TYLER W. RUFF

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Professional Summary:

Graduate-educated meteorologist with a versatile and extensive skill set in scientific, business, and Internet-based computer programming. Rigorous background in scientific theory with practical experience of interpreting and displaying a wide variety of data and information to different audiences.

Experience:

Meteorological Applications Developer, Commodity Weather Group, LLC, Bethesda, MD, November 2011-present

- Developed a wide range of in-house web and offline applications using PHP, Python, GrADS, and Shell scripting.
- Completely redesigned and re-engineered the company website and product (http://www.commoditywx.com) using the Drupal 7 content management system, executed a site migration to a new server, and currently fulfilling the role of webmaster and IT consultant.
- Continuous maintenance of a suite of operational weather model plots for StormVistaWXModels.com and currently in the process of redesigning the product interface.

Graduate Research Assistant, Dept. of Atmospheric and Oceanic Sciences, UCLA, Los Angeles, CA, January 2010-June 2011
Advisor: Dr. J. David Neelin

- Primary research project involved studying the existence and implications of non-Gaussian tails in probability density functions of temperature observations.
- Researched barotropic contributions to ENSO tropical teleconnections by performing modified runs of the Quasi-Equilibrium Tropical Circulation Model (QTCM) and presented results in a class seminar.
- Collaborated with researchers within Neelin's group at UCLA as well as with scientists located in other institutions.
- Peer-reviewed research paper submission in July 2011.
- Extensive use of the programming languages MATLAB, GrADS, and Fortran, and worked primarily within a UNIX computing environment.

Intern/Researcher, Lamont-Doherty Earth Observatory of Columbia University, Palisades, NY, June 2008-August 2008, June 2009-August 2009
Advisors: Drs. Yochanan Kushnir and Richard Seager

- Studied the spatial and temporal modes of precipitation variability over the western United States through principal component and wavelet analysis using observational data sets and output from five general circulation models (GCMs) featured in the IPCC AR4 assessment report.

- Employed statistical methods on the GCMs in order to quantify the future impact of internal climate variability, specifically with respect to the El Nino/Southern Oscillation, over the western United States and the Colorado River headwater region.
- Created a research poster and wrote a peer-reviewed paper published February 2012.
- Primarily used Ingrid (scripting language utilized at Lamont for graphical output and statistical analysis), MATLAB, and UNIX shell scripting.

Vice President of Web Operations, Campus Weather Service, Penn State University, University Park, PA, Spring 2007-April 2008

- Elected to be on the Campus Weather Service executive council to maintain and manage the Web branch of the organization.
- Designed and programmed a comprehensive statistical forecast verification system using PHP and Perl.
- Developed and implemented a complete redesign of the organization website in PHP, MySQL, and HTML.

Intern, Center for Research on Environment and Water (Institute for Global Environment and Society; George Mason University), Calverton, MD, May 2006-August 2006, May 2007-August 2007
Advisor: Dr. Paul Houser

- Project involved developing a near real-time, automated diagnostic tool that processes and displays global observations, analyses, and forecasts of meteorological variables related to the water cycle.
- Wrote scripts in GrADS, Perl, and the UNIX shell to automatically download and process relevant near real-time water cycle datasets for graphical output.
- Designed an intuitive and efficient web site interface in PHP and HTML (http://crew.iges.org/climatedata/), and wrote a set of documentation on the datasets and plotting techniques.
- Worked independently while collaborating with technical specialists and research scientists as needed.

Forecaster, Campus Weather Service, Penn State University, University Park, PA, August 2005-April 2008

- Volunteered for a weekly shift at the campus weather station.
- Analyzed digital and paper maps and charts of the atmosphere on a daily basis to create region-specific forecasts of five-day weather over Pennsylvania.
- Gained experience with utilizing GARP/GEMPAK for visualizing meteorological data.
- Improved communication skills by broadcasting weather forecasts over the radio to clients across Pennsylvania.

Education:

M.S. in Atmospheric and Oceanic Sciences, University of California, Los Angeles (June 2011)
GPA: 3.7/4.0

B.S. *(with Distinction)* in Meteorology with minor in Geography, Pennsylvania State University, University Park, PA (May 2009)
Cumulative GPA: 3.84/4.0, GPA in major: 3.90/4.0

Study Abroad Program, School of Geosciences, College of Science and Engineering, University of Edinburgh, Edinburgh, Scotland, UK (Fall semester 2008)

Awards and Honors:

Chancellor's Prize Fellowship, UCLA, September 2009-2011

Institute for Geophysics and Planetary Physics (IGPP) Fellowship, UCLA, September 2009-2011

NSF Grant, Lamont-Doherty Earth Observatory of Columbia University Summer Internship Program for Undergraduates, awarded for June 2008-August 2008

Matthew J. Wilson Honors Scholarship (maximum financial award bracket), Penn State, 2006-2007, 2007-2008, 2008-2009

Dean's Freshman Scholarship, Penn State, 2005-2006

Dean's List, Penn State, 2005-2009

Professional Affiliations:

Chi Epsilon Pi (Atmospheric Sciences Honor Society, UCLA chapter), September 2009-June 2011

- Elected President in September 2010 with member status since September 2009.
- Responsible for general leadership of the organization.
- Chaired meetings and maintained communication with Department faculty and staff.

American Meteorological Society, member, September 2005-present

Publications:

Ruff, T. W., Y. Kushnir, and R. Seager, 2012: Comparing Twentieth- and Twenty-First-Century Patterns of Interannual Precipitation Variability over the Western United States and Northern Mexico, *J. Hydrometeor.*, **13**, 366–378, doi: 10.1175/JHM-D-10-05003.1.

Ruff, T. W. and J. D. Neelin, 2012: Long tails in regional surface temperature probability distributions with implications for extremes under global warming, *Geophys. Res. Lett.,* doi: 10.1029/2011GL050610.

Presentations:

Poster: "Water Cycle Variability and Future Drying in the Colorado River Headwater Region". Lamont-Doherty Earth Observatory of Columbia University, August 2008.