Phase II: Multi-RCM Climate Change Projections Project **2006-2010**.  
**Co-PI:** The University of California Center for Hydrologic Modeling, UCOP, **2009-2014**. P.I. Famiglietti  
**Co-PI:** Developing the Global Geodetic Observing System into a Monitoring System for the Global Water Cycle, UNESCO. **2008-2013**, P.I. H.-P. Plag  
**Co-P.I.:** Climate change study of the Los Angeles Aqueduct System, Los Angeles Dept. of Water and Power, **2008 – 2010**.  
**Co-I:** DOE Ultra-Efficient Scientific Computing Development of a 1-Km Resolution Climate Model. **2008-2010**, P.I. J. Shalf  
**Co-P.I.:** UN-Habitat, Climate Change Vulnerability and Infrastructure Investment Assessment and Analysis for Small Scale Water Utilities in the Lake Victoria Basin, **2009-2011**.  
PI: UC-Climate Change Center: Reducing Hydrologic Uncertainty and Front-End Analysis for Water Allocation. 2003-2005  
P.I. and Director: NASA RESAC California Water Resources Research and Applications Center 1999-2003.  
PI: CEC Development and Evaluation of a California Water and Energy Model, 2005 -2007  
PI: DOE FE Dominguez Channel Modeling and Analysis for Pollutant Transport and Total Maximum Daily Loads. 2002-2006  
PI: DOE: Water Cycle Pilot Study, Observations, Modeling, and Analyses at the Walnut River Watershed. 2001–2003  
P.I. CEC/EPRI: Modeling and Impacts Analysis of California streamflow for climate change scenarios, 2001- 2002.  
Co-P.I. NASA STRM CASSANDRA and Italian Space Agency: Skymed/Cosmo Program: A storm based model for forecasting the initiation and runoff of debris flows. 1999-2002. P.I. WE Dietrich  
Co-P.I.: NASA IDS Applications of Remotely-Sensed Land-Surface Data for Seasonal and Long-Term Hydroclimate Predictions, 2001-2004. P.I. J. Kim  
P.I. on NASA MTPE, 'Global Climatic Impact on Regional Hydro-Climate and its Effect on Southeastern Asian Agro-Ecosystems'. Oct. 1996 – Sept. 1999.  
Chief Partnership Investigator on Australian National Research Council International Research Project, 'Impact of Seasonal Variability on Hydrological Processes at Regional and Catchment Scales'. 1997- 2001.

### **Post Doctoral Researchers**

Present: Alan Di Vitorrio, Yan Bao

Past: Hatim Sharif, Kathy Bashford, Mauro Casadei, Sue Cook, Jiming Jin, Jinfan Duan, Phaedon Kyriakidis, Frederico Maggi, Chanhui Gu

### **Co-Advised Graduate Students**

Present: PhD; Nicole Schlegel, Raj Singh

PhD; Levi Brekke, Giacomo Bertoldi, Maoyi Huang, Keven Dressler, MS: Ryan Eldridge, S Zhang, Nuria Ortiz

### **Selected Publications** (Miller has published over 85 peer reviewed Journal manuscripts and Book Chapters)

- Miller, N.L., L.L. Dale, C.F. Brush, S.D. Vicuna, T.N. Kadir, E.C. Dogrul, and F.I. Chung, 2009: Drought resilience of the California Central Valley surface-groundwater-conveyance system. *J. Amer. Water Res. Assoc.*, **45**, 857-866.
- Miller, N.L. 2009: Hydrological Consequences of Global Warming. McGraw-Hill Yearbook of Science and Technology 2009. ISBN 978-007-160562-5, 166-170.
- Harmsen, E.W., N.L. Miller, N.J. Schlegel, and J.E. Gonzalez, 2009: Seasonal climate change impacts on evapotranspiration, precipitation deficit, and crop yield in Puerto Rico. *Agr. Water Managem. ent*, **96**, 1085-1095.
- Lebassi, B., J. Gonzalez, D. Frabis, E. Mauer, N.L. Miller, C. Milesa, P. Switzer, and R. Bornstein, 2009: Observed 1970-2005 cooling of summer daytime temperatures in coastal California. *J. Climate*, **22**, 3558-3577.
- Miller, N.L., K. Hayhoe, J. Jin, and M. Auffhammer, 2008: Climate Change, extreme heat, and electricity demand. *J. Applied Meteorology and Climatology*, **47**, 6, 1834-1844.
- Miller, N.L. and N.J. Schlegel, 2006: Climate change projected fire weather sensitivity: California Santa Ana wind occurrence. *Geophys. Res. Letters*, **33**, L15711, doi:10.1029/2006GL25808.
- Miller, N.L., J. Jin, and C-F Tsang, 2005: Local climate sensitivity of the Three Gorges Dam. LBNL-57135, *Geophys. Research Letters*, **32**, doi:10.1029/2005GRL022821.
- Maxwell, R.M. and N.L. Miller, 2005: Development of a coupled land surface and groundwater model for use in watershed management. *J. Hydrometeorology*, **6**, 233 – 247.
- Miller, N.L., 2005: California Climate Change, Hydrologic Response, and Flood Forecasting. Chap. 10. In *Urban Flood Management*, Ed. A. Szollosi-Nagy and C. Zevenbergen, Cheriton House Pub., 131-144.
- Miller, N.L., A.W. King, M.A. Miller, E.P. Springer, M.L. Wesely and others. The DOE Water Cycle Pilot Study, LBNL-53826. *Bull. Amer. Meteorological Soc.* 2005, **86**, 3, pp. 359–374.
- Brekke, L.D., N.L. Miller, N.W.T. Quinn, and J.A. Dracup, 2004: Climate change impacts uncertainty for San Joaquin River Basin. *J. Amer. Water Resources Assoc.*, **40**, 149- 164.
- Jin, J., and N. L. Miller, 2007: Analysis of the impact of snow on daily weather variability in mountainous regions using MM5. *Journal of Hydrometeorology*. **8** (2), 245–258.
- Hayhoe, K., D. Cayan, C.B. Field, P.C. Frumhoff, E.P. Mauer, N.L. Miller, S.C. Moser, S.H. Schneider, and Others, 2004: Emissions Pathways, Climate Change, and Impacts on California. *Proc. National Academy of Science*, **101**, 12422-12427.
- Miller, N.L., K.E. Bashford, and E. Strem, 2003: Potential impacts of climate change on California hydrology. *J. Amer. Water Resources Assoc.*, **39**, 771-784.
- Casadei, M., W.E. Dietrich, N.L. Miller 2003: Testing a model for predicting the timing and location of debris flow initiation in soil mantled landscape, LBNL-51314, *Earth Surface Processes*, **28**(9):925-950, 2003.
- Miller, N.L., J. Kim, J.Y. Zhang, J.H. Oh, 2001: Coupled precipitation-streamflow simulations at the GAME/HUBEX site: Xixian basin. *J. Meteor. Soc. Japan*, **79**, 985-998.
- Intergovernmental Panel on Climate Change, 2001: (Miller, N.L., Contributing Author) *The Third Assessment Report*, Chap. 10. Regional Climate Simulation – Evaluation and Projections. 79pp., March 2001.
- Miller, N.L. (Contributing Author), 2000: Climate change impacts on the United States, The potential consequences of climate variability and change: Overview, National Assessment Synthesis Team, Cambridge Univ. Press, 154 pp.
- Miller, N.L. and J. Kim, 1999: The Regional Climate System Model: Southwestern United States, Eastern Asia, and Northeastern Australia. WMO/ICSU/IOC *World Climate Res Progr*, **28**, WMO/TD-No. 942.
- Field, C., G. Daily, R.Gaines, P. Matson, J. Melack, N. Miller, R. Pitelka 1999: *Climate Change and California Ecosystems: A Report of the Union of Concerned Scientists and the Ecological Society of America*. 65 pp.
- Miller, N.L., J. Kim, R.K. Hartman, and J.D. Farrara, 1999: Downscaled climate and streamflow study of the southwestern United States. *J. Amer. Water Resources Assoc – Special Issue on Climate Change and Water Resources*, **35**, 1525 – 1537.
- Miller, N. L. and J. Kim, 1996: Numerical prediction of precipitation and river flow over the Russian River watershed during the January 1995 California storms. *Bull. Am. Meteor. Soc.*, **77**, 1, 101-105.
- Intergovernmental Panel on Climate Change, 1995: (Miller, N.L., Contributing Author, Climate Change 1995, *The Second Assessment Report*, Chap 6: Climate Models - Projections of Future Climate. Ed. J.T. Houghton. Cambridge Univ. Press
- Miller, N.L. 1992: Stability analysis of toxic substances within aquatic ecosystems and their effect on aquatic populations. *Ecological Modeling*, **60**, 151–165, 1992.
- Miller, N.L. and P. K. Wang, 1991: A theoretical by determination of the collection rates of aerosol particles falling ice crystal plates and columns. *Atmos. Env.*, **25a**, 11, 2593–2606.
- Miller, N.L. 1989: A model for the determination of scavenging rates of submicron aerosols by snow crystals. *Atmos. Res.*, **25**, 317-330.