

## HOLLY C. HARTMANN

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### Education

BS 1980 Southern Illinois University Natural Resource Planning  
MS 1983 University of Michigan Water Resources Management  
*Thesis: Lake Superior Basin Runoff Modeling*  
*Advisor: Dr. Jonathan Bulkley*  
PhD 2001 University of Arizona Hydrology and Water Resources  
*Dissertation: Stakeholder-driven Research in a Hydroclimatic Context*  
*Advisor: Dr. Soroosh Sorooshian*

### Employment

*Director*, Arid Lands Information Center, Office of Arid Lands Studies (OALS)/School of Natural Resources and Environment (SNRE), University of Arizona, 10/2007-present  
*Associate Research Scientist*, OALS/SNRE, University of Arizona, 10/2007-present  
*Acting Program Manager*, Climate Assessment for the Southwest (CLIMAS), Institute for the Study of Planet Earth, University of Arizona, 1-9/2007  
*Assistant Research Scientist and Graduate Research Associate/Assistant*, Department of Hydrology and Water Resources, University of Arizona, 2/2002-10/2007 and 1996-2001  
*Research Hydrologist and Physical Scientist*, Great Lakes Environmental Research Laboratory, National Oceanic and Atmospheric Administration (NOAA), U.S. Department of Commerce, 1986-1991 and 1982-1986  
*Assistant Project Scientist*, F.X. Browne Associates, Inc. (water resources consulting firm), 1981

### Selected Advisory and Review Service

*Committee on the Assessment of the National Weather Service's Modernization Program*, National Research Council, The National Academies, 2010-2012.  
*Science Team and Adaptation Team*, National Park Service and LMI, Inc., 2011. [Sole external advisor for the Science Goals and the Adaptation Goals during internal NPS development of an implementation plan of their Climate Change Response Strategy, covering all NPS natural and cultural resources management lines and all management levels - local, regional, and national.]  
*Climate Working Group*, Science Advisory Board for NOAA, 2009-present.  
*Management Team*, Carpe Diem West, 2009-present. [Network of over 600 leaders in western water policy and management from agencies, non-governmental organizations, foundations, universities, and the private sector focused on responding to changes in climate and water in the western U.S. Management Team advises Carpe Diem West on priorities, strategies, and tactics for engaging with the network, program development, and management issues.]  
*Program Review Committee*, Hydrometeorological Prediction Center, National Centers for Environmental Prediction (NCEP), NOAA, 2009-2010.  
*Program Review Committee*, Climate Prediction Center, NCEP, NOAA, 2009-2010.  
*Product Development Committee*, U.S. Climate Change Science, Synthesis and Assessment Product 5.1: Uses and Limitations of Observations, Data, Forecasts, and Other Projections in Decision Support for Selected Sectors and Regions, 2007-2008.  
*Product Development Committee*, U.S. Climate Change Science Program, Synthesis and Assessment Product 5.3: Decision Support Experiments and Evaluations Using Seasonal to

Interannual Forecasts and Observational Data, 2006-2008.

*Executive Committee*, Regional Integrated Sciences and Assessment (RISA) Program, NOAA Climate Program Office, 2007-2009 [Represented RISA programs across the nation in providing guidance to NOAA Climate Program Office on priorities and strategies for developing national climate services.]

*Program Review Committee*, Climate Diagnostics Center Applied Research Center, NOAA Earth Science Research Laboratory, Office of Oceanic and Atmospheric Research, NOAA

### **Selected Society Service**

Writing Group, Position Statement on the Public-Private Partnership in National Climate Services.

American Meteorological Society, 2011-2012. [Approved by AMS 10 August 2012.]

Committee on Water and Society, Hydrology Section, American Geophysical Union, 2011-present.

Committee on Climate Services, American Meteorological Society, 2008-present.

Board of Directors, International Environmental Modeling and Software Society, 2006-present.

Editorial Board, *Environmental Modeling and Software*, 2006-present.

Board on Enterprise Economic Development, American Meteorological Society, 2008-2011.

Ad Hoc Committee on Climate Services, American Meteorological Society, 2006-2007.

Watershed Science Advisory Committee, Watershed Curriculum Project, American Meteorological Society and the National Environmental Education and Training Foundation, 2004-2005.

Outreach Subcommittee, Mid-Term Review Committee, Ten-Year Vision Study, American Meteorological Society, 2003-2004.

Co-chair, Policy Sciences Technical Committee, Hydrology Section, American Geophysical Union, 1999-2003.

### **Selected Recent Publications**

National Research Council, 2012. *Weather Services for the Nation: Second to None*. Committee on the Assessment of the National Weather Service's Modernization Program. National Academy Press, Washington, D.C., 108pp. (**Hartmann** is one of 16 co-authors).

National Research Council, 2012. *The National Weather Service Modernization and Associated Restructuring: A Retrospective Assessment*. Committee on the Assessment of the National Weather Service's Modernization Program. National Academy Press, Washington, D.C., 108pp. (**Hartmann** is one of 16 co-authors).

**Hartmann, H.**, 2012. *Proceedings of a Workshop on Climate Change Scenario Planning for the Crown of the Continent Ecosystem, 9-10 March 2010, Whitefish, Montana*. National Park Service Climate Change Response Program, Ft. Collins, CO, 177pp.

Garfin, G., **H. Hartmann**, M. Crescioni-Benitez, T. Ely, J. Keck, J.W. Kendrick, K. Legg, and J. Wise, 2011. Climate-Friendly Park Employees: The Intermountain Region's climate change training assessment. *Park Science* 28(1): 30-36.

**Hartmann, H.C.**, J. Buizer, P. dos Santos, R. Moss, L. Patton, and L. Welling, 2011. Appendix 4 - Participatory scenario planning in regional and sectoral stakeholder activities in the National Climate Assessment. In: *Scenarios and Regional Summaries, Report to National Climate Assessment Development and Advisory Committee, Ad hoc Working Group 3*. May 13, 2011. Washington, DC., pp.33-37.

O'Lenic, E., **H. Hartmann**, M. Ou, K. Pelman, S. Handel, 2011. An emerging protocol for research-to-operations (R2O) at CPC. In: Climate Prediction S&T Digest, Science and Technology Infusion Climate Bulletin Supplement, National Weather Service, Silver Spring, MD, pp. 182-185.

Anderson, C., D. Cayan, M. Dettinger, K. Dow, H. Hartmann, J. Jones, E. Miles, P. Mote, J.

- Overpeck, M Shafer, B Udall, and D. White, 2009. Climate Services: The RISA Experience. A Report of the Regionally Integrated Sciences and Assessments Programs, NOAA Climate Program Office, Washington, DC.
- Mahmoud, M., Y. Liu, **H.C. Hartmann**, S. Stewart, T. Wagener, D. Semmens, R. Stewart, H. Gupta, D. Dominguez, F. Dominguez, D. Hulse, R. Letcher, B. Rashleigh, C. Smith, R. Street, J. Ticehurst, M. Twery, H. van Delden, R. Waldick, D. White, and L. Winter, 2009. A formal framework for scenario development in support of environmental decision-making. *Environmental Modeling and Software* 24(7):798-808 (**Received award for Best Paper of 2009: Integrated Modeling category**).
- Zeng, X., H. Gupta, P. Troch, P. Brooks, K. Jacobs, C. Castro, M. Crimmins, F. Dominguez, J. Duan, H. Hartmann, S. Kurc, R. Kursinski, T. Maddock, S. Mullen, J. Valdes, C. Woodhouse, 2009. Evaluation, Improvement, and Development of NOAA's Hydroclimate Services. White Paper submitted to NOAA Climate Program Office, Silver Spring, MD, 10pp.
- Feldman, D.L., K.L. Jacobs, G. Garfin, A. Georgakakos, B. Morehouse, P. Restrepo, R. Webb, B. Yarnal, D. Basketfield, **H.C. Hartmann**, J. Kochendorfer, C. Rosenzweig, M. Sale. B. Udall, and C. Woodhouse, 2008. Making decision-support information useful, useable, and responsive to decision-maker needs. In: *Decision Support Experiments and Evaluations using Seasonal-to-Interannual Forecasts and Observational Data: A Focus on Water Resources*. A Report by the US Climate Change Science Program and the Subcommittee on Global Change Research [N. Beller-Simms, H. Ingram, D. Feldman, N. Mantua, K.L. Jacobs, and A.M. Waple, Eds.]. NOAA's National Climatic Data Center, Asheville, NC, pp. 101-140.
- Hartmann, H.C.**, 2008. Decision support for water resources management. In: *Uses and Limitations of Observations, Data, Forecasts, and Other Projections in Decision Support for Selected Sectors and Regions*. A Report by the US Climate Change Science Program and the Subcommittee on Global Change Research [M. Macauley, Ed.]. NASA Applied Science Program, Washington, DC, pp.45-55.
- Hartmann, H.C.**, 2005. Use of climate information in water resources management. In: *Encyclopedia of Hydrological Sciences*, M.G. Anderson (Ed.), John Wiley and Sons Ltd., West Sussex, UK, Chapter 202.
- Lawford, R., Fort, D., **Hartmann, H.**, and S. Eden (Editors), 2003. *Water: Science, Policy, and Management*. Water Resources Monograph 16, American Geophysical Union, Washington, DC, 415 pp.

### **Selected Software Systems**

- Carpe Diem West Academy, 2011-present. <http://carpediemwestacademy.org> [website/software system]
- Dynamic Probability of Exceedance Webtool, 2011-present. [www.ua-alic.com/DynamicPOE/](http://www.ua-alic.com/DynamicPOE/) [software system]
- Paleo Toolkit, 2011-present. <http://erebor.arid.arizona.edu/PaleoToolKit/> [software system]
- Introduction to Verification of Hydrologic Forecasts, Cooperative Program for Operational Meteorology, Education and Training (COMET), University Corporation for Atmospheric Research (UCAR), Boulder, CO, published 30 June 2008 [online training course] (science contributor with J. DeMargne and K. Werner, NWS)
- Climate Information Delivery and Decision Support System (CLIDDSS), 2007-present. <http://cliddss.arid.arizona.edu/CLIDDSSClient> [software system]
- Automated Hydrologic Threshold Alert System (AHTAS), 2006-present. <http://ahtas.arid.arizona.edu> [software system]

Online Interactive Forecast Evaluation Tool, 2002-present. <http://fet.hwr.arizona.edu/ForecastEvaluationTool/> [software system]

### **Selected Professional Development Training and Webinar Series**

Adaptation and Mitigation – and NWS Decision Support. Advanced Operational Climate Services Residential Training Course, National Weather Service, Boulder, CO, 17 November 2011.

Hydrologic Forecast Verification; Topics in Hydrologic Forecast Verification. Advanced Hydrologic Sciences Course, NWS Cooperative Program for Operational Meteorology, Education, and Training (COMET) Program, Boulder, CO, 20-29 June 2006, 15-24 May 2007, 29 July - 7 August 2008.

Understanding CPC Seasonal Outlooks; Understanding the Quality of CPC Products. Operational Climate Services Residential Training Courses, National Weather Service, Kansas City, MO, 24-26 May, 30 August - 1 September, 20-22 September, 1-3 November 2005, 10-12 January, 13-15 June 2006, 10-12 April, 4-6 December 2007, 26-28 August 2008, 1-3 December 2009, 20-22 July, 24-26 August 2010, 26-28 April 2011.

*Carpe Diem West Academy Webinar Series*, Carpe Diem West and University of Arizona. Co-designed, co-organized, and co-facilitated ongoing series of webinars (eight over September 2011-November 2012 reaching over 700 registrants) on climate change adaptation decision support methods and tools for water resources practitioners. [www.carpediemwestacademy.org](http://www.carpediemwestacademy.org)

*Climate Change Scenario Planning Webinar Series*, NPS. Designed, organized, and facilitated a series of webinars (12 over January-February 2010) on climate change, regional resource impacts, scenario planning, and adaptation planning. [Access limited to preserve confidentiality following project protocol.]

*Decision Support Services Webinar Series*, Committee on Climate Services, American Meteorological Society. Co-designed AMS webinar series (four over May 2008- December 2012, reaching over 400 participants) on user needs for climate services. <http://www.ametsoc.org/committeepages/ccs/index.html>.

### **Selected Invited Presentations and Panel Service (\*)**

\*RISAs as a climate services partner. Conference on Applied Climatology, American Meteorological Society, Asheville, NC, 18-22 July 2011.

Decision support services, climate services. Committee on Climate Services Webinar Series, American Meteorological Society, 10 December 2010.

Scaling and sustainability of decision support tools. Environmental Evaluators Networking Forum, Washington, DC, 7-8 June 2010.

\*The NWS strategic plan and the climate community: building on success to meet evolving challenges. National Meteorologists-in-Charge and Hydrologists-in-Charge Conference, Leesburg, VA, 19-23 April 2010.

Stakeholder-driven research and usable science: strategies and tactics. Joint Inter-American Institute (IAI)-National Center for Atmospheric Research (NCAR) Advanced Study Program Colloquium on Knowledge Innovation at the Science-Policy Interface, IAI-NCAR, San Jose, Costa Rica, 13-22 April 2010.

Decision support tools: What is being done? What role can the Enterprise play? Summer Community Meeting, American Meteorological Society, Boulder, CO, 11-13 August 2008.

\*Translating the science for policymakers and managers. Getting Ready - Climate Change Impacts on Water in the Southwest, Carpe Diem Convening, Albuquerque, NM, 29 May 2008.

Climate services and decision support: strategies, tactics, and tools. Seminar Series, Agriculture Canada, Regina, Saskatchewan, 8 June 2007.