CURRICULUM VITAE, JUNE 2011

MIMI HUGHES

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EDUCATION

Ph.D. Atmospheric and Ocean Sciences, University of California, Los Angeles, CA, Spring 2008. Dissertation: Mesoscale dynamics of Southern California's climate.

Advisor: Alex Hall

C.Phil. Atmospheric and Ocean Sciences, University of California, Los Angeles, CA, 2006

M.S. Atmospheric and Oceanic Sciences, University of California, Los Angeles, CA, 2004

B.S. Electrical Engineering (Magna cum laude) and Mathematics (Cum laude), Pennsylvania State University, University Park, PA, 2002

PROFESSIONAL EXPERIENCE

Oct. 2010-pres. NOAA ESRL PSD Water Cycle Branch Boulder, CO
Research Scientist I

Research atmospheric rivers and orographic precipitation using both a regional climate model and observations. I plan to focus on understanding what types of orographic precipitation are present when atmospheric rivers impinge on California's topography, and the connections between these features of regional climate and the global climate system.

Oct. 2008-Sept. 2010 NOAA ESRL PSD Water Cycle Branch Boulder, CO
Postdoctoral Research Associate

Generated a 10-year, 6km downscaling of California with WRF. Validated this downscaling against wind-profiler data and sounding data to assess its applicability for investigations of dynamics of the Sierra Barrier Jet. Investigated low-frequency variability and trends of Santa Ana winds in observations over the past half century. Generated meteorological data for ARkStorm.

2002-Sept. 2008 Climate Sensitivity Research Lounge Los Angeles, CA
Research Assistant

Researched mesoscale climate dynamics of Southern California using a high-resolution (6km) climate reconstruction created with MM5. I focused on three aspects of the climate that are unresolvable by traditional climate models: the diurnal cycle of surface air temperature and wind, the interaction of topography with precipitation, and the dynamical causes of the Santa Ana winds.

2000-2002 Atmospheric Sensing and Lidar Lab University Park, PA
Undergraduate Research Assistant

Designed and built the receiver for a Rayleigh Lidar, focusing on the integration of optical choppers into the system. Advisor: Dr. Tim Kane

1999–2000 Applied Research Laboratory University Park, PA
Co-operative Education Student

Implemented and tested a nonlinear algorithm for adaptive filtering. Tested its robustness compared to both signal/noise ratio and number of input signals.

TEACHING EXPERIENCE

2005 UCLA Dept. of Atmos. and Ocean. Sci. Los Angeles, CA
Teaching Assistant: AOS 1 – Climate Change: from puzzles to policy

1999 Learning Resource Center University Park, PA
Supplemental Instruction Leader – Introduction to Statistics

PUBLICATIONS

Hughes M, Hall A, and Kim, J (2010) Human-induced changes in wind, temperature and relative humidity during Santa Ana events, conditionally accepted to PIER climate change special issue of *Clim. Change*.

Hughes M and Hall A (2010) Local and synoptic mechanisms causing Southern California's Santa Ana winds, *Clim. Dyn.* 34:847-857 DOI: 10.1007/s00382-009-0650-4.

Hughes M, Hall A, and Kim, J (2009) Anthropogenic Reduction of Santa Ana winds, California Environmental Protection Agency and California Energy Commission Report CEC-500-2009-030-F.

Hughes M, Hall A, Fovell, RG (2009) Blocking in areas of complex topography and its influence on rainfall distribution, *J. Atmos. Sci.*, 66:508-518, DOI: 10.1175/2008JAS2689.1.

Hughes M, Hall A, Fovell RG (2007) Dynamical controls on the diurnal cycle of temperature in complex topography. *Clim. Dyn.* 29:277–292.

Dong C, McWilliams J, Hall A, **Hughes M** (2011) Numerical Simulation of a Synoptic Event in the Southern California Bight, J. Geophys. Res., 116, C05018, doi:10.1029/2010JC006578.

Capps S, Hall A, **Hughes M** (2011) Sensitivity of Southern California Wind Power to Turbine Characteristics. *Submitted to Wind Energy.*

Neiman PJ, Schick LJ, Ralph FM, **Hughes M**, Wick GA (2010) Flooding in Western Washington: The connection to atmospheric rivers. *Accepted to J. of Hydrometeorology.*

Dettinger MD, Ralph FM, **Hughes M**, Das T, Neiman P, Cox D, Estes G, Reynolds D, Hartman R, Cayan D, Jones L (2010) Design and quantification of an extreme winter storm scenario for emergency preparedness and planning exercises in California. *Conditionally Accepted to Natural Hazards.*

Moritz MA, Moody TJ, Krawchuk MA, **Hughes M**, and Hall A (2010), Spatial variation in extreme winds predicts large wildfire locations in chaparral ecosystems, *Geophys. Res. Lett.*, 37, L04801, doi:10.1029/2009GL041735.

Neiman PJ, Sukovich EM, Ralph FM, **Hughes M** (2010) A Seven-Year Wind Profiler–Based Climatology of the Windward Barrier Jet along California's Northern Sierra Nevada. *Mon. Wea. Rev.*, 138, 1206-1233.

CONFERENCE PRESENTATIONS AND SEMINARS

Hughes, M, Sukovich E, Neiman P, Representation of the Sierra Barrier Jet in 10 years of a high-resolution dynamical reanalysis downscaling, CalWater semi-annual workshop, La Jolla, CA, June 2011

Hughes, M, Hall, A, and Kim, J, Local and synoptic mechanisms controlling Southern California's Santa Ana winds, and implications in a changing climate. Scripps Institution of Oceanography, Climate Atmospheric Science and Physical Oceanography, April 2011

Hughes, M, Hall, A, and Kim, J, Local and synoptic mechanisms controlling Southern California's Santa Ana winds, and implications in a changing climate. NOAA ESRL Physical Sciences Division seminar, Boulder, CO, March 2011

Hughes, M, Sukovich E, Neiman P, Sierra Barrier Jets that occur simultaneously with atmospheric river events in a high resolution dynamical downscaling of the North American Regional Reanalysis, American Geophysical Union annual meeting, San Francisco, CA, Dec. 2010

Hughes, M, Sukovich E, Neiman P, and Ralph FM, North-south variability of the Sierra Barrier Jet, and its downscaling representation. CalWater Annual meeting, La Jolla, CA, October 2010.

Hughes, M, Cayan D, Hall A, Kim J, Ralph FM, Human-induced changes in wind, temperature, and relative humidity during Santa Ana wind events. Boulder Laboratories Postdoctoral Poster Symposium, Boulder, CO, June 2010.

Hughes, M, Hall, A, and Kim, J, Anthropogenic Reduction of Santa Ana winds, American Geophysical Union annual meeting, San Francisco, CA, Dec. 2008

Hughes, M, Hall, A, and Kim, J, Anthropogenic Reduction of Santa Ana winds, Fifth Annual Climate Change Research Conference, Sacramento, CA, Sept. 2008

Hughes, M, Mesoscale dynamics of Southern California's climate, National Weather Service, Oxnard office, Oxnard, CA June 2008

Hughes, M, Hall, A, and Fovell, RG, Blocking in areas of complex topography, and its influence on rainfall distribution, Graded Seminar, UCLA Department of Atmospheric and Oceanic Sciences, October 2007

Hughes, M, Hall, A, and Fovell, RG, On the distribution of rainfall in complex topography, 12th AMS Conference on Mesoscale Processes, Waterville Valley, NH, August 2007

Hughes, M, Hall, A, and Fovell, RG, Blocking in areas of complex topography, and its influence on rainfall distribution, Mesoscale and Microscale Meterorology division of the National Center for Atmospheric Research, Boulder, CO, June 2007

Hughes, M, Hall, A, and Fovell, RG, Dynamical controls on the diurnal cycle of temperature in complex topography, Coastal Meeting, UCLA Department of Atmospheric and Oceanic Sciences, February 2007

Hughes, M, and Hall, A, Santa Ana winds, 'The Devil's Breath', Summer Student Seminar Series, UCLA Department of Atmospheric Sciences, July 2006

Hughes, M, Hall, A, and Fovell, RG, Links between diurnal cycles of temperature and wind in complex topography, 22nd Pacific Climate (PACLIM) Workshop, Pacific Grove, CA, March 2006

Hughes, M, and Hall, A, Diurnal circulations in Southern California, Summer Student Seminar Series, UCLA Department of Atmospheric Sciences, August 2005

Hughes, M, and Hall, A, The origins of Southern California's climate diversity, 85th Annual AMS general meeting, San Diego, CA, January 2005

Hughes, M, and Hall, A, Small scale variations in the diurnal amplitude of surface air temperature in Southern California, AGU Fall meeting, San Francisco, CA, 2004

FELLOWSHIPS AND AWARDS

National Research Council Postdoctoral Research Associateship, 2008-2010

Bjerknes Memorial Award "for research involving the understanding of climate dynamics at the regional scale", Dept of Atmos. & Ocean. Sci., UCLA, Fall 2007.

Dissertation year fellowship, UCLA, 2007-2008

Regents stipend, UCLA, 2006-2007

Brian Lance Bosart Award, "for unselfish service to fellow students and positive contribution to department life while demonstrating a firm commitment to academics". Department of Atmospheric and Oceanic Sciences, UCLA, Fall 2005.

National Science Foundation Graduate Research Fellowship, 2003-2006

Eugene V. Cota-Robles Fellowship, UCLA, 2002-2003

IGPP UCLA Fellowship, 2002-2003

McNair Scholar, 2001-2002

Schreyer Honor's College scholarship, 1997-2001

PROFESSIONAL SERVICES

Reviewer: Journal of Applied Meteorology and Climatology, Geophysical Research Letters, International Journal of Biometeorology, Journal of the Atmospheric Sciences

Member of the Workplace Advisory Committee in NOAA ESRL's Physical Sciences Division

UCLA Chi Epsilon Pi -- Faculty Representative, 2003-2007

AMS/AGU Member since 2002