

Curriculum Vitae
Gerard H. Roe
Professor, Associate Chair
Dept. of Earth and Space Sciences,
University of Washington, Seattle, WA.

ADDRESS

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EDUCATION AND EMPLOYMENT

Massachusetts Institute of Technology, Cambridge, MA
Ph.D. in Atmospheric Science, June 1999. Dissertation under Prof. Richard Lindzen:
“The mutual interaction between the great continental ice sheets and atmospheric
stationary waves”.

Oriel College, University of Oxford, Oxford, UK
Bachelor of Arts degree in Physics. First Class Honors, June 1992.

September 2012 to present: Full Professor, Seattle, WA
September 2007 to 2012: Associate Professor,
January 2003 to 2007: Assistant Professor
University of Washington, Department of Earth and Space Sciences,
Adjunct Associate Professor, Dept. of Atmospheric Sciences

September 1999 to December, 2002: Postdoctoral Researcher, Seattle, WA
University of Washington, Quaternary Research Center/Joint Institute for The Study of
the Atmosphere and Ocean.

September 1993 – March 1999: Graduate Research Assistant, Cambridge, MA
March 1999 – July 1999: Post-doctoral Associate, Massachusetts Institute of
Technology, Program in Atmospheres, Oceans, and Climate.

PROFESSIONAL OFFICES/AWARDS/SERVICE

ESS excellence in teaching award, 2012.
Distinguished Public Lecturer, Cooperative Institute for Research in Environmental
Sciences. October '08.
Flint Visiting Professor, Yale University, April to June, 2007
ESS teaching award, honorable mention, 2006, 2007.
UW distinguished mentor award, nomination 2009.
Carl-Gustav Rossby Award for ‘Most Outstanding Thesis’ submitted to the Program in
Atmospheres, Oceans, and Climate, 1998-99.
Oxford University Exhibition, June 1990.
Associate Editor, Quaternary Research, 2004 to 2011.

Session organizer, IUGG Cryosphere, Davos, June 2013
Session organizer, Tectonic and Climates, Gordon Conference, June 2011
Session Co-chair: Orographic Precipitation and Landscapes, AGU Dec, 2009, 2011
Session organizer, Rapid Climate Change, Leverhulme Symposium, Cambridge University, Royal Society, London, U.K, March, '08.
Organizer NSF workshop "Climate over Landscapes", Sept '07
Reviewer (~1 to 2 per month) for NSF, and major journals.

UW SERVICE/DUTIES/COMMITTEES

ESS Associate Chair, July 15 to present
ESS undergraduate advisor. Jun 06 to present;
ESS curriculum committee, 2011-present
ESS executive committee. 2013-2015, 2016 to present
ESS MESSAGE review panel, 2014.
ESS computer committee (chair, 2007); ESS curriculum committee; ESS prelims exam committee Fall 04, 05, 06, 08; ESS graduate admissions Spr '05; ESS glaciology research faculty search committee, Fall '04; Seminar organizer (ESS, QRC, PCC).
Co-chair Environmental Institute, 2009
UW Program on climate change: governing board Jan 03 to present; executive committee 2005 to 2010; director search committee, June 06; postdoc hiring committee, Sept '03; organizer summer retreat Sept'03.
UW Program on the Environment, member advisory board
UW College of the Environment, Institute committee, Co-Chair, 2010
Math and Science Field Committee to the Provost's Advisory Council on Teacher Preparation

CLASSES TAUGHT

ESS310: Mathematical methods in Earth Sciences, Spring, 2013, 2014, 2015, 2016, (2017, 5 credits, 11 students, 100% responsibility)
ESS590/OCN589/ATM586: Climate dynamics (Winter 2017, 10 students, 50% (co-taught with K. Armour)
ESS418: Communications (Winter 2017, 5 credit, 37 students, 100% responsibility)
ESS/ATM/OCN586: Everything you always wanted to know about climate (but were afraid to ask), Fall 2012
ESS 414/514: Geophysics - fluids, Spring, 2012; Winter, 2013, Winter 2015, Winter 2016, Fall 2017
ESS/ATM/OCN 589: Paleoclimate, Spring, 2011
ESS 201: The Earth system and climate, Winter, 2009, 2010
ESS exploration seminar Denmark and Greenland, August, 2008
ESS 590: Landscapes and Climate, Spring 2009
ESS 590: Climate feedbacks, Fall 2014
ENVIR 511 512: Graduate certificate in environmental management, City of Bellevue action plan for community greenhouse gas reduction, Winter, Spring 09
ESS 314: Geophysics: expedition to planet Earth, Winter 2004, Fall, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2013.
PCC/ATM/OCN/ESS 587: Climate dynamics, Fall 2003, 2004, 2005, 2006, 2007, 2008

ESS 416/516: Geophysics: the atmosphere, Spring 2003, 2004, 2005, 2006.
ESS 590: Special topics in climate: Heinrich events (seminar). Fall 2003, Winter, Spring 2004. Centennial variability (seminar), Winter 2005; African aridity (seminar), Winter, '06; The Holocene Express, Winter 2007, Glaciology, Fall 2015.
ESS/ATM 590: Knowability and no ability in climate and earth sciences (seminar), Spring '06, '08, '09, Winter 2014
PCC 586: That sinking feeling: the thermohaline circulation (seminar). Spring, 2005.
ESS 534/ATM 514: Ice and climate modeling, Winter 2001.
ESS 431: Principles of glaciology (5 lecture module ice dynamics), Since Fall 2003.

INVITED SEMINARS, TALKS, AND COURSES

2017:

California Institute of Technology, Nov 2017. Glacier retreat as categorical evidence of regional climate change. Division colloquium.
Institute of Earth Environment, Chinese Academy of Sciences, Xian, China, Jun 2017: The dynamics of the Asian monsoon over geologic time.
University of Texas, Austin, Institute of Technology, Feb 17: Glacier retreat as categorical evidence of regional climate change. Institute Colloquium.
University of Washington, Mar 2017: Climate Impacts Group. Glacier retreat in the Pacific Northwest.

2016:

American Geophysical Union Fall Meeting, December 2016: The response of the Asian monsoon to the geologic extremes of the past 50 million years
Massachusetts Institute of Technology, March 16: A formal attribution of glacier retreat to climate change. MASS seminar series.
Georgia Institute of Technology, Mar 2016: A formal attribution of glacier retreat to climate change. School of Earth and Atmospheric Sciences, Dept. Seminar.

2015:

NSF summer school, climate and tectonics, August 2015 Lectures on basic atmospheric science, and glacier variability.
University of Washington, April 2015: Glacier variability and the global mass-balance inventory. Dept. Atmospheric Sciences dynamics seminar
Brigham Young University, April 2015. The impact on Asian climate of the largest geologic changes of the past 50 Ma., Geology colloquium.
California Institute of Technology, Feb 2015. The natural variability of glacier: was there a little ice age? Division colloquium.
California Institute of Technology, Feb 2015. Humpty Dumpty and regional climate prediction. Planetary Science Seminar.

2014:

American Geophysical Union Fall Meeting, December 2014: Regional predictability from regional feedbacks.

National Center for Atmospheric Research, Nov 2014: Humpty Dumpty and regional climate predictability., Lab seminar

Institute for Arctic and Alpine Research, Nov, 2014: The natural variability of glaciers, Institute seminar.

Woods Hole, Massachusetts, Summer 2014. Woods Hole summer school in geophysical fluid dynamics.

Friday Harbor, San Juan Islands, 2014. Program on climate change, Summer institute.

Disko Island, Greenland, August 2014. Advanced climate dynamics summer course, lecturer

Columbia University, Feb 2014: Humpty Dumpty and regional climate predictability. Dept Applied Math Seminar, New York.

Massachusetts Institute of Technology, Lorenz Center, Feb 2014: Regional climate predictability from regional patterns of feedbacks. 1st Lorenz Center workshop, Endicott House, Cambridge Ma

University of Washington, Feb 2014: Humpty Dumpty and regional climate predictability. Dept. Atmospheric Sciences, Dept. Seminar, Seattle.

2013

Massachusetts Institute of Technology, Cambridge, MA, Nov 2013: Humpty Dumpty and regional climate variability. MASS seminar series.

Massachusetts Institute of Technology, Cambridge, MA, Nov 2013: The natural variability of glaciers. Oceanography Seminar series

NSF Himalaya-Karakoram-Tibet Workshop, Tübingen, Germany, June 2013: The influence of Tibet on the climate of Asia.

2012

American Geophysical Union Fall Meeting: The case for regional feedbacks, December, 2012

American Geophysical Union Fall Meeting: Knowability and no ability in climate projections, December, 2012

European Geophysical Union, April 2012: Glacier long profiles in regions of active uplift, and their role in orogen dynamics.

Kaplan Workshop on Environmental Geochemistry, March 2012: The climate of Asia and Tibet and its relationship to paleoclimate proxies. Ein Gedy, Israel.

Kaplan Workshop on Environmental Geochemistry, March 2012: The natural variability of glaciers. Ein Gedy, Israel.

2011

American Geophysical Union Fall Meeting: What do glaciers tell us about climate variability and climate change?, December, 2011.

Imperial College London, Dept. Seminar, The role of the tectonic governor in mountain belt dynamics, London, January, 2011.

University College London, Was there a little ice age? Dept. Seminar, London, February, 2011.

Stockholm University, Dept. of Meteorology, Was there a little ice age? Dept. Seminar, May 2011.

ICDP Workshop, Lake Issy-kul, Kyrgyzstan, The climate of Central Asia, June, 2011

International Association of Cryospheric Sciences, What do glaciers tell us about climate variability and climate change? Melbourne, July 2011.

Camp Davis, Wyoming: Short course on mountain ranges and climate, 6 lectures. August 2011.

Friday Harbor, Washington: Short course on warm climates, 1 lecture. September, 2011.

2010

Environmental Protection Agency, Climate Damages Workshop, Washington D.C., Knowability and no ability in climate projections. Nov. 2010

Graduate Climate Conference, Pack Forest, Oct. 2010, Keynote speaker

Yale University, Directions in Crustal Geosciences Workshop: Geodynamics principles, not first principles are the principal route to progress, October, 2010

NSF Himalaya-Karakoram-Tibet Workshop, San Francisco, June 2010: Climate over Asia and Tibet, not just a simple monsoon.

American Institute for Chemical Engineers, First sustainability institute Seattle, May 2010: Climate change: certainties and uncertainties

Penn State University, Earth Science department colloquium, March, 2009: Was there a little ice age?

2009

Gilbert Club, University of California at Berkeley, December 2009: The tectonic governor and the downsizing of the Alps.

American Geophysical Union Fall Meeting, December 2009: The interpretation of Chinese Loess as a paleoclimate proxy.

American Geophysical Union Fall Meeting, December 2009: Notes on a catastrophe: the descent into a snowball Earth.

Brown University, Geology department colloquium, October 2009. Department colloquium. The shape of things to come: what are the potentials and potential limits to global climate predictions?

Brown University, Geology department seminar, October 2009. Natural variability of glaciers in a constant climate.

University of Delaware, Geography department colloquium, April, 2009. The shape of things to come: what are the potentials and potential limits to global climate predictions?

University of Delaware, Geography department seminar, April, 2009. Was there a little ice age?

Yale University, Dept. seminar, April, 2009: Extreme weather and the downsizing of the Alps.

University of Edinburgh, School of Geosciences seminar, March 2009: Was there a little ice age?

University of Washington, Seattle, WA, February, 2009: Dept. Atmospheric Sciences colloquium: What do glaciers tell us about climate variability and change?

California Institute of Technology, Pasadena, CA, Environmental Science and Engineering colloquium January, 09: The shape of things to come: what are the limits to global climate predictions?

2008

Cooperative Institute for Research in Environmental Science, Distinguished Public Lecture, Boulder, Oct, 2008: The shape of things to come: what are the limits to global climate predictions?

University of Colorado, Boulder, Oct, 2008: Dept. Geological Sciences colloquium: What do glaciers tell us about climate change?

University of Colorado, Boulder, Oct, 2008: Dept. Geological Sciences seminar: The tectonic governor and the downsizing of the Alps.

University of Washington, Seattle, WA, Oct, 2008: Dept. Earth and Space Sciences colloquium: The tectonic governor and the downsizing of the Alps.

Stochastic Climate Modeling Workshop, Victoria, July 2008: Stochastic Ice.

West coast climate initiative workshop, Univ. Southern California, LA, Jun, 2008: Decadal climate variability in the Pacific.

Environmental Protection Agency, Washington D.C., April 2008: The shape of things to come: why is climate sensitivity so unpredictable (and who cares anyway?)

University of Michigan, Dept. of Geological Sciences, April 2008: The tectonic governor: critical form and feedbacks in mountain-belt dynamics.

University of Michigan, Dept. of Applied Math Colloquium, April 2008: Knowability and no ability in climate prediction.

Yale University, Dept. seminar, February, 2008: Glaciers and climate: regional variability vs. change.

Massachusetts Institute of Technology, Earth, Atmospheric, and Planetary Sciences Dept. Colloquium, February, 2008. The shape of things to come: why is climate sensitivity so unpredictable (and who cares anyway?).

Harvard University, Dept. seminar, February, 2008: Glaciers and climate: regional variability vs. change.

University of California, Berkeley, Dept. Colloquium, January, 2008: Why is climate sensitivity so unpredictable? Berkeley, CA.

American Mathematical Society, Annual meeting, January, 2008: Why is climate sensitivity so unpredictable? San Diego, CA.

2007

NASA CERES workshop. Victoria, B.C., November 2007: Why is climate sensitivity so unpredictable? Berkeley, CA.

University of Washington, Program on Climate Change lecture series, October, 2007. "Glaciers and climate"

Brigham Young University, Geology dept. seminar, October, 2007. "Why is climate sensitivity so unpredictable?"

University of Washington, Atmospheric Science dept. colloquium, September, 2007. "Why is climate sensitivity so unpredictable?"

Thun, Switzerland, June, 2007. Climate and surface processes workshop "Knowability and no ability in climate and surface processes"

Yale University, Flint Visiting Professor, May 2007: “Mountain-belt dynamics: climate feedbacks and critical topographic form”

National university of Mexico, Mexico City, May 2007: Colloquium: “Mountain-belt dynamics: climate feedbacks and critical topographic form”

American Geophysical Union, Spring meeting, Acapulco, Mexico, May 2007 “On the interpretation of Chinese loess as a paleoclimate proxy”.

Arizona State University, School of Earth Sciences and Space exploration, department colloquium, March, 2007: “Mountain belt dynamics: climate feedbacks and critical topographic form”; research seminar: “Reconciling glacier changes and climate”

Sanya, China NSF/CNSF workshop on Tibet and climate, January, 2007: “On the interpretation of Chinese loess as a paleoclimate proxy”

2006

University of Edinburgh, School of Geosciences, October, '06. “Reconciling glacier changes and climate”

University of Bergen, Bjerknes Centre for Climate Research. Summer school on Multidecadal climate variability and teleconnection dynamics. Lecturer, Sept'06.

University of Colorado, workshop on Milankovitch and climate, Jul, '06. What does ‘Milankovitch and climate’ really mean?

University of Edinburgh, Earth Sciences department, Hutton Club lecture, June 2006, Rocks, rivers, and rain: feedbacks between climate, erosion and tectonics in mountain belt evolution. Department seminar, June 2006: In defense of Milankovitch.

University of Delaware, Geography department colloquium, April, 2006. In defense of Milankovitch.

2005

American Geophysical Union Fall Meeting, December, 2005: Rocks and rain: orographic precipitation and the form of mountain ranges. Roe, G H, Anders, A.M., Durran, D.R., Montgomery, DR., Hallet, B.

Massachusetts Institute of Technology, Earth, Atmospheric, and Planetary Sciences. Oceanography seminar. March 2005. In defense of Milankovitch.

University of Washington, Earth and Space Sciences, February, 2005. The drumbeat of tiny raindrops: exhumation, erosion, and the sculpting of mountain ranges.

2004

University of Washington, Program on climate change Fall seminar series, November, 2004. Rocks, rivers, and rain: the interplay between climate, erosion, and tectonics.

University of Washington, Department of Atmospheric Sciences Colloquium, October, 2004. In defense of Milankovitch.

Massachusetts Institute of Technology, Earth, Atmospheric, and Planetary Sciences department colloquium, September, 2004. Rocks, rivers, and rain: the interplay between tectonics, erosion, and climate.

International Geophysical Congress, August, 2004: Climatic and tectonic controls on orogen evolution.

University of Washington Quaternary Research center seminar series, June 2004: Dust storms in Asia: at a loess for words.

European Geophysical Union, Annual meeting, April, 2004: The mutual interaction between continental-scale ice sheets and atmospheric stationary waves

University of Maryland, Department of Meteorology colloquium, April, 2004: On the characterization of millennial-scale climate variability.

National Center for Atmospheric Research, joint meeting of the climate variability and paleoclimate working groups, February, 2004: On the characterization of millennial-scale climate variability.

2003

American Geophysical Union Fall Meeting, December, 2003: On the characterization of millennial scale climate variability (with Eric Steig).

Harvard University, Earth and Planetary Sciences department colloquium, November, **Massachusetts Institute of Technology**, Rocks, rivers, and rain: interactions between tectonics, climate, and erosion. Oceanography seminar, November, 2003: On the characterization of millennial-scale climate variability.

University of California Santa Cruz, Earth Sciences department colloquium, May, 2003: Orographic precipitation and the form of mountain ranges. Department seminar: On the characterization of millennial-scale climate variability.

University of Washington, Atmospheric Sciences department, Clouds and precipitation seminar. April, 2003: A simple model of orographic precipitation for use in landscape evolution.

University of Washington, Earth and Space Sciences department colloquium, March, 2003: On the characterization of millennial-scale climate variability.

University of Washington, Atmospheric Sciences department colloquium, February, On the characterization of millennial-scale climate variability (with Eric Steig).

University of Washington, Quaternary Research Center Seminar, February, 2003: Rain-on-snow events impact soil temperatures and affect ungulate survival (with Jaakko Putkonen).

2002

Yale University, Geology and Geophysics department colloquium, November, 2002: The interaction between orographic precipitation and the form of mountain ranges

Western Washington University, Geology department seminar, June, 2002: climate feedbacks on the evolution of mountain belts.

University of Washington, Earth and Space Sciences, two department seminars, June, 2002: 1. Feedbacks between orographic precipitation and the form of mountain ranges. 2. Do we understand the physics of the ice ages?

University of Chicago, Geophysical Sciences department seminar, April, 2002: Feedbacks between orographic precipitation and the form of mountain ranges.

University of Colorado, Institute for Arctic and Alpine Research, two department seminars 1. Feedbacks between orographic precipitation and the form of mountain ranges. 2. Do we understand the physics of the ice ages?

Purdue University, Earth and Atmospheric Sciences department seminar, January, 2002: Feedbacks between orographic precipitation and the form of mountain ranges.

University of Alaska, Fairbanks, March, 2002. Chapman lecturer. Short course ice sheet climate interactions: 1. Milankovitch forcing of ice age cycles 2. Climate -ice sheet interactions on ice age time scales.

2001

Applied Physics Laboratory, University of Washington, laboratory seminar. May, 2001. The mutual interaction between continental-scale ice sheets and atmospheric stationary waves.

California Institute of Technology, Division of Geological and Planetary Sciences, department seminar, March, 2001: Climate feedbacks on the evolution of ice sheets and mountain ranges.

University of California at Berkeley, Geography department seminar, February, 2001: Climate feedbacks on the evolution of ice sheets and mountain ranges.

University of Wisconsin at Madison, Atmospheric Sciences department seminar, March, 2001: Climate feedbacks on the evolution of ice sheets and mountain ranges.

2000

University of Washington, Atmospheric Science department, April, 2000: Let it snow: modeling precipitation over ice sheets: an assessment for Greenland.

1999

University of Toronto, Physics department seminar, April, 1999: The mutual interaction between continental-scale ice sheets and atmospheric stationary waves.

University of Chicago, Geophysical Sciences department seminar, February, 1999: The mutual interaction between continental-scale ice sheets and atmospheric stationary waves.

University of Washington, Quaternary Research Center seminar, February, 1999: The mutual interaction between continental-scale ice sheets and atmospheric stationary waves

OUTREACH

- Schools outreach : science-night presentations on glacier dynamics and atmospheric pressure.
- Media commentary for science-in-the-news items.
- Several research papers have garnered press over the years. Some examples:-
 - Putkonen and Roe, GRL, (2003) [Science](#), [NPR](#), others
 - Roe and Baker, Science, (2007) ([NPR Science Friday](#), BBC Science in Action, [National Bureau of Economic Research](#), many others)
 - Rupper et al., (2009) [NSF](#), [phys.org](#), others
 - Feldl and Roe (2011) [New York Times](#)
 - Armour and Roe (2011) [ScienceDaily](#),
 - Medwedeff and Roe, Climate Dynamics (2017), ([Nature Climate Change](#))
 - Roe et al., Nature Geoscience, 2017 ([Washington Post](#), [AGU press conference](#), [KUOW](#), [ScienceNews](#), [Climate Central](#), and more than 40 others)

Shugar et al., Nature Geoscience, 2017 ([New York Times](#), [NYT op-ed](#), [Guardian](#), [Wash Post](#), [CBC](#), [BBC](#), [Seattle Times](#), [Associated Press](#), and more than 140 others)

ADVISEES

Postdocs:

Cristi Proistosescu (PhD Harvard, Jan17)

Graduate Students:

Alison Anders (ESS, PhD, 2005, Assoc. Prof., U. Illinois)!,

Michael O'Neal (ESS, PhD, 2005, Assoc. Prof, U. Delaware)!,

Drew Stolar (ESS, PhD, 2006, Ballard Power Systems, Vancouver)!,

Noah Finnegan (ESS, PhD, 2006, Assoc. Prof., UCSC)!,

Summer Rupper (ESS, MSc, 2004; ESS, PhD, 2007, Assoc. Prof., U. Utah)*,

Camille Li (ATM, PhD, 2007, Asst. Prof., U. Bergen)#,

Kevin Rennert (ATM PhD 2007, Deputy Administrator, EPA)!,

Kat Huybers (ESS, MSc 2007, PhD 2014, Assist. Prof., Pacific Lutheran U.)*,

Robert Sheerer (ESS, MSc 2008)#,

Eric Buer (ESS, MSc 2008, Consultant, Ridolfi Inc.)#,

Justin Minder (ATM PhD , 2010, Asst. Prof. Suny Albany)*,

Kevin Wood (ESS PhD, 2010, scientist NOAA PMEL),

Sandra Penny (ATM PhD 2013, Lecturer, Sage College)*,

Rachel Headley (ESS, PhD 2011, Asst. Prof. UWisc Parkside)!,

Erin Burke (ESS MSc, 2012, Deschutes Public Library)*,

Nichole Feldl (At. Sci. PhD 2013, Asst. Prof UC Santa Cruz)*,

Angela Pendergrass (PhD 2013, postdoc NOAA)*,

Kyle Armour (Physics, PhD 2012, Asst. Prof., UW)!,

Leif Anderson (UColorado, PhD 2014, Postdoc, Simon Fraser)!,

Nicholas Siler (At. Sci, PhD 2015, Asst Prof., Oregon State)*,

Nathan Steiger (At. Sci., PhD 2106, Postdoc Lamont Doherty)*,

Derya Dilmen (PhD, 2016, Engineer)!

Bradley Markle (PhD, 2017)!

Xiaojuan Liu (At. Sci., PhD candidate)*,

John Christian (ESS, PhD candidate)

*formal advisor or co-advisor, !major research advisor, #committee member (some research input)

Undergraduates (& next step):

Sally Zhang (PhD candidate, Caltech), William Medwedeff (PhD candidate, U.Mich.),

Joel Simon (PhD candidate, Princeton), Florian Herla (U. Innsbruck)

Other thesis committees (partial list):

Jane Locke (PhD, 2007), Hans Schweiger (PhD, 2007), Jennifer Adams (PhD, 2007),

Eric Buer (MSc, 2007), Robert Sheerer, (MSc,2007), Jim Lutz (CivE, PhD, 2008),

Michelle Koutnik (PhD, 2009) Peter Neff (MSc, 2011), Xiaogang Xie (CivE, PhD, 2012),

A Donohoe (AtSci., PhD, 2012), Brian Smoliak (AtSci., PhD, 2013), Dan Nelson (OCN,

PhD, 2013), Ted Bohn (CivE, PhD, 2013), Vivian Leung (ESS, PhD), Jack Scheff (AtSci, PhD, 2014), Emily Newsom (PhD, 2016) Mike Hay (PhD, 2017), Landon Burgener (PhD candidate), Alyssa Atwood (OCN, PhD, 2015), Brian Henn (CivE, PhD, 2016), Emma Kahle (PhD candidate), Hannah Barnes (AtSci, PhD, 2016), Brian Green (MIT, PhD, 2017), Julia Kelson (ESS, PhD candidate), Casey Wall (AtSci, PhD candidate)

PUBLICATIONS (97, student advisee/postdoc underlined)

In preparation:-

Roe, G.H., K. Armour, M. Baker, D.S. Battisti, A. Donohoe, N. Feldl, X. Liu, B. Markle, and N. Siler, 2017. Energetic and heat-engine constraints on the spatial patterns of the mean and perturbed climate. *In preparation*.

Siler, N., K.C. Armour, and G. Roe, 2017: Energetic constraints on the magnitude and pattern of changes in the hydrologic cycle under global warming. *In preparation*.

Armour, K.C., G. Roe, N. Siler, and N. Feldl, 2017: The relative roles of feedbacks, forcing and ocean heat uptake in the spatial pattern of climate change. *In preparation*.

Roe, G.H., and D.S. Battisti, 2017: Knowability and no ability in climate and earth sciences. *In preparation*.

Markle, B., E.J. Steig, G.H. Roe, 2017: The great atmospheric washing machine: reconciling isotopes and dust in ice-core records. *In preparation*.

Proistosescu, C., K.C. Armour, A. Donohoe, M. Stuecker, C. Bitz, and G.H. Roe, 2017: Coupling of stochastic interannual fluctuations in temperature and radiation. *In preparation*.

In review:-

Christian, J.E., G.H. Roe, M.R. Koutnik, 2017: Committed retreat: controls on glacier disequilibrium in a warming climate. *In review*.

Robel, A.A., G.H. Roe, M. Hasselhoff, 2017: Response of marine-terminating glaciers to forcing: time scales, sensitivities, instabilities and stochastic dynamics. *In review*.

Siler, N., G.H. Roe, K.C. Armour, and N. Feldl, 2017: Surface energetics as a primary control on hydrologic sensitivity to global warming. *In review*.

Dilmen, D., G.H. Roe., Y. Wei., and V.V. Titov, 2017: The role of near-shore bathymetry during tsunami inundation in a reef-island setting: a case study of Tutuila Island. *In review*.

Published/in press (peer-reviewed):-

2017:

Barth, A.M., P.U. Clark, J. Clark, G.H. Roe, S.A. Marcott, A.M. McCabe, M.W. Caffee, F. He, J.K. Cuzzone, and P. Dunlop, 2017: Persistent millennial-scale glacier fluctuations in Ireland between 24,000 and 10,000 years ago. *Geology*, accepted.

- Liu, X., D.S. Battisti, and G.H. Roe, 2017: What determines the meridional heat transport: insights from varying rotation rate experiments. *J. Climate*, doi:10.1175/JCLI-D-16-0745.1.
- Huybers, K.M., G.H. Roe, H. Conway, 2017: Differential stability of the West Antarctic Ice Sheet. *Annals of Glaciology*. doi:10.1017/aog.2017.9.
- Herla, F., G.H. Roe., and B. Marzeion, 2017: Ensemble statistics of a geometric glacier length model. *Annals of Glaciology*. doi: 10.1017/aog.2017.15.
- Shugar, D.H., J.J. Clague, J.L. Best, C. Schoof, M.J. Willis, L. Copeland, G.H. Roe, 2017: River piracy and drainage basin reorganization led by climate-driven glacier retreat. *Nature Geoscience*, doi 10.1038/ngeo2932.
- White, R.H., D.S. Battisti, and G.H. Roe, 2017: Mongolian mountains matter most: implications of the latitude and shape of Asian orography on the winter Pacific jet stream. *J. Climate*, doi:10.1175/JCLI-D-16-0401.1
- Roe, G.H., M.B. Baker, F. Herla, 2017: Centennial glacier retreat as categorical evidence of regional climate change. *Nature Geoscience*, doi:10.1038/ngeo2863.
- Steiger, N.J., E.J. Steig, S.G. Dee, G.H. Roe, and G.J. Hakim, 2017: Climate reconstruction using data assimilation of water-isotope ratios from ice cores. *J. Geophys. Res: Atmospheres*, doi:10.1002/2016JD026011.
- Medwedeff, W., and G.H. Roe, 2017: Trends and variability in the global dataset of glacier mass balance. *Clim Dyn*. DOI 10.1007/s00382-016-3253-x. (highlighted research in Nature Climate Change)

2016:

- Christian, J., N. Siler , G. Roe, and M. Koutnik, 2016: Identifying dynamically induced variability in glacier mass balance records. *J Climate*, doi:10.1175/JCLI-D-16-0128.1.
- Roe, G.H., Q. Ding, and D.S. Battisti, P. Molnar, M.K. Clark, and C.N. Garziona, 2016: The response of Asian summertime climate to the largest geologic changes of the past 50 Ma. *J. Geophys. Res.*, **121**, 5453-5470.
- Roe, G.H., and M.B. Baker, 2016: The response of glaciers to climatic persistence. *J. Glaciology.*, 62, 440-450.
- Huybers, K.M., S.B. Rupper, and G.H. Roe, 2015: Lake level response to natural and forced variability, a case study of Great Salt Lake. *Climate Dynamics*. 10.1007/s00382-015-2798-4.

2015:

- Dilmen, D.L., V.V. Titov, and G.H. Roe, 2015: Evaluation of the relationship between coral damage and tsunami dynamics; a case study for the 2009 Samoa Tsunami. *Pure and Appl. Geophys.*, DOI 10.1007/s00024-015-1158-y.
- Roe, G.H., N. Feldl, K.C. Armour, Y.-T. Hwang, and D.M.W. Frierson, 2015: Regional climate predictability from regional feedbacks. *Nature Geoscience*, doi:10.1038/ngeo2346.

2014:

- Battisti, D.S, Q. Ding, and G.H. Roe, 2014: A coherent pan-Asian climate and isotopic response to precessional forcing. *J. Geophys. Res.*, **119(21)**, 11,997-12,020.

- Roe., G.H., and M.B. Baker, 2014: Glacier response to climate perturbations: an accurate linear geometric model. *J. Glaciology*, **60**, 670-684.
- Siler, N., and G.H. Roe, 2014: How will orographic precipitation respond to surface warming? An idealized thermodynamic perspective. *Geophys. Res. Lett.* DOI: 10.1002/2013GL059095.
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