

Jonathan J. Rutz

jonathan.rutz@noaa.gov ♦ (517)-442-6489 ♦ 130 S 500 E #203, Salt Lake City, UT, 84102



Research and Development Meteorologist

*National Weather Service
Western Region Headquarters
Science and Technology Infusion Division*



Profile

I have a passion for increasing my personal knowledge of atmospheric phenomena on all timescales, as well as how to clearly convey the significance of meteorological events to impact-sensitive businesses and the public. I am highly motivated and enjoy conducting applied research that can be readily implemented into operations. I am adept at performing analysis of very large data sets to solve complex problems using numerous computer languages such as IDL, MatLab, and Python. I am an excellent writer and speaker, and have participated in an increasing number of scientific publications.

Key Responsibilities

My current research aims to better understand and predict major cool-season precipitation events over the western U.S. Most of these events are caused by moisture and momentum originally associated with extratropical cyclones over the Pacific interacting with the complex topography of the western U.S. Topics of interest include model verification, water vapor transport over complex terrain, atmospheric rivers and their relationship to short-term climate indicators (e.g., AO, ENSO, PNA), and long-range changes in hydroclimate.

I also manage and assist in development of the NWS Western Region Road Weather Project. At the core of this project is the Canadian-developed METRo (Model of the Environment and Temperature of Roads), which predicts road surface temperature and condition by physically resolving interactions between moisture and the road surface. The model is run at > 500 RWIS (road weather information system) sensors over the western U.S. based on NWS gridded forecasts. Output is made internally available for the purpose of augmenting existing NWS products, and forecaster feedback has been overwhelmingly positive.

Finally, I act as a divisional focal point for research to operations (R2O). This role allows me to keep operational personnel at field offices up-to-date on new science and useful tools to improve our products.

Professional Experience

National Weather Service (NWS)

- NWS GS-1399-11 (effective May 18, 2014) May 2014 – present
- NWS GS-1399-09 (effective November 17, 2013) Nov 2013 – May 2014
- NWS GS-1399-07 (effective May 24, 2010) May 2010 – Nov 2013

University of Utah

- Instructor, Synoptic/Dynamic Meteorology Aug 2011 – Dec 2011
- Graduate Research Assistant, Mountain Meteorology Group, Jan 2011 – May 2014
- Graduate Research Assistant, Climate Research Group Jun 2009 – Jan 2011

Awards and Achievements

- Department of Commerce Bronze Medal Award 2015
- For development of a situational awareness tool to assess the impacts of snow and ice on commerce

Professional Service and Activity

- Local Manager, WxChallenge National Forecasting Competition
 - University of Utah 2009–2012
 - University of Michigan 2008–2009
- Forecast Discussion Leader, Campus Forecast, University of Utah 2009–2011
- Student Advisory Committee, Dept. Atmospheric Sciences, University of Utah 2011–2013
- Professional Memberships
 - National Weather Association 2012–present
 - American Geophysical Union 2009–present
 - American Meteorological Society 2007–present

Academics

- Ph.D., Atmospheric Science, University of Utah (2014)
 - Quantifying the climatological characteristics of atmospheric rivers over the western United States
 - Advised by Jim Steenburgh, Ph.D.
- M.S., Atmospheric Science, University of Utah (2011)
 - Quantifying the response of the tropospheric circulation to various climate forcings (O₃, CO₂, and sea surface temperatures)
 - Advised by Thomas Reichler, Ph.D.
- B.S.E., Earth Systems Science and Engineering, University of Michigan (2009)
 - Dual concentration in Meteorology and Climate Physics

Publications

- Rutz, J. J., W. J. Steenburgh, and F. M. Ralph, 2014: Climatological characteristics of atmospheric rivers and their inland penetration over the western United States, *Mon. Wea. Rev.*, **142**, 905–921.
- Rutz, J. J. and C. V. Gibson, 2013: Integration of a road surface model into NWS operations. *Bull. Amer. Meteor. Soc.*, **94**, 1495–1500.
- Rutz, J. J., and W. J. Steenburgh, 2012: Quantifying the role of atmospheric rivers in the interior western United States, *Atmos. Sci. Lett.*, **13**, 257–261.
- Staten, P. W., J. J. Rutz, T. Reichler, and J. Lu, 2011: Breaking down the tropospheric circulation response by forcing, *Climate Dynam.*, **39**, 2361–2375.