

JARED WESLEY OYLER

Ecological Climatologist and
Scientific Programmer

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EDUCATION

Ph.D. in Ecological Climatology, University of Montana

2015

Dissertation Title: Spatiotemporal Variability of Topoclimatic Air Temperature across the Conterminous United States
Concentration: Ecological climatology and remote sensing
Advisor: Dr. Steven Running

M.S. in Geography, Pennsylvania State University

2009

Concentration: Ecological remote sensing and GIScience
Advisors: Dr. Erica Smithwick and Dr. Alan MacEachren

B.S. in Computer Information Systems, Drexel University

2003

Concentration: Web and database development
GPA: 4.0/4.0, summa cum laude

RESEARCH AND WORK EXPERIENCE

Network for Sustainable Climate Risk Management (SCRiM)

2016 – present

Earth and Environmental Systems Institute, Pennsylvania State University
Postdoctoral Scholar

Computational Ecology Laboratory

2015

Division of Biological Sciences, University of Montana

Research Scientist and Scientific Programmer, NASA TopoFire Project

Developed climate/weather statistical models and high-resolution data products for wildland fire management.

Numerical Terradynamic Simulation Group

2009 – 2015

Montana Climate Office

College of Forestry and Conservation, University of Montana

Research Assistant and Scientific Programmer

Researched and developed methods for improving spatiotemporal representations of topoclimatic air temperature. Analyzed drivers of climate trends in western U.S. mountains. Designed and developed open source empirical climate modeling frameworks and datasets:

<https://github.com/jaredwo/topowx>. Managed research project software development and data storage. Provided coding support to lab members.

Department of Geography

2012

College of Arts and Sciences, University of Montana

Instructor

Served as course instructor for 300-level weather and climate class. Prepared and gave twice-weekly lectures to over 50 students. Prepared course activities and exams. Managed and mentored teaching assistant.

TECHNICAL SKILLS

Programming Languages

- Python
- R
- Java
- C / C++

GIS

- ArcMap
- GDAL/OGR
- QGIS
- GRASS
- OpenLayers
- Google Earth Engine

Scientific Computing

- Python
 - NumPy
 - SciPy
 - Matplotlib
 - Pandas
- R
- GNU Sci. Lib.
- MPI
- MATLAB

Database and Data Management

- NetCDF
- HDF
- MySQL
- SQLite
- SQL; PL/SQL
- Oracle

Software Engineering

- Version control systems (Git)
- Integrated development environments (Eclipse, RStudio)
- Object-oriented design patterns
- Agile software development
- Use case development

GeoVISTA Center and Landscape Ecology Lab
Department of Geography, Pennsylvania State University
Research Assistant

2007 – 2009

GeoVISTA Center—Participated in the research and development of geovisualization, geocollaboration, and ontology creation software with focus on web mapping technologies.
Landscape Ecology Lab—Investigated the effect of burn severity on boreal vegetation recovery and dynamics using remote sensing, spatial analysis, and geovisualization techniques. Participated in ecological fieldwork for project examining carbon storage and surface energy fluxes during post-fire succession in the Alaska boreal forest.

IT
– Linux (CentOS)
– Mac OS X
– Windows
– VMWare

The Vanguard Group
Valley Forge, Pennsylvania
Software Engineer

2003 – 2007

Member of a large software development team supporting external and internal web-based systems powered by IBM WebSphere. Worked as Java business logic layer developer for large-scale banking application project. Performed analysis, software design, and implementation. Reengineered current Java banking application to interface with new DB2 database modules and developed unit test baseline. Refactored legacy Java code and developed software enhancements for various web-based systems. Provided on-call production support. Investigated and resolved defects in Java, Unix shell scripts, and C++ software baselines.

PUBLICATIONS AND REPORTS

Oyler, J.W., S.Z. Dobrowski, Z.A. Holden, and S.W. Running (2016), Remotely sensed land skin temperature as a spatial predictor of air temperature across the conterminous United States. *J. Appl. Meteorol. Climatol.*, <http://dx.doi.org/10.1175/JAMC-D-15-0276.1>.

Holden, Z. A., A. Swanson, A.E. Klene, J.T. Abatzoglou, S.Z. Dobrowski, S.A. Cushman, J. Squires, G.G. Moisen, and **J.W. Oyler** (2015), Development of high-resolution (250 m) historical daily gridded air temperature data using reanalysis and distributed sensor networks for the US Northern Rocky Mountains. *Int. J. Climatol.*, <http://dx.doi.org/10.1002/joc.4580>.

Oyler, J. W., S.Z. Dobrowski (2015), Temperature trend biases in gridded climate products in the western United States, *Mountain Views. The Newsletter of the Consortium for Integrated Climate Research in Western Mountains*, 9(1), 45–6.

Oyler, J.W., S.Z. Dobrowski, A.P. Ballantyne, A.E. Klene, and S.W. Running (2015), Temperature trend biases in gridded climate products and the SNOTEL network. *Western Snow Conference Proceedings*. Paper presented at the Western Snow Conference, Grass Valley, CA, 20-23 April.

Kleindl, W.J., F.R. Hauer, B. Ellis, S. Kimball, K. Kunkel, P. Matson, C. Muhlfeld, **J.W. Oyler**, E. Porter, C. Servheen, and K. Smucker (2015), A multi-metric watershed condition model for Glacier National Park. Natural Resource Report NPS/GLAC/NRR—2015/944. National Park Service, Fort Collins, Colorado.

Oyler, J.W., S.Z. Dobrowski, A.P. Ballantyne, A.E. Klene, and S.W. Running (2015), Artificial amplification of warming trends across the mountains of the western United States, *Geophys. Res. Lett.*, <http://dx.doi.org/10.1002/2014GL062803>.

Oyler, J. W., A. Ballantyne, K. Jencso, M. Sweet, and S. W. Running (2014), Creating a topoclimatic daily air temperature dataset for the conterminous United States using homogenized station data and remotely sensed land skin temperature, *Int. J. Climatol.*, <http://dx.doi.org/10.1002/joc.4127>.

Mills, L. S., M. Zimova, **J. Oyler**, S. Running, J. T. Abatzoglou, and P. M. Lukacs (2013), Camouflage mismatch in seasonal coat color due to decreased snow duration, *Proc. Natl. Acad. Sci. U. S. A.*, 110(18), 7360–5, <http://dx.doi.org/10.1073/pnas.1222724110>.

Bohn, T. J., B. Livneh, **J. W. Oyler**, S. W. Running, B. Nijssen, and D. P. Lettenmaier (2013), Global evaluation of MTCLIM and related algorithms for forcing of ecological and hydrological models, *Agric. For. Meteorol.*, 176, 38–49, <http://dx.doi.org/10.1016/j.agrformet.2013.03.003>.

Pierce, D. W., A. L. Westerling, and **J. Oyler** (2013), Future humidity trends over the western United States in the CMIP5 global climate models and variable infiltration capacity hydrological modeling system, *Hydrol. Earth Syst. Sci.*, 17(5), 1833–1850, <http://dx.doi.org/10.5194/hess-17-1833-2013>.

Oyler, J.W., R.S. Anderson, and S.W. Running (2010), Crown of the Continent climate impacts assessment. Wilderness Society Report.

SELECTED MEETING ABSTRACTS

Oyler, J.W., and S.W. Dobrowski (2015), Understanding temperature trend biases in gridded climate products. Northwest Climate Conference, Coeur d'Alene ID, November 2015.
https://www.youtube.com/watch?v=IUL_zLVOvBU.

Oyler, J.W., S. Dobrowski, A. Ballantyne, A. Klene, and S.W. Running (2014), Artificial amplification of elevation-dependent warming in the western U.S. MTNCLIM 2014 Mountain Climate Research Conference, Midway UT, September 2014.

Oyler, J.W., A. Ballantyne, K. Jencso, M. Sweet, S.W. Running, and R. Behnke (2014), A topoclimatic air temperature dataset for the conterminous U.S. Annual Meeting of the American Association of State Climatologists, Stevenson WA, July 2014.

Oyler, J.W., A. Ballantyne, K. Jencso, S.W. Running, M. Sweet, and R. Behnke (2013), A landscape-scale 1948-2012 daily spatial temperature dataset for the conterminous United States. National Center for Atmospheric Research Next Generation Climate Data Products Workshop, Boulder CO, July 2013.

Oyler, J.W., Q. Mu, M. Zhao, and S.W. Running (2012), Assessment of the MODIS global terrestrial evapotranspiration algorithm within a mountainous landscape. American Geophysical Union Chapman Conference on Remote Sensing of the Terrestrial Water Cycle, Kona HI, February 2012.

Oyler, J.W., and S.W. Running (2011), An empirical topoclimatology model for regional and landscape scale assessments of water balance and related ecological/hydrological processes in complex topography. American Geophysical Union Fall Meeting 2011, San Francisco CA, December 2011.

Oyler, J.W., R. Anderson, and S.W. Running (2010), Downscaling climate projections to a mountainous landscape: A climate impact assessment for the U.S. Northern Rockies Crown of the Continent Ecosystem. American Geophysical Union Fall Meeting 2010, San Francisco CA, December 2010.

Oyler, J.W., E.A.H Smithwick, and M.C. Mack (2009), The effect of burn severity on short-term post-fire boreal vegetation recovery in Interior Alaska. Association of American Geographers, Las Vegas NV, March 2009.

PUBLIC TALKS

Artificial amplification of warming trends across the mountains of the western U.S. (2014), RMRS Missoula Fire Lab Fall Seminar Series, Missoula MT, October 2014.

Climate Change and Natural Climate Variability in Montana (2014), Center for Rural Affairs, Polson MT, June 2014.

Natural Climate Variability and Climate Change in Montana (2014), Ninemile Wildlife Workgroup, Huson MT, February 2014.

HONORS

Dr. J.E. Church Best Student Presentation Award, Western Snow Conference, 2015

Academic Enrichment Award, Department of Geography, Pennsylvania State University, 2008

Vanguard Sport Award for key contributions to software development, The Vanguard Group, 2005/2006

Summa Cum Laude (Highest Undergraduate GPA), Drexel University, 2003