

16th ANNUAL
GRADUATE

CONFERENCE
Pack Forest, WA *October 28 - 30, 2022*

Conference Program

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Conference History

The 2022 GCC marks the 16th year of the conference which first started in 2006, when students in the Program on Climate Change at the University of Washington (UW) hosted the first ever all-graduate student climate conference. Previous GCCs hosted at UW have been attended by students from over 55 different institutions from at least nine different countries. A total of eight conferences have been hosted by UW (April 7-9, 2006, October 19-21, 2007, April 17-19, 2009, October 15-17, 2010, October 26-28, 2012, October 31-November 2, 2014, November 1-3, 2016, and November 2-4, 2018) at the Charles L. Pack Experimental Forest Conference Center at the base of Mount Rainier in Eatonville, Washington.

Since 2011, the GCC began a transition to a traveling format, and alternate years are hosted by students from the Massachusetts Institute of Technology (MIT)'s Program on Atmospheres, Oceans and Climate and the Woods Hole Oceanographic Institution in Woods Hole, Massachusetts (October 28-30, 2011, November 1-3, 2013, November 6-8, 2015, November 10-12, 2017, and November 7-9, 2019). Since 2010, the GCC has been partially funded by a grant from NSF. Students from UW will again host this year's conference.

2022 Co-Chairs' Welcome

Welcome to the 16th Annual Graduate Climate Conference, an interdisciplinary climate conference run by graduate students, for graduate students. Over the last sixteen years, graduate students representing hundreds of academic institutions have come together to present research and share ideas on climate and climate change in an array of disciplines. After virtual GCCs in 2020 and 2021, we are very excited to be returning to an in-person conference this year!

Over the next few days, we'll listen to talks and poster presentations on everything from atmospheric chemistry (e.g., using the COVID-19 lockdowns to evaluate aerosol sensitivity in climate models) to urban design (e.g., using machine learning for smart and sustainable buildings). We will also hear from two keynote speakers: Dr. Natayla Gomez from McGill University, and Dr. Tamara Pico from UC Santa Cruz. Dr. Natayla Gomez will be sharing reflections on her career trajectory and some thoughts on what it means to be a climate scientist today, and Dr. Tamara Pico will be discussing how we can move towards community-based research in the geosciences. We are thrilled to welcome both of our keynote speakers to Pack Forest and you can read more about them both below.

Just as important as the formal schedule are the conversations that will be held over coffee breaks, meals, and social activities between those from opposite ends of the continent, or those from disparate fields. These conversations may lead to unexpected future collaborations, and at the very least will increase interdisciplinary understanding of climate-related issues. This year, we've added opportunities to attend office hours with our keynote lectures, and expanded the number of offered workshops.

Thank you for being a part of this year's conference, and a big thank you as well to everyone who has volunteered as an organizer, committee chair, and/or Thursday or Sunday night host. We are excited for the opportunity to spend this weekend with you, and hope you are able to make the most of every minute of it.

Sincerely,

Bryony Puxley and Becca Cleveland-Stout
Your 2022 Graduate Climate Conference Co-Chairs

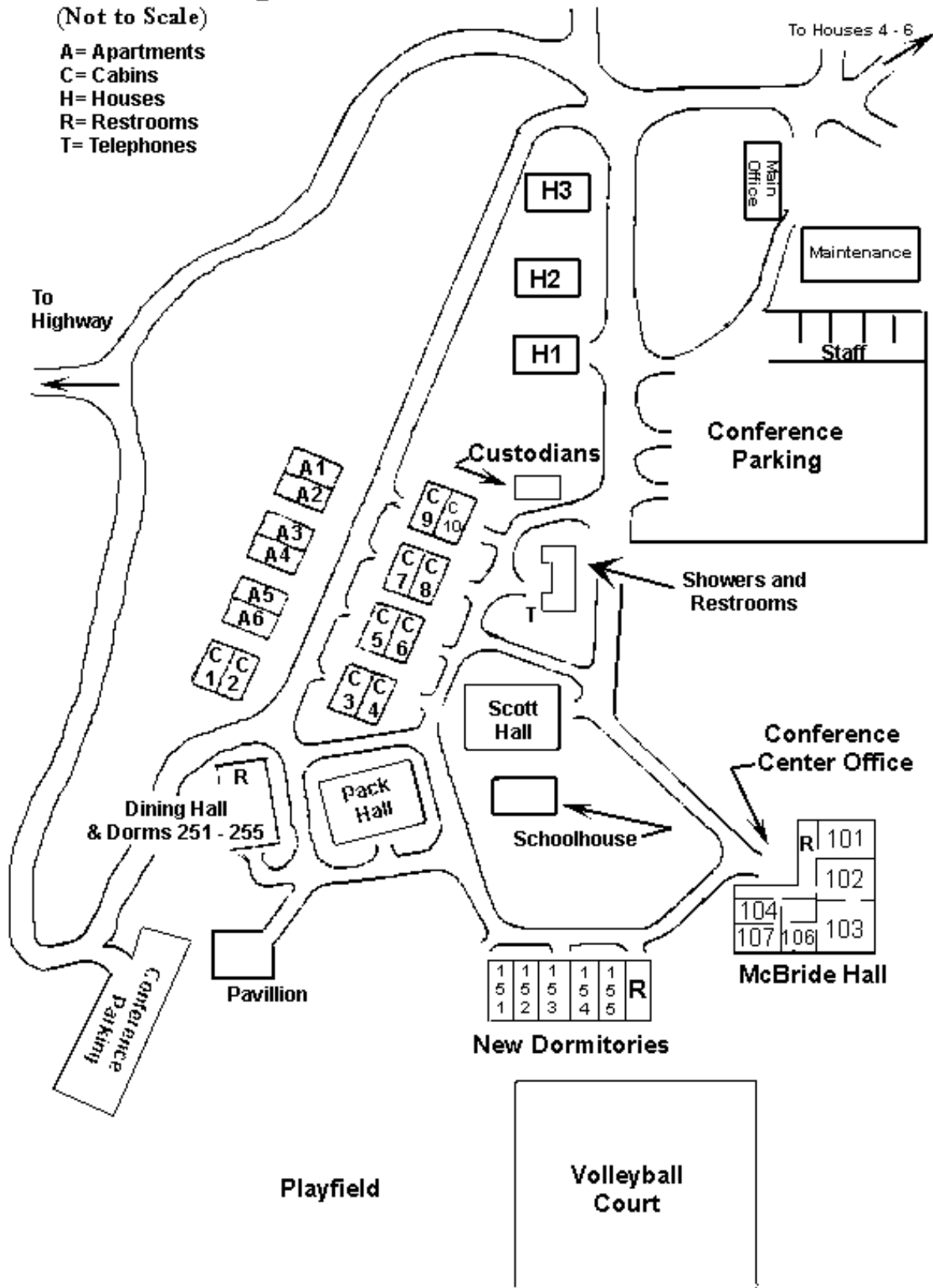
Schedule and Map

Date	Time start	end	Session	Location	Notes	Key
Friday	10:00		registration	Scott Hall		Meals
	12:30 - 1:30		lunch	Dining Hall & Pavilion		Logistics
	1:30 - 1:45		welcome + intro	Scott Hall		Oral presentations
	1:45 - 2:45		EDI keynote (Prof. Natalya Gomez) - "Ice sheets, sea level and being a climate scientist"	Scott Hall		Poster presentations
	2:45 - 3:00		- break -		snacks will be served in the Schoolhouse	Keynotes & workshops
	3:00 - 4:00		DEI keynote + discussion (Prof. Tamara Pico) - "One step towards community-based research in the climate sciences"	Scott Hall		break
	4:00 - 4:30		discussion (Prof. Natalya Gomez)	Scott Hall		Social events
	4:30 - 5:30		happy hour / networking event	Pack Hall		
	5:30 - 6:30		dinner	Dining Hall & Pavilion		
	6:30 - 7:00		- break -			
	7:00 - 7:45		Posters A (Urban Design and Climate Policy & Solutions / Social Impacts of Climate Change / Tropical dynamics and convection / Clouds, Radiation, and Climate Sensitivity / Atmospheric Chemistry)	Macbride 101 & 102	see pamphlet for poster titles and abstracts	
	7:45 - 8:30		Posters B (Environmental Management & Agriculture / Ecoclimate & Biological Responses to Climate Change / Polar Climate / Climate Change in Sensitive Regions)	Macbride 101 & 102	see pamphlet for poster titles and abstracts	
	8:30		social event / trivia hangout	Pack Hall		
	Saturday	8:00 - 9:00		breakfast	Dining Hall & Pavilion	
9:00 - 11:00			Session 1 (Carbon Cycle / Ocean Heat Content & Large-Scale Circulation / Biogeochemical cycling)	Scott Hall	see pamphlet for talk titles and abstracts	
11:00 - 11:15			- break -		snacks will be served in the Schoolhouse	
11:15 - 12:15			workshops A	Scott Hall, Pack Hall	see pamphlet for workshop titles and abstracts	
12:15 - 1:00			lunch	Dining Hall & Pavilion		
1:00 - 2:30			Session 2 (Environmental Management & Agriculture / Ecoclimate & Biological Responses to Climate Change / Hydrology and Geomorphology)	Scott Hall	see pamphlet for talk titles and abstracts	
2:30 - 2:45			- break -		snacks will be served in the Schoolhouse	
2:45 - 3:45			workshops B	Scott Hall, Pack Hall, Schoolhouse	see pamphlet for workshop titles and abstracts	
3:45 - 4:00			- break -		snacks will be served in the Schoolhouse	
4:00 - 4:55			Session 3 (Polar Climate / Climate Change in Sensitive Regions)	Scott Hall	see pamphlet for talk titles and abstracts	
4:55 - 6:00			Session 4 (Climate variability, from seasonal to orbital timescales / Proxy development)	Scott Hall	see pamphlet for talk titles and abstracts	
6:00 - 6:15			- break -			
6:15 - 7:15			dinner	Dining Hall & Pavilion		
7:15 - 7:30			- break -			
7:30 - 8:15			Posters C (Biogeochemical Cycling / Carbon Cycle / Ocean Heat Content & Large-Scale Circulation / Hydrology & Geomorphology)	Macbride 101 & 102	see pamphlet for poster titles and abstracts	
8:15 - 9:00			Posters D (Extreme Events / Climate variability, from seasonal to orbital timescales / Proxy development)	Macbride 101 & 102	see pamphlet for poster titles and abstracts	
9:00			Halloween Party	Pack Hall		
Sunday		7:45 - 8:45		breakfast	Dining Hall & Pavilion	NOTE: you must be checked out of your room by 8:45 (including returning your keys). Your baggage can be put in Room 103 or the Pavilion
	8:45 - 10:00		Session 5 (Atmospheric Chemistry / Clouds, Radiation, and Climate Sensitivity)	Scott Hall	see pamphlet for talk titles and abstracts	
	10:00 - 10:45		Session 6 (Extreme Events / Tropical dynamics and convection)	Scott Hall	see pamphlet for talk titles and abstracts	
	10:45 - 11:00		- break -		snacks will be served in the Schoolhouse	
	11:00 - 12:15		Session 7 (Urban Design and Climate Policy & Solutions / Social Impacts of Climate Change)	Scott Hall	see pamphlet for talk titles and abstracts	
	12:15 - 12:30		concluding remarks	Scott Hall		
	12:30 - 1:30		lunch	Dining Hall & Pavilion	NOTE: pick up bagged lunch and load the buses	
	Optional		hike (optional)	Mt. Rainier		

Pack Forest Camp

(Not to Scale)

- A= Apartments
- C= Cabins
- H= Houses
- R= Restrooms
- T= Telephones



Keynote Speakers

Dr. Tamara Pico

Diversity, Equity, Inclusion, and Justice Keynote Speaker



Dr. Tamara Pico is an Assistant Professor in the Department of Earth & Planetary Sciences and an affiliate of the Science & Justice Research Center at the University of California, Santa Cruz. She received her undergraduate degree in Chemistry at Princeton, before going on to Harvard to receive her PhD in Earth & Planetary Sciences with a secondary field in Studies of Women, Gender, and Sexuality. She completed her postdoctoral work at Caltech as a University of California President's Postdoctoral Fellow, Earth Sciences Postdoctoral Research Fellow, and Caltech AGEP Scholar, before beginning at UC Santa Cruz in 2021. In addition to her work leveraging unconventional datasets to constrain estimates of past sea level, she is interested in understanding how practices in early American geology continue to shape the culture and values in our field, and how these contribute to the marginalization of specific communities in geoscience today. As part of this effort, Dr. Pico founded GeoContext, which publishes teaching modules to provide a social and political context of geoscience. These modules are freely available online, and include topics such as land grad universities and connections between oceanography and the slave trade.

Dr. Natalya Gomez

Early Career Scientist Keynote Speaker



Dr. Natalya Gomez is an Associate Professor in the Department of Earth & Planetary Sciences and the Canada Research Chair in Geodynamics of Ice sheet - Sea level interactions at McGill University. She received her Bachelors in Physics and a Masters in Geophysics and Environmental Studies from the University of Toronto, completed her PhD at Harvard, and was a postdoctoral fellow at the Courant Institute of Mathematics at New York University before arriving at McGill. Dr. Gomez's work lies at the intersection between climate science, glaciology and global geophysics, and aims to understand solid Earth and ice sheet responses to past, present, and future climate changes. In her research, she has identified key stabilizing feedbacks on marine ice sheets and has been instrumental in understanding sea level implications of Antarctic melt. Dr. Gomez received the AGU Cryosphere Early Career Award in 2019, and is a member of the steering committee of the World Climate Research Programme on Regional Sea-level Change & Coastal Impacts.

Keynote Speakers Office Hours

Keynote speakers will be available during free time on Friday and Saturday to meet with students in small groups. If you are interested in signing up for these office hours, please sign up at <https://tinyurl.com/49afkd84>.

Workshop Format

Starting in 2018, the GCC added workshops to the program. This year, we are expanding the number of workshops being offered, providing two workshop sessions with 2-3 concurrent workshops during each session. Each of these workshops was chosen to help GCC attendees improve one of the skills considered relevant and necessary to scientific careers, outside of research. Be sure to leave feedback after your workshops to let us know how to do this better in the future!

Poster Session Format

Poster sessions are assigned randomly between Groups A, B, C, and D. Group A will present during Poster Session 1 from 7:00-7:45 PM. Group B will present during Poster Session 1 from 7:45-8:30 PM. Group C will present during Poster Session 2 from 7:30-8:15 PM. Group D will present during Poster Session 2 from 8:15-9:00 PM. When not presenting, participants should feel free to look at posters from other groups. In this program, posters in each subject area are listed below the talks in the corresponding session. We recommend looking through the program before the first poster session to find posters that you will be especially interested in stopping by.

Poster Sessions

All poster sessions will be held in Macbride 101 and 102.

Poster Session A

Friday, October 28, 2022 7:00pm - 7:45pm

Urban Design & Climate Policy

Poster Title	Presenter	Institution	Email
Environmental Drones: Empowerment through Socio-Technical Transition	Katherine Hasnain	London School of Economics	katherinehasnain@gmail.com
Identifying the Challenges to Sustainable Urban Last-Mile Deliveries: Perspectives from Public and Private Stakeholders	Thomas Maxner	University of Washington	tmaxner@uw.edu
Environmental impact of an export-oriented residual-based wood pellet trade between PNW and Asia	Hema Velappan	University of Washington	hema89@uw.edu
Future Land-Use + Future Precipitation: Evaluating Changes in Flooding Associated with Hurricanes Florence, Floyd, and Matthew in a Future Climate	Katy Hollinger	North Carolina State University	kehollin@ncsu.edu

Social Impacts of Climate Change

Poster Title	Presenter	Institution	Email
Predicting Aedes survival with seasonal climate forecasts	Olivia Schultes	University of Washington	oschul@uw.edu
Save the Farms: Nonlinear Impact of Climate Change on Banks' Agricultural Lending	Ted Liu	University of California Santa Cruz	tliu99@ucsc.edu
Does humidity matter? Prenatal heat and child growth in South Asia	Katie McMahon	UC Santa Barbara	kmcmahon@ucsb.edu
Community resiliency in the built environment: The effect of climate change on Seattle's emergency weather shelters	Anisha Azad	University of Washington	aazad99@uw.edu

Tropical Dynamics and Convection

Poster Title	Presenter	Institution	Email
Diagnosing convective organization in different phases of the MJO: a modeling study	Mingyue Tang	University of Hawai'i at Mānoa	mingyue@hawaii.edu
Assessment of Stratospheric Wave Activity Associated with the Madden-Julian Oscillation (MJO) and its Potential Impact on the Quasi-Biennial Oscillation (QBO)	Sadiksha Rai	University of Oklahoma	raisadikshya07@gmail.com
Impacts of the Madden–Julian Oscillation on the diurnal cycles of deep convection and precipitation over the Congo Basin	Kathrin Alber	University at Albany, SUNY	kalber2@albany.edu
Non-local Controls on Tropical Cyclogenesis: A Trajectory-based Genesis Potential Index	Lingwei Meng	Princeton University	lingweim@princeton.edu
Shifting gears of soil moisture–climate regimes under increasing CO ₂	Hsin Hsu	Hsin Hsu	hhsu@gmu.edu
A Vertically Resolved MSE Framework to Study Convective Self-Aggregation Over Diverse Climates	Lin Yao	University of California Davis	linyao@ucdavis.edu

Clouds, Radiation, and Climate Sensitivity

Poster Title	Presenter	Institution	Email
Seasonal and spatial variations of marine low cloud mesoscale structures	Celeste Tong	University of Washington	tsy9@uw.edu
Sensitivity of climate state to the efficiency of atmospheric heat transport	Zhihua Zheng	University of Washington	zhihua@uw.edu

Atmospheric Chemistry

Poster Title	Presenter	Institution	Email
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Beyond the Lockdowns: Satellite Observations of Aerosol Optical Depth during the First Year of the COVID-19 Pandemic	Sarah Smith	Columbia University, Lamont-Doherty Earth Observatory	sarahs@ldeo.columbia.edu
Meteorological controls on Southern Ocean CCN-active aerosols	Qing Niu	University of Oklahoma	qingniu@ou.edu

Poster Session B

Friday, October 28, 2022 7:45pm - 8:30pm

Environmental Management & Agriculture

Poster Title	Presenter	Institution	Email
Highlighting the co-benefits of climate action to increase climate change engagement among Western agricultural landowners: a survey experiment approach	Lauren Hunt	Boise State University	laurenhunt@u.boisestate.edu
Monitoring Future Land Surface Temperatures using CA-Markov Model: A case study of Ibadan, Nigeria	Henry Olayiwola	University of Oklahoma	sirhenry.olayiwola@gmail.com
Machine learning-inspired weather forecasting for solar photovoltaic potential	Chinedu Nsude	University of Oklahoma	chinedu.nsude@ou.edu
Winter wheat yield prediction at field scale combining satellite imagery, weather, and management data in Kansas, USA	Rebecca Lima Albuquerque Maranhao	Kansas State University	rebeccaflm25@ksu.edu
Community Engagement in Academia: Collaborating with Local Government to Assist in Rain Garden Development	Natasha Dacic	University of Michigan	ndacic@umich.edu

Ecoclimate & Biological Responses to Climate Change

Poster Title	Presenter	Institution	Email
Range stasis in the North Cascades: A sign of plant resiliency or sensitivity to climate change?	Katie Goodwin	University of British Columbia	katiegoodwin321@gmail.com
Investigating the Influence of the Stomatal Slope Parameter on the Earth	Amy Liu	University of Washington	amyxliu@uw.edu

Poster Title	Presenter	Institution	Email
System			
Investigating Dinophysis response to prey scarcity in Nauset Marsh	Serena Sung-Clarke	MIT/Woods Hole Oceanographic Institution	serena.sungclarke@whoiedu
Disentangling the Relative Impacts of Temperature and Vapor Pressure Deficit on Tropical Forest Photosynthesis	Claire Zarakas	University of Washington	czarakas@uw.edu
Plant community shifts in response to climate change in Pacific Northwest montane forests	Kavya Pradhan	University of Washington	kavyap2@uw.edu
Temperature, Rainfall, and Fire in the Alpine Zone of the Rwenzori Mountains, Uganda-D.R.C	Andrea Mason	Brown University	andrea_mason@brown.edu

Polar Climate

Poster Title	Presenter	Institution	Email
Seasonality in atmospheric heat transport to the Arctic under increased CO2	Lily Hahn	University of Washington	lchahn@uw.edu
Recent upper Arctic Ocean warming expedited by summertime atmospheric processes	Zhe Li	University of California-Santa Barbra	zhe_li@ucsb.edu
Iceberg Impacts on Prydz Bay, Antarctica	Alan Gaul	MIT/Woods Hole Oceanographic Institution	agaul@mit.edu

Climate Change in Sensitive Regions

Poster Title	Presenter	Institution	Email
Future Climate Simulations for the Salish Sea Using Dynamically Downscaled Atmospheric Projections	Eva Gnegy	University of British Columbia	egnegy@eoas.ubc.ca
Impactful high-wind events on the U.S. Northeast shelf: Categorization and climatological trends using supervised machine learning	Lukas Lobert	MIT/Woods Hole Oceanographic Institution	llobert@whoiedu

CMIP6 models exhibit systematic bias in the representation of West African temperature and rainfall.	Oghenekevwe Oghenechovwe n	University of Victoria	kevwe@uvic.ca
Systematic approach to quantify the resilience of climate vulnerable Boreal Forests	Sohail Akram	University of Northern British Columbia	sohailakram205@gmail.com

Poster Session C

Saturday, October 29, 2022 7:30pm - 8:15pm

Biogeochemical Cycling

Poster Title	Presenter	Institution	Email
Analysis of Nutrient Cycling in the Gulf of Mexico 'Dead Zone': Climate Impacts	Nicole Mucci	University of Rhode Island	nicole_mucci@uri.edu

Carbon Cycle

Poster Title	Presenter	Institution	Email
Constraining the cellular response of phytoplankton to temperature and resource availability	Zoe Aarons	MIT/Woods Hole Oceanographic Institution	zsaarons@mit.edu
Beyond PIC/POC/DIC/DOC - the molecular face of our ocean's ticking clock	William Kumler	University of Washington	wkumler@uw.edu
Reversibility of Changes in the Permafrost Carbon Pool Under Temperature Overshoot Scenarios	Takuma Mihara	Simon Fraser University	takuma_mihara@sfu.ca
Assessing Integrated Satellite-Float Productivity Estimates in the NASA EXPORTS Campaigns	Shawnee Traylor	MIT/Woods Hole Oceanographic Institution	shawnee@mit.edu
Determining The Drivers Of Long-Term Carbon Change Using Coastal And Open Ocean Time-Series Data	Treasure Warren	University of Washington	treas93@uw.edu

The Role of Carbon Cycle and Nonlinear Feedbacks in Driving Multiple Equilibria and Climate Oscillations	Fangze Zhu	University at Albany, SUNY	fzhu@albany.edu
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Ocean Heat Content & Large-Scale Circulation

Poster Title	Presenter	Institution	Email
Seasonality of Internal Tide using Argo Floats	Joyce Tongxin Cai	University of Washington	joycecai@uw.edu
Strong abyssal stirring and particle transport underneath a surface intensified current	Sean Chen	MIT/Woods Hole Oceanographic Institution	osean@mit.edu
Quantifying the relative role of atmospheric and oceanic processes in driving air-sea interaction in the Gulf Stream region	Jacob Cohen	University of Washington	jtcohen@uw.edu
Inverting benthic foraminiferal records for Little Ice Age surface climate evolution	Brynnydd Hamilton	MIT/Woods Hole Oceanographic Institution	brynnydd@mit.edu
Subtropical water mass anomaly production and propagation	Cora Hersh	MIT/Woods Hole Oceanographic Institution	cahersh@mit.edu
Model Comparison of North Atlantic Current Biases and their effect on the Atlantic Meridional Overturning Circulation	Taydra Low	University of Wisconsin Madison	tlow2@wisc.edu
Drivers of mid-depth Pacific cooling trends in an ocean reanalysis	Anthony Meza	MIT/Woods Hole Oceanographic Institution	ameza@mit.edu
Drivers of Indonesian Throughflow Heat and Freshwater Transport on Multidecadal Timescales	Shawn Wang	MIT/Woods Hole Oceanographic Institution	syiwang@mit.edu

Hydrology & Geomorphology

Poster Title	Presenter	Institution	Email
The role of groundwater in moderating summer stream temperatures	Lea Antesz	SFU	lea_antesz@sfu.ca

Assessing Multi-decadal Riverbank Erosion and Human Displacement along the eastern Bank of Jamuna River in Bangladesh	Sarif Islam	Virginia Tech	shariful@vt.edu
Exploring the influence of glacial isostatic adjustment on the evolution of the Red River in North Dakota	Samuel Kodama	UC Santa Cruz	sakodama@ucsc.edu
Validation Of The Community Earth System Model To Investigate The Response Of The Mississippi River System To Long Term Climate Change	Michelle O'Donnell	Northeastern University	odonnell.miche@northeastern.edu
Long-term monitoring data reveals drivers of changes in groundwater quality	Sacha Ruzzante	University of Victoria	sachawruzzante@gmail.com

Poster Session D

Saturday, October 29, 2022 8:15pm - 9:00pm

Extreme Events

Poster Title	Presenter	Institution	Email
Characterizing the evolution of marine heatwaves using clustering methods	Cassia Cai	University of Washington	fmc2855@uw.edu
The Role of a Subseasonal Planetary Wave Pattern on US Heat Waves	Valentina Casteñeda	Purdue	castanev@purdue.edu
Convectively coupled Kelvin waves in a warmer climate	Mu-Ting Chien	University of Washington	muting@uw.edu
Atmospheric circulation patterns associated to the coldest and warmest extreme episodes registered at Carlini Station in Potter Cove (South Shetlands, Antarctica)	Alfredo J Costa	Instituto Antártico Argentino	alpiocosta@gmail.com
Constraining the global fingerprint of the 8.2ka event with Laplacian eigenmaps	Alexander James	University of Southern California	akjames@usc.edu
Downscaling Climate Model Projections of Humid Heatwaves	Polina Khapikova	California Institute of Technology	khapikova@caltech.edu
Constraining Future Projections of Atmospheric Rivers	Ankur Mahesh	UC Berkeley	ankur.mahesh@berkeley.edu

Predictability of Persistent Marine Heatwaves in the Extra-tropical Pacific	Evan Meeker	University of Wisconsin Madison	emeeker2@wisc.edu
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Climate Variability, from Seasonal to Orbital Timescales

Poster Title	Presenter	Institution	Email
Drainage of glacial Lake Agassiz-Ojibway in varve sequences: implications for the meltwater pulses to the North-Atlantic during the last deglaciation	Mélie Carrier-Favreau	Université du Québec à Montréal (UQAM)	carrier-favreau.meliane@courrier.uqam.ca
Denali Ice Core record of Common Era North Pacific Temperature	Liam Kirkpatrick	University of Washington	liamkirkpatrick@gmail.com
A Dynamic Coupled Pathway by which NH Extratropical Cooling Leads to Tropical Response	Matt Luongo	UCSD	mluongo@ucsd.edu
Shifts in Vegetation and Hydroclimate in the Indo-Pacific Warm Pool during Glacial Extremes	Meredith Parish	Brown University	meredith_parish@brown.edu
Investigating the variability of mesoscale eddies in the Northwest Atlantic 1993-2017	Elena Perez	MIT/Woods Hole Oceanographic Institution	eperez@whoi.edu
Volcanic eruptions and multi-decadal Indo-Pacific variability amplify extreme Indian Ocean Dipole events in Last Millennium Ensemble simulations	Benjamin Tiger	MIT/Woods Hole Oceanographic Institution	tigerb@mit.edu

Proxy Development

Poster Title	Presenter	Institution	Email
Accurate annual seawater temperature reconstructions from coral Sr-U	Mariya Galochkina	MIT/Woods Hole Oceanographic Institution	mgalo@mit.edu
Applying the carbonate clumped isotope thermometer in Fayetteville Green Lakes, NY: Developing a process-based understanding of a paleoclimate tool in a modern system	Emma Heitmann	University of Washington	eoh322@uw.edu

Developing On-Site Paleoenvironmental Records to Provide Direct Tests of Paleoclimatic Change on Past Human Populations.	Yasaman Jafari	Boise State University	yasjafari@u.boisestate.edu
Marine heatwaves reshape plankton community	M. Kelsey Lane	Oregon State University	lanemary@oregonstate.edu

Oral Sessions

All oral sessions will be held in Scott Hall.

Session 1

Saturday, October 29, 2022 9:00am - 11:00am

Session Chair: Shawn Wang & Becca Cleveland Stout

Topic	Presentation Title	Presenter	Institution	Email
Carbon Cycle	Assessing climate and land use impacts on the soil methane sink	Hannah Dion-Kirschner	Caltech	hannahdk@caltech.edu
Biogeochemical Cycling	Hydrodynamic forcings and causal drivers of saltmarsh biomass in the Altamaha River estuary	Kadir Bice	University of Georgia	bicekadir@gmail.com
Carbon Cycle	Mixotrophic protists: sinks or sources of CO ₂ across the ocean?	Elaina Thomas	University of Washington	egthomas@uw.edu
	Examining the air-sea CO ₂ exchange in the Gulf Stream Region using autonomous observations	Sarah Nickford	University of Rhode Island	sarah_nickford@uri.edu
Biogeochemical Cycling	Reduced sea surface temperature and stable productivity gradients across the eastern equatorial Pacific during the Pliocene	Kristin Kimble	Brown University	kristin_kimble@brown.edu
Ocean Heat Content & Large-Scale Circulation	Controls On Salinity Variability In The Eastern Sub-Polar North Atlantic	Ali Siddiqui	Johns Hopkins University	asiddi24@jhu.edu
	Quantifying multidecadal variability in the North Atlantic ocean state in observations and climate models	Noah Rosenberg	University of Washington	noahrose@uw.edu

Session 2

Saturday, October 29, 2022 1:00pm - 2:30pm

Session Chair: Rebecca Lima & Emma Heitmann

Topic	Presentation Title	Presenter	Institution	Email
Environmental Management & Agriculture	A review and analysis of scenario planning as a decision support tool for climate change adaptation and uncertainty management	Lunia Oriol	University of Michigan	leorio@umich.edu
	Global Crop Failures as explained by Agroclimate Conditions and Implications for Future Climate	Tayler Schillerberg	Auburn University	tas0053@auburn.edu
Ecoclimate & Biological Responses to Climate Change	Corals' metabolic responses to future climatic conditions: insights from the natural laboratory of Bouraké, New Caledonia.	Juliette Jacquemont	University of Washington	jjacquem@uw.edu
	Decadal-scale changes in the Georges Bank ecosystem: evidence from bulk and compound-specific stable isotope analyses of fish scales	Ciara Willis	MIT/Woods Hole Oceanographic Institution	willisc@mit.edu
Hydrology & Geomorphology	Nitrate Variability due to Heavy Rain Events in the North Alouette Watershed, British Columbia	Ariel Greenblat	Simon Fraser University	ariel_greenblat@sfu.ca

Session 3

Saturday, October 29, 2022 4:00pm - 4:55pm

Session Chair: Ankur Mahesh

Topic	Presentation Title	Presenter	Institution	Email
Polar Climate	Facing Arctic Climate Change: Developing Understanding in a Community-focused Framework	Ellen Koukel	University of Washington	ekoukel@uw.edu
Polar Climate	Characteristics and Drivers of Arctic and Antarctic Sea Ice Extent Variability in a Warmer Climate	Zachary Espinosa	University of Washington	zespino97@gmail.com
Climate Change in Sensitive Regions	Advanced shoreline-change modeling of Hawaii's beaches	Richelle Moskvichev	University of Hawaii	rum@hawaii.edu

Session 4

Saturday, October 29, 2022 4:55pm - 6:00pm

Session Chair: Mariya Galochkina

Topic	Presentation Title	Presenter	Institution	Email
Climate Variability, from Seasonal to Orbital Timescales	Land-Ocean interactions over Western North Africa following the Middle Miocene (13.8 Ma) climate transition	Ray Zammit	Cardiff University	zammitR2@cardiff.ac.uk
	Antarctic Subglacial Precipitates Record Ice Sheet Response to Suborbital Southern Ocean Warming	Jessica Gagliardi	UC Santa Cruz	jjgagliardi@ucsc.edu
	Quantifying Antarctic Iceberg Rafted Debris Through the Pleistocene Using Artificial Intelligence	Claire Jasper	Columbia University, Lamont-Doherty Earth Observatory	cjasper@ldeo.columbia.edu
Proxy Development	n-alkane Chainlength Distributions as a Paleo-Vegetation Proxy in eastern Africa	Ruth Tweedy	Columbia University, Lamont-Doherty Earth Observatory	rtweedy@ldeo.columbia.edu

Session 5

Sunday, October 30, 2022 8:45am - 10:00am

Session Chair: Lin Yao & Bryony Puxley

Topic	Presentation Title	Presenter	Institution	Email
Clouds, Radiation, and Climate Sensitivity	Cloud-Radiative Feedbacks Within the Madden-Julian Oscillation	Hrag Najarian	University of Oklahoma	hrag.najarian@ou.edu
	ClimART: Emulating Atmospheric Radiative Transfer with Machine Learning	Salva Rühling Cachay	UC San Diego	sruhlingcachay@ucsd.edu
Atmospheric Chemistry	Hydrogen Sulfide Emission Properties from Two Large Landfills in New York State	Alexandra Catena	State University of New York at Albany	acatena@albany.edu

Session 6

Sunday, October 30, 2022 10:00am - 10:45am

Session Chair: Lin Yao & Bryony Puxley

Topic	Presentation Title	Presenter	Institution	Email
Extreme Events	A Statistical Heat Wave Definition Employed from 1980 through 2020 across the Southern Great Plains	Taylor Grace	University of Oklahoma	taylor.m.grace-1@ou.edu
	Changes in Hail and Associated Processes in a Future Climate	Holly Mallinson	University of Illinois at Urbana-Champaign	hmm2@illinois.edu
Tropical Dynamics and Convection	Understanding the Land Surface Influence on Precipitation using Drydown Convective Available Potential Energy (CAPE)	Lily Zhang	University of Washington	lnzhang@uw.edu

Session 7

Sunday, October 30, 2022 11:00am - 12:15pm

Session Chair: Lauren Hunt

Topic	Presentation Title	Presenter	Institution	Email
Social Impacts of Climate Change	Modeling drivers of internal displacement from climate	Rachel Green	University of California, Santa Barbara	rgreen@ucsb.edu
Urban Design and Climate Policy & Solutions	Where there's an (oil) well, there's a way: how energy sector involvement and political ideology impact support of climate change policy	Claire Burch	University of Oklahoma	burchcm@ou.edu
	Data-Efficient Machine Learning for Smart and Sustainable Buildings	Hari Prasanna Das	University of California, Berkeley	hpdas@berkeley.edu

Workshops

Workshop Session A

Saturday, October 29, 2022 11:15am - 12:15pm

Data Visualization

William Kumler (University of Washington, wkumler@uw.edu)

Scott Hall

As Supreme Court Justice Potter Stewart said of pornography, so too is true of good data visualization: “I know it when I see it.” This may be true of the end result, but the transition from mental image to paper product is often a complicated and frustrating one. In this workshop we’ll cover a few general rules of data visualization and run through some exercises that can make your figures – and your message! – clearer.

Machine Learning Skills for Climate Applications

Salva Rühling Cachay (UC San Diego, sruhlingcachay@ucsd.edu)

Lingwei Meng (Princeton University, lingweim@princeton.edu)

Pack Hall

In this workshop, we will discuss machine learning (ML) applications in climate. While, the focus will be on neural network-based ML architectures, the focus is not on discussing their internal details, but rather establishing a general approach for using them for climate applications. That is, the focus of the workshop will be on providing the participants with the capability of quickly starting their own ML+climate project. To that end, we will go over an exemplary, interactive jupyter notebook that showcases general methods relevant to climate, independently of the concrete application at hand. We will discuss best practices, useful libraries and tools, as well as further available resources and pointers to exciting literature.

Workshop Session B

Saturday, October 29, 2022 2:45pm - 3:45pm

Making grad school applications more accessible via peer mentorship

Shawn Wang (Massachusetts Institute of Technology, syiwang@mit.edu)

Ciara Willis (Massachusetts Institute of Technology, willisc@mit.edu)

Schoolhouse

Graduate admissions in the geo & ocean sciences are a nebulous process, even relative to other STEM fields. Unwritten expectations and small professional circles lead to a self-selective process that advantages those privileged and/or networked enough to

navigate as insiders. Thus, current holistic and inclusive methods to select incoming graduate students may still be inequitable. We (MIT-WHOI JP students) founded the JP Applicant Support & Knowledgebase (ASK) program in 2019 to elucidate the graduate school application process via peer mentoring, particularly for applicants underrepresented in and/or unfamiliar with MIT, WHOI, or ocean sciences. In this workshop, we propose to share the approaches we have developed for facilitating effective peer-to-peer support. We will provide our framework for others to implement in their own programs and aim to generate a discussion about further solutions to the bias and inaccessibility of geoscience graduate school and its application process.

Designing effective and inclusive outreach for K-12 students

Hannah Dion-Kirschner (Caltech, hannahdk@caltech.edu)

Claire Burch (University of Oklahoma, burchcm@ou.edu)

Scott Hall

The goal of this workshop is to spark dialogue about how researchers can more effectively engage in community outreach. We will share from our experiences facilitating outreach programs that connect academic institutions with K-12 STEM students and educators. Claire Burch worked as a research assistant for an NSF Research Experience for Teachers focused on renewable energy development and curriculum. Hannah Dion-Kirschner and other graduate students in Caltech's GO-Outdoors (Geological and Planetary Science Outreach-Outdoors) program have built an organization that offers inclusive place-based outreach opportunities to local K-12 students. In the process we have learned a lot about what questions to ask when you're starting or joining an outreach program, how to connect and iterate with community partners, and how to assess the efficacy of outreach events. We will describe some takeaways from our work, then open the floor for dialogue about pursuing outreach through academic institutions, and connecting climate research with the communities it impacts.

Social responsibility of Earth scientists

Valentina Castañeda (Purdue, castanev@purdue.edu)

Pack Hall

This workshop seeks to open an interactive space for discussion about vulnerable communities and the factors of being much less prepared to cope with climate change. It will include discussion around urgent societal needs for research, ways for Earth scientists to translate knowledge into practical action, the mission to inspire the next generation, and ways to contribute to the participation of underrepresented groups in STEM. The workshop seeks a space to build ideas around the vital role of all climate-related disciplines, not only in terms of the climate urgency we have today but also in critical societal needs.

Graduate Climate Conference Code of Conduct

The Graduate Climate Conference (GCC) is organized by graduate students, for graduate students, in order to build relationships and increase understanding and collaboration across all climate-related disciplines. To accomplish these goals, we have set the following ground rules, based on the American Geophysical Union's Scientific Integrity and Professional Ethics policy (<https://ethics.agu.org/>), to ensure a meaningful and comfortable conference experience for all.

I. Expected Behavior

- Treat all GCC participants and any individuals associated with the GCC with respect and consideration. Recognize value in diversity of backgrounds and perspectives.
- Interact in a considerate, respectful, and collaborative manner. Communicate openly and with respect for others, critiquing ideas rather than individuals.
- Present your research findings accurately and objectively, acknowledging those who made significant contributions to your research. Respect others' requests for confidentiality during presentations of new or unpublished research.
- Meet new people! Consider reaching out to people you don't know whose talk, e-poster and/or workshop you enjoyed.

II. Unacceptable Behavior

- Harassment (including sexual and gender harassment), bullying, physical or verbal abuse, or discrimination in any form will not be tolerated.
- Examples of unacceptable behavior include, but are not limited to:
 - Verbal comments related to gender, sexual orientation, disability, physical appearance, body size, race, religion, national origin, or socioeconomic class;
 - Harassment or intimidation by words, gestures, body language, or any type of menacing behavior;
 - Inappropriate use of nudity and/or sexual images in public spaces or in presentations;
 - Threatening or stalking any GCC participant, student host, staff member, or other individual associated with the GCC.

III. Consequences

- Anyone requested to stop unacceptable behavior is expected to comply immediately.
- The GCC organizing team may take any action deemed appropriate, including immediate removal from the meeting without warning.
- We reserve the right to prohibit attendance at any future GCC.

IV. Reporting

- If you are the subject of unacceptable behavior or have witnessed any such behavior, please immediately notify at least one of the following:
 - The GCC organizing team (gradclimateconference@gmail.com)
 - Any of the GCC co-chairs individually:
 - Becca Cleveland-Stout (racs@uw.edu)
 - Bryony Puxley (bryony.puxley@ou.edu or (+1) 405-596-9337)

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Acknowledgements

The UW Program on Climate Change

The GCC has been made possible since it was first created by the continuing support of the University of Washington's Program on Climate Change (PCC). We would like to offer our particular thanks to Miriam Bertram, Becky Alexander & LuAnne Thompson of the PCC, and Stephanie Nakamichi with the University of Washington's College of Environment.

Charles L. Pack Experimental Forest Conference Center

We would also like to offer our thanks to Terri McCauley and all at the Charles L. Pack Experimental Forest Conference Center for allowing us to host the GCC. A total of eight conferences have been hosted by UW at this beautiful location at the base of Mount Rainier in Eatonville, Washington and we are extremely excited we were able to return again this year.

Local Grad Student Hosts

Out of town graduate students attending the conference who arrive on Thursday / leave on Monday are hosted by volunteer graduate students from climate-related departments at UW. We're thankful to all our volunteer hosts this year for offering up their couches to our out of town visitors!

Funding Sources

One of the main goals of the GCC is to keep the conference accessible to all graduate students by removing financial barriers to attendance - we have no registration fee, cover all the costs of food and housing during the conference, and subsidize the travel of as many out of town attendees as possible. This year we're thrilled to have been able to offer a travel stipend to all applicants who did not already have travel covered by another source! This could not be done without the generous support of our sponsors:

External Sources:

The National Science Foundation	www.nsf.gov
Department of Atmospheric and Oceanic Sciences, University of Wisconsin-Madison	www.aos.wisc.edu
Woods Hole Oceanographic Institution	www.whoi.edu
Department of Earth, Atmospheric, and Planetary Sciences, Massachusetts Institute of Technology	www.eapsweb.mit.edu

University of Washington:

Program on Climate Change (PCC)	www.uwpcc.washington.edu
Department of Atmospheric Sciences	www.atmos.washington.edu

Department of Earth and Space Sciences

www.ess.washington.edu

Department of Civil & Environmental Engineering

www.ce.washington.edu

Graduate School

www.grad.uw.edu

Cooperative Institute for Climate, Ocean, and Ecosystem Studies

www.cicoes.uw.edu

Dean's Office, College of the Environment

www.environment.uw.edu/about/office-of-the-dean