

Eric Keenan

CLIMATE · ICE SHEETS · NUMERICAL MODELING

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Education

PhD: Atmospheric and Oceanic Sciences

May. 2018 - Present

UNIVERSITY OF COLORADO, BOULDER

Boulder, CO, USA

Advisor: Dr. Jan Lenaerts

BSc: Earth and Space Sciences: Physics

Aug. 2013 - Jun. 2017

UNIVERSITY OF WASHINGTON, SEATTLE

Seattle, WA, USA

Graduated Cum Laude

Research Experience

Graduate Research Assistant

May. 2018 - Present

UNIVERSITY OF COLORADO, BOULDER - ICE SHEETS AND CLIMATE GROUP

Boulder, CO, USA

- Combine numerical modeling techniques with satellite, in-situ, and atmospheric reanalysis products to model Antarctic surface mass balance at unprecedented horizontal resolution.
- Evaluate regional climate model and atmospheric reanalyses representation of extreme precipitation in East Antarctica by comparing with ground and satellite based estimates of precipitation.

Water Isotope Geochemist

Jun. 2017 - Dec. 2017

JUNEAU ICEFIELD RESEARCH PROGRAM

Juneau, AK, USA

- Participated in an eight week geoscience expedition on the Juneau Icefield in South East Alaska.
- Successfully linked air temperature to snow water isotope concentrations in a maritime climate and presented results to an international audience at the 2017 American Geophysical Union Fall Meeting.

Undergraduate Research Assistant

Nov. 2014 - Nov. 2017

UNIVERSITY OF WASHINGTON, SEATTLE - MOUNTAIN HYDROLOGY RESEARCH GROUP

Seattle, WA, USA

- Maintained a network of approximately 25 wilderness stream gauges and 25 hydrometeorological monitoring instruments from 2015-2017 in Yosemite National Park.
- Synthesized a meteorologic and surface snow dataset designed to provide a platform to evaluate seasonal snow models in the Rain-Snow Transition Zone.

Publications

Lundquist, J. D., C. Chickadel, N. Cristea, W. R. Currier, B. Henn, **E. Keenan**, and J. Dozier, 2018, Separating snow and forest temperatures with thermal infrared remote sensing, Remote Sensing of Environment, 209, 7640779. <https://doi.org/10.1016/j.rse.2018.03.001>.

Lundquist, J. D., Roche, J. W., Forrester, H., Moore, C., **Keenan, E.**, Perry, G., Cristea, N., Henn, B., Lapo, K., McGurk, B., Cayan, D. R. and Dettinger, M. D. (2016), Yosemite hydroclimate network: Distributed stream and atmospheric data for the Tuolumne River watershed and surroundings. Water Resour. Res., 52, doi:10.1002/2016WR019261.

Wayand, N. E., A. Massmann, C. Butler, **E. Keenan**, J. Stimberis, and J. D. Lundquist (2015), A meteorological and snow observational data set from Snoqualmie Pass (921 m), Washington Cascades, USA, Water Resour. Res., 51, 10092–10103, doi:10.1002/2015WR017773.

Teaching Experience

High School STEM Tutor

Jan. 2019 - Present

I HAVE A DREAM FOUNDATION

Boulder, CO, USA

- Weekly after school STEM tutoring with low-income students at Boulder High School.

Graduate Student Instructor

Aug. 2018 - Dec. 2018

UNIVERSITY OF COLORADO, BOULDER

Boulder, CO, USA

- Instructor for Atmospheric and Oceanic Sciences 1070 "Weather and Atmosphere Laboratory." Lead lectures, experiments, grading, and office hours for 48 students.

Outreach and Service

2019	High School STEM Tutor , I Have a Dream Foundation, Boulder, CO, USA.	Jan. - Present
2018	Colloquium Committee , Department of Atmospheric and Oceanic Sciences, Boulder, CO, USA.	Sep. - Dec.
2018	Poster Conference Committee , Department of Atmospheric and Oceanic Sciences, Boulder, CO, USA.	Sep. - Present
2017	STEM Rocketry Outreach , Northwest Earth and Space Sciences Pipeline, Seattle, WA, USA.	Apr.
2016	Snow Hydrology Outreach , Engineering Discovery Days, Seattle, WA, USA.	Apr.
2015	Snow Hydrology Outreach , Engineering Discovery Days, Seattle, WA, USA	Apr.

Computer Skills

Operating Systems	Linux, macOS, and Windows
Programing Languages	Python, Bash, MATLAB, R, Java, and LaTeX
Tools	Jupyter Notebooks, Git, GDAL, Xarray, CDO, Pandas, and Cartopy

Field Experience

2017	UAV Glacier Survey , Mt. Baker Easton Glacier, WA, USA.	Oct. 5th
2017	Stream Gaging , Tuolumne Meadows, Yosemite National Park, CA, USA.	Aug. - Sep.
2017	Glacier Mass Balance and Water Isotope Sampling , Juneau Icefield, AK, USA.	Jun. - Aug.
2017	NASA SnowEx , Grand Mesa, CO, USA.	Feb.
2016	Meteorologic Measurements , Kapp Linné, Svalbard.	Sep.
2016	Hydrographic Measurements , Fram Straight and Isfjorden, Svalbard.	Aug.
2016	Stream Gaging , Tuolumne Meadows, Yosemite National Park, CA, USA.	Jun. - Jul.
2016	Remote Sensing Ground Validation , Dana Meadows, Yosemite National Park, CA, USA.	Feb.
2016	NASA International Snow Remote Sensing Group Field School , Fraser, CO, USA.	Jan.
2015	Stream Gaging , Tuolumne Meadows, Yosemite National Park, CA, USA.	Jun. - Jul.

Grants

2019	IACS-IGS Graham Cogley Awards , \$500 CAD.	Jul.
2019	IUGG General Assembly Student Travel Grant , \$390 CAD.	Jul.
2018	Graduate School Domestic Travel Grant , \$300.	Dec.
2016	Mary Gates Undergraduate Research Scholarship , \$5000.	Jan. - Jun.
2016	First Place, American Society of Civil Engineers Student Presentations , \$300	Jun.

Presentations

2019 IUGG General Assembly, Montreal, Canada. Modeling Antarctic Surface Mass Balance Using a Detailed Multi-Layered Snow Model. Poster presentation. July 10th, 2019.

2018 American Geophysical Union Fall Meeting, Washington, DC. Do Climate Models Properly Represent Atmospheric Rivers in East Antarctica? Poster presentation. December 13th, 2018.

2018 Earth System and Space Science Poster Conference, Boulder, CO. Do Climate Models Properly Represent Atmospheric Rivers in East Antarctica? Poster presentation. November 30th, 2018.

2017 American Geophysical Union Fall Meeting, New Orleans, LA. Can We Untangle the Weather? Stable Water Isotope Controls on the Juneau Icefield. Poster presentation. December 15th, 2017.

2017 University of Washington Undergraduate Research Symposium, Seattle, WA. M2 tides along the west coast of Svalbard: Simple is better. Oral presentation. May 19th, 2017.

2017 Department of Earth and Space Sciences Research Gala, Seattle, WA. Observations of M2 Tidal Propagation and Decay along the West Coast of Spitsbergen: New Possibilities for Numerical Model Evaluation. Oral presentation. March 31st, 2017.

2016 University of Washington American Society of Civil Engineers student presentations. Seattle WA. Airborne Thermal Infrared Remote Sensing of Snow Surface Temperature. Oral presentation. June 3rd, 2016.

2016 University of Washington Undergraduate Research Symposium, Seattle WA. Thermal Infrared Remote Sensing of Snow Surface Temperature. Oral presentation. May 20th, 2016.

2016 Western Snow Conference, Seattle WA. Thermal Infrared Remote Sensing of Snow Surface Temperature. Poster presentation. April 19th, 2016.

2016 Department of Earth and Space Sciences Research Gala, Seattle, WA. Thermal Infrared Remote Sensing of Snow Surface Temperature. Oral presentation. March 31st, 2016.

Professional Memberships

International Association of Cryospheric Sciences	2019 - Present
American Geophysical Union	2018 - Present