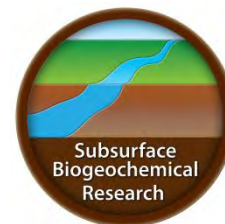




**Environmental System Science
Principal Investigator (PI) Meeting
April 26-27, 2016
Bolger Center, Potomac, MD**



Monday, April 25, 2016

7:00 am - 8:30 am **Meeting Check In (Franklin Building)**

Tuesday, April 26, 2016

7:00 am - 8:00 am **Breakfast (Franklin Building)**

7:00 am -8:00 am **Meeting Check-In (Franklin Building)**

8:00 am - 9:55 am **Overview of Programs & Strategic Directions (Ben Franklin Hall) *D. Stover***

- 8:00 am -8:05 am Welcome and Introductory Comments.....*D. Stover*
- 8:05 am - 8:10 am BER Programs.....*S. Weatherwax*
- 8:10 am - 8:20 am CESD Programs & Strategic Directions.....*G. Geernaert*
- 8:20 am - 8:25 am Science Highlights.....*J. DeForest*
- 8:25 am - 8:45 am TES Program Goals, Objectives, Activities and Highlights.....*J. DeForest*
- 8:45 am - 9:05 am SBR Program Goals, Objectives, Activities and Highlights*D. Lesmes*
- 9:05 am - 9:15 am ESS Working Group.....*D. Lesmes*
- 9:15 am - 9:25 am Accelerated Climate Model for Energy (ACME) Update.....*D. Koch*
- 9:25 am - 9:35 am Regional and Global Climate Modeling and Analyses.....*R. Joseph*
- 9:35 am - 9:45 am Integrated Assessment Update.....*B. Vallario*

9:45 am - 10:10am **Break**

10:10 am - 12:10 pm **Plenary Session I – Building Community Infrastructure: Observations, Data, & Models (Ben Franklin Hall) *J. Hnilo & D. Lesmes***

- 10:10 am - 10:25am AmeriFlux’s Role in Building Community Infrastructure: Observations, Data and Models.....*D. Baldocchi*
- 10:25 am - 10:40 am Large-Scale Remote Autonomous Data Collection: Philosophy, Methods, Accessibility and Quality Control.....*P. Hanson*
- 10:40 am - 10:55 am Streamlining data flows & tool development.....*D. Agarwal*
- 10:55 am - 11:10 am Federated Data Management.....*D. Williams*

11:10 am - 11:15 am	Interoperable Design of Extreme-scale Application Software (IDEAS)L. Curfman-McInnes
11:15 am - 11:30 am	Interoperability and Productivity in Modeling Watershed-Scale Integrated Surface-Subsurface Water Flow and Biogeochemical Cycling.....C. Steefel
11:30 am - 11:45 pm	A Multiscale Strategy for Process-Rich, Microtopography-Aware Simulations of Thermal Hydrology in Polygonal Tundra.....S. Painter
11:45 am - 12:00 pm	Towards a High Resolution, Integrated Hydrology Model of North America: Diagnosis of Feedbacks between Groundwater and Land Energy Fluxes at Continental Scales.....R. Maxwell
12:00 pm - 12:10 pm	Realizing the Virtual Laboratory through Community Supported Cyberinfrastructure: Leveraging IDEAS and beyond.....D. Moulton
12:10 pm - 2:00 pm	Lunch (Osgood Building)
1:00 pm - 2:00 pm	Lunch with Facilities & Community Resources Facilities Integrating Collaborations for User Science (FICUS) – ARM, EMSL, JGI (Room 3)N. Hickmon, K. Hofmockel, A. Rivers DOE Computational Activities and Programs, including How to Access HPC and Leadership Resources (Room 4)...L. Nowell, C. Lauzon, T. Ndousse-Fetter
2:00 pm - 5:00 pm	Poster Session I (Franklin Building: Rooms 1, 9A/B, and 21)
2:00 pm - 3:30 pm	Poster Subsession A
3:30 pm - 5:00 pm	Poster Subsession B
5:30 pm - 7:00 pm	Dinner (Osgood Building)
7:00 pm - 8:30 pm	Concurrent Sessions - I (Franklin Building)
<i>Concurrent Session 1: 20th Anniversary of AmeriFlux (Room: Ben Franklin Hall)</i> Stover	
7:00 pm - 7:20 pm	History of the AmeriFlux network..... D. Hollinger
7:20 pm - 7:40 pm	Harnessing Site Clusters to Strengthen Earth System Models..... A. Noormets
7:40 pm - 8:00 pm	The future of the AmeriFlux network..... T. Keenon
8:00 pm - 8:30 pm	Discussion
8:30 pm	Adjourn
<i>Concurrent Session 2: Terrestrial-Aquatic Interfaces (Room 3)</i> DeForest	
7:00 pm - 7:20 pm	Elevated CO ₂ Effects on Estuaries: Ocean Acidification versus Wetland Alkalinization..... P. Megonigal
7:20 pm - 7:40 pm	Pan-arctic estimates of carbon exports across floodplain-river interfacesJ. Rowland

7:40 am - 8:00 pm	Differences in the Complexity of Soluble Organic Carbon Sampled from Different Pore Size Domains: Physical Protection as a Mechanism for the Persistence of C in Soils..... V. Bailey
8:00 pm - 8:20 pm	Warming effects on peat column CH ₄ dynamics in a Minnesota bog..... J. Keller
8:20 pm – 8:30 pm	Discussion
8:30 pm	Adjourn

Concurrent Session 3: Community Modeling of Soil Systems: A Discussion (Room 4) **Lesmes**

7:00 pm - 7:05 pm	Introduction.....D. Lesmes
7:05 pm - 7:15 pm	Formation of an International Soil Modeling Consortium (Community).....M. Young
7:15 pm - 8:00 pm	Discussion with panelists: Yakov Pachepsky (USDA), Xingyuan Chen (PNNL), Scott Painter (ORNL), Boris Faybishenko (LBNL), Kate Maher (Stanford U.).
8:00 pm - 8:30 pm	Open Discussion and Paths Forward
8:30 pm	Adjourn

Concurrent Session 4: Biogeochemical Interactions in the Surface Water - Groundwater Interaction Zone (Room 17A/17B) **Bayer**

7:00 pm - 7:20 pm	Coupled spatiotemporal dynamics of hydrology, biogeochemistry, and microbial ecology.....J. Steegan
7:20 pm - 7:40 pm	Field and laboratory scale investigations of biogeochemical gradients across the surface water groundwater interface.....S. Brooks
7:40 pm - 8:00 pm	Climate and hydrological controls on riverbed bioclogging and implications for water resources and quality.....M. Newcomer
8:00 pm - 8:20 pm	Evaluating trace metal limitations on methane fluxes in terrestrial ecosystems.....J. Catalano
8:20 pm - 8:30 pm	Discussion
8:30 pm	Adjourn

Wednesday, April 27, 2015

7:00 am - 8:00 am	Breakfast (Franklin Building)
8:00 am - 9:00 am	Plenary Session II: Model Development and Testing – Managing Complexity (Ben Franklin Hall) Lesmes
8:00 am - 8:15 am	Traits modeling approaches.....L. Kueppers
8:15 am - 8:30 am	The challenges and opportunities of growing FRED: a global Fine-Root Ecology Database.....C. Iversen
8:30 am - 8:45 am	Advancing systems-level understanding through data-constrained modeling at the Rifle field site.....S. Yabusaki

8:45 am - 9:00 am Reactive transport modeling in the era of genomics.....E. Brodie

9:00 am - 12:00 pm **Poster Session II (Franklin Building: Rooms 1, 9A/9B, and 21)**

9:00 am - 10:30 am Poster Subsession C

10:30 am - 12:00 pm Poster Subsession D

12:00 pm - 1:30pm **Lunch (Osgood Building)**

Sage Advice for Students and Post-Docs (Room 17A/17B)..... D. Stover

1:30 pm - 3:00 pm **Concurrent Sessions – II (Franklin Building)**

Concurrent Session 5: Recent Advances in Belowground Ecology (Room 3)

DeForest

1:30 pm - 1:50 pm Topographic Controls on Root Length Density and Soil Respiration
.....D. Eissenstat

1:50 pm - 2:10 pm Turning uncertainty into opportunity by advancing theory and models
.....W. Wieder

2:10 pm - 2:30 pm Model-inspired measurements of phosphorus at the root-soil interface..R. Norby

2:30 pm - 2:50 pm Carbon Partitioning from Foliage to Fungi: a Model-Experiment Case Study
.....J. Warren

2:50 pm - 3:00 pm Discussion

3:00 pm Adjourn

Concurrent Session 6: Arctic Ecosystem Ecology (Room 4)

Stover

1:30 pm - 1:50 pm The impact of permafrost carbon loss on the carbon balance of an
experimentally warmed tundra ecosystem.....T. Schuur

1:50 pm - 2:10 pm Quantifying the distribution and composition of soil carbon stocks in polygonal
landscapes of the Alaskan coastal plain.....J. Jastrow

2:10 pm - 2:30 pm NGEA Arctic: Making the Move to Phase 2.....S. Wullschleger

2:30 pm - 2:50 pm Understanding snow-vegetation-permafrost interactions for land modeling
..... C. Wilson

2:50 pm – 3:00 pm Discussion

3:00 pm Adjourn

Concurrent Session 7: Watershed Function and Dynamics: Understanding Disturbed and Managed Systems (Room: Ben Franklin Hall) **Lesmes**

- 1:30 pm - 1:50 pm Potential impacts of projected hydro-climatic changes on groundwater and surface water interactions along the Columbia River Corridor.....M. Huang
- 1:50 pm - 2:10 pm Effect of damming on nutrient fluxes in rivers.....P. Van Cappellen
- 2:10 pm - 2:30 pm Critical watersheds: Multiscale impacts of drought and fire.....R. Middleton
- 2:30 pm - 2:50 pm Effects of drought on agroecosystems and watersheds.....D. Hyndman
- 2:50 pm - 3:00 pm Discussion
- 3:00 pm Adjourn

Concurrent Session 8: Redox Cycling and Organomineral Interactions (Room 17A/17B) **Hirsch**

- 1:30 pm - 1:50 pm Aquifer anaerobic heterogeneities: molecular controls over carbon fate and radionuclide cycling.....J. Bargar
- 1:50 pm - 2:10 pm Subsurface reactive oxygen species and implications.....P. Nico
- 2:10 pm - 2:30 pm Fe/Mn/S redox dynamics and effects on U/Hg transformations.....K. Kemner
- 2:30 pm - 2:50 pm Coupled biogeochemical cycles of Fe and C during redox reactions.....F. Yang
- 2:50 pm - 3:00 pm Discussion
- 3:00 pm Adjourn

3:00 pm - 3:20 pm **Break**

3:20 pm - 5:30 pm **Plenary Session III – Broad Federal Agency Perspective (Ben Franklin Hall) Geernaert**

3:20 pm - 3:30 pm Introduction G. Geernaert

Coordinating Climate Science Research

- 3:30 pm - 3:45 pm Global Change Research: Perspectives from the science-policy interface.....M. Kuperberg
- 3:45 pm - 4:55 pm 2nd State of the Carbon Cycle Report (SOCCR-2).....M. Mayes
- 3:55 pm - 4:05 pm Questions..... M. Kuperberg and M. Mayes

Water-Energy-Land Nexus: Understanding and Managing System Complexity and Dynamics

- 4:05 pm - 4:15 pm The Energy-Water Nexus – Research Challenges and Opportunities..B. Vallario
- 4:15 pm - 4:25 pm Planning for the Future – Hydropower.....H. Battey
- 4:25 pm - 4:35 pm Innovations at the Nexus of Food, Energy and Water Systems.....T. Torgersen
- 4:35 pm - 4:45 pm Research, Monitoring, and Assessment of the Nation's Water Resources.....D. Cline
- 4:45 pm - 4:55 pm Planning for the Future – Overview of the National Water Model..... E. Clark
- 4:55 pm - 5:20 pm Discussion: Building Community Infrastructure for Research and Operations
David Lesmes (moderator): Hoyt Battey, Edward Clark, Donald Cline, Thomas Torgersen, Bob Vallario

5:20 pm - 5:30 pm **Closeout/Announcements**
5:30 pm - 7:00 pm **Dinner (Osgood Building)**
7:00 pm **Adjourn**

Team Meetings (Franklin Building)

7:00 pm NGEE-Tropics (Room 3).....J. Chambers
7:00 pm NGEE-Arctic (Room 4).....S. Wulschleger
7:00 pm SPRUCE (Room 17A/17B).....P. Hanson