

Gavin Gong

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Assistant Professor
Department of Earth and Environmental Engineering
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RESEARCH INTERESTS

Interaction between land-surface hydrologic and atmospheric phenomena, and their impact on climate variability and predictability. Physical relationships between snow and climate. Water resources development and management through applied hydroclimatic research.

EMPLOYMENT

Columbia University, New York, NY

Assistant Professor, Department of Earth and Environmental Engineering, *January 2004 – present*

Undergraduate Program Chair, Department of Earth and Environmental Engineering, *July 2006 – present*

Responsibilities: Sponsored research program development; Undergraduate and graduate level teaching; Chair, Undergraduate student recruitment and curriculum development; Academic advisor for undergraduate students.

Consultant, Department of Earth and Environmental Engineering, *September 2003 – December 2003*

Responsibilities: Academic curriculum and research program development.

ENSR International, Westford, MA

Senior Environmental Hydrologist, Water Resources Division, *June 1994-August 1999*

Responsibilities: Technical lead on hydrologic modeling, applied statistical analysis and water quality monitoring projects. Coordination of large, multi-institutional, collaborative estuarine study efforts. Modeling workshop instruction and seminar presentations.

EDUCATION

Massachusetts Institute of Technology, Cambridge, MA

Ph.D. in Hydrology, June 2003

Dissertation: Winter Climate Response to Continental Snow Anomalies

M.S. in Civil and Environmental Engineering, May 1994

Thesis: The Role of Fractional Rainfall Coverage in Atmospheric General Circulation Model Hydrologic Processes

The Cooper Union for the Advancement of Science and Art, New York, NY

B.E. in Civil Engineering, Summa Cum Laude, May 1991

Thesis: Dam Rehabilitation Project for Allamuchy Pond, Warren County, NJ

TEACHING EXPERIENCE

Columbia University, New York, NY

Instructor, CIEE E4252 Environmental Engineering, *Spring 2004 - present*

Instructor, CIEE E3250 Hydrosystems Engineering, *Spring 2005 - present*

Instructor, EAEE E6240 Physical Hydrology, *Fall 2005 - present*

Advisor, EAEE E3998-E3999, Undergraduate Design Project, *Fall 2007 - present*

Massachusetts Institute of Technology, Cambridge, MA
Assistant Lecturer, 1.070 Introduction to Hydrology, *Fall 2001 and 2002*
Teaching Assistant, 1.070 Introduction to Hydrology, *Fall 1993 and 1999*

Boston University, Boston, MA
Assistant Lecturer, CAS GG 275 Introduction to Quantitative Environmental Modeling, *Fall 1998*

The Cooper Union for the Advancement of Science and Art, New York, NY
Writing Tutor, The Cooper Union Center for Writing and Speaking, *September 1988-May 1991*

AWARDS

MIT Martin Family Society of Fellows for Sustainability, 2000-2001
MIT Ralph M. Parsons Fellowship, 1999-2000, 1991-1992
Employee of the Year, ENSR Water Resources Division, 1997
NASA Graduate Student Researchers Program Fellow, 1992-1994
Cooper Union Beller Award for merit in engineering studies, 1991
American Society of Civil Engineers AMF Prize, 1991
Member, Tau Beta Pi and Chi Epsilon, 1991
Full Tuition Scholarship to the Cooper Union School of Engineering, 1987-1991

PROFESSIONAL ACTIVITIES

Session Chair: Session C52A: Understanding Climate Change in Polar Regions IV, *American Geophysical Union Fall 2008 Meeting*, December 19, 2008, San Francisco, CA

Panelist: NASA Terrestrial Hydrology Program, NSF Arctic Natural Sciences / Arctic System Science

Reviewer: Geophysical Research Letters, Hydrological Processes, International Journal of Climatology, Journal of Applied Meteorology and Climatology, Journal of Climate, Journal of Geophysical Research – Atmospheres, Journal of Hydrometeorology, National Oceanic and Atmospheric Administration, National Science Foundation

Member: American Geophysical Union, American Meteorological Society, American Society of Civil Engineers, American Water Resources Association

PEER – REVIEWED JOURNAL PUBLICATIONS (* denotes thesis advisee)

*Ghatak, D., **G. Gong** and A. Frei, 2009. North American Temperature, Snowfall and Snow Depth Response to Winter Climate modes. *Journal of Climate*, in review.

*Ge, Y., **G. Gong** and A. Frei, 2009. Physical Mechanisms Linking the Winter Pacific – North American Teleconnection Pattern to Spring North American Snow Depth. *Journal of Climate*, accepted pending revisions.

*Ge, Y. and **G. Gong**, 2009. North American Snow Depth and Climate Teleconnection Patterns. *Journal of Climate*, 22: 217-233.

*Ge, Y. and **G. Gong**, 2008. Observed Differences between Snow Extent and Snow Depth Variability at Regional/Continental Scales. *Journal of Climate*, 21: 1066-1082.

- *Sobolowski, S., **G. Gong** and M. Ting, 2007. Northern Hemisphere Winter Climate Variability: Response to North American Snow Cover Anomalies and Orography. *Geophysical Research Letters*, 34, L16825, doi: 10.1029/2007GL030573.
- Cherry, J.E., L.B. Tremblay, M. Stieglitz, **G. Gong** and S.J. Dery, 2007. Development of the Pan-Arctic Snowfall Reconstruction: New Land-Based Solid Precipitation Estimates for 1940-1999. *Journal of Hydrometeorology*, 8: 1243-1263.
- Gong, G.**, J. Cohen, D. Entekhabi and Y. Ge*, 2007. Hemispheric-Scale Climate Response to Northern Eurasia Land Surface Characteristics and Snow Anomalies. *Global and Planetary Change*, 56: 359-370.
- Frei, A. and **G. Gong**, 2005. Decadal to Century Scale Trends in North American Snow Extent in Coupled Atmosphere-Ocean General Circulation Models. *Geophysical Research Letters*, 32: L18502, doi: 10.1029/2005GL023394.
- Gong, G.**, D. Entekhabi, J. Cohen and D.A. Robinson, 2004. Sensitivity of Atmospheric Response to Modeled Snow Anomaly Characteristics. *Journal of Geophysical Research*, 109: D06107, doi: 10.1029/2003JD004160.
- Gong, G.**, D. Entekhabi and J. Cohen, 2004. Orographic Constraints on a Modeled Siberian Snow – Arctic Oscillation Teleconnection Pathway. *Journal of Climate*, 17: 1176-1189.
- Gong, G.**, D. Entekhabi and J. Cohen, 2003. Relative Impacts of Siberian and North American Snow Anomalies on the Northern Hemisphere Mode. *Geophysical Research Letters*, 30(16): 1848, doi: 10.1029/2003GL017749.
- Gong, G.**, D. Entekhabi and J. Cohen, 2003. Modeled Northern Hemisphere Winter Climate Response to Realistic Siberian Snow Anomalies. *Journal of Climate*, 16: 3917-3931.
- Gong, G.**, D. Entekhabi and J. Cohen, 2002. A Large-Ensemble Model Study of the Wintertime AO/NAO and the Role of Interannual Snow Perturbations. *Journal of Climate*, 15: 3488-3499.
- Seigneur, C., P. Pai, M. Gerath, D. Mitchell, G. Hamby, **G. Gong**, C. Whipple, and L. Levin, 1997. Probabilistic Assessment of Regional Mercury Exposure. *Water, Air and Soil Pollution*, 97: 159-168.
- Gong, G.**, D. Entekhabi and G.D. Salvucci, 1994. Regional and Seasonal Estimates of Hourly Fractional Storm Coverage Based on Station Precipitation Observations. *Journal of Climate*, 7: 1495-1505.

PEER – REVIEWED CONFERENCE PROCEEDINGS (* denotes thesis advisee)

- *Sobolowski, S., **G. Gong** and M. Ting, 2007. Northern Hemisphere Winter Climate Variability: Response to North American Snow Cover Anomalies and Orography. *Proceedings of the 64th Annual Eastern Snow Conference*, May 29 – June 1, 2007, St. John's, Newfoundland, Canada, 191-198.
- Frei, A., **G. Gong**, D.A. Robinson, G. Choi, D. Ghatak* and Y. Ge*, 2006. 20th Century North American Snow Extent Trends: Climate Change or Natural Climate Variability? *Proceedings of the 63rd Annual Eastern Snow Conference*, June 7-9 2006, Newark, DE, 39-42.
- *Ge, Y. and **G. Gong**, 2006. Observed Differences between Snow Extent and Snow Depth Variability at Continental Scales. *Proceedings of the 63rd Annual Eastern Snow Conference*, June 7-9 2006, Newark, DE, 45-49.

Gong, G., K. Hickey and M. Higgins, 1998. Hydrodynamic Flow and Water Quality Simulation of a Narrow River System Influenced by Wide Tidal Marshes. *Proceedings of the 5th International Conference on Estuarine and Coastal Modeling*. October 22-24, 1997, Alexandria, VA, 679-692.

Hickey, K., M. Gerath, J.D. Bowen and **G. Gong**, 1998. Design of Field Program and Use of Field Measurements to Calibrate a Hydrodynamic and Water Quality Model of an Estuarine River System. *Proceedings of the 5th International Conference on Estuarine and Coastal Modeling*. October 22-24, 1997, Alexandria, VA, 737-751.

Gong, G. and J.D. Bowen, 1996. The Role of Circulation Patterns on the Simulation of Constituent Transport in San Juan Bay, Puerto Rico. *Proceedings of the ASCE 4th International Conference on Estuarine and Coastal Modeling*. October 26-28, 1995, San Diego, CA, 518-529.

Wolf, L.J. and **G. Gong**, 1996. Hydrodynamic Model and Sensitivity Analysis for San Juan Bay, Puerto Rico. *Proceedings of the ASCE 4th International Conference on Estuarine and Coastal Modeling*. October 26-28, 1995, San Diego, CA, 505-517.

CONFERENCE PRESENTATIONS

American Geophysical Union Fall 2008 Meeting, December 15-19, 2008, San Francisco, CA. (3)

2008 NOAA Climate Prediction Program for the Americas PI Meeting, September 29 – October 1, 2008, Silver Spring, MD. (1)

2008 Annual Meeting of the Association of American Geographers, April 15-19, 2008, Boston, MA. (1)

American Meteorological Society 88th Annual Meeting, January 20-24, 2008, New Orleans, LA. (1)

CMOS-CGU-AMS Congress 2007, May 28 – June 1, 2007, St. John's, Newfoundland and Labrador, Canada. (1)

American Geophysical Union Fall 2006 Meeting, December 11-15, 2006, San Francisco, CA. (3)

International Symposium on Cryospheric Indicators of Global Climate Change. August 21-25, 2006. Cambridge, England. (1)

63rd Annual Eastern Snow Conference, June 7-9 2006, Newark, DE. (2)

Annual Meeting of the Association of American Geographers, March 7-11, 2006, Chicago IL. (1)

American Geophysical Union Fall 2005 Meeting, December 5-9, 2005, San Francisco, CA. (1)

62nd Annual Eastern Snow Conference, June 8-10, 2005, Waterloo, Ontario, Canada. (1)

American Geophysical Union Fall 2004 Meeting, December 13-17, 2004, San Francisco, CA. (2)

American Geophysical Union 2004 Joint Assembly, May 17-21, 2004, Montreal, Canada. (1)

American Geophysical Union Fall 2003 Meeting, December 8-12, 2003, San Francisco, CA. (1)

American Geophysical Union Fall 2002 Meeting, December 6-10, 2002, San Francisco, CA. (2)

27th Annual Climate Diagnostics and Prediction Workshop, October 21-25, 2002, Fairfax, VA. (1)

American Geophysical Union Fall 2001 Meeting, December 10-14, 2001, San Francisco, CA. (1)

First International Conference on Remediation of Chlorinated and Recalcitrant Compounds, May 18-21, 1998, Monterey, CA. (1)

WEFTEC '97, the Water Environment Federation Annual Conference and Exposition, October 18-22, 1997, Chicago, IL. (1)

Fourth International Conference on Precipitation, April 26-28, 1993, Iowa City, IA. (1)