Eric **Keenan**

GLACIOLOGY · EARTH SYSTEM MODELING · COMPUTATIONAL EARTH SCIENCE

Department of Atmospheric and Oceanic Sciences, University of Colorado Boulder, 311 UCB, Boulder, Colorado, USA 80309

(+1) 206-919-0203 | Eric.Keenan@Colorado.EDU | erickeenan.github.io | EricKeenan | eric-keenan | @EricKeenanCU

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*

- Improved modeled representation of near-surface snow and firn density across the Antarctic ice sheet by adapting and deploying the detailed land-surface snow model, SNOWPACK.
- Evaluate regional climate model and atmospheric reanalyses representation of extreme precipitation in East Antarctica by comparing with ground and satellite based precipitation estimates.

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 data set 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

Graduate Student Instructor   *Jan. 2020 - Mar. 2020*

UNIVERSITY OF COLORADO, BOULDER   *Boulder, CO, USA*

- Developed a cloud native platform for students to execute and analyze their own land-surface snow model experiments.
- Distributed a uniform compute environment for students via a JupyterHub deployed on Google Cloud.

High School STEM Tutor   *Jan. 2019 - Jun. 2019*
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

Diversity Committee	Sep. 2019 - Present, Department of Atmospheric and Oceanic Sciences, Boulder, CO
Skype a Scientist	Feb. 2019 - Present, Classrooms in Winnipeg, Manitoba, Santa Monica, CA, and Mansfield, TX
High School STEM Tutor	Jan. - May. 2019, I Have a Dream Foundation, Boulder, CO
Colloquium Committee	Sep. 2018 - Present, Department of Atmospheric and Oceanic Sciences, Boulder, CO
Poster Conference Committee	Sep. - Nov. 2018, Department of Atmospheric and Oceanic Sciences, Boulder, CO
STEM Rocketry Outreach	Apr. 2017, Northwest Earth and Space Sciences Pipeline, Seattle, WA
Snow Hydrology Outreach	Apr. 2016, Engineering Discovery Days, Seattle, WA
Snow Hydrology Outreach	Apr. 2015, Engineering Discovery Days, Seattle, WA

Computer Skills

Operating Systems	Linux, macOS, and Windows
Programing Languages	Python, Bash, MATLAB, R, Java, and LaTeX
Tools	Google Cloud, JupyterHub, git, xarray, CDO, pandas, cartopy

Field Experience

2020	**Belgian Antarctic Expedition**, Princess Elisabeth Station, Dronning Maud Land, East Antarctica		*Nov. - Dec.*
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.*

Awards and Grants

2019	**IACS-IGS Graham Cogley Award**, $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

Universtiy of Colorado, Department of Atmospheric and Oceanic Sciences Colloqium, Advances in physics-based modeling of Antarctic snow properties. Seminar. May 18th, 2020.

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