Graduate Climate Conference

Woods Hole 2015

Hosted by:

Woods Hole Oceanographic Institution and the

Program in Atmospheres, Oceans and Climate at the

Massachusetts Institute of Technology

Welcome to the 9th Graduate Climate Conference!

The goal of the GCC is to provide a discussion forum for graduate students undertaking research on climate and global change in an array of disciplines, including the atmospheric, biological, earth and ocean sciences. The format of the conference is designed to encourage new climate scientists to become acquainted with the details of diverse areas of climate research and to place their own research in the broader context of the climate science community.

The GCC was founded in 2006 by graduate students from the University of Washington. The founders originally wished to rotate the conference among several different institutions across the United States (and possibly beyond its borders). In accordance with this wish, this year's conference is organized, for the second time, by students in the **MIT Program in Atmospheres, Oceans and Climate** and the **MIT-WHOI Joint Program**, and is held in Woods Hole, MA at the Marine Biological Laboratory.

CONTENTS

GREETINGS FROM THE CO-CHAIRS

It is our pleasure to welcome you to the 9th Graduate Climate Conference! The GCC has a successful history of bringing together graduate students to present and discuss their research on diverse aspects of climate science. We are excited to join this effort by organizing the 2015 edition of this unique conference. This year's program covers both regional and global aspects of the climate system on various time scales. You will have access to new insights into important processes involving the atmosphere, cryosphere, land surface, and ocean, the associated hydrological and biogeochemical cycles, and the ecological and human dimensions of climate and environmental change. Our goal is to provide you a great opportunity to engage with graduate students across multiple disciplines, build professional collaborations, and further your understanding of the Earth system. We hope you find the conference enlightening, make valuable connections, and have the most enjoyable time this weekend in Woods Hole!

Diamilet Perez-Betancourt and Tyler Rohr,
on behalf of the GCC 2015 Organizing Committee

SCHEDULE

FRIDAY, NOVEMBER 6

10:00a	Bus departs from MIT campus to Woods Hole
12:00 - 1:30p	Lunch and Registration
1:30 - 1:45p	**Introduction**
1:45 - 3:15p	**Session I: Regional Climate**
3:15 - 3:30p	Break
3:30 - 5:00p	**Session II: Ecology**
5:00 - 5:15p	Break
5:15 - 6:15p	**Keynote Address**
6:15 - 7:45p	Dinner
7:45 - 9:00p	**Poster Session A**
9:00p +	Social Event

SATURDAY, NOVEMBER 7

8:30 - 9:30a	Breakfast
9:30 - 11:00a	**Session III: Paleoclimate and Cryosphere**
11:00 - 11:15a	Break
11:15a - 12:45p	**Session IV: Atmospheric Dynamics**
12:45 - 2:00p	Lunch
2:00 - 3:30p	**Session V: Human Dimensions**
3:30 - 4:00p	Break and Group Photo
4:00 - 5:30p	**Session VI: Ocean Dynamics**
5:30 - 7:00p	Dinner
7:00 - 8:30p	**Poster Session B**
8:30p +	Social Event (Costume Party)

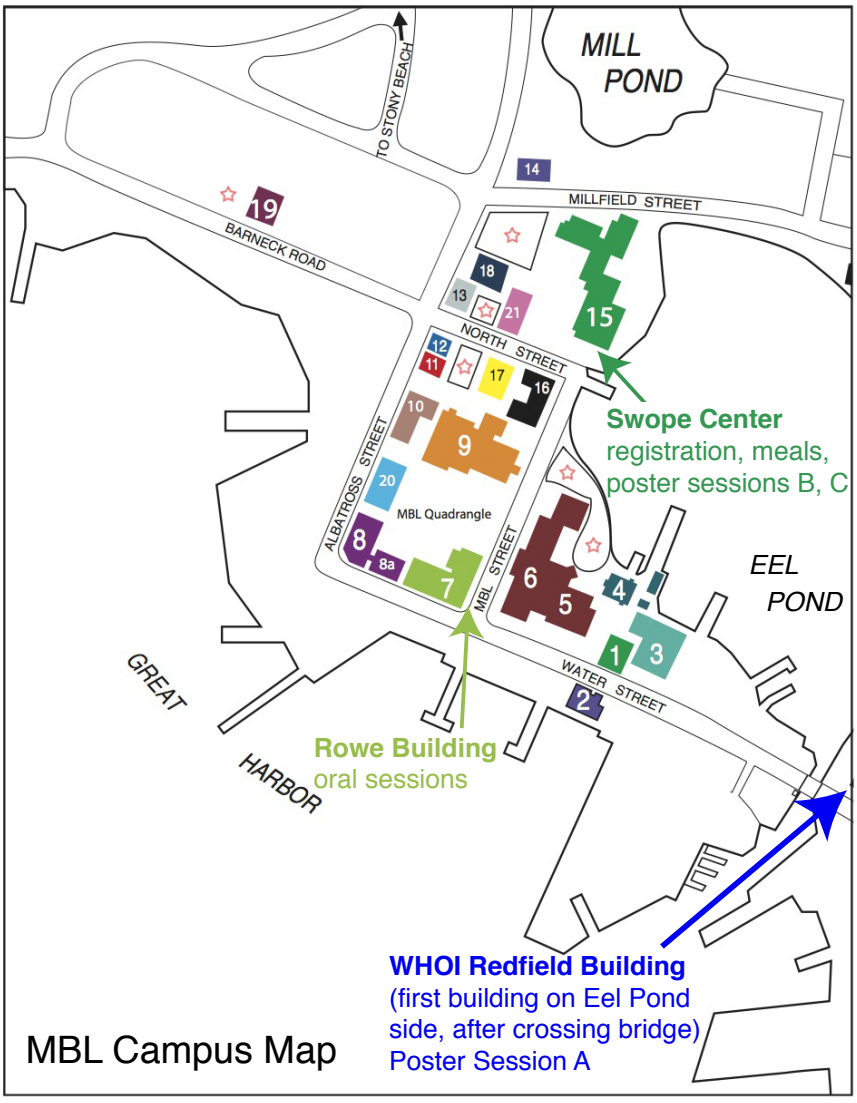
SUNDAY, NOVEMBER 8

7:30 - 8:30a	Breakfast
8:30 - 9:55a	**Session VII: Hydrology and Water Resources**
9:55 - 11:25a	**Poster Session C**
11:25 - 12:50a	**Session VIII: Biogeochemistry**
12:50 - 1:00p	Concluding Remarks
1:00p +	Lunch and Afternoon Activities
TBD	Bus departs from Woods Hole to Boston and Logan Airport.

All sessions will take place at the Marine Biological Laboratory, except for Poster Session A which will be in the WHOI Redfield Building (see map, next page).

Map

Address	5 North St., Woods Hole, MA 02543
Registration/check-in	Swope Center (#15), 1st floor, front entrance
Meals	Swope Center (#15), 2nd floor, dining room
Oral sessions	Rowe Building (#7), Speck Auditorium
Poster Session A (Nov 6)	WHOI Redfield Building, Auditorium
Poster sessions B and C (Nov 7 - 8)	Swope Center (#15), 2nd floor, lobby



1 Candle House (Administration)
2 100 Water Street (Pierce Exhibit Center, Satellite Club, MBL Club)
3 Marine Resources Center
4 Collection Support Facility
5 Crane Wing (Labs, Shipping)
6 Lillie Laboratory (Labs, Service Shops, MBLWHOI Library)
7 Rowe Laboratory (Labs, Speck Auditorium)
8 Environmental Sciences Laboratory
8a Homestead Administration (Human Resources, Education Dept.)
9 Loeb Laboratory (Research and Teaching Labs, Lecture Rooms)
10 Brick Apartment House
11 Veeder House Dormitory
12 David House Dormitory
13 Broderick House (IT)
14 Crane House
15 Swope Center (Registration, Cafeteria, Dormitory, Meigs Room)
16 Ebert Hall Dormitory
17 Drew House Dormitory
18 15 North Street (Carpentry Shop)
19 Smith Cottage and Barneck Road Property
20 C.V. Starr Environmental Sciences Laboratory
21 11 North Street
☆ MBL Parking

KEYNOTE ADDRESS NOV 6, 5:15 - 6:15 PM

From salt marshes to arctic tundra: Some of the surprises we are seeing with climate change

Dr. Anne E. Giblin (Marine Biological Laboratory) <agiblin@mbl.edu>

Abstract:

I started my career interested in the impacts that humans were having on natural systems. My thesis was on the cycling of heavy metals in sewage sludge on a salt marsh. I moved from sewage sludge to the transport of N from septic effluent into coastal waters for my post-doc. I then later spent nearly 20 years examining nitrogen cycling in sediments as part of the Boston sewage outfall relocation project. In spite of spending much of my career "going down the toilet" my interest in N cycling lead me to study N cycling in unimpacted areas such as the continental shelf and two long-term projects focused on climate change. In Plum Island we are examining how sea-level rise is impacting coastal marshes. In the Arctic we are seeing how the impact of climate change is having some unexpected impacts. While my research portfolio is eclectic, I've enjoyed the mix of basic and applied research, short and long-term studies, and single investigator and large projects. I'll talk a bit about how to decide what is right for you and whether this diverse strategy could possibly work in these more challenging times.

Biographical sketch:

Dr. Anne E. Giblin is a Senior Scientist at the Marine Biological Laboratory's Ecosystems Center, and a fellow of the American Association for the Advancement of Science (AAAS). She received a PhD from Boston University and a BS from Rensselaer Polytechnic Institute. She joined the staff of the MBL's Ecosystems Center in 1983 and was named a Senior Scientist in 2003. Giblin is an Adjunct Professor in the Brown University-MBL Partnership and Graduate Program in Biological and Environmental Sciences, and graduate faculty at the University of Rhode Island's Graduate School of Oceanography. She is Lead Principal Investigator of the Plum Island Ecosystem Long-Term Ecological Research site in northern Massachusetts, part of a national network of research sites created by the National Science Foundation. Additionally, she is a member of the executive committee overseeing research at the Arctic Long Term Ecological Research site in northern Alaska.

SESSIONS
FRIDAY

SESSION I: REGIONAL CLIMATE — NOV 6, 1:45 - 3:15 PM

Although the climate system is often thought about in a global context, its complex components often operate on regional scales. As such, we can think about regional climate as the manifestation of the climate system in specific physical areas on Earth. In this session, we will explore dynamic parts of the climate system in regions ranging from the poles to the tropics. Specifically, we will hear talks examining the roles of atmospheric, oceanic, and environmental processes in controlling Arctic clouds, the South Asian Monsoon, and the predictability of El Nino. While these processes occur on regional scales, the individual mechanisms studied both affect and are affected by larger-scale climate dynamics, and they are important for furthering our understanding of the climate system as a whole.

I.0 - **Session introduction**
Vince Agard (MIT) <jvagard@mit.edu>

I.1 - **The influence of atmospheric stability and circulation on cloud presence and properties in a warming Arctic**
Ariel Morrison (University of Colorado)<ariel.morrison@colorado.edu>

I.2 - **Mechanisms of Asian summer monsoon changes in response to anthropogenic forcing in CMIP5 models**
Xiaoqiong Li (Columbia University) <xqli@ldeo.columbia.edu>

I.3 - **The role of African topography in the South Asian monsoon**
Ho-Hsuan Wei (California Institute of Technology) <hwei@caltech.edu>

I.4 - **Revisiting ENSO coupled instability theory and SST error growth in a fully coupled model**
Sarah Larson (University of Miami) <slarson@rsmas.miami.edu>

Posters for this session will be presented during **Poster Session B** on Nov 6, 5:30 - 7 pm.

SESSION II: ECOLOGY — NOV 6, 3:30 - 5:00 PM

Ecology is the study of the interactions between species and the environments they inhabit. As climate changes globally, an important challenge for ecologists is to understand the local impacts of altered physical environments on complex biological systems, and to relate these effects into a meaningful framework for understanding long-term prospects for ecosystem structure and potential feedbacks on biological, chemical, and physical processes. The presentations in this session focus on how ecological connections and organismal physiology may shift in response to altered climate and environmental change.

II.0 - **Session introduction**
Evan Howard (MIT-WHOI Joint Program) <ehoward@whoi.edu>

II.1 - **Effect of extremes: how El Niño events affects reef fish population connectivity in the Hawaiian Islands**
Johanna L. K. Wren (University of Hawaii at Manoa) <jwren@hawaii.edu>

II.2 - **Population persistence in the face of climate change and competition: a battle on two fronts**
Scott Rinnan (University of Washington) <rinnan@u.washington.edu>

II.3 - **Impacts of shrub expansion on food availability for migratory passerines in western Alaska**
Molly McDermott (University of Alaska - Fairbanks) <mtmcdermott@alaska.edu>

II.4 - **Climate impacts of plant structural acclimation in response to climate change**
Marlies Kovenock (University of Washington) <kovenock@uw.edu>

Posters for this session will be presented during **Poster Session B** on Nov 6, 5:30 - 7 pm.

POSTER SESSION A — NOV 6, 7:45 - 9:00 PM

This session will feature posters by members of the GCC Executive Committee and guests from local institutions. It will be held in the Redfield building at WHOI.

A.1 - **Signal propagation in the Deep Western Boundary Current**
Isabela Le Bras (MIT-WHOI Joint Program) <ilebras@whoi.edu>

A.2 - **An absurdly simple model for oceanic export efficiency's temperature dependence**
Cael Barry (MIT-WHOI Joint Program) <bcaelb@mit.edu>

A.3 - **Biological oxygen production across 8000 km of the South Atlantic**
Evan Howard (MIT-WHOI Joint Program) <ehoward@whoi.edu>

A.4 - **Population genomic change during a rapid range expansion: the case of the invasive lionfish, Pterois volitans**
Eleanor Bors (MIT-WHOI Joint Program) <ekbors@mit.edu>

A.5 - **Biases in field measurements of ice nuclei concentrations**
Sarvesh Garimella (MIT) <vesh@mit.edu>

A.6 - **Variability in sea ice controls on phytoplankton bloom dynamics across the Southern Ocean**
Tyler Rohr (MIT-WHOI Joint Program) <trohr@mit.edu>

A.7 - **Dissolved gases are tracers of ocean carbon uptake in a coastal upwelling zone**
Cara Manning (MIT-WHOI Joint Program) <cmanning@whoi.edu>

A.8 - **Stratospheric response to tropospheric forcing -reanalysis vs. shallow water model**
Andy Miller (MIT) <amiller@mit.edu>

A.9 - **Dependence of modeled aerosol forcing on aerosol-cloud interactions in a coupled aerosol-climate model**
Daniel Rothenberg (MIT) <darothen@mit.edu>

A.10 - **A three-layer model of the global overturning circulation**
Tom Beucler <tbeucler@mit.edu>

A.11 - **Hydrographic structure of overflow water passing through the Denmark Strait**
Dana Mastropole (MIT-WHOI Joint Program) <dmastropole@whoi.edu>

POSTER SESSION A CONTINUED — NOV 6, 7:45 - 9:00 PM

A.12 - **Diurnal variations of tropical cyclone structure in idealized three-dimensional simulations**
Diamilet Perez-Betancourt (MIT) <diamilet@mit.edu>

A.13 - **North African dust deposition and hydroclimate over the last 70 ka**
Christopher Kinsley (MIT-WHOI Joint Program) < ckinsley@mit.edu>

A.14 - **An analytical model for CAPE and CIN evolution in midlatitude severe storm environments**
Vince Agard (MIT) <jvagard@mit.edu>

A.15 - **A new in-situ sensor for characterizing full carbonate chemistry in aquatic environments: Development and Application**
Sophie Chu (MIT-WHOI Joint Program) <sochu@mit.edu>

SATURDAY

SESSION III: PALEOCLIMATE AND CRYOSPHERE NOV 7, 9:30 - 11:00 AM

Climate processes act on a very wide spectrum of time-scales. In the absences of direct observations and controlled experiments, we have to rely on proxy records and numerical simulations in order to understand variability on long time scales. This session explores a variety of proxies for reconstructing pastclimate variability on both regional and inter-hemispherical scales. Changes in temperature, water cycle, windfield and the cryosphere are presented. Of particular interests are changes in the polar regions and the cryosphere, which are explored both in terms of their history and numerical models. These have some of the largest potential for change during past, present and future.

III.0 - **Session introduction**
Cristi Proistosescu (Harvard University) <cproist@fas.harvard.edu>
and Ning Zhao (MIT-WHOI Joint Program) <nzhao@whoi.edu>

III.1 - **Freeze-up in the Arctic Ocean: new processes in response to a changing climate**
Alice Bradley (University of Colorado - Boulder) <alice.bradley@colorado.edu>

III.2 - **Two centuries of coherent Pacific-North American climate change at decadal timescales**
Sara Sanchez (Scripps Institution of Oceanography) <scsanche@ucsd.edu>

III.3 - **Reconstructing past water balance changes from closed-basin lakes in the Central Andes**
Christine Chen (MIT-WHOI Joint Program) <ccy@mit.edu>

III.4 - **Leaf wax biomarkers as proxies for regional climate variation during hominin evolution**
Rachel Lupien (Brown University) <rachel_lupien@brown.edu>

Posters for this session will be presented during **Poster Session B** on Nov 6, 5:30 - 7 pm.

SESSION IV: ATMOSPHERIC DYNAMICS NOV 7, 11:15 AM - 12:45 PM

This session focuses on large scale processes that fundamentally shape the climate of the atmosphere. The scientific progress is often described as going from data to theory. Theories then inform further experiments and ultimately new observations. The talks in this session describe every step of this process despite coming from completely different fields of atmospheric science. The first talk introduces a new theory to interpret existing data. Two talks will cover both the formulation and the interpretation of models before the last talk will come full circle by comparing numerical results with new observations. The specific topics of the talks and posters represent the huge variety within atmospheric dynamics today. They range from the influence of ocean and land-processes on the atmosphere to the effects variations in solar radiation on the dynamics of the stratosphere and the paleoclimate.

IV.0 - **Session introduction**
Andy Miller (MIT) <awmiller@mit.edu>

IV.1 - **A moist formulation of the Eliassen-Palm flux diagnostic**
Ray Yamada (Courant Institute of Mathematical Sciences, NYU) <ray230@nyu.edu>

IV.2 - **Introduce a collaborative research project: Topographically bound balanced motions, and the mathematical work involved**
Zhengqing (James) Chen (Clarkson University) <zhechen@clarkson.edu>

IV.3 - **Unforced decadal-scale global mean warming and cooling in climate models**
Eleanor Middlemas (Rosenstiel School of Marine and Atmospheric Science - University of Miami) <e.middlemas@rsmas.miami.edu>

IV.4 - **Impacts of cloud properties and behavior on polar radiative balance**
Elin McIlhattan (University of Wisconsin - Madison) <elin@aos.wisc.edu>

Posters for this session will be presented during **Poster Session B** on Nov 7, 5:30 - 7 pm.

SESSION V: HUMAN DIMENSIONS — NOV 7, 2:00 – 3:30 PM

Intersections between the human and climate systems are found throughout human history, but have perhaps never been so tangible and conspicuous as they are now. The influences of humans on the environment and vice-versa are complex, often involving questions of values and risk. These intersections may have significant educational, scientific, social, economic, and political implications. In this session, we explore societal perspectives of climate and climate change, mechanisms of adaptation and/or mitigation, the uncertainties inherent in the human/climate interactions, and the development of climate policy and decision-making.

V.0 - **Session introduction**
Daniel Gilford (MIT) <dgilford@mit.edu>

V.1 - **Climate change education- teachers identifying as scientists**
Peggy McNeal (Western Michigan University) <peggy.m.mcneal@wmich.edu>

V.2 - **Assessing vulnerability to extreme heat through individually experienced temperatures (IETs): New insights from Phoenix, AZ**
Evan Kuras (University of Massachusetts - Amherst) <erkuras@gmail.com>

V.3 - **Resilience decision-making under uncertainty: Non-stationary flood levels from local sea level rise**
Maya Buchanan (Princeton University) <mayakb@princeton.edu>

V.4 - **Is there an economic component of suicide? Evidence from climate and agriculture in India**
Tamma Carleton (University of California - Berkeley) <tcarleton@berkeley.edu>

Posters for this session will be presented during **Poster Session C** on Nov 8, 9:55 - 11:55 am.

SESSION VI: OCEAN DYNAMICS — NOV 7, 4:00 – 5:30 PM

Noted oceanographer Walter Munk once said "all we know for sure is that the oceans are an important sink of heat, and carbon dioxide, and of ignorance." Indeed, the ocean forms an integral component of the climate system, both in terms of storage and transport, on many scales, yet has received comparatively little attention in the climate community until recently. The ocean influences storm tracks and other weather patterns, transports heat to the poles, and its circulation affects coastal communities; sea level rise is of increasing global concern. In this session, speakers will describe analysis of observations, both new and paleo-old, and of models, both high-resolution numerical and simple-theoretical, of the relationships between the ocean and climate.

VI.0 - **Session introduction**
Cael Barry (MIT-WHOI Joint Program) <bcaelb@mit.edu>

VI.1 - **A global ocean state estimate at the Last Glacial Maximum**
Dan Amrhein (MIT-WHOI Joint Program) <amrhein@mit.edu>

VI.2 - **Southern Ocean cooling in a warming world: the role of westerly winds**
Yavor Kostov (MIT) <yavor@mit.edu>

VI.3 - **A multi-basin three dimensional perspective on the meridional overturning circulation in the southern ocean**
Dhruv Balwada (Florida State University) <db10d@fsu.edu>

VI.4 - **On the first observations of summer ocean stratification and flow off the Sabrina Coast of Wilkes Land, East Antarctica**
Natalie Zielinski (Texas A&M University) <njzielinski@tamu.edu>

Posters for this session will be presented during **Poster Session C** on Nov 8, 9:55 - 11:55 am.

POSTER SESSION B

NOV 7, 7:00 - 8:30 PM

REGIONAL CLIMATE

B.I.1 - **Climate Change and the Sea Breeze in the North Carolina Coast**
Nicholas Luchetti (East Carolina University) <luchettin14@students.ecu.edu>

B.I.2 - **Influence of ENSO on the Great Plains Low-Level Jet**
James Danco (University of Oklahoma School of Meteorology) <jdanco@ou.edu>

B.I.3 - **First evaluation of the CCAM climate model aerosol simulation with AERONET measurements over Africa**
Hannah Horowitz (Harvard University) <hmhorow@fas.harvard.edu>

B.I.4 - **Estimating the relative importance of weather and climate modes for Antarctic sea ice variability**
Tsubasa Kohyama (University of Washington) <kohyama@uw.edu>

B.I.5 - **The snow albedo feedback in the Colorado Rockies**
Ted Letcher (University of Albany) <ted.letcher@gmail.com>

ECOLOGY

B.II.1 **- Modeling spatial conservation of Hawaiian fisheries under a changing climate**
Maia Kapur (University of Hawaii) <mkapur@hawaii.edu>

B.II.2 **- High-elevation spruce-fir birds: Vulnerability to climate change and prospects for conservation within the Northern Forest**
Tim Duclos (University of Massachusetts, Amherst) <tduclos@umass.edu>

B.II.3 - **Predicting potential maximum forest canopy height and total aboveground biomass under climate change**
Sungho Choi (Boston University) <schoi@bu.edu>

POSTER SESSION B CONTINUED — NOV 7, 5:30 - 7:00 PM

PALEOCLIMATE AND CRYOSPHERE

B.III.1 - **Equatorial Pacific Dust Fluxes: Insights into the Intertropical Convergence Zone and the last four glacial terminations**
Alison Jacobel (Columbia University, Lamont-Doherty Earth Observatory) <jacobel@ldeo.columbia.edu>

B.III.2 - **Reconstructing the Late Holocene record of eolian activity as a proxy for drought, Southern Great Plains, USA**
Kasey Bolles (Baylor University) <kasey_bolles@baylor.edu>

B.III.3 - **Modeling the Deglaciation of the Greenland Ice Sheet**
Benjamin Keisling (University of Massachusetts – Amherst) <bkeisling@geo.umass.edu>

B.III.4 - **History of grounded ice in the Ross Embayment at and since the Last Glacial Maximum using glacial deposits alongside the Hatherton Darwin glacier system, Antarctica**
Courtney King (University of Maine) <courtney.king@maine.edu>

B.III.5 - **On the role of inter-hemispheric gradients in volcanic forcing on tropical hydroclimate and oxygen isotope responses.**
Chris Colose (University at Albany) <ccolose@albany.edu>

B.III.6 - **Past, present, and future South American glacial responses to climate change**
Andrew Malone (University of Chicago) <amalone@uchicago.edu>

B.III.7 - **The influence of pH on the variability of the Mg/Ca temperature proxy and other metal/calcium ratios in planktonic foraminifera**
Elisa Bonnin (University of Washington) <ebonnin@uw.edu>

B.III.8 - **Examining the Mid- Brunhes Event in the terrestrial Arctic: an organic geochemical record from Lake El'gygytgyn, Russia**
Helen Habicht (University of Massachusetts Amherst) <mhabicht@cns.umass.edu>

POSTER SESSION B CONTINUED — NOV 7, 5:30-7:00 PM

ATMOSPHERIC DYNAMICS

B.IV.1 **- A "land kernel" to isolate the influence of the land on the atmosphere**
Marysa Lague (University of Washington) <mlague@uw.edu>

B.IV.2 - **Robust effects of ocean heat uptake on radiative feedback and subtropical cloud cover: a study using radiative kernels**
Lance Rayborn (University at Albany, SUNY) <lrayborn@albany.edu>

B.IV.3 - **Eccentricity forcing and preconditioning of unusually warm superinterglacials**
Rajarshi Roychowdhury (University of Massachusetts, Amherst) <rajarshi.es@gmail.com>

B.IV.4 - **A Comparison of Two Daily Temperature Averaging Methodologies: Uncertainties, Spatial Variability, and Societal Implications**
Jase Bernhardt (Penn State University) <Jeb5249@psu.edu>

B.IV.5 - **Atmospheric compensation of variations in tropical ocean heat transport: understanding mechanisms and implications**
Cameron Rencurrel (University at Albany, SUNY) <crencurrel@albany.edu>

B.IV.6 - **Re-Analysis Data for Fine Temporal Resolution Wind Power Estimation: A Comparison of Boundary Layer Parameterizations**
Michael Davidson (MIT) michd@mit.edu

B.IV.7 - **Global Climate Model Simulations of a Temporary Solar Radiation Management Deployment Scenario**
Rick Russotto (University of Washington) <russotto@uw.edu>

B.IV.8 - **Dynamical response to an upper stratospheric heating anomaly associated with the 11-year solar cycle**
Erik Lindgren (MIT) <ealindgr@mit.edu>

SUNDAY

SESSION VII: HYDROLOGY AND WATER RESOURCES

NOV 8, 8:30 - 9:55 AM

Climate change will alter the global hydrological cycle, including the fluxes and distribution of water among all reservoirs on land, the oceans and the atmosphere. Describing the features of these changes, and the mechanisms that cause them, is necessary to understand how water resources will shift at the regional to local scales, as well. This session brings together a diverse repertoire of tools that shed light on these questions: from global climate models to isotope chemistry to regional satellite imagery. Presentations in this session will further explore the implications of hydrological changes for water management, and the frequency and intensity of natural disasters.

VII.0 - **Session introduction**
Sarah Rosengard (MIT-WHOI Joint Program) <srosengard@whoi.edu>

VII.1 - **The sensitivity of global mean precipitation to natural versus anthropogenic climate change**
Ryan Kramer (University of Miami/RSMAS) <rjk5079@rsmas.miami.edu>

VII.2 - **Exploring the Effects of Solar Radiation Management on Water Cycling in a Coupled Atmosphere-Land Model**
Katie Dagon (Harvard University) <kdagon@fas.harvard.edu>

VII.3 - **Soil Moisture Gradients and Land-Use/Land-Cover Boundary Impacts on U.S. Northern Tier Derecho Development**
Adrienne Tucker (Pennsylvania State University) <azt153@psu.edu>

VII.4 - **Effects of Climate Change on Snowpack and Fire Risk in the Western United States**
Diana Gergel (University of Washington) <gergel@uw.edu>

Posters for this session will be presented during **Poster Session C** on Nov 8, 9:55 - 11:55 am.

POSTER SESSION C

NOV 8, 9:55 - 11:25 AM

HUMAN DIMENSIONS

C.V.1 - **The socio-ecological system of razor clams and the Quinault Indian Nation: modeling the potential impacts of ocean change**
Michael Tillotson (University of Washington) <mdt3@uw.edu>

C.V.2 - **Coordinating Leisure: the Fun and Forgotten Energy Policy**
Jonathan Kadish (UC Berkeley ARE) <jonathan.kadish@gmail.com>

C.V.3 - **Sustainable electricity options for Kosovo**
Noah Kittner (UC Berkeley) <nrkittner@berkeley.edu>

C.V.4 - **Global heat stress in the 21st century**
Ethan Coffel (Columbia University) <ec2959@columbia.edu>

C.V.5 - **An exploration of climate change education in the K-12 classroom**
Lisa Tabor (Kansas State University) <lkt7779@ksu.edu>

C.V.6 - **The Climate Change Adaptation Road Maps of Metro Manila and Singapore as Coastal Metropolises in Southeast Asia**
Philip Michael I. Paje (University of the Philippines-Diliman) <philippaje@yahoo.com>

C.V.7 - **Livelihood adaptation and governance changes in the aftermath of the Gulf of Maine northern shrimp moratorium**
Rebecca Gilbert (Yale University) <rebecca.gilbert@yale.edu>

C.V.8 - **Climate Change Adaptation in the Indus Ecoregion: A Microeconometric Approach to Study the Determinants, Impact and Cost Effectiveness of Adaptation Strategies**
Farrukh Zaman (Yale University) farrukh.zaman@yale.edu

OCEAN DYNAMICS

C.VI.1 - **An adjoint sensitivity analysis of Gulf Stream path variation in the South Atlantic Bight**
Xiangming Zeng (North Carolina State University) <xzeng2@ncsu.edu>

POSTER SESSION C CONTINUED — NOV 8, 9:55 - 11:25 AM

OCEAN DYNAMICS CONTINUED

C.VI.2 - **Transport of Atlantic Water in the Alboran Sea: 2D Dynamic Systems Analysis**
Genevieve Jay Brett (MIT-WHOI Joint Program) <gbrett@mit.edu>

C.VI.3 - **Structure and variability of the shelf break East Greenland Current**
Lisbeth Håvik (University of Bergen) <lisbeth.havik@uib.no>

C.VI.4 - **Near-inertial waves and their interaction with ocean currents**
Alexis Riopel (McGill University) <alexis.riopel@mail.mcgill.ca>

HYDROLOGY AND WATER RESOURCES

C.VII.1 - **Influence of convective parameterization and remote forcings on precipitation in the deep tropics**
Matthew Woelfle (University of Washington) <woelfle@atmos.washington.edu>

C.VII.2 - **Stream Temperature Modeling: A Climate Change Analysis and Assessment for Aquatic Resource Managers**
Lynn Brennan (University of Massachusetts Amherst)
<lynn.metcalf.brennan@gmail.com>

C.VII.3 - **Assessing projected climate impacts on streamflow in small coastal basins of the Western US**
William Burke (Indiana University) <wiburke@umail.iu.edu>

C.VII.4 - **Modeling water isotope in convective processes**
Suqin Duan (UC-Berkeley and Tsinghua University) <suqin.duan@berkeley.edu>

C.VII.5 - **California anomalous winter precipitation and applications on water management**
Bor-Ting Jong (Lamont-Doherty Earth Observatory) <borting@ldeo.columbia.edu>

C.VII.6 - **Changes in flow regimes with changing climate scenarios in fragmented stream networks of the Central Great Plains of Kansas.**
Sarmistha Chatterjee (University of Delaware) <sarmi@udel.edu>

POSTER SESSION C CONTINUED — NOV 8, 9:55 - 11:25 AM

BIOGEOCHEMISTRY

C.VIII.1 - **Soil carbon vulnerability to land-cover change and implications for the global carbon cycle**
Katerina Georgiou (University of California, Berkeley) <kgeorgiou@berkeley.edu>

C.VIII.2 - **Determining the Effect of Growth Rate on Hydrogen Isotope Fractionation of Algal Lipids in Two North Pacific Sites**
Marta Wolfshorndl (University of Washington) <martaw@uw.edu>

C.VIII.3 – **Response of coastal dune plants to soil community gradients and changing abiotic stressors**
Diana T. Barrett (UMASS Dartmouth) <dbarrett@umassd.edu>

SESSION VIII: BIOGEOCHEMISTRY NOV 8, 11:25 AM – 12:50 PM

Biogeochemists study the processes controlling the transfer of elements (and molecules and isotopes) between different reservoirs in the earth system. Atmospheric levels of CO_2, and thus global temperatures, are intimately linked to these biogeochemical cycles. This oral session and the accompanying posters will feature studies showcasing the broad field of biogeochemistry and the biogeochemical cycles of carbon, nitrogen, oxygen, and water. The environments studied include the terrestrial biosphere, ocean, and atmosphere, and the spatial scales range from global to local.

VIII.0 - **Session introduction**
Cara Manning (MIT-WHOI Joint Program) <cmanning@whoi.edu>

VIII.1 - **Empirically derived sensitivity of vegetation to climate across the globe**
Gregory R. Quetin (University of Washington) <gquetin@u.washington.edu>

VIII.2 - **Cool versus warm season grasslands: How precipitation drives carbon cycling in two semiarid communities**
Katherine Moore Powell (University of Colorado)
<katherine.powell@colorado.edu>

VIII.3 - **Analysis of Site-Specific Isotopic Composition of Nitrogen and Oxygen in Atmospheric Nitrous Oxide at Mace Head, Ireland**
Michael McClellan (MIT) <mcclellm@mit.edu>

VIII.4 - **Variability of pCO_2 in seawater on Hawaiian coral reefs**
Gerianne Terlouw (University of Hawaii at Manoa) <gterlouw@hawaii.edu>

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Kyrstin Fornace (MIT-WHOI Joint Program) designed the logo for this year's conference.

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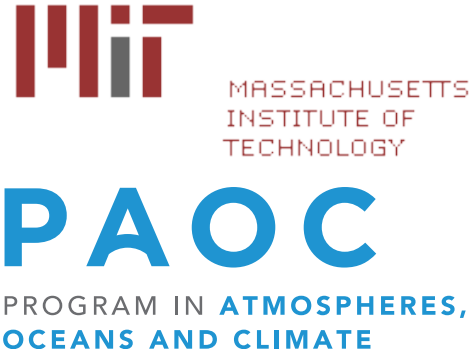
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