

C. David Moeser

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Birthdate: xx.xx.1977

Citizenship: USA

Education

Ph.D - ETHZ - Swiss Federal Institute of Technology Zürich (Jan. 2012- Dec. 2015)

- Department of Environmental Systems Science: *Surface Water Hydrology*

Dissertation Title: The Influence of Forest Canopy Structure on Snow Hydrology ([Link](#))

M.S. - University of Nevada, Reno (2008- 2010)

- Department of Hydrologic Sciences: *Surface Water Hydrology*

Thesis Title: Development, Analysis and Use of a Distributed Wireless Sensor Network for Quantifying Spatial Trends of Snow Depth and Snow Water Equivalence ([Link](#))

B.S. - Fort Lewis College, Durango, Colorado (2001-2004)

- Department of Geosciences: *Environmental Geology, Chemistry Minor*

Thesis Title: Discriminating Pre- and Post- Mining Effects on The Middle Fork of Mineral Creek, Silverton, CO, Using Tree Core Analysis

- Awarded outstanding senior in the earth sciences (Eugene M. Shoemaker Award) | Freda T. Roof and Julie Turner Oliva Scholarship recipient, given for superior academic performance

Languages

- *Spanish – CEFR level B2* | Xela, Guatemala (2005) | Bogota, Colombia (2006) | La Paz, Bolivia (2007)
- *German – CEFR level B2* | Chur, Switzerland (2012-2014) | Davos, Switzerland (2014-2016)

Employment

USGS – NM Water Science Center –Hydrologist (July 2016 – Present) Albuquerque, NM

WSL Institute for Snow and Avalanche Research SLF –Research Snow Hydrologist / PhD candidate (February 2012 – February 2016) Davos, Switzerland

World Business Council for Sustainable Development – Water Project – Temporary Contract Hydrologist (September 2011 – February 2012) Geneva, Switzerland

WSL Institute for Snow and Avalanche Research SLF – (Intern) Snow Hydrologist (Jan 2011 – July 2011) Davos, Switzerland

University of Nevada, Reno – Research Assistant (September 2008 – December 2010)

BLM / U.S. Forest Service – Hydrologic Technician (2005- 2007) Durango, CO

Tom D. Gorton Construction – Carpenter (1999- 2004) Durango, Colorado

Teaching

Invited Instructor – ETHZ, Department of Environment Systems Science (2013, 2014) | Course: *Environmental Measurement Laboratory (701)*

- Developed course and laboratory structure for a 6-hour lecture module that was designed to integrate matlab programming with remotely sensed data

Teaching assistant - University of Nevada, Reno – Department of Natural Resources and Environmental Science (2008–2010) | Course(s): *Ecohydrology (295)*, *Ecohydrology field camp (400)*

- Developed new course material and methods
- Lectured and supervised field and laboratory work

University of Nevada Cooperative Extension, “*Discover your Future Program*” (2009, 2010)

- Served as activity leader and guest lecturer about basic hydrologic field methods and applications for high school students

Advised graduate students

- Jiri Roubinek: MSc – *Snow hydrology* (2012) – Charles University, Prague – Czech Rep.
- Giulia Mazzotti: MSc – *Snow hydrology* (2015) – ETH, Zürich - Switzerland

Published papers

Douglas-Mankin, K., **D. Moeser**, 2018 (In Press); *Calibration of PRMS to Simulate Pre- and Post-Fire Hydrologic Response in the Upper Rio Hondo Basin, New Mexico.*, United States Geological Survey Scientific Investigations Report : submitted – March 2018

Douglas-Mankin, K., **D. Moeser**, 2018 (In Press); *PRMS simulations for the Rio Hondo Basin, New Mexico.*, U.S. Geological Survey data release – July 2018

Moeser, D., G. Mazzotti, N. Helbig, T. Jonas, 2016; *Representing spatial variability of forest snow: Implementation of a new interception model*; Water Resources Research, doi: 10.1002/2015WR017961 ([Link](#))

Moeser, D., M. Stähli, T. Jonas, 2015; *Improved snow interception modeling using novel canopy parameters from airborne LIDAR data*; Water Resources Research, doi: 10.1002/2014WR016724 ([Link](#))

Moeser, D., F. Morsdorf, T. Jonas, 2015; *Novel forest structure metrics from airborne LiDAR data for improved snow interception estimation*; Agriculture and Forest Meteorology, doi: 10.1016/j.agrformet.2015.04.013 ([Link](#))

Moeser, D., J. Roubinek, P. Schleppei, F. Morsdorf, T. Jonas, 2014; *Canopy closure, LAI and radiation transfer from airborne LiDAR synthetic images*; Agricultural and Forest Meteorology, doi: 10.1016/j.agrformet.2014.06.008 ([Link](#))

Papers in progress

Moeser, D., Broxton, P., Harpold, A., *Improvements in Snow Modeling in Mountain Forests from Three Dimensional Canopy Structure.*, Water Resources Research: submitted - May 2018

Moeser, D., Douglas-Mankin, K., *Simulating Hydrologic Effects of Wildfire on a Small Sub-alpine Soutwestern U.S. Watershed.*, Int. J. Wildland Fire: submitted - October 2018

Tillery, A., **Moeser, D.**, Martin, M., *Changes in Watershed Hydrologic Response with Time in a Severely-burned, High-desert Canyon, Bandelier National Monument, NM*, Int. J. Wildland Fire: in preparation for submission November 2018

External reports and successful grant proposals (first author)

South Central Climate Science Center – ‘*The Effects of Wildfire on Snow Water Resources Under Multiple Climate Conditions* (2017): ~375,000 USD

Swiss National Science Foundation – ‘*Snow Distribution Dynamics under Forest Canopy*’ (2012): ~175,000 USD ([Link](#))

Agriculture Research Service – ‘*Recommended Procedure for Assessing Soil Disturbances in Vegetation Management Projects within Sensitive Areas of the Lake Tahoe Basin*’ (2008)

Conference papers and presentations

- Helbig, N., **D. Moeser**, M. Teich; 'Spatially-Averaged Sky View Factors for Snow Interception over Forest Canopy,' European Geophysical Union, Vienna, Austria, April 2018
- Moeser, D.**, K. Douglas - Mankin; 'Hydrologic Impacts of Wildfire on a Small Sub-alpine Southwestern U.S. Watershed: A Simplified Modeling Approach,' American Geophysical Union, New Orleans, LA, December 2017
- Sexstone, G., C. Penn, D. Clow, **D. Moeser**, G. Liston; 'Changes in the Relation Between Snow Station Observations and Basin Scale Snow Water Equivalence,' American Geophysical Union, December 2017
- Moeser, D.**, M. Stähli; 'Forest Canopy Controls on Snow Hydrology,' Western Snow Conference, Boise, Idaho, March 2017
- Moeser, D.**; 'Forest snow hydrology,' Department colloquium series, Department of Earth and Environmental Science, New Mexico Tech, Socorro, New Mexico, January 2017
- Moeser, D.**; 'The influence of forest canopy structure on snow hydrology: Novel modeling and visualization approaches,' Department colloquium series, Department of Earth and Planetary Sciences, University of New Mexico, Albuquerque, New Mexico, December 2016
- Moeser, D.**, M. Stähli; 'The influence of canopy structure on snow,' poster presentation, American Geophysical Union meeting, San Francisco, California, December 2016
- Moeser, D.**, M. Stähli, T. Jonas; '*Snow interception modeling*,' oral presentation, The International Union of Geodesy and Geophysics, Prague, Czech Republic, June 2015
- Moeser, D.**, F. Morsdorf, T. Jonas; '*Improving snow interception modeling using LiDAR data*,' poster presentation, American Geophysical Union meeting, San Francisco, CA, December 2014
- Moeser, D.**, J. Roubinek, F. Morsdorf, T. Jonas; '*Snow distribution dynamics under forest canopy*,' poster presentation, American Geophysical Union meeting, San Francisco, CA, December 2013
- Moeser, D.**, T. Jonas, F. Morsdorf; '*Linking snow accumulation patterns in forests with LiDAR derived canopy structure data*,' oral presentation, Davos Atmosphere and Cryosphere Assembly – The International Union of Geodesy and Geophysics, Davos, Switzerland, July 2013
- Jonas, T., **D. Moeser**, F. Morsdorf; '*Linking forest snow distribution measurements with canopy structure data*,' Presented by Dr. Tobias Jonas at the American Geophysical Union meeting, San Francisco, California, December 2012
- Jonas, T., **D. Moeser**, J. Magnusson, M. Bavay; '*Validation of multiple approaches for modeling SWE Distribution and subsequent snowmelt in a small alpine watershed*,' Presented by Dr. Tobias Jonas at the International Union of Geodesy and Geophysics, Melbourne, Australia, July 2011
- Moeser, D.**, M. Walker, C. Skalka, J. Frolik; '*A distributed wireless sensor network for quantifying spatial trends of snow depth and snow water equivalent*,' Presented by Dr. Mark Walker at the 79th Annual Western Snow Conference, Stateline, NV, April 2011.
- Moeser, D.**, M. Walker, C. Skalka, J. Frolik; '*Development, analysis & sse of a distributed wireless sensor network for quantifying spatial trends of snow*,' Presented by Dr. Mark Walker at the Nevada Water Resources Association, Annual conference Reno, NV, February 2011.
- Moeser, D.**, Skalka, C., M. Walker, J. Frolik; '*Snowcloud: development of a distributed in situ instrument for snowpack monitoring*,' Poster presentation, American Geophysical Union meeting, San Francisco, California, December 2009

Conference Organization / Colloquium Series

86th Annual Western Snow Conference (2018), 'Snow in the context of Climatic Extremes'
Albuquerque, New Mexico, USA <https://westernsnowconference.org/meeting/2018>

2018 - U.S. Geological Survey - New Mexico Water Science Center Colloquium Series – Monthly series of external speakers – open to public

Volunteer experience

Student Organization for International Water Issues (2008-2010) Reno, NV

Animas River Stakeholders Group (2003 – 2006) Silverton, CO

Hobbies

Rock Climbing, Mountaineering, Travel, Languages