2018 SBS FSU Graduate Student Steering Committee

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Olivia Mason (Florida State University)
Sophie McCoy (Florida State University)
Amy McKenna (National High Magnetic Field Laboratory)
Jeremy Owens (Florida State University)
Theodore Them (Florida State University)

Participating Universities

Dauphin Island Sea Lab, East Carolina University, Florida State University, Florida A&M University, Georgia Institute of Technology, National High Magnetic Field Laboratory, University of Alabama, University of Georgia, University of Florida, University of North Carolina Chapel Hill, University of South Alabama, University of South Florida, University of South Carolina, University of Tennessee Knoxville, Virginia Tech

Sponsors

Agouron Institute
Florida State University (FSU), Department of Earth, Ocean and Atmospheric Sciences
FSU Office of Research
FSU Graduate School
FSU College of Arts and Sciences
FSU Department of Psychology
National High Magnetic Field Laboratory
John W. and Ellen M. Winchester Fund for Excellence in Earth, Ocean, and Atmospheric Geochemistry
Locations

Hampton Inn & Suites Tallahassee Capitol-University
824 Railroad Avenue, Tallahassee, Florida, 32310
850-692-7150

Map showing driving directions from The Hampton Inn to the Psychology Auditorium.

It is a 30 minute walk from the hotel to the Psychology Auditorium, and there will not be a shuttle service. Free parking is available in the large Faculty/Staff surface parking lot behind the Psychology buildings. Turn right (east) on West Call Street off of Stadium Drive, go 0.2 miles and turn right (south) immediately after you pass the Auditorium. There is also a parking garage available nearby: turn right (east) on Spirit Way (before you get to West Call Street) off of Stadium Drive. Parking permits are not required on weekends.

The Friday evening mixer (7:00-10:00pm) is at Grasslands Brewery on the corner of Railroad Ave. and Gaines Street. Pizza, beer, and other drinks provided.

The Saturday evening mixer (no host bar) will be at Proof Brewery in Railroad Square, a few blocks south of the hotel.
# Schedule

## Friday April 6, 2018

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>7.00PM - 10.00PM</td>
<td>Mixer</td>
<td>Grasslands Brewery</td>
</tr>
</tbody>
</table>

## Saturday April 7, 2018

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:15 AM - 9.00 AM</td>
<td>Registration</td>
<td>Psychology Auditorium</td>
</tr>
<tr>
<td>9:00 AM - 9.15 AM</td>
<td>Introduction/Welcome</td>
<td>Psychology Auditorium</td>
</tr>
<tr>
<td>9:15 AM - 10.00 AM</td>
<td>Keynote Talk</td>
<td>Psychology Auditorium</td>
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<tr>
<td>10:00 AM - 10.20 AM</td>
<td>Coffee Break</td>
<td>Psychology atrium</td>
</tr>
<tr>
<td>10:20 AM - 12.00 PM</td>
<td>Oral Session I</td>
<td>Psychology Auditorium</td>
</tr>
<tr>
<td>12:00 PM - 1.00 PM</td>
<td>Lunch</td>
<td>Seminole café</td>
</tr>
<tr>
<td>1:00 PM - 2.30 PM</td>
<td>Oral Session II</td>
<td>Psychology Auditorium</td>
</tr>
<tr>
<td>2:30 PM - 2.50 PM</td>
<td>Coffee Break</td>
<td>Psychology atrium</td>
</tr>
<tr>
<td>2:50 PM - 4.20 PM</td>
<td>Oral Session III</td>
<td>Psychology Auditorium</td>
</tr>
<tr>
<td>4:20 PM - 6.20 PM</td>
<td>Poster Session</td>
<td>Psychology atrium</td>
</tr>
<tr>
<td>6:20 PM - 7.20 PM</td>
<td>Dinner</td>
<td>Seminole Café</td>
</tr>
<tr>
<td>7:20 PM - 10.00 PM</td>
<td>Evening free</td>
<td>Proof Brewery: Not hosted; cash bar</td>
</tr>
</tbody>
</table>

## Sunday April 8, 2018

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>9:00 AM - 10.30 AM</td>
<td>Oral Session IV</td>
<td>Psychology Auditorium</td>
</tr>
<tr>
<td>10:30 AM - 10.50 AM</td>
<td>Coffee Break</td>
<td>Psychology atrium</td>
</tr>
<tr>
<td>10:50 AM - 11.30 AM</td>
<td>Awards</td>
<td>Psychology Auditorium</td>
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2018 SBS Keynote Speaker

Dr. Susan Lang
University of South Carolina
School of Earth, Ocean, and Environment

Serpentinization, Carbon, and Life

Susan Lang is an Assistant Professor in the School of the Earth, Ocean, and Environment at the University of South Carolina, where her research focuses on the interactions among water, rocks, and microorganisms. She received an undergraduate degree in Chemistry from MIT and a Ph.D. in Chemical Oceanography from the University of Washington, supported in part by a National Defense Science and Engineering Graduate Student Fellowship. She conducted post-graduate research at Scripps Institution of Oceanography and ETH-Zürich in Switzerland. In 2016 she was selected as a Kavli Frontiers of Science Fellow by the National Academy of Sciences.

Lang investigates the biogeochemistry of the rocky subsurface of the oceans and continents. These environments are removed from photosynthetically derived inputs and are instead inhabited by microorganisms that obtain energy from water-rock reactions. Regions where water reacts with ultramafic rocks to form serpentinites may be particularly important, high-activity, ‘population centers’ in the oceanic subsurface since they are associated with high concentrations of hydrogen and abiotically produced organic molecules such as methane and formate. The outcomes of this research can provide insights into the early evolution of life on Earth and for detecting life on other planetary bodies.
Oral Session I, Saturday April 7, 2018, 10:20 AM – 12:00 PM

10:20 AM
1. A Bottom-Up Method to Estimate Species Specific Primary Production Rates on Coral Reefs
   Daniel Owen*, William K. Fitt, Matthew H. Long, Brian M. Hopkinson, University of Georgia

10:35 AM
2. Fine scale benthic invertebrate megafaunal assemblage structure on the north pacific seamount Mokumanamana
   Nicole Morgan*, Savannah Goode, E. Brendan Roark, Amy R. Baco, Florida State University

10:50 AM
3. Spatial data shift algorithm for 3-oxygen-probe aquatic eddy covariance system
   Alireza Merikhi*, Peter Berg, Markus Huettel, Florida State University

11:05 AM
4. What sets the vertical structure of the ocean deoxygenation in warming climate?
   Daoxun Sun*, Taka Ito, Georgia Institute of Technology

11:20 AM
5. Origins of Life Chemistry: Prebiotic Metabolite Production in Simulated Hydrothermal Vent Environments
   Arthur Omran*, Oliver Steinbock, Florida State University

Oral Session II, Saturday April 7, 2018, 1:00 PM – 2:30 PM

1:00 PM
6. Microbial Community Assembly in Marine Phytoplankton-Bacteria Model Systems
   He Fu*, Mary Ann Moran, University of Georgia

1:15 PM
7. ABC Transporters Mediated Multidrug Resistance in Prostate Cancer Cells
   Toluleke O. Famuyiwa*, Joubin Jebelli, Elizabeth Ramirez, Allen Reilly, Christopher Pecille Dr. Kumi-Diaka, Florida Atlantic University

1:30 PM
8. Expanding the Structural and Phylogenetic Diversity of Conductive Geopili
   Marcus S. Bray*, Bianca F. Costa, Jieying Wu, Cory C. Padilla, Frank J. Stewart, David A. Fowle, Cynthia Henny, Sean A. Crowe, Jennifer B. Glass, Georgia Institute of Technology

1:45 PM
9. High depth resolution of methanogenic estuarine sediments reveals ANME-1 as sole methanogen
   Richard Kevorkian*, Sean Callahan and Karen G. Lloyd, University of Tennessee

2:00 PM
10. Role of Mn(IV) oxides in abiotic nitrous oxide production
    Amanda Cavazos*, Martial Taillefert, Yuanzhi Tang, Jennifer Glass, Georgia Institute of Technology
Oral Session III, Saturday April 7, 2018, 2:50 PM – 4:20 PM

2:50 PM
11. Investigating a unique open ocean geochemical record of the end Triassic mass extinction from Panthalassa
Selva Marroquín*, Benjamin Gill, Virginia Polytechnic Institute and State University

3:05 PM
12. A comparative assessment of the role of anoxia during the Cambrian SPICE event
Matthew LeRoy*, Benjamin Gill, Virginia Polytechnic Institute and State University

3:20 PM
13. Assessing gas transfer velocity in a shallow, microtidal estuary
Bryce Van Dam*, Craig Tobias, James Edson, University of North Carolina at Chapel Hill

3:35 PM
14. The role of priming effects on the conversion of blue carbon to CO2 in the coastal zone
Elise Morrison*, N. Ward, A. Arellano, Y. Liu, A. Rivas-Ubach, A. Ogram, T. Osborne, D. Vaughn, T.S. Bianchi, University of Florida

3:50 PM
15. Characterization and Degradation of Hydrocarbons Buried in Dry Pensacola Beach Sand
Ioana Bociu*, Markus Huettel, Florida State University

4:05 PM
16. Dissolved Organic Matter Throughout the Georgia Coastal Ecosystems LTER Domain: Sources, Distribution and Biodegradation
Maria Letourneau*, Sylvia C. Schaefer, Patricia M. Medeiros, University of Georgia

Oral Session IV, Sunday April 8, 2018, 9:00 AM – 10:30 AM

9:00 AM
17. Wastewater remediation coupled with fuel production from the cultivation of oleaginous algal micro-organisms native to Tallahassee, FL
Lowell Collins*, Ashvini Chauhan, Florida A&M University

9:15 AM
18. The response of microbially-mediated organic matter decomposition to elevated temperature in peatlands
Tianze Song*, Jose L. Rolando, Max Kolton, Rachel Wilson, Jason Keller, Scott Bridgham, Jeff Chanton, and Joel E. Kostka, Georgia Institute of Technology

9:30 AM
19. Polysaccharide Complexes in Sphagnum Moss Promote Decarboxylation and Mitigate CH4 Production in Catotelm Peat
Alexandra Cory*, Rachel Wilson, Beth Holmes, Claire Wilson, Jeffrey Chanton, Florida State University

9:45 AM
20. Assembly, ecological function and evolutionary conservation of the Sphagnum core microbiome across the North America continent
Max Kolton*, Jonathan Shaw, David Weston, Joel E. Kostka, Georgia Institute of Technology
10:00 AM
21. Ozone deposition to forests degrades water-use efficiency across multiple ecosystems

10:15 AM
22. Using Functional Traits to Assess the Influence of Burrowing Bivalves on Nitrogen Removal in an Unregulated Lowland River in Central Alabama
Zachary L. Nickerson*, Behzad Mortazavi, Carla L. Atkinson, *University of Alabama
Poster Session, Saturday April 7, 2018, 4:20 PM – 6:20 PM

1. Parametric uncertainty quantification of Mercury chemical Speciation modeling
   Nur Ahmed*, Ming Ye, Florida State University

2. Iron and Sulfate Reducers in Response to Arctic Climate Change
   Brandy Barber*, University of Tennessee

3. Expansion of anoxia/euxinia as driver for early Silurian extinction events: New geochemical proxy data from Sweden
   Emily Benyoun*, Jeremy Owens, OlleHints, Tonu Martma, Seth Young, Florida State University

4. Geochemical evidence for widespread anoxia-euxinia during the Late Silurian Lau Extinction Event
   Chelsie Bowman*, Claudia Richbourg, Jeremy Owens, Seth Young, Florida State University

5. Depth-stratified marine microbial communities exhibit distinct enzymatic responses to high-molecular weight organic matter addition
   Sarah Brown*, Adrien Hoarfrost, J.P. Balmonte, Sherif Ghobrial, Carol Arnosti, University of North Carolina at Chapel Hill

6. Investigating feedbacks between chemistry and biology: Insights from Southern Ocean incubation experiments
   Shannon Burns*, Kristen Buck, University of South Florida

7. Effects of Wind on Oceanic Submesoscale Processes
   Xu Chen*, William Dewar, Mark Bourassa, Florida State University

8. Endolith diazotrophy, and its physiological effects on host crustose coralline algae
   Ethan Cissell*, Florida State University

9. Turmeric Adulteration by Lead Paint
   Mary E. DesRosiers*, Peter L. Morton, Maitreyi Mazumdar, and Kelsey Gleason, Florida State University

10. Carbon Flux of Heterotrophic-Autotrophic Interactions in Surface Ocean Bacteria
    Frank Ferrer-Gonzalez*, Mary Ann Moran, University of Georgia

11. Double Trouble: Tracking (Late Wenlock) Silurian Sulfur and Carbon Perturbations associated with the Mulde Event from Tennessee and Nevada
    Randall Funderburk*, Seth Young, Florida State University

12. Magnitude and variability of reactive silica in Mississippi River plume sediments
    Aislyn M. Galford*, William C. Dobbins, Rebecca A. Pickering, Sydney Acton, Jeffrey W. Krause, Dauphin Island Sea Lab, The University of Alabama, The University of South Alabama

13. Characterizing the overall microbial community structure including two novel Thaumarchaeota in the annual northern Gulf of Mexico hypoxic zone
    Lauren Gillies Campbell*, J. Cameron Thrash, Kiley W. Seitz, Brett J. Baker, Nancy N. Rabalais, Olivia U. Mason, Florida State University

14. Using thallium isotopes in the ~2.63 Ga Jeerinah Formation from Hamersley Basin, Western Australia, to constrain ancient seafloor oxygenation
    Brett Holdaway*, Jeremy D Owens, Ariel D Anbar, Chadlin M Ostrander, Sune G Nielson, Florida State University
15. Mapping Marine Trace Metal and Macronutrient Remineralization Following a Phytoplankton Bloom
Adrienne Patricia Hollister*, Kristen Buck, University of South Florida

16. Carbon deposition and burial in estuarine sediments of the contiguous United States
Jack A Hutchings*, Thomas S Bianchi, Raymond Najjar, Maria Herrmann, Michael Kemp, University of Florida

17. The search for novel gas hydrate inhibitors
Abbie M. Johnson*, Frank J. Stewart, Piyush Ranjan, Brook L. Nunn, Jennifer B. Glass, Georgia Institute of Technology

18. Pharmaceuticals and Personal Care Products in the Effluent of Septic Tanks and in Groundwater beneath Septic Drainfields in Eastern North Carolina
Bailey King*, Listecki A, Mitra S, Humphrey CP Jr., Iverson, G, East Carolina University

19. Sequence Stratigraphic Analysis of the Evan’s Ferry Roadcut, TN: A New Prospective for Late Ordovician (Sandbian) Sea Level from the Appalachian Basin
Nevin Kozik*, Seth Young, Florida State University

20. The impact of nutrient loading on nitrate removal in a Juncus roemerianus and Spartina alterniflora dominated saltmarsh in the northern Gulf of Mexico
Taylor C Ledford*, Alice Kleinhuizen, Corianne Tatariw, Behzad Mortazavi, University of Alabama

21. A thallium isotope record of ocean oxygenation during the Lomagundi Event
Zijian Li*, Christopher T. Reinhard, Noah J. Planavsky, Jeremy D. Owens, Georgia Institute of Technology

22. Historical Profiles of Organic and Soot Carbon in White Pond, South Carolina
Ashlyn Listecki*, Bailey King, Siddhartha Mitra, David Mallinson, Christopher Moore, Chad Lane, Kimberly Duernberger, East Carolina University

23. The influence of mesoscale and submesoscale circulation on sinking particles in the northern Gulf of Mexico
Guangpeng Liu*, Annalisa Bracco, Uta Passow, Georgia Institute of Technology

24. The role of parrotfishes in the bioerosion of crustose coralline algae with increasing ocean acidification
Joshua C Manning*, Sophie J McCoy, Florida State University

25. Influence of energy availability on the carbon isotopes of methane and biomarkers during hydrogenotrophic methanogenesis
Tran Nguyen*, B.D. Topçuoğlu, J.F. Holden, S.Q. Lang, University of South Carolina

26. Impacts of microbial community structure on denitrification rates in the rhizosphere of Juncus roemerianus and Spartina alterniflora in a mixed marsh in the Northern Gulf of Mexico
Rachel Petet*, Loren Knobbe, Patrick Chanton, Behzad Mortazavi and Olivia U. Mason, Florida State University

27. Diatoms and dissolved trace metal/nutrients ratios in the Southern Ocean
Kaitlyn Renegar*, Peter L. Morton, William M. Landing, Florida State University
28. New Late Silurian (Ludfordian) $^{13}$C and $^{34}$S Analyses from Western Tennessee: An Outer Ramp Perspective on the LAU CIE and Extinction Event
Claudia Richbourg*, Chelsie Bowman, Seth Young, Florida State University

29. The Biogeochemistry of Canvasback Lake
Jennifer Rogers*, Rob Spencer, Florida State University

30. Evaluating the sensitivity of subsurface microbial metagenome assembled genome properties as a function of metagenomic shotgun sequencing depth
Taylor Royalty*, Andrew Steen, University of Tennessee

Rachel Shelley*, Peter L. Morton, William M. Landing, Florida State University

32. The Effect of Surface Dispersant Application on Oil Degradation
Cathrine Shepard*, Samantha Joye, University of Georgia

33. Investigating marine chromophoric dissolved organic matter transformations with organic geochemical proxies in a growth and degradation experiment
Michael Shields*, Thomas S. Bianchi, Christopher L. Osburn, Joanna D. Kinsey, Kai Ziervogel, and Astrid Schnetzer, University of Florida

34. Potential activities of extracellular glycosyl hydrolases, peptidases, alkaline phosphatase, and sulfatase in sediments of the White Oak River, NC
Zachery Stooksbury*, Lauren A. Mullen, Andrew D. Steen, University of Tennessee

35. Turnover and Priming of Terrigenous Dissolved Organic Carbon in Permafrost-Influenced Streams of Central Alaska
Sadie R. Textor*, Wickland, K. P., Johnston, S. E., Podgorski, D. C., R. G. M. Spencer, Florida State University

36. Tracking Early Jurassic marine (de)oxygenation

37. Field and culture studies of factors contributing to variability in the isotope effect of nitrate assimilation
Rachel Thomas*, Sven Kranz, Yuliya Danyuk, Sarah Fawcett, Angela Knapp, Florida State University

38. The effects of crude oil on northern Gulf of Mexico salt marsh nitrogen cycling
Derek Tollette*, Corianne Tatariw, Behzad Mortazavi, University of Alabama

39. A geochemical analysis of Rare Earth Elements (REEs) associated with significant sedimentary phosphorite deposits of West-Central Florida
Kyle Turner*, Jeremy Owens, Florida State University

40. Blue carbon sequestration within a northeastern Florida intertidal wetland - response to climate change and Holocene climate variability
Derrick Vaughn*, Thomas S. Bianchi, Todd Osborne, Michael Shields, William Kenney, University of Florida
41. Peatland Organic Matter Chemistry Trends Over a Global Latitudinal Gradient
Brittany Verbeke*, Suzanne B Hodgkins, Michael A. Carson, Louis J. Lamit, Erik A. Lilleskov, Jeff Chanton, Florida State University

42. V isotope composition in modern marine hydrothermal sediments
Fei Wu*, Jeremy Owens, Sune Nielsen, Chris German, Rachel Mills, Florida State University

43. Internal Nutrient Loads in a North Carolina Reservoir Lake
Mary Zeller*, Marc Alperin, University of North Carolina at Chapel Hill

44. Short- and long-term response of phytoplankton to ENSO in Prydz Bay, Antarctica
Jun Zhao*, Haisheng Zhang, Thomas S. Bianchi, Zhengbing Han, Jianming Pan, University of Florida