G. Aaron Alexander

Email: galexander@ucdavis.edu
Phone: 1 (775) 388-4622
Citizenship: U.S.

Research Interests:

Land-atmosphere interactions, atmospheric modeling through use of high-performance computing, interaction between complex terrain and atmospheric flows, and the application of data science techniques to geophysical problems.

Education:

University of California, Davis **August 2017 – Present**

Ph.D. Student in Water Resources Engineering, GPA: 3.95
Advisor: Dr. Holly J. Oldroyd
Emphasis in Micrometeorology/Land-Surface Interactions/Earth Systems Modeling

University of Nevada, Reno **August 2013-May 2017**

B.S. in Physics and Atmospheric Sciences, GPA: 3.97
Honors:

Magna Cum Laude
Westfall Scholar, Department of Physics 2017
University of Nevada, Reno Outstanding Senior Award 2017
NSF Nevada EPSCoR Grant Recipient 2016
University of Nevada, Reno Undergraduate Research Scholarship Recipient 2016
John W. James Scholarship Recipient 2016
Dean's List Fall 2013-Spring 2017

Research Experience:

Graduate Research Assistant **August 2017 – Present**
University of California, Davis

- Investigating the impacts of soil moisture and irrigation on land-surface characteristics and atmospheric boundary layer dynamics.
- Utilizing the Weather Research and Forecasting Model, in-situ observations, and satellite remote sensing data.
- Simulation of atmospheric dynamics of the Central Valley to close the ozone and surface energy budgets, and examine the relationship between entrainment and land-surface processes
- Time series data analysis for projects ranging from evapotranspiration characterization in the Central Valley to quantification of the Turbulent Kinetic Energy budget in Corvallis, OR.

G. Aaron Alexander galexander@ucdavis.edu

Undergraduate Researcher **February 2016 – May 2017**
University of Nevada, Reno

- Advised by Dr. Heather Holmes as part of the Atmospheric Turbulence and Air Quality Laboratory.
- Studied how atmospheric variables impacted solar panel efficiency in the semi-arid climate of Nevada utilizing in-situ observations and the Weather Research and Forecasting Model.

Atmospheric Science REU **Summer 2015**
Texas A&M University

- Studied the growth of secondary aerosols at the WG Jones State Forest outside of Houston Texas and aided in the fabrication of the mobile Captive Aerosol Growth an Evolution environmental chambers.
- Participated in a field experiment investigating the Land-Sea Breeze in Galveston Texas.

Teaching Experience:

Undergraduate Weather Workshop **May/October 2018**

- Developed and taught a five-hour workshop for undergraduate civil and environmental engineering students as a 'Crash Course' on the theory behind atmospheric observation.
- Students interacted in groups to develop communication skills and generate a measurement campaign given a real-world scenario.

Atmospheric Boundary Layer Dynamics Guest Lecture **November 2018**

- Taught graduate level lecture on atmospheric boundary layer modeling focusing on techniques used in current numerical weather predication models

Teaching Assistant **Winter Quarter 2018**
Engineering Hydraulics

- Led lab lecture and demonstration covering topics such as pipe flow and open channel flows. Aided in grading laboratory reports, grading midterm exams, and responding to student questions on course content.

Teaching Assistant **Fall Quarter 2017**
Introductory Fluid Mechanics

- Organized laboratory lectures and demonstrations for junior level fluid mechanics course. Aided in proctoring examinations, grading laboratory reports, and aiding in creation of final laboratory video projects.

G. Aaron Alexander galexander@ucdavis.edu

Professional Service:

American Meteorological Society Student Conference February 2017 – Present

- Helped organize AMS Student Conference in Austin Texas (2018) and Phoenix Arizona (2019)
- Corresponded with national partners for conference session suggestions, coordinated speakers, and planned interactive workshops for students to attend.

  Sessions Planned:

  The Social Sphere: Public Policy in the Weather Sector 2019
  Graduate Student Panel 2019
  Interactive Resume Workshop 2019 & 2018
  Academia Breakout Session 2018

Meteorology and Climate - Modeling for Air Quality August 2017-September 2017

- Volunteered to help plan National Conference for Meteorology, Climate, and Air Quality. Worked to finalize details pertaining to food, organization, and enforced time restrictions for entire conference.

Conference Presentations:

- **Alexander G. A**., H. A. Holmes, J. Trousdell, I. Faloona, and H. J. Oldroyd: The Influence of Irrigated Soil Moisture on Modeled Land-Atmosphere Interactions and Simulated Flows in the San Joaquin Valley, California. *33rd Conference on Hydrology*, Phoenix, AZ, Amer. Meteor. Soc. ***(Upcoming)***
- Faloona, I., D. Caputi, J. Smoot, N. Falk, S. A. Conley, **G. A. Alexander,** H. J. Oldroyd: Synoptic Controls on Entrainment Mixing, Shear, and The Three-Layer Atmosphere Above the San Joaquin Valley of California. *23rd Symposium on Boundary Layers and Turbulence,* Norman, OK, Amer. Meteor. Soc.
- **Alexander, G. A.,** H. A. Holmes, W. P. Arnott, J. C. Barnard, A. Rollings: Determining Atmospheric Conditions That Impact Solar Energy Potential in Nevada. *Eighth Conference on Weather, Climate, Water and the New Energy Economy hosted at Annual AMS National Conference 2018,* Seattle, WA, Amer. Meteor. Soc.
- **Alexander, G. A.,** D. Collins, M. Salgado: Direct Measurement of the Impact of Atmospheric Processing on the Size and Properties of Sub- and Super-micron Aerosol Particles. *15th Annual AMS Student Conference,* New Orleans, LA, Amer. Meteor. Soc.