## Earth and Environmental Systems Institute Home Page

Earth and Environmental Systems Institute Home Page  
  
News Highlights  
  
2020 Shale Network Workshop to take place in State College May 14/15  
  
2020 Shale Network Workshop to take place in State College May 14-15  
  
Pennsylvania State Seismic Network sees activity underground  
  
Pennsylvania State Seismic Network sees activity underground  
  
Special Features and Events  
  
Eye on EESI person (photo)  
  
Caitlin Teti has a blast when it comes to space exploration...  
  
Read more  
  
Chloe Stanton, a NASA PA Space Grant Fellow, has a look at the sun through  
a highly-filtered telescope that was on display at the Apollo 50  
celebration held on the morning of July 16 at Penn State's Russell E.  
Larson Agricultural Center in Rock Springs. IMAGE: Patrick Mansell (photo)  
  
The NASA PA Space Grant Consortium is currently accepting graduate  
applications...  
  
Read more  
  
  
  
News  
  
The Latest from EESI faculty and staff  
  
 □ Field camp a rite of passage for undergraduate geosciences majors -  
 December 2019  
 □ Role of universities examined in disaster-preparedness, response and  
 recovery - December 2019  
 □ Research to Action: The Science of Drawdown conference recap - December  
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 □ Fourteen Penn State faculty recognized with lifetime honor - November  
 2019  
 □ Homeless female veterans: Out of sight, out of mind - November 2019  
 □ Conference explores role of institutions of higher education in extreme  
 weather - November 2019  
 □ Individual climate models may not provide the complete picture -  
 November 2019  
 □ Pennsylvania State Seismic Network sees activity underground - November  
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 □ Penn State ICS now the Institute for Computational and Data Sciences -  
 November 2019  
 □ EarthTalks: DOE division director to discuss federal science policy,  
 priorities - November 2019  
 □ College of Earth and Mineral Sciences offering military professional  
 portraits - November 2019  
  
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## About

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About  
  
Institute, Vision, Mission, and Outreach  
  
Our Institute  
  
The Earth and Environmental Systems Institute (EESI) is one of the nation’s  
leading institutes in Earth and environmental sciences research. Its  
diverse and world-renowned faculty members are engaged in innovative and  
collaborative transdisciplinary research on some of the most compelling  
problems and issues of our time. EESI is part of Penn State’s College of  
Earth and Mineral Sciences (EMS) and the Institutes of Energy and the  
Environment (IEE).  
  
About Us  
  
EESI is the portal to environmental research, education, and outreach  
programs offered by EMS. EESI faculty and researchers are primarily  
associated with the departments of Geosciences, Meteorology, and Geography,  
all of which have top-ranked graduate programs. Penn State's Earth Sciences  
program is ranked 5th in the nation, according to U.S. News & World Report  
(2019). Within Earth Sciences, the University ranks 1st in Geology, 3rd in  
Environmental Sciences and 4th in Geochemistry. Geography and Meteorology  
have some of the best-known programs in the U.S., but these fields are not  
officially ranked by any organization.  
  
Vision  
  
EESI will build an extraordinary community of scholars who cross boundaries  
to understand the Earth system, how it affects people, and how people  
affect it.  
  
Mission  
  
EESI's mission comprises three interrelated elements:  
  
 1. To encourage interdisciplinary examination of the links between Earth’s  
 chemical, physical, and biological processes from atomic to global  
 scales by supporting faculty, student, and postdoctoral research on  
 Earth sciences and environmental issues;  
 2. To facilitate dissemination of research findings through publications,  
 presentations, web pages, workshops, seminars, testimony to public  
 agencies, and advice to public and private organizations and agencies;  
 and  
 3. To develop innovative, interdisciplinary research and education  
 programs that benefit internal and external stakeholders, including the  
 Penn State community, the Commonwealth, scientific communities, and  
 federal and state science agencies and organizations.  
  
Outreach

## EESI Centers

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EESI Centers  
  
EESI Centers  
  
Overview  
  
EESI supports several faculty-driven and directed centers and initiatives  
that are leaders in interdisciplinary, collaborative, and innovative  
research in the ever-changing environmental sciences.  
  
The EESI centers and initiatives promote, conduct, and coordinate  
interdisciplinary research and educational activities within environmental  
sciences/engineering/social sciences. Centers or initiatives are selected  
in a competitive process that occurs every three years.  
  
For more information, follow RESEARCH - EESI Centers and Inititatives.  
  
  
  
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Earth and Environmental Systems Institute  
2217 Earth-Engineering Sciences Building  
University Park, PA 16802-6813  
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## EESI History

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EESI History  
  
From ESSC to EESI  
  
The vision for the Earth System Science Center (ESSC), the precursor of  
EESI, began in the early 1980s through a strategic planning process that  
involved Penn State Central Administration, the Office of the Vice  
President for Research and Dean of the Graduate School, and the College of  
Earth and Mineral Sciences. The goal was to bring together faculty in the  
departments of Geosciences, Meteorology, Geography, and Energy,  
Environmental, and Mineral Economics in research activities focused on the  
search for links between the Earth’s physical processes and past and future  
global change.  
  
Eric Barron became the ESSC director in 1985. The Center coordinated and  
conducted extensive research related to the global water cycle, the  
biogeochemical cycles, Earth system history, and human impacts on the Earth  
system. In 1999, with the addition of the Center for Integrated Regional  
Assessment (CIRA) and the Center for Environmental Chemistry and  
Geochemistry (CECG), the EMS Environment Institute (EMS EI) was formed. The  
mission of EMS EI was to enhance the visibility of College environmental  
research and educational programs and to create opportunities for  
collaborative research in these areas. Additional research centers were  
added to the Institute to reflect the primary research areas represented by  
the Institute's core faculty associates.  
  
The Institute and its centers reflect the College of Earth and Mineral  
Sciences’ long and accomplished history of Earth sciences and environmental  
research. The computing and outreach components were incorporated at the  
time of the Institute's founding so that all elements needed for a  
successful, effective research organization would be present for the  
benefit of faculty and students affiliated with the Institute. In 2004, the  
EMS Environment Institute was renamed the Earth and Environmental Systems  
Institute.  
  
  
  
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## Message from Director

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Message from Director  
  
Sue Brantley  
  
Humans' unprecedented impact on the Earth’s system has led scientists to  
define a new geological age—the Anthropocene—to acknowledge human-induced  
changes on land, air, water, ice, and biota. To survive and flourish as a  
species in the face of this impact, we must learn to "earthcast" - that is,  
to predict how the Earth's climate and environment will change based on  
observations from the past and present and from our knowledge of humans.  
  
The Earth and Environmental Systems Institute is strategically positioned  
to engage in earthcasting. EESI associates and affiliates are  
world-renowned leaders in the kind of interdisciplinary, innovative, and  
collaborative research needed to take on the breadth of human-induced  
changes. The strength and diversity of their environmental sciences  
research promises the new knowledge, new approaches, and new models that  
are fundamental to understanding the Earth system, how it affects people,  
and how people affect it.  
  
We welcome you to learn more about EESI, one of the leading Earth and  
environmental sciences research institutes in the U.S.  
  
  
  
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Earth and Environmental Systems Institute  
2217 Earth-Engineering Sciences Building  
University Park, PA 16802-6813  
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## Visit / Contact Us

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Visit / Contact Us  
  
Visit / Contact Us  
  
Earth and Environmental Systems Institute  
  
EES Building2217 Earth-Engineering Sciences Building  
University Park, PA 16802-6813  
Telephone: 814-863-7091  
FAX: 814-865-3191  
  
E-mail  
  
General EESI information: info@eesi.psu.edu  
  
Directions  
  
EESI is housed in the Earth-Engineering Sciences Building, which is located  
on the west side of the University Park Campus off of White Course Drive.  
(See map below)  
  
Maps of campus, parking, and the State College area are available from Penn  
State Visitor's Guide website. Click here for an interactive map.  
  
If you will be visiting the office and require a parking pass, please send  
your request to info@eesi.psu.edu.  
  
Partial Campus Map showing the location of the Earth and Engineering  
Science Building  
  
  
  
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## People

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People  
  
Leadership  
  
Susan L. Brantley Susan L. Brantley – Director,  
Overall Vision  
Associate reviews  
Staff reviews  
  
Office: 225b EES Building  
Phone: 814-865-1619  
Phone: 814-863-4823 (Hosler Office)  
E-mail: sxb7@psu.edu  
  
  
  
Message from Director  
  
  
  
Whom do I call about:  
  
 □ Proposal submissions - Abby Benkiran  
 □ Coordinator of Research Awards - Abby Benkiran  
 □ EESI General Budget - Tracy Bernier  
 □ Director's Calendar - Tracy Bernier  
 □ HR appointments/visas - Tracy Bernier  
 □ Seminar Announcements - Beth Tamminga  
 □ Conference room scheduling - Beth Tamminga  
 □ ERS travel issues/inquiries - Shelly McCall  
 □ Purchasing Card Inquiries - Shelly McCall  
 □ IT Specialist - Patryk Soika  
 □ EESI website/graphics - Bernd Haupt  
 □ Marketing and communications - Francisco Tutella  
  
  
  
EESI Associates (tenure line)  
  
Richard Alley (photo) Richard Alley  
Evan Pugh Professor of Geosciences,  
Director of PSICE  
  
Center/Dept.: Geosciences, PSICE  
Office: 517 Deike Building

## People - Eye on EESI Research

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People - Eye on EESI Research  
  
People  
  
Archive of featured EESI people  
  
  
  
 □ Caitlin Teti - August 2019  
 □ Jenni Evans - May 2019  
 □ Julie Cosmidis - March 2019  
 □ Francisco Tutella - January 2019  
 □ Sierra Melton - October 2018  
 □ Sarah Ivory - August 2018  
 □ Guido Cervone - May 2018  
 □ Michele "Shelly" McCall - February 2018  
 □ Stacey Olson, Gabriella Rossetto and Perri Silverhart - October 2017  
 □ Odette Mina - July 2017  
 □ Debbie Lambert - May 2017  
 □ Kelly Numez Ocasio and Natalie Pawlikowski - March 2017  
 □ Dan Shapich - January 2017  
 □ Terry Noll - November 2016  
 □ Jaclyn Stimely - September 2016  
 □ Brandon Forsythe - April 2016  
 □ Nooreen Meghani - October 2015  
 □ Tim White - March 2015  
 □ Matt Carroll - December 2014  
 □ Anne Danahy - July 2014  
 □ Linda Bell - May 2014  
 □ Brad King - March 2014  
 □ James Kasting - January 2014  
 □ Peter Wilf - November 2013  
 □ Ken Davis - September 2013  
 □ Dan Arthur - July 2013  
 □ Jennifer Williams - May 2013  
 □ Alan Taylor - April 2013  
 □ David Pollard - February 2013  
 □ Sridhar Anandakrishnan - December 2012  
 □ Bernd J. Haupt - October 2012  
  
  
  
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## Research

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Research  
  
Research  
  
Research Services  
  
The Institute endeavors to develop initiatives or centers that focus on  
compelling scientific, social, and engineering issues and problems that  
require the expertise of more than a single researcher or even a single  
department. The expertise and strengths of academic departments in the  
College of Earth and Mineral Sciences often provide the foundation for  
these interdisciplinary initiatives and centers. The resources of the Earth  
and Environmental Systems Institute are designed to create added  
opportunities for faculty and students and to act as a catalyst for  
innovative, collaborative research.  
  
Faculty Services  
  
The Institute provides high-quality support services through its budget and  
grant management personnel, computing assistance through its Environmental  
Computing Facility, and outreach support through its outreach support teams  
and Center for Environmental Informatics. Proposal development, external  
funding opportunities searches, and editorial assistance are available to  
Institute faculty as well.  
  
Student Services  
  
Through its projects, data resources, and collaborative linkages, the  
Institute supports students interested in earth science and environmental  
research. Students gain valuable experience working as research assistants  
on Institute projects; often the research performed for a funded project  
stimulates a student's interest in the area under study, resulting in a  
thesis or dissertation project, and in co-authored publications. Through  
their work on Institute projects, students also have opportunities to  
"network", or make professional contacts that guide them as they make  
career decisions and look for employment. The Institute contributes to the  
College of Earth and Mineral Science’s broader educational mission by  
sponsoring speakers, seminar series, and other events in cooperation with  
other Penn State units.  
  
  
  
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Tweets by PSUEarth

## Research - Data Management Plan

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Research - Data Management Plan  
  
Data Management Plan  
  
Many agencies are now requiring more formal data management plans than in  
the past. These include:  
  
 □ Office of Science and Technology Policy - The White House  
 ☆ Expanding Public Access to the Results of Federally Funded Research  
 □ National Science Foundation (NSF) Data Management Plan Requirements  
 □ NASA Data Management Plan Guidance  
 □ National Institutes of Health - NIH  
  
This page is designed to assist PI's in developing data management plans to  
support an otherwise successful proposal. This page is for guidance only  
and does not necessarily grant success. We welcome comments and feedback to  
help us ensure that the information here is up-to-date.  
  
Information provided here includes:  
  
 □ available data repositories (predominantly those on campus),  
 □ contacts who can provide help a PI to identify project-specific needs  
 for data storage,  
 □ generally asked questions about data storage, and  
 □ advice on how to support someone who is helping to develop the data  
 management plan and/or responsible for the data management during the  
 life of the project.  
  
In many cases, it also helps to get an example data management plan (from a  
successfully funded proposal!).  
  
  
  
California Digital Library's DMP Tool  
  
There are additional online resources available like the California Digital  
Library's DMP Tool - which allows you to select the specific solicitation  
and then walks you through each section of the solicitation's requirements  
- http://dmp.cdlib.org."  
  
eScholarship, University of California, provides a "Primer on Data  
Management: What you always wanted to know" (DOI).  
  
  
  
Penn State's resources for data management, data sharing and archiving  
  
 □ DataCommons@PSU  
 □ Office of the vice president for research at Penn State

## Research - EESI Centers and Initiatives

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Research - EESI Centers and Initiatives  
  
EESI Centers and Initiatives  
  
Overview  
  
Faculty-driven and directed, EESI centers are leaders in interdisciplinary,  
collaborative and innovative research in the ever-changing environmental  
sciences. Researchers involved with the centers are engaged in  
understanding the earth system, how it affects people and how people affect  
it.  
  
EESI centers and initiatives promote, conduct and coordinate  
interdisciplinary research and educational activities within environmental  
sciences/engineering/social sciences. Centers or initiatives are selected  
in a competitive process that occurs every three years. Centers receive  
funding awards from EESI from $5,000 to $15,000 per year for their  
activities.  
  
The last call for center proposals occurred in Spring 2017 with the centers  
below funded. The next call for proposals will occur in 2020. For more  
information see: 2017 EESI Call for Center Proposals  
  
Penn State University Guidelines for Research Institutes and Centers.  
  
Research Centers Supported by EESI  
  
 □ Center for Climate Risk Management (CLIMA)  
  
 The Center for Climate Risk Management analyzes scientific, economic,  
 and ethical questions related to climate change risk management.  
 □ Center for Environmental Informatics (CEI)  
  
 CEI focuses on the development of new and innovative approaches to the  
 creation and dissemination of environmental information resources.  
 □ Center for Landscape Dynamics (CLD)  
  
 CLD is the "to-go" center for landscape science and decision making.  
 □ Earth System Science Center (ESSC)  
  
 ESSC maintains a mission to describe, model, and understand the Earth's  
 climate system.  
 □ Energy and Environmental Economics and Policy Initiative (EEEP)  
  
 EEEP supports and promotes integrative research at the boundary of  
 economics, public policy, and engineered/environmental systems.  
 □ Marcellus Center for Outreach and Research  
  
 The Marcellus Center for Outreach and Research will be the research,

## Research - Energy-Related Research

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Research - Energy-Related Research  
  
Energy-Related Research  
  
Initiative for Energy and Environmental Economics and Policy (EEEP)  
  
The Initiative for Energy and Environmental Economics and Policy focuses on  
the union between energy systems and environmental management and the  
development of quantitative tools to address decision challenges in these  
areas. Current projects include:  
  
 □ The Program on Coupled Human-Environmental Systems (PCHES) engages  
 researchers from engineering, economics, environmental modeling, and  
 decision-making to establish an innovative framework for developing  
 multi-sector, multi-scale, multi-modal approaches for integrated  
 assessment.  
 □ The gas-electric coordination project involves engineering, economic,  
 and computational work that addresses the increasing interdependence  
 between natural gas and electric power transmission.  
 □ The Program on the Evolution of Future Energy Systems focuses on the  
 integration of energy systems engineering and economic models with  
 climate models and insights from robust decision-making. It addresses  
 the under-studied aspects of how energy systems evolve in the face of  
 long-term technological and policy changes or targets when important  
 economic and climate factors are uncertain.  
  
Learn more about EEEP here.  
  
Penn State Center for Climate Risk Management (CLIMA)  
  
The Penn State Center for Climate Risk Management works to identify:  
  
 □ reliable climate hazards projections for energy infrastructures;  
 □ the most important socio-economic, technological, and Earth systems  
 drivers of poor climate change outcomes;  
 □ the dynamics and trade-offs in energy system transitions;  
 □ the energy system transitions required to reliably achieve  
 sustainability targets;  
 □ the robust strategies for mitigation, carbon sequestration, and  
 geoengineering.  
  
Visit the CLIMA website for more information.  
  
Penn State Marcellus Center for Outreach and Research (MCOR)  
  
The Penn State Marcellus Center for Outreach and Research (MCOR) is a  
research, information dissemination, and education leader that fosters,  
supports, and advances research and science-based translational outreach on  
shale energy development, with a specific emphasis on natural gas. MCOR

## Research - Funding

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Research - Funding  
  
Funding  
  
Faculty-driven and directed, EESI centers are leaders in interdisciplinary,  
collaborative and innovative research in the ever-changing environmental  
sciences. Researchers involved with the centers are engaged in  
understanding the earth system, how it affects people and how people affect  
it.  
  
EESI Funding Resources  
  
EESI supports interdisciplinary research and teaching through several  
funding programs for both faculty members and graduate students. These  
annual funds are awarded on a competitive basis.  
  
 □ 2017 EESI Call for Center Proposals  
 □ Scholar in Residence (SIR) Faculty Program  
 □ EESI Environmental Scholars Graduate Student Program  
 □ Environmental Student Ambassador Program (ESA) - due Nov. 15  
 □ Director's Awards  
 □ Funding for Workshops  
  
EMS Funding Resources  
  
A variety of competitive awards are available annually to faculty within  
the College.  
  
 □ Wilson Awards - due Feb. 15  
 □ George H. Deike, Jr. Research Grants - due Feb. 15  
 □ Miller Faculty Fellowship - due Feb. 15  
  
For information about these words, visit EMS Faculty Excellence Awards and  
Grants.  
  
IEE Funding Opportunities  
  
The Institutes of Energy and the Environment (IEE) maintains a database of  
currently open requests for proposals. The database is searchable by  
keyword, designated research theme, funding agency, or due date. IEE also  
maintains a list of recent funding announcements.  
  
 □ IEE Funding Opportunities  
  
Scheyer Institute for Teaching Excellence  
  
 □ Teaching Project Grants  
  
Penn State Funding Resources

## Research - Job Opportunities

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Research - Job Opportunities  
  
  
  
Job Opportunities  
  
  
  
 □ Faculty Positions in the area of Understanding Land-Water Systems using  
 Data Analytics  
 □ Postdoctoral Scholar in the area of Risk- and Decision-Analysis Climate  
 Risk Management  
 □ Postdoctoral Scholar in the area of Climate Data Products for Impacts  
 Analysis and Decision Support  
 □ Scientific Programmer  
 □ Research Data Management Specialist 1  
━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━  
  
  
  
September 11, 2019  
  
Faculty Positions in the area of Understanding Land-Water Systems using  
Data Analytics  
  
The College of Earth and Mineral Sciences through the Earth and  
Environmental Systems Institute (EESI) at the Pennsylvania State  
University, University Park, PA, seeks to hire tenure-line faculty at the  
assistant or associate rank who study Earth and environmental sciences  
using new data-driven tools and methods. Candidates for the rank of  
associate professor typically will have several years of research  
experience and already hold tenure at another institution and/or qualify  
for immediate tenure at Penn State. Successful candidates will have  
expertise in at least one of the following areas: data mining, machine  
learning, artificial intelligence, or deep learning.  
  
We seek dynamic scientists who want to teach and lead in the emerging field  
of data analytics on integrated topics of Earth and environmental science  
as they relate to land-water systems. Relevant research expertise should  
include at least one of the following: remote sensing, numerical modeling,  
groundwater chemistry, nature-society interactions, decision analysis, high  
performance computing, or machine learning and artificial intelligence.  
  
The position will involve a joint appointment between EESI and one  
Department among Geography, Energy and Mineral Engineering, and  
Geosciences. The tenure home will be determined based on the research  
skills and interests of the candidate, after the on-site interviews have  
been conducted. The selected applicants will be responsible for research  
and teaching in their respective Departments, along with service for

## Research - Research Collaborators

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 ○ EESI Centers and Initiatives  
 ○ Funding  
 ○ Data Management Plan  
 ○ Energy-Related Research  
 ○ Research Collaborators  
 ○ Job Opportunities  
  
Research - Research Collaborators  
  
Research Collaborators  
  
Looking for colleagues with certain environmental specializations for a  
research project or proposal? One of the following search tools may help  
you find the persons you're looking for.  
  
IEE Faculty Expertise Database  
  
The Institutes of Energy and Environment hosts a searchable faculty  
directory. Individuals may search by one of three categories: Primary  
Research Theme, Complete List of Themes, and Complete List of Departments.  
  
Institutes of Energy and the Environment Faculty Expertise Database  
  
Community of Science (COS) Members for Penn State  
  
To locate funding sources and potential collaborators, Penn State  
recommends that its faculty members use the Community of Science, Inc.  
(also known as the Community of Scholars), a global registry of academic  
researchers. Penn State's institutional subscription covers the use of the  
COS databases for all Penn State faculty, staff, and students.  
  
Community of Science (COS) Members for Penn State  
  
Worldwide Universities Network (WUN)  
  
Faculty involved in EESI and PSIE are involved in the Worldwide  
Universities Network. For information on the WUN and to view research web  
pages for both Penn State faculty and potential international colleagues in  
several research areas, visit the following link.  
  
Worldwide Universities Network (WUN)  
  
  
  
Events & Opportunities  
  
 □ This Week  
 □ Job Opportinities  
━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━  
  
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## Visit / Contact Us

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Visit / Contact Us  
  
Visit / Contact Us  
  
Earth and Environmental Systems Institute  
  
EES Building2217 Earth-Engineering Sciences Building  
University Park, PA 16802-6813  
Telephone: 814-863-7091  
FAX: 814-865-3191  
  
E-mail  
  
General EESI information: info@eesi.psu.edu  
  
Directions  
  
EESI is housed in the Earth-Engineering Sciences Building, which is located  
on the west side of the University Park Campus off of White Course Drive.  
(See map below)  
  
Maps of campus, parking, and the State College area are available from Penn  
State Visitor's Guide website. Click here for an interactive map.  
  
If you will be visiting the office and require a parking pass, please send  
your request to info@eesi.psu.edu.  
  
Partial Campus Map showing the location of the Earth and Engineering  
Science Building  
  
  
  
Events & Opportunities  
  
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Tweets by PSUEarth  
  
  
  
Maps and Parking  
  
  
Campus map  
   
  
Find academic, administrative, and residential buildings  
  
Driving Directions

## Directory

Looking for someone? Please browse the directory below or use the search  
and filters to refine the results.  
  
Filter by Job Classification:  
[- Any - ]  
Search by Name:  
[ ]  
Submit  
Reset  
 Richard Alley  
 Evan Pugh University Professor of Geosciences  
Richard Alley Department of Geosciences  
 517 Deike Building  
 814-863-1700  
 rba6@psu.edu  
 Sridhar Anandakrishnan  
 Professor of Geosciences  
Sridhar Department of Geosciences  
Anandakrishnan 513 Deike Building  
 814-863-6742  
 sxa17@psu.edu  
 Salvi Asefi-Najafabady  
 Postdoctoral Scholar  
Salvi Earth and Environmental Systems Institute  
Asefi-Najafabady 319b Earth & Engineering Sciences Building  
 814-867-3830  
 sva5694@psu.edu  
 Jennifer Baka  
 Assistant Professor of Geography  
Jennifer Baka Department of Geography  
 320 Walker Building  
 814-865-9656  
 jeb525@psu.edu  
 Abby Benkiran  
 Financial Coordinator 3  
Abby Benkiran Earth and Environmental Systems Institute  
 226b Earth & Engineering Sciences Building  
 814-863-1538  
 alb35@psu.edu  
 Tracy Bernier  
 Administrative Support Coordinator  
Tracy Bernier Earth and Environmental Systems Institute  
 225a Earth & Engineering Sciences Building  
 814-865-1073  
 txw9@psu.edu  
 Pamela Braff  
 Coastal Climate Extension Specialist  
Pamela Braff Earth and Environmental Systems Institute  
 Virginia Institute of Marine Science, Davis Hall 207H  
 804-684-7070  
 phbraff@psu.edu  
 Susan Brantley  
 Distinguished Professor of Geosciences  
 Department of Geosciences, Earth and Environmental  
Susan L. Brantley Systems Institute  
 225b Earth & Engineering Sciences Building  
 814-865-1619  
 sxb7@psu.edu  
 Guido Cervone  
 Professor of Geography, Meteorology and Atmospheric

## News

News  
  
News  
  
A listing of news, highlights, and accomplishments of EESI associates,  
affiliates, and staff. If you would like to post EESI news and  
accomplishments, please e-mail Bernd J. Haupt at bjhaupt@psu.edu and/or  
Francisco Tutella at francisco@psu.edu.  
  
News, Highlights, and Accomplishments  
  
2019 News  
  
 □ Field camp a rite of passage for undergraduate geosciences majors -  
 December 2019  
 □ Role of universities examined in disaster-preparedness, response and  
 recovery - December 2019  
 □ Research to Action: The Science of Drawdown conference recap - December  
 2019  
 □ Fourteen Penn State faculty recognized with lifetime honor - November  
 2019  
 □ Homeless female veterans: Out of sight, out of mind - November 2019  
 □ Conference explores role of institutions of higher education in extreme  
 weather - November 2019  
 □ Individual climate models may not provide the complete picture -  
 November 2019  
 □ Pennsylvania State Seismic Network sees activity underground - November  
 2019  
 □ Penn State ICS now the Institute for Computational and Data Sciences -  
 November 2019  
 □ EarthTalks: DOE division director to discuss federal science policy,  
 priorities - November 2019  
 □ College of Earth and Mineral Sciences offering military professional  
 portraits - November 2019  
 □ Renowned carbon capture technology expert Klaus Lackner to speak at  
 Penn State - October 2019  
 □ Penn State students, citizen scientists take snapshot of Shaver's Creek  
 - October 2019  
 □ EarthTalks series brings experts to Penn State to discuss  
 decarbonization - October 2019  
 □ Costs of natural disasters are increasing at the high end - October  
 2019  
 □ Model helps choose wind farm locations, predicts output - September  
 2019  
 □ New research details first days after asteroid strike that killed off  
 dinosaurs - September 2019  
 □ Hurricane Dorian devastates Bahamas; scientists explain storm's unique  
 evolution - September 2019  
 □ Climate conference to feature Penn State researchers Sept. 16-18 -  
 September 2019  
 □ Helping Alaskan coastal communities adjust to global warming -  
 September 2019  
 □ AI in action: Seminars to explore artificial intelligence research  
 possibilities - September 2019  
 □ Researchers identify five factors for better coastal risk-management  
 strategies - August 2019  
 □ Nominations now open for Evan Pugh University Professorships - August  
 2019  
 □ Geosciences doctoral student awarded 2019 NSF Graduate Research  
 Fellowship - August 2019

## Publications

Publications  
  
Publications  
  
How to get your publication listed?  
  
 □ The list of EESI publications provided here is extensive but not  
 complete. Everyone who is either associated or affiliated with EESI and  
 would like to see hers/his publications listed here should send them to  
 info@eesi.psu.edu. (Already WORD formatted is preferred but not  
 required.)  
 □ Please make sure that your publication isn't already listed.  
 □ Please avoid sending in publications "in press" or "submitted." Send  
 them once they are fully referencable.  
  
  
  
2018 Publications  
  
 □ Brantley, S. L., R.D. Vidic, K. Brasier, D. Yoxtheimer, J. Pollak, C.  
 Wilderman, and T. Wen. 2018. Engaging over data on fracking and water  
 quality. Science 359(6374), 395-397. doi: 10.1126/science.aan6520  
 □ Carpenter R. J., A. Iglesias, P. Wilf. 2018. Early Cenozoic vegetation  
 in Patagonia: new insights from organically preserved plant fossils  
 (Ligorio Márquez Formation, Argentina). International Journal of Plant  
 Sciences, v. 179, p. 115-135. [IF 3.693]  
 □ DiBiase, R. A., Rossi, M.W., and Neely, A.B., 2018. Fracture density  
 and grain size controls on relief structure of bedrock landscapes,  
 Geology, 46 (5): 399-402. doi:10.1130/G40006.1  
 □ Forest, C.E., 2018, Inferred Net Aerosol Forcing Based on Historical  
 Climate Changes: A Review, Current Climate Change Reports, 4: 11.  
 https://doi.org/10.1007/s40641-018-0085-2  
 □ Jud N. A., M.A. Gandolfo, A. Iglesias, P. Wilf. 2018. Fossil flowers  
 from the early Palaeocene of Patagonia, Argentina with affinity to  
 Schizomerieae (Cunoniaceae). Annals of Botany, doi: 10.1093/aob/mcx173.  
 [IF 4.041]  
 □ Kim, H., X. Gu, and S. L. Brantley. 2018. Particle fluxes in  
 groundwater change subsurface shale rock chemistry over geologic time.  
 Earth and Planetary Science Letters 500, 180-191. doi: 10.1016/  
 j.epsl.2018.07.031  
 □ Niu, X., A. Wendt, Z. Li, A. Agarwal, L. Xue, M. Gonzales, and S.L.  
 Brantley. 2018. Detecting the effects of coal mining, acid rain, and  
 natural gas extraction in Appalachian basin streams in Pennsylvania  
 (USA) through analysis of barium and sulfate concentrations.  
 Environmental Geochemistry and Health 40(2), 865-885. doi: 10.1007/  
 s10653-017-0031-6  
 □ Niu, X., T. Wen, Z. Li, and S. L. Brantley. 2018. One Step toward  
 Developing Knowledge from Numbers in Regional Analysis of Water  
 Quality. Environmental Science and Technology. doi: 10.1021/  
 acs.est.8b01035.  
 □ Richter, D. D., S. A. Billings, P. M. Groffman, E. F. Kelly, K. A.  
 Lohse, W. H. McDowell, T. S. White, S. Anderson, D. D. Baldocchi, S.  
 Banwart, S. L. Brantley, J. J. Braun, Z. S. Brecheisen, C. W. Cook, H.  
 E. Hartnett, S. E. Hobbie, J. Gaillardet, E. Jobbagy, H. F. Jungkunst,  
 C. E. Kazanski, J. Krishnaswamy, D. Markewitz, K. O'Neill, C. S. Riebe,  
 P. Schroeder, C. Siebe, W. L. Silver, A. Thompson, A. Verhoef, and G.  
 Zhang. 2018. Ideas and perspectives: Strengthening the biogeosciences  
 in environmental research networks. Biosciences 15, 4815-4832. doi:  
 10.5194/bg-15-4815-2018  
 □ Shen W., Wiens D. A., Stern, T., Anandakrishnan, S., Aster, R. C.,

## Resources

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 ○ EESI/EMS Policies and Reports  
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 ○ EESI High Performance Computing Resource  
  
Resources  
  
Faculty and Staff Resources and Funding  
  
University Guidelines  
  
 □ Vice Provost's website: University guidelines and other information  
 regarding promotion and tenure  
  
EESI/EMS Policies and Reports  
  
 □ EESI Strategic Plan 2014-2020  
 □ FT&R Faculty Promotion Procedure  
 □ EESI Timeline and Abbreviated Procedures for FT&R Faculty Promotion  
 □ FT&R Faculty Promotion Guidelines  
 □ EESI 2008-2013 Strategic Plan  
 □ EESI 2005-2008 Strategic Plan  
 □ EESI Personnel Rights and Responsibilities  
  
EESI Information  
  
 □ EESI Brochure  
  
EESI Committees and Directors  
  
 □ EESI Committee List  
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 □ EESI Steering Committee  
 □ EESI Center Directors  
  
Funding  
  
 □ For Funding Resources follow RESEARCH - Funding  
 □ For Data Management Plan follow RESEARCH - Data Management Plan  
  
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 □ Purchasing Card Exclusion List  
 □ Purchasing Card Q/A  
 □ CONUS Check List for Employee Travel  
 □ OCONUS Check List for Employee Travel  
 □ Group Meal Form  
 □ Wage Timesheet  
 □ Non-Employee Travel Reimbursement Form  
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## Seminars & Conferences

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Seminars & Conferences  
  
Seminars & Conferences  
  
This Week  
  
A weekly listing of seminars in the College of Earth and Mineral Sciences.  
If you would like to advertise an event, please e-mail Beth Tamminga at  
bub6@psu.edu.  
  
 □ This Week's seminars  
  
EarthTalks — sponsored by EESI —  
  
EarthTalks LogoEarthTalks is EESI's semester-long interdisciplinary seminar  
series that seeks to engage the University and broader community in  
examination of some of the complex environmental challenges facing our  
world today. For additional information follow "EarthTalks - Objective &  
Archive"  
  
 □ Fall 2017 EarthTalks Series: The Agriculture-Environment-Energy Nexus:  
 Satiating and Stewarding the Planet  
  
Additional Seminars — sponsored by EESI —  
  
 □ 2019 Shaver’s Creek Watershed Snapshot Sampling  
 □ Reactive Transport Modeling Workshop - April 2014  
 □ 16th Annual Environmental Chemistry and Microbiology Student Symposium  
 □ Highlights of Critical Zone Seminars  
 □ 2012 Spring Ecology Seminar Series  
 □ Frontiers in Earth Systems Ecology Annual Seminar  
  
  
  
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## Seminars & Conferences - EarthTalks - Objective & Archive

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Seminars & Conferences - EarthTalks - Objective & Archive  
  
EarthTalks - Objective & Archive  
  
EESI’s EarthTalks Seminar Series: Exploring Critical Environmental Issues  
  
  
  
EarthTalks LogoEarthTalks is EESI's semester-long interdisciplinary seminar  
series that seeks to engage the University and broader community in  
examination of some of the complex environmental challenges facing our  
world today.  
  
The weekly talks feature distinguished researchers and practitioners from  
Penn State as well as from other universities, government agencies and  
nonprofit organizations. Seminars are presented to both a live and online  
audience as well as archived with access through the EESI website.  
  
Recent EarthTalks series have been focused on the critical problems of  
climate change, protecting the planet's water resources and the  
environmental, technical, and social challenges presented by the  
development of the Marcellus Shale natural gas resource.  
  
EESI Faculty associates are encouraged to propose seminar topics of  
strategic interest to EESI to the EESI Director. EESI affiliates may also  
propose topics as appropriate. Faculty who propose topics are expected to  
develop the series in collaboration with a committee. The committee should  
include at least one member from an EMS Department other than the  
faculty-proposer and at least one member from a department in another  
college.  
  
EESI provides $5,000 in funding for EarthTalks as well as staff support to  
help with speakers' travel arrangements and campus schedules. Faculty are  
encouraged to leverage this support with funds from other units.  
  
The Dynamics of Deep Decarbonization  
Organizers: Seth Blumsack and Klaus Keller  
Co-Supported by: EESI, PESTL, CLIMA  
  
Achieving truly deep decarbonization is a uniquely difficult problem  
requiring fundamental changes in multiple interconnected systems (energy,  
agriculture, industry). Decisions made with the intent of avoiding the most  
severe climate change climatic impacts happen in the face of deep and  
dynamic uncertainties. Deep decarbonization decisions may also create  
multiple winners and losers and is thus a problem of managing social change  
in addition to technology transition. This EarthTalks series will invite  
prominent researchers to give talks on energy systems transition, negative  
carbon emissions, terrestrial sequestration, decision-making under  
uncertainty, and public policy relevant to deep decarbonization.

## Seminars & Conferences - This Week

In This Section  
  
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Seminars & Conferences - This Week  
  
This Week  
  
Seminar Listings: December 16 - 20, 2019  
  
Monday, December 16  
  
no events  
  
  
Tuesday, December 17  
  
no events  
  
  
Wednesday, December 18  
  
Energy and Environmental Economics and Policy Seminar (EEEP): Rational Food  
Waste and Consistent Estimation of Consumer Demand  
Yang Yu, Ph.D. candidate, Agricultural, Environmental and Regional  
Economics, Penn State  
157 Hosler Building @ 12:00 PM  
add to calendar: Google | Yahoo! | Outlook web | iCalendar file (Apple  
Calendar, Outlook desktop)  
  
  
Thursday, December 19  
  
no events  
  
  
Friday, December 20  
  
no events  
  
━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━  
  
If you would like added to the "This Week" listserve, contact Beth Tamminga  
  
A weekly listing of seminars in the College of Earth and Mineral Sciences  
as well as seminars that may be interesting to EMS faculty and students. If  
you would like to advertise a seminar or talk in "This Week", please send  
the speaker's name, title of talk, affiliation, date and time to: Beth  
Tamminga; 2217 EES Building; 814-863-7091: bub6@psu.edu  
  
Persons with disabilities who anticipate needing accommodations or who have  
questions about physical access may contact Beth Tamminga at 814-863-7091  
in advance of the seminar. This publication is available in alternative  
media on request. Penn State is an equal opportunity, affirmative action  
employer, and is committed to providing employment opportunities to all  
qualified applicants without regard to race, color, religion, age, sex,

## People

In This Section  
  
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 ○ EESI Associates (non-tenure line)  
 ○ EESI Postdoctoral Scholars  
 ○ EESI Staff  
 ○ EESI Environmental Scholars (Current Year)  
 ○ EESI Affiliates  
 ○ Center/Initiative Directors  
 ○ Eye on EESI Research  
  
People  
  
Leadership  
  
Susan L. Brantley Susan L. Brantley – Director,  
Overall Vision  
Associate reviews  
Staff reviews  
  
Office: 225b EES Building  
Phone: 814-865-1619  
Phone: 814-863-4823 (Hosler Office)  
E-mail: sxb7@psu.edu  
  
  
  
Message from Director  
  
  
  
Whom do I call about:  
  
 □ Proposal submissions - Abby Benkiran  
 □ Coordinator of Research Awards - Abby Benkiran  
 □ EESI General Budget - Tracy Bernier  
 □ Director's Calendar - Tracy Bernier  
 □ HR appointments/visas - Tracy Bernier  
 □ Seminar Announcements - Beth Tamminga  
 □ Conference room scheduling - Beth Tamminga  
 □ ERS travel issues/inquiries - Shelly McCall  
 □ Purchasing Card Inquiries - Shelly McCall  
 □ IT Specialist - Patryk Soika  
 □ EESI website/graphics - Bernd Haupt  
 □ Marketing and communications - Francisco Tutella  
  
  
  
EESI Associates (tenure line)  
  
Richard Alley (photo) Richard Alley  
Evan Pugh Professor of Geosciences,  
Director of PSICE  
  
Center/Dept.: Geosciences, PSICE  
Office: 517 Deike Building

## EESI Centers

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EESI Centers  
  
EESI Centers  
  
Overview  
  
EESI supports several faculty-driven and directed centers and initiatives  
that are leaders in interdisciplinary, collaborative, and innovative  
research in the ever-changing environmental sciences.  
  
The EESI centers and initiatives promote, conduct, and coordinate  
interdisciplinary research and educational activities within environmental  
sciences/engineering/social sciences. Centers or initiatives are selected  
in a competitive process that occurs every three years.  
  
For more information, follow RESEARCH - EESI Centers and Inititatives.  
  
  
  
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 □ Research Administration  
 □ Safety & Emergency Information  
  
Contact Us  
  
  
Earth and Environmental Systems Institute  
2217 Earth-Engineering Sciences Building  
University Park, PA 16802-6813  
Contact Us / Find a Person  
  
Engage with Us  
  
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## EESI History

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EESI History  
  
EESI History  
  
From ESSC to EESI  
  
The vision for the Earth System Science Center (ESSC), the precursor of  
EESI, began in the early 1980s through a strategic planning process that  
involved Penn State Central Administration, the Office of the Vice  
President for Research and Dean of the Graduate School, and the College of  
Earth and Mineral Sciences. The goal was to bring together faculty in the  
departments of Geosciences, Meteorology, Geography, and Energy,  
Environmental, and Mineral Economics in research activities focused on the  
search for links between the Earth’s physical processes and past and future  
global change.  
  
Eric Barron became the ESSC director in 1985. The Center coordinated and  
conducted extensive research related to the global water cycle, the  
biogeochemical cycles, Earth system history, and human impacts on the Earth  
system. In 1999, with the addition of the Center for Integrated Regional  
Assessment (CIRA) and the Center for Environmental Chemistry and  
Geochemistry (CECG), the EMS Environment Institute (EMS EI) was formed. The  
mission of EMS EI was to enhance the visibility of College environmental  
research and educational programs and to create opportunities for  
collaborative research in these areas. Additional research centers were  
added to the Institute to reflect the primary research areas represented by  
the Institute's core faculty associates.  
  
The Institute and its centers reflect the College of Earth and Mineral  
Sciences’ long and accomplished history of Earth sciences and environmental  
research. The computing and outreach components were incorporated at the  
time of the Institute's founding so that all elements needed for a  
successful, effective research organization would be present for the  
benefit of faculty and students affiliated with the Institute. In 2004, the  
EMS Environment Institute was renamed the Earth and Environmental Systems  
Institute.  
  
  
  
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Message from Director  
  
Message from Director  
  
Sue Brantley  
  
Humans' unprecedented impact on the Earth’s system has led scientists to  
define a new geological age—the Anthropocene—to acknowledge human-induced  
changes on land, air, water, ice, and biota. To survive and flourish as a  
species in the face of this impact, we must learn to "earthcast" - that is,  
to predict how the Earth's climate and environment will change based on  
observations from the past and present and from our knowledge of humans.  
  
The Earth and Environmental Systems Institute is strategically positioned  
to engage in earthcasting. EESI associates and affiliates are  
world-renowned leaders in the kind of interdisciplinary, innovative, and  
collaborative research needed to take on the breadth of human-induced  
changes. The strength and diversity of their environmental sciences  
research promises the new knowledge, new approaches, and new models that  
are fundamental to understanding the Earth system, how it affects people,  
and how people affect it.  
  
We welcome you to learn more about EESI, one of the leading Earth and  
environmental sciences research institutes in the U.S.  
  
  
  
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Earth and Environmental Systems Institute  
2217 Earth-Engineering Sciences Building  
University Park, PA 16802-6813  
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## About

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About  
  
Institute, Vision, Mission, and Outreach  
  
Our Institute  
  
The Earth and Environmental Systems Institute (EESI) is one of the nation’s  
leading institutes in Earth and environmental sciences research. Its  
diverse and world-renowned faculty members are engaged in innovative and  
collaborative transdisciplinary research on some of the most compelling  
problems and issues of our time. EESI is part of Penn State’s College of  
Earth and Mineral Sciences (EMS) and the Institutes of Energy and the  
Environment (IEE).  
  
About Us  
  
EESI is the portal to environmental research, education, and outreach  
programs offered by EMS. EESI faculty and researchers are primarily  
associated with the departments of Geosciences, Meteorology, and Geography,  
all of which have top-ranked graduate programs. Penn State's Earth Sciences  
program is ranked 5th in the nation, according to U.S. News & World Report  
(2019). Within Earth Sciences, the University ranks 1st in Geology, 3rd in  
Environmental Sciences and 4th in Geochemistry. Geography and Meteorology  
have some of the best-known programs in the U.S., but these fields are not  
officially ranked by any organization.  
  
Vision  
  
EESI will build an extraordinary community of scholars who cross boundaries  
to understand the Earth system, how it affects people, and how people  
affect it.  
  
Mission  
  
EESI's mission comprises three interrelated elements:  
  
 1. To encourage interdisciplinary examination of the links between Earth’s  
 chemical, physical, and biological processes from atomic to global  
 scales by supporting faculty, student, and postdoctoral research on  
 Earth sciences and environmental issues;  
 2. To facilitate dissemination of research findings through publications,  
 presentations, web pages, workshops, seminars, testimony to public  
 agencies, and advice to public and private organizations and agencies;  
 and  
 3. To develop innovative, interdisciplinary research and education  
 programs that benefit internal and external stakeholders, including the  
 Penn State community, the Commonwealth, scientific communities, and  
 federal and state science agencies and organizations.  
  
Outreach

## Visit / Contact Us

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Visit / Contact Us  
  
Visit / Contact Us  
  
Earth and Environmental Systems Institute  
  
EES Building2217 Earth-Engineering Sciences Building  
University Park, PA 16802-6813  
Telephone: 814-863-7091  
FAX: 814-865-3191  
  
E-mail  
  
General EESI information: info@eesi.psu.edu  
  
Directions  
  
EESI is housed in the Earth-Engineering Sciences Building, which is located  
on the west side of the University Park Campus off of White Course Drive.  
(See map below)  
  
Maps of campus, parking, and the State College area are available from Penn  
State Visitor's Guide website. Click here for an interactive map.  
  
If you will be visiting the office and require a parking pass, please send  
your request to info@eesi.psu.edu.  
  
Partial Campus Map showing the location of the Earth and Engineering  
Science Building  
  
  
  
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## Research - EESI Environmental Scholars

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Research - EESI Environmental Scholars  
  
EESI Centers and Initiatives  
  
EESI Environmental Scholars  
  
In spring 2015, we initiated a revamped EESI Environmental Scholars program  
in the interest of forming connections between departments (and between  
research groups), increasing student diversity, and improving our  
recruiting efforts. The current EESI selection committee is comprised of  
Sridhar Anandakrishnan, professor of geosciences, Chris Forest, associate  
professor of meteorology, and Alan Taylor, professor of geography. Dr.  
Taylor is the current chair of the Committee. The Committee is charged with  
the following:  
  
 □ Choosing a set of four Scholars competitively among the incoming and  
 accepted graduate student applicants in the EESI-affiliated  
 departments, and from EESI Associates initially (all PhD students)  
 □ Sending out a call for nominations to EESI associates, and they will  
 nominate a student (one who has been made an offer).  
 □ The chair will make a ranked list based on the faculty members' summary  
 of their qualifications, and the other committee members will advise.  
  
These Scholars will be part of a cohort of an ongoing recruitment tool that  
will eventually lead to a large enough group to have cohesion and impact.  
The scholars will be offered a $2K top-up in the first year. There will be  
few requirements if they do accept, though we will look for positive  
inducements (dinner, retreats, a cross-disciplinary seminar/lunch)  
  
The Committee Chair will send out an announcement early each spring to EESI  
Associates asking for nominations.  
  
2019-2020 EESI Environmental Scholar Recipients  
  
Susan Kotikot (photo)Susan Kotikot  
Graduate Student  
Department of Geography  
  
Ian Lee (photo)Ian Lee  
Graduate Student  
Department of Geosciences  
   
   
  
Esther Munoz (photo)Esther Munoz  
Graduate Student  
Department of Geosciences

## People - Eye on EESI Research

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 □ Caitlin Teti - August 2019  
 □ Jenni Evans - May 2019  
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 □ Sierra Melton - October 2018  
 □ Sarah Ivory - August 2018  
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 □ Debbie Lambert - May 2017  
 □ Kelly Numez Ocasio and Natalie Pawlikowski - March 2017  
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 □ Brandon Forsythe - April 2016  
 □ Nooreen Meghani - October 2015  
 □ Tim White - March 2015  
 □ Matt Carroll - December 2014  
 □ Anne Danahy - July 2014  
 □ Linda Bell - May 2014  
 □ Brad King - March 2014  
 □ James Kasting - January 2014  
 □ Peter Wilf - November 2013  
 □ Ken Davis - September 2013  
 □ Dan Arthur - July 2013  
 □ Jennifer Williams - May 2013  
 □ Alan Taylor - April 2013  
 □ David Pollard - February 2013  
 □ Sridhar Anandakrishnan - December 2012  
 □ Bernd J. Haupt - October 2012  
  
  
  
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## People - Eye on EESI Research - Linda Bell

Eye on EESI Research  
  
Linda Bell (photo)Linda Bell  
  
May 2014  
  
Space grant programs at 13 universities, special scholarships for students  
and research awards for astrobiologists.  
  
Linda Bell has a hand in it all.  
  
Bell is administrative manager for the NASA Pennsylvania Space Grant  
Consortium and the Penn State Astrobiology Research Center, both of which  
are housed within the Earth and Environmental Systems Institute. The Space  
Grant program, aimed at helping future scientists and engineers pursue  
their passions, marked its 25th anniversary in 2013. In that year alone,  
the Pennsylvania program that Bell helps run awarded grants to about 400  
undergraduate and graduate students.  
  
Bell handles the budgeting from the beginning to the end, including  
proposals, making sure the plans stay on track, overseeing spending and  
trouble-shooting questions from students, faculty and staff. That could be  
students looking for guidance on their scholarships or faculty on the other  
side of the world running into trouble getting the freight they need for  
their research off a boat.  
  
"I enjoy working with the professors," Bell said. "I love collaborating  
with them and getting ideas. It's absolutely amazing what some of these  
consortia are doing. To go to national centers, like Goddard, and see what  
they're doing is absolutely mind blowing."  
  
The Pennsylvania Space Grant program is one of 52 across the country. The  
Space Grant programs include scholarship, fellowships and lab work for  
students at Penn State and other schools around the state. The work crosses  
colleges, drawing participants in Earth and Mineral Sciences, Education,  
Liberal Arts, Engineering and Health and Human Development.  
  
Among those programs is the Women in Science and Engineering Program  
(WISER), which matches female undergraduates at Penn State main campus,  
Altoona and Abington, Temple University and Gannon University with  
professors in science and engineering. About 80 professors are  
participating in this program.  
  
Bell's office also began managing the Astrobiology Research Center in 2013.  
In this position, she works with faculty and graduate students from Penn  
State and other schools including UCLA, Cal Tech, and the Arizona State  
University.  
  
Bell has worked in EESI since December 2007. Before that, she worked in the  
Smeal College of Business for 27 years.  
  
"I just love my job, it is as simple as that!" she said.  
  
  
  
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## Research - EESI Centers and Initiatives

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Research - EESI Centers and Initiatives  
  
EESI Centers and Initiatives  
  
Overview  
  
Faculty-driven and directed, EESI centers are leaders in interdisciplinary,  
collaborative and innovative research in the ever-changing environmental  
sciences. Researchers involved with the centers are engaged in  
understanding the earth system, how it affects people and how people affect  
it.  
  
EESI centers and initiatives promote, conduct and coordinate  
interdisciplinary research and educational activities within environmental  
sciences/engineering/social sciences. Centers or initiatives are selected  
in a competitive process that occurs every three years. Centers receive  
funding awards from EESI from $5,000 to $15,000 per year for their  
activities.  
  
The last call for center proposals occurred in Spring 2017 with the centers  
below funded. The next call for proposals will occur in 2020. For more  
information see: 2017 EESI Call for Center Proposals  
  
Penn State University Guidelines for Research Institutes and Centers.  
  
Research Centers Supported by EESI  
  
 □ Center for Climate Risk Management (CLIMA)  
  
 The Center for Climate Risk Management analyzes scientific, economic,  
 and ethical questions related to climate change risk management.  
 □ Center for Environmental Informatics (CEI)  
  
 CEI focuses on the development of new and innovative approaches to the  
 creation and dissemination of environmental information resources.  
 □ Center for Landscape Dynamics (CLD)  
  
 CLD is the "to-go" center for landscape science and decision making.  
 □ Earth System Science Center (ESSC)  
  
 ESSC maintains a mission to describe, model, and understand the Earth's  
 climate system.  
 □ Energy and Environmental Economics and Policy Initiative (EEEP)  
  
 EEEP supports and promotes integrative research at the boundary of  
 economics, public policy, and engineered/environmental systems.  
 □ Marcellus Center for Outreach and Research  
  
 The Marcellus Center for Outreach and Research will be the research,

## Research

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Research  
  
Research  
  
Research Services  
  
The Institute endeavors to develop initiatives or centers that focus on  
compelling scientific, social, and engineering issues and problems that  
require the expertise of more than a single researcher or even a single  
department. The expertise and strengths of academic departments in the  
College of Earth and Mineral Sciences often provide the foundation for  
these interdisciplinary initiatives and centers. The resources of the Earth  
and Environmental Systems Institute are designed to create added  
opportunities for faculty and students and to act as a catalyst for  
innovative, collaborative research.  
  
Faculty Services  
  
The Institute provides high-quality support services through its budget and  
grant management personnel, computing assistance through its Environmental  
Computing Facility, and outreach support through its outreach support teams  
and Center for Environmental Informatics. Proposal development, external  
funding opportunities searches, and editorial assistance are available to  
Institute faculty as well.  
  
Student Services  
  
Through its projects, data resources, and collaborative linkages, the  
Institute supports students interested in earth science and environmental  
research. Students gain valuable experience working as research assistants  
on Institute projects; often the research performed for a funded project  
stimulates a student's interest in the area under study, resulting in a  
thesis or dissertation project, and in co-authored publications. Through  
their work on Institute projects, students also have opportunities to  
"network", or make professional contacts that guide them as they make  
career decisions and look for employment. The Institute contributes to the  
College of Earth and Mineral Science’s broader educational mission by  
sponsoring speakers, seminar series, and other events in cooperation with  
other Penn State units.  
  
  
  
Events & Opportunities  
  
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## Research - 2017 EESI Call for Center Proposals

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Research - 2017 EESI Call for Center Proposals  
  
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2017 EESI Call for Center Proposals  
  
Call for Center Proposals  
  
Earth and Environmental Systems Institute (EESI)  
  
Due date: April 17, 2017  
  
  
  
Call for Proposals for Centers  
  
We seek proposals from EESI associates for new Initiatives or Centers, and  
renewal proposals for existing Centers within EESI. Proposers are  
encouraged to read the University guidelines (RAG05) concerning Center  
status on EESI's website (https://policy.psu.edu/policies/RAG05).  
Initiatives should be proposed especially for activities that are likely to  
be eligible to become Centers as described by the university guidelines.  
  
What is an EESI Center or an EESI Initiative?  
  
A Center or Initiative within EESI represents a focus of interdisciplinary  
research and educational activities fostered by EESI associates and  
affiliates. In general, such a focus generally starts as an Initiative  
(this step can be approved by the EESI Director) and then progresses to  
become a Center (the step must be approved by the Senior Vice President for  
Research). Current Centers/Initiatives that are receiving EESI funding  
include the Center for Climate Risk Management (CLIMA), Center for  
Environmental Informatics (CEI), Earth System Science Center (ESSC), Penn  
State Ice and Climate Research Center (PSICE), Center for Landscape  
Dynamics (CLD), Energy and Environmental Economics and Policy Initiative  
(EEEP), and Riparia. These Centers receive anywhere from $5000 to $15,000  
per year for Center activities. Centers target one or more of the following  
goals over the three-year lifetime of the Center:  
  
 □ promote interaction among faculty, students, and staff in a growing  
 interdisciplinary field within the environmental sciences/engineering/  
 social sciences  
 □ promote excellence in scientific research, especially aligned with  
 EESI's strategic plan  
 □ promote access to computers, analytical instrumentation, or field sites  
 □ foster the securing of extramural funding for multi-PI projects  
 □ promote educational opportunities for students in environmental  
 sciences and engineering, with special attention to udents from  
 under-represented groups

## Research - EESI Center Awards 2011

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Research - EESI Center Awards 2011  
  
EESI Centers and Initiatives  
  
EESI Center Awards 2011  
  
2011 Center Funding Support Announced  
  
Seven interdisciplinary research initiatives will receive funding support  
from EESI for three consecutive years, beginning in 2011-12. These centers  
are committed to collaborative and forward-looking research on the  
unprecedented environmental challenges facing the earth system.  
  
Included in the seven is the new initiative for Energy and Environmental  
Economics and Policy to be directed by Seth Blumsack that will unify  
current collaborations to create a robust University-wide and  
interdisciplinary research community in energy economics and policy.  
  
Several existing centers also will receive funding and, in some cases,  
staff support:  
  
 □ Center for Environmental geoChemistry and Genomics (CECG) led by Jenn  
 Macalady  
 CECG promotes research and teaching in environmental chemistry and  
 geochemistry.  
 □ Center for Environmental Informatics (CEI) led by Doug Miller  
 CEI focuses on the development of new and innovative approaches to the  
 creation and dissemination of environmental information resources.  
 □ Center for Climate Risk Management (CLIMA) led by Klaus Keller  
 The Center for Climate Risk Management analyzes scientific, economic,  
 and ethical questions related to climate change risk management.  
 □ Earth System Science Center (ESSC) led by Michael Mann  
 ESSC maintains a mission to describe, model, and understand the Earth's  
 climate system.  
 □ Penn State Ice and Climate Research Center (PSICE) led by Sridhar  
 Anandakrishnan  
 The Center for Penn State Ice and Climate Research integrates  
 glaciology, seismology, modeling and climatology.  
 □ Riparia led by Rob Brooks  
 The Riparia Center's mission is to conduct, facilitate, and coordinate  
 interdisciplinary research, monitoring, and training regarding wetlands  
 and related resources with an emphasis on Mid-Atlantic and Northeastern  
 states.  
 □ Energy and Environmental Economics and Policy Initiative (EEEP)  
 EEEP supports and promotes integrative research at the boundary of  
 economics, public policy, and engineered/environmental systems.  
 □ Marcellus Center for Outreach and Research  
 The Marcellus Center for Outreach and Research will be the research,  
 information and education leader for the Appalachian region by

## Research - EESI Center Awards 2014

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Research - EESI Center Awards 2014  
  
EESI Centers and Initiatives  
  
EESI Center Awards 2014  
  
2014 Center Funding Support Announced  
  
The last call for center proposals occurred in April 2014 with the centers  
below funded. The dealine for the 2014 call was April 14, 2014  
  
Eight interdisciplinary research initiatives will receive funding support  
from EESI for three consecutive years, beginning in 2014-15. These centers  
are committed to collaborative and forward-looking research on the  
unprecedented environmental challenges facing the earth system.  
  
Several existing centers also will receive funding and, in some cases,  
staff support:  
  
Proposals for funding awards in 2014  
  
 □ Center for Energy and Environmental Economics Policy  
 □ Center for Environmental Informatics  
 □ Center for Climate Risk Management  
 □ Earth System Science Center  
 □ Center for Landscape Dynamics  
 □ Marcellus Center for Outreach and Research  
 □ Penn State Ice and Climate Research Center  
 □ Riparia  
  
Research Centers Supported by EESI  
  
 □ Center for Climate Risk Management (CLIMA)  
  
  
 The Center for Climate Risk Management analyzes scientific, economic,  
 and ethical questions related to climate change risk management.  
 □ Riparia  
  
  
 The Riparia Center's mission is to conduct, facilitate, and coordinate  
 interdisciplinary research, monitoring, and training regarding wetlands  
 and related resources with an emphasis on Mid-Atlantic and Northeastern  
 states.  
 □ Earth System Science Center (ESSC)  
  
  
 ESSC maintains a mission to describe, model, and understand the Earth's  
 climate system.

## Research - Initiative for Energy and Environmental Economics and Policy (EEEP)

□ Column 2  
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Research - Initiative for Energy and Environmental Economics and Policy  
(EEEP)  
  
Initiative for Energy and Environmental Economics and Policy (EEEP)  
  
Co-Directors: Seth Blumsack and Karen Fisher-Vanden  
  
The Initiative for Energy and Environmental Economics and Policy (EEEP) was  
established in 2011 with the goal of promoting policy-relevant economics  
research that lies at the boundary between economic sciences and the study  
of natural or engineered systems. The EEEP initiative is focused primarily  
on the union between energy systems and environmental management and the  
development of quantitative tools to address decision challenges in these  
areas. As an initiative, our goal is to catalyze research in energy and  
environmental systems economics across the University and to build a  
world-class group of economists with interests in interdisciplinary  
collaboration.  
  
EEEP operates as a University-wide initiative with support provided by the  
Earth and Environmental Systems Institute, Penn State Institutes for Energy  
and the Environment, and the Environment and Natural Resources Institute.  
  
Examples of research in energy and environmental systems economics at Penn  
State include:  
  
 □ electricity markets, the smart grid, integrating renewable electricity,  
 and cyber-security in energy infrastructures;  
 □ economic impacts and risks associated with global climate change;  
 □ the design and implementation of energy-efficient building systems;  
 □ valuation of ecosystem services;  
 □ implications of Marcellus Shale natural gas development for energy  
 markets and environmental quality;  
 □ global markets for rare earth minerals.  
  
EEEP activities include a periodic seminar series featuring internal and  
external speakers, and an Initiative Affiliate program for students and  
faculty. Affiliates are eligible for small research and travel grants from  
the Initiative.  
  
  
  
Contact:  
  
Seth Blumsack  
Associate Professor of Energy Economics and Policy  
John and Willie Leone Family Department of Energy and Mineral Engineering  
115 Hosler Building  
The Pennsylvania State University  
University Park, PA 16802  
Phone: 814-863-7597  
E-mail: sab51@psu.edu

## Resources - Computing Resources

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 ○ EESI/EMS Policies and Reports  
 ○ EESI Information  
 ○ EESI Committees and Directors  
 ○ Funding  
 ○ Travel and Finance Forms  
 ○ Helpful Financial Links  
 ○ Faculty Resources  
 ○ EESI High Performance Computing Resource  
  
Resources - Computing Resources  
  
Computing Resources  
  
EESI High Performance Computing Resource  
  
For the last ten years now EESI has offered priority access to large high  
performance computing resources subsidized by various funded research  
efforts and run through the Research Computing and Cyberinfrastructure  
group (formerly known as GEaRs).  
  
Lion-xo remains available well past the orginally intended end of its  
operational life. This resource was primarily funded by the now defunct  
Center for Environmental Kinetic Analysis (CEKA).  
  
Lion-XC is still in the prime of its operational life and should be  
available for several more years. This resource was funded by the Earth  
System Science Center and EESI.  
  
And Lion-XF is the newest HPC cluster that was brought online in 2012. This  
resource was funded by David Pollard and EESI. Lion-XF will be available  
only to a limited number of researchers.  
  
EESI associates who are interested in using these HPC resources may request  
access through John Miley.  
  
These collaborations have been highly successful and on average we have had  
more computing capacity than we could consume.  
  
For the future, individual researchers with small scale HPC needs are  
encouraged to contact the RCC high performance computing group directly to  
discuss how you can work with that group to best meet your needs: https://  
ics.psu.edu/about/  
  
This contact will typically result in a meeting with the HPC group's  
director who can then advise you on how to best spend your grant money. If  
you choose to spend your research dollars with them and become a partner  
you will still receive priority access to whatever cluster you buy into and  
you will get exceptional support.  
  
If you have an existing relationship with us for HPC from a grant funded  
prior to 2009, nothing has changed for you. You may continue just as you  
have been until that grant is gone or you no longer require access. If you  
have any potential future large scale HPC needs we'd like to talk to you  
about how we might be able to work together and subsidize your efforts for  
the good of our local computing community.

## Publications

Publications  
  
Publications  
  
How to get your publication listed?  
  
 □ The list of EESI publications provided here is extensive but not  
 complete. Everyone who is either associated or affiliated with EESI and  
 would like to see hers/his publications listed here should send them to  
 info@eesi.psu.edu. (Already WORD formatted is preferred but not  
 required.)  
 □ Please make sure that your publication isn't already listed.  
 □ Please avoid sending in publications "in press" or "submitted." Send  
 them once they are fully referencable.  
  
  
  
2018 Publications  
  
 □ Brantley, S. L., R.D. Vidic, K. Brasier, D. Yoxtheimer, J. Pollak, C.  
 Wilderman, and T. Wen. 2018. Engaging over data on fracking and water  
 quality. Science 359(6374), 395-397. doi: 10.1126/science.aan6520  
 □ Carpenter R. J., A. Iglesias, P. Wilf. 2018. Early Cenozoic vegetation  
 in Patagonia: new insights from organically preserved plant fossils  
 (Ligorio Márquez Formation, Argentina). International Journal of Plant  
 Sciences, v. 179, p. 115-135. [IF 3.693]  
 □ DiBiase, R. A., Rossi, M.W., and Neely, A.B., 2018. Fracture density  
 and grain size controls on relief structure of bedrock landscapes,  
 Geology, 46 (5): 399-402. doi:10.1130/G40006.1  
 □ Forest, C.E., 2018, Inferred Net Aerosol Forcing Based on Historical  
 Climate Changes: A Review, Current Climate Change Reports, 4: 11.  
 https://doi.org/10.1007/s40641-018-0085-2  
 □ Jud N. A., M.A. Gandolfo, A. Iglesias, P. Wilf. 2018. Fossil flowers  
 from the early Palaeocene of Patagonia, Argentina with affinity to  
 Schizomerieae (Cunoniaceae). Annals of Botany, doi: 10.1093/aob/mcx173.  
 [IF 4.041]  
 □ Kim, H., X. Gu, and S. L. Brantley. 2018. Particle fluxes in  
 groundwater change subsurface shale rock chemistry over geologic time.  
 Earth and Planetary Science Letters 500, 180-191. doi: 10.1016/  
 j.epsl.2018.07.031  
 □ Niu, X., A. Wendt, Z. Li, A. Agarwal, L. Xue, M. Gonzales, and S.L.  
 Brantley. 2018. Detecting the effects of coal mining, acid rain, and  
 natural gas extraction in Appalachian basin streams in Pennsylvania  
 (USA) through analysis of barium and sulfate concentrations.  
 Environmental Geochemistry and Health 40(2), 865-885. doi: 10.1007/  
 s10653-017-0031-6  
 □ Niu, X., T. Wen, Z. Li, and S. L. Brantley. 2018. One Step toward  
 Developing Knowledge from Numbers in Regional Analysis of Water  
 Quality. Environmental Science and Technology. doi: 10.1021/  
 acs.est.8b01035.  
 □ Richter, D. D., S. A. Billings, P. M. Groffman, E. F. Kelly, K. A.  
 Lohse, W. H. McDowell, T. S. White, S. Anderson, D. D. Baldocchi, S.  
 Banwart, S. L. Brantley, J. J. Braun, Z. S. Brecheisen, C. W. Cook, H.  
 E. Hartnett, S. E. Hobbie, J. Gaillardet, E. Jobbagy, H. F. Jungkunst,  
 C. E. Kazanski, J. Krishnaswamy, D. Markewitz, K. O'Neill, C. S. Riebe,  
 P. Schroeder, C. Siebe, W. L. Silver, A. Thompson, A. Verhoef, and G.  
 Zhang. 2018. Ideas and perspectives: Strengthening the biogeosciences  
 in environmental research networks. Biosciences 15, 4815-4832. doi:  
 10.5194/bg-15-4815-2018  
 □ Shen W., Wiens D. A., Stern, T., Anandakrishnan, S., Aster, R. C.,

## Resources

In This Section  
  
 □ Column 3  
 ☆ Resources   
 ○ University Guidelines  
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 ○ Faculty Resources  
 ○ EESI High Performance Computing Resource  
  
Resources  
  
Faculty and Staff Resources and Funding  
  
University Guidelines  
  
 □ Vice Provost's website: University guidelines and other information  
 regarding promotion and tenure  
  
EESI/EMS Policies and Reports  
  
 □ EESI Strategic Plan 2014-2020  
 □ FT&R Faculty Promotion Procedure  
 □ EESI Timeline and Abbreviated Procedures for FT&R Faculty Promotion  
 □ FT&R Faculty Promotion Guidelines  
 □ EESI 2008-2013 Strategic Plan  
 □ EESI 2005-2008 Strategic Plan  
 □ EESI Personnel Rights and Responsibilities  
  
EESI Information  
  
 □ EESI Brochure  
  
EESI Committees and Directors  
  
 □ EESI Committee List  
 □ EESI Advisory Committee  
 □ EESI Steering Committee  
 □ EESI Center Directors  
  
Funding  
  
 □ For Funding Resources follow RESEARCH - Funding  
 □ For Data Management Plan follow RESEARCH - Data Management Plan  
  
Travel and Finance Forms  
  
 □ Purchasing Card Support Form  
 □ Purchasing Card Exclusion List  
 □ Purchasing Card Q/A  
 □ CONUS Check List for Employee Travel  
 □ OCONUS Check List for Employee Travel  
 □ Group Meal Form  
 □ Wage Timesheet  
 □ Non-Employee Travel Reimbursement Form  
 □ Visitor's Form

## Research - Funding

In This Section  
  
 □ Column 2  
 ☆ Research   
 ○ EESI Centers and Initiatives  
 ○ Funding  
 ○ Data Management Plan  
 ○ Energy-Related Research  
 ○ Research Collaborators  
 ○ Job Opportunities  
  
Research - Funding  
  
Funding  
  
Faculty-driven and directed, EESI centers are leaders in interdisciplinary,  
collaborative and innovative research in the ever-changing environmental  
sciences. Researchers involved with the centers are engaged in  
understanding the earth system, how it affects people and how people affect  
it.  
  
EESI Funding Resources  
  
EESI supports interdisciplinary research and teaching through several  
funding programs for both faculty members and graduate students. These  
annual funds are awarded on a competitive basis.  
  
 □ 2017 EESI Call for Center Proposals  
 □ Scholar in Residence (SIR) Faculty Program  
 □ EESI Environmental Scholars Graduate Student Program  
 □ Environmental Student Ambassador Program (ESA) - due Nov. 15  
 □ Director's Awards  
 □ Funding for Workshops  
  
EMS Funding Resources  
  
A variety of competitive awards are available annually to faculty within  
the College.  
  
 □ Wilson Awards - due Feb. 15  
 □ George H. Deike, Jr. Research Grants - due Feb. 15  
 □ Miller Faculty Fellowship - due Feb. 15  
  
For information about these words, visit EMS Faculty Excellence Awards and  
Grants.  
  
IEE Funding Opportunities  
  
The Institutes of Energy and the Environment (IEE) maintains a database of  
currently open requests for proposals. The database is searchable by  
keyword, designated research theme, funding agency, or due date. IEE also  
maintains a list of recent funding announcements.  
  
 □ IEE Funding Opportunities  
  
Scheyer Institute for Teaching Excellence  
  
 □ Teaching Project Grants  
  
Penn State Funding Resources

## Research - Data Management Plan

In This Section  
  
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 ☆ Research   
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 ○ Funding  
 ○ Data Management Plan  
 ○ Energy-Related Research  
 ○ Research Collaborators  
 ○ Job Opportunities  
  
Research - Data Management Plan  
  
Data Management Plan  
  
Many agencies are now requiring more formal data management plans than in  
the past. These include:  
  
 □ Office of Science and Technology Policy - The White House  
 ☆ Expanding Public Access to the Results of Federally Funded Research  
 □ National Science Foundation (NSF) Data Management Plan Requirements  
 □ NASA Data Management Plan Guidance  
 □ National Institutes of Health - NIH  
  
This page is designed to assist PI's in developing data management plans to  
support an otherwise successful proposal. This page is for guidance only  
and does not necessarily grant success. We welcome comments and feedback to  
help us ensure that the information here is up-to-date.  
  
Information provided here includes:  
  
 □ available data repositories (predominantly those on campus),  
 □ contacts who can provide help a PI to identify project-specific needs  
 for data storage,  
 □ generally asked questions about data storage, and  
 □ advice on how to support someone who is helping to develop the data  
 management plan and/or responsible for the data management during the  
 life of the project.  
  
In many cases, it also helps to get an example data management plan (from a  
successfully funded proposal!).  
  
  
  
California Digital Library's DMP Tool  
  
There are additional online resources available like the California Digital  
Library's DMP Tool - which allows you to select the specific solicitation  
and then walks you through each section of the solicitation's requirements  
- http://dmp.cdlib.org."  
  
eScholarship, University of California, provides a "Primer on Data  
Management: What you always wanted to know" (DOI).  
  
  
  
Penn State's resources for data management, data sharing and archiving  
  
 □ DataCommons@PSU  
 □ Office of the vice president for research at Penn State

## Research - Research Collaborators

In This Section  
  
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Research - Research Collaborators  
  
Research Collaborators  
  
Looking for colleagues with certain environmental specializations for a  
research project or proposal? One of the following search tools may help  
you find the persons you're looking for.  
  
IEE Faculty Expertise Database  
  
The Institutes of Energy and Environment hosts a searchable faculty  
directory. Individuals may search by one of three categories: Primary  
Research Theme, Complete List of Themes, and Complete List of Departments.  
  
Institutes of Energy and the Environment Faculty Expertise Database  
  
Community of Science (COS) Members for Penn State  
  
To locate funding sources and potential collaborators, Penn State  
recommends that its faculty members use the Community of Science, Inc.  
(also known as the Community of Scholars), a global registry of academic  
researchers. Penn State's institutional subscription covers the use of the  
COS databases for all Penn State faculty, staff, and students.  
  
Community of Science (COS) Members for Penn State  
  
Worldwide Universities Network (WUN)  
  
Faculty involved in EESI and PSIE are involved in the Worldwide  
Universities Network. For information on the WUN and to view research web  
pages for both Penn State faculty and potential international colleagues in  
several research areas, visit the following link.  
  
Worldwide Universities Network (WUN)  
  
  
  
Events & Opportunities  
  
 □ This Week  
 □ Job Opportinities  
━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━  
  
Tweets by PSUEarth  
  
  
  
Quick Links

## Research - Job Opportunities

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 ○ Research Collaborators  
 ○ Job Opportunities  
  
Research - Job Opportunities  
  
  
  
Job Opportunities  
  
  
  
 □ Faculty Positions in the area of Understanding Land-Water Systems using  
 Data Analytics  
 □ Postdoctoral Scholar in the area of Risk- and Decision-Analysis Climate  
 Risk Management  
 □ Postdoctoral Scholar in the area of Climate Data Products for Impacts  
 Analysis and Decision Support  
 □ Scientific Programmer  
 □ Research Data Management Specialist 1  
━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━  
  
  
  
September 11, 2019  
  
Faculty Positions in the area of Understanding Land-Water Systems using  
Data Analytics  
  
The College of Earth and Mineral Sciences through the Earth and  
Environmental Systems Institute (EESI) at the Pennsylvania State  
University, University Park, PA, seeks to hire tenure-line faculty at the  
assistant or associate rank who study Earth and environmental sciences  
using new data-driven tools and methods. Candidates for the rank of  
associate professor typically will have several years of research  
experience and already hold tenure at another institution and/or qualify  
for immediate tenure at Penn State. Successful candidates will have  
expertise in at least one of the following areas: data mining, machine  
learning, artificial intelligence, or deep learning.  
  
We seek dynamic scientists who want to teach and lead in the emerging field  
of data analytics on integrated topics of Earth and environmental science  
as they relate to land-water systems. Relevant research expertise should  
include at least one of the following: remote sensing, numerical modeling,  
groundwater chemistry, nature-society interactions, decision analysis, high  
performance computing, or machine learning and artificial intelligence.  
  
The position will involve a joint appointment between EESI and one  
Department among Geography, Energy and Mineral Engineering, and  
Geosciences. The tenure home will be determined based on the research  
skills and interests of the candidate, after the on-site interviews have  
been conducted. The selected applicants will be responsible for research  
and teaching in their respective Departments, along with service for

## Research - Energy-Related Research

In This Section  
  
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 ○ Research Collaborators  
 ○ Job Opportunities  
  
Research - Energy-Related Research  
  
Energy-Related Research  
  
Initiative for Energy and Environmental Economics and Policy (EEEP)  
  
The Initiative for Energy and Environmental Economics and Policy focuses on  
the union between energy systems and environmental management and the  
development of quantitative tools to address decision challenges in these  
areas. Current projects include:  
  
 □ The Program on Coupled Human-Environmental Systems (PCHES) engages  
 researchers from engineering, economics, environmental modeling, and  
 decision-making to establish an innovative framework for developing  
 multi-sector, multi-scale, multi-modal approaches for integrated  
 assessment.  
 □ The gas-electric coordination project involves engineering, economic,  
 and computational work that addresses the increasing interdependence  
 between natural gas and electric power transmission.  
 □ The Program on the Evolution of Future Energy Systems focuses on the  
 integration of energy systems engineering and economic models with  
 climate models and insights from robust decision-making. It addresses  
 the under-studied aspects of how energy systems evolve in the face of  
 long-term technological and policy changes or targets when important  
 economic and climate factors are uncertain.  
  
Learn more about EEEP here.  
  
Penn State Center for Climate Risk Management (CLIMA)  
  
The Penn State Center for Climate Risk Management works to identify:  
  
 □ reliable climate hazards projections for energy infrastructures;  
 □ the most important socio-economic, technological, and Earth systems  
 drivers of poor climate change outcomes;  
 □ the dynamics and trade-offs in energy system transitions;  
 □ the energy system transitions required to reliably achieve  
 sustainability targets;  
 □ the robust strategies for mitigation, carbon sequestration, and  
 geoengineering.  
  
Visit the CLIMA website for more information.  
  
Penn State Marcellus Center for Outreach and Research (MCOR)  
  
The Penn State Marcellus Center for Outreach and Research (MCOR) is a  
research, information dissemination, and education leader that fosters,  
supports, and advances research and science-based translational outreach on  
shale energy development, with a specific emphasis on natural gas. MCOR

## Research - EESI Center Awards 2017

In This Section  
  
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 ○ Funding  
 ○ Data Management Plan  
 ○ Energy-Related Research  
 ○ Research Collaborators  
 ○ Job Opportunities  
  
Research - EESI Center Awards 2017  
  
EESI Centers and Initiatives  
  
EESI Center Awards 2017  
  
2017 EESI Call for Proposals  
  
Eight existing centers and initiatives responded to the 2017 EESI Call for  
Proposals that went out in early Spring 2017. The PI's of each proposal  
will be giving their presentations on Monday, May 1st. The presentation  
schedule is attached. The public is invited to attend these presentations.  
  
Decisions on funding support for the next three years will be announced in  
June.  
  
  
  
2017 Center Proposals  
  
 □ Energy and Environmental Economics and Policy Initiative (EEEPI)  
 □ Center for Environmental Informatics (CEI)  
 □ Center for Climate Risk Management (CLIMA)  
 □ Earth System Science Center (ESSC)  
 □ Center for Landscape Dynamics (CLD)  
 □ Marcellus Center for Outreach and Research (MCOR)  
 □ Penn State Ice and Climate Research Center (PSICE)  
 □ Riparia  
  
  
  
Schedule for EESI Center Proposal Presentations  
  
Date: May 01, 2017  
Location: 117 EES Building  
  
 Time Center Director Comments  
  
10:00 - 10:20 Closed Meeting Opening comments from Sue  
am Brantley  
  
10:20 - 10:40 ESSC M. Mann 20 minutes including questions  
am  
  
10:40 - 11:00 Riparia R. Brooks 20 minutes including questions  
am  
  
11:00 - 11:20 EEEPI S. Blumsack 20 minutes including questions  
am

## Research - Director’s Awards

In This Section  
  
 □ Column 2  
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 ○ Job Opportunities  
  
Research - Director's Awards  
  
EESI Centers and Initiatives  
  
Director's Awards  
  
EESI Associates are invited to apply for up to $1000 per year to visit  
funding agencies or workshops for new initiatives promoted by agencies.  
Available funding is limited and can be used only for travel and hotel.  
  
How to Apply:  
  
Applicants should send their request to: Shelly McCall (maf37@psu.edu)  
  
  
  
Events & Opportunities  
  
 □ This Week  
 □ Job Opportinities  
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Tweets by PSUEarth  
  
  
  
Quick Links  
  
 □ Resources for Faculty & Staff  
 □ Educational Equity  
 □ Research Administration  
 □ Safety & Emergency Information  
  
Contact Us  
  
  
Earth and Environmental Systems Institute  
2217 Earth-Engineering Sciences Building  
University Park, PA 16802-6813  
Contact Us / Find a Person  
  
Engage with Us  
  
 □ Facebook Page  
 □ Twitter Page  
 □ Youtube Page  
 □ Instagram Page  
  
 □ © Penn State College of Earth and Mineral Sciences

## Research - Environmental Student Ambassador (ESA) Program

In This Section  
  
 □ Column 2  
 ☆ Research   
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 ○ Data Management Plan  
 ○ Energy-Related Research  
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 ○ Job Opportunities  
  
Research - Environmental Student Ambassador (ESA) Program  
  
EESI Centers and Initiatives  
  
Environmental Student Ambassador (ESA) Program  
  
EESI is seeking EMS undergraduate students interested in enhancing  
environmental stewardship and outreach in the University community and  
beyond to become Environmental Student Ambassadors.  
  
Funds are available to support the activities of an ESA by applying with a  
faculty sponsor in your EMS department. ESAs will be selected on the basis  
of a proposed project that improves the health and sustainability of the  
environment for the local community, for EMS, or for the University. The  
projects could, but are not required to, be executed in collaboration with  
University units (e.g. Physical Plant, the Arboretum at Penn State),  
student clubs (e.g. Ecoaction), community groups (e.g. ClearWater  
Conservancy, Millbrook Marsh), or an environmental group (e.g. Nature  
Conservancy, SIerra Club). Projects could focus on, for example, developing  
new educational or outreach materials for the public, improving the carbon  
footprint, recycling, energy audits, or removing invasive species in  
conservation areas.  
  
Environmental Student Ambassadors will receive financial and staff support  
for their activities for a semester but longer projects will be considered.  
  
Student ambassadors will need a faculty sponsor who is willing to serve as  
a mentor during the implementation of the project. The ESA could become  
part of a student curriculum by registering for independent study credits  
in consultation with their faculty mentor. ESAs are also expected to share  
project results with the EESI community at an informal lunch.  
  
EESI has allocated $2,500 annually to support the activities of the ESA  
program. Salary support will not be provided for the ESA. Acknowledgment of  
the ESA in any presentation or educational/outreach materials developed for  
distribution is expected.  
  
Applications to become an Environmental Student Ambassador should include:  
  
 □ A two-page statement describing the proposed project and how it will  
 enhance environmental stewardship and outreach in the University  
 Community  
 □ A schedule of activities and project deliverables  
 □ A budget that identifies how funds will be spent  
 □ A letter of support from a faculty sponsor  
 □ Letters of support from any collaborating partners<  
  
Applications will be accepted at anytime during a semester for projects in  
the following semester(s). Please submit your application to: Tracy

## Research - Funding for Workshops

In This Section  
  
 □ Column 2  
 ☆ Research   
 ○ EESI Centers and Initiatives  
 ○ Funding  
 ○ Data Management Plan  
 ○ Energy-Related Research  
 ○ Research Collaborators  
 ○ Job Opportunities  
  
Research - Funding for Workshops  
  
EESI Centers and Initiatives  
  
Funding for Workshops  
  
EESI will provide funding for short focused workshops to enable groups of  
researchers to interact to move key ideas forward to increase the impact of  
research programs or to position research programs to lead in emerging  
areas of interdisciplinary environmental science. In its role as a leading  
environmental institute, EESI is well-positioned to facilitate workshops  
that support the research programs of our EESI Associates and Affiliates.  
  
Workshop structure:  
  
EESI seeks proposals from EESI Associates to run small workshops to support  
their research programs. Workshop proposals can fall into one of three  
categories:  
  
 1. Proposals for scientific workshops that are tightly focused. Topics  
 should be both timely and of interest to a group of EESI Associates and  
 Affiliates that reside in different academic units at Penn State, and  
 to scientists at other institutions.  
 2. Proposals for workshops designed to bring together a group of  
 prospective PIs to develop multi-disciplinary research proposals.  
 3. Proposals for workshops supported by extramural funds that will utilize  
 EESI facilities or EESI staff.  
  
Considerable flexibility is given to how the workshops will be run.  
Workshops with the following characteristics are especially encouraged:  
  
 □ limited duration (likely 1 – 1.5 days)  
 □ focused on a disciplinary or topical area consistent with EESIs mission  
 □ limited size (~20 or fewer participants)  
 □ inclusive of junior researchers (senior graduate students and postdocs)  
 as well as a diversity of groups  
  
A steering committee of at least 3 people is expected to participate in  
developing and running proposed workshops.  
  
EESI can fund one workshop per calendar year and any EESI Associate is  
eligible to submit a proposal. Proposals will be evaluated by the EESI  
Advisory Committee. Individuals are encouraged to contact Sue Brantley (  
brantley@essc.psu.edu) to discuss their workshop idea before developing a  
proposal. Proposals that further EESI strategic goals as summarized in the  
Strategic Plan, proposals that involve multiple EESI Associates, and  
proposals that are co-sponsored by other units on campus are particularly  
encouraged.

## Research - Scholar in Resident (SIR) Faculty Program

In This Section  
  
 □ Column 2  
 ☆ Research   
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 ○ Job Opportunities  
  
Research - Scholar in Resident (SIR) Faculty Program  
  
EESI Centers and Initiatives  
  
Scholar in Resident (SIR) Faculty Program  
  
The Scholar in Residence (SIR) for EMS faculty is a professional  
advancement grant in research or teaching for outstanding EESI Associates  
and Affiliates. The Departments of the recipients receive support for a  
semester to allow the Associate to focus on the scholarship of research or  
teaching and learning in the interdisciplinary environmental sciences.  
Depending on the available support, Scholars will reside (i.e. have office  
space in) in EESI during the academic year of, or the year after, a  
successful application.  
  
The SIR program targets support to individuals pursuing work of strategic  
interest to EESI as outlined in the EESI Strategic Plan. EESI offers  
$10,000 to the department of the Scholar-in-Residence to release each  
recipient from all classroom teaching responsibilities for the semester in  
exchange for residence in EESI. The SIR recipient must be in residence in  
the Earth and Engineering Science Building during the semester. During the  
award period, the recipient will also serve in an advisory capacity to the  
Director of the Institute.  
  
An acknowledgement of the SIR in any publications or material developed for  
distribution is expected (e.g. research was undertaken when the author was  
an EESI Scholar-in-Residence (January-July, 2010).  
  
  
  
How to Apply  
  
Applicants should submit a statement describing the proposed work  
(including the timing) and how a SIR grant would contribute to these  
activities, their most current curriculum vitae, a letter of support from  
their department head, and their most current faculty activity report.  
Individuals are encouraged to contact Susan L. Brantley (sxb7@psu.edu) to  
discuss their plan for use of a SIR before developing their proposal. The  
application for a SIR can be submitted by mail or email to Susan L.  
Brantley (sxb7@psu.edu), Director, Earth and Environmental Systems  
Institute, 2217 EES, Penn State University, University Park, PA 16802.  
  
  
  
Fall 2009 Scholar in Residence Recipients are:  
  
 □ Dr. Eric Kirby, Associate Professor of Geosciences  
 □ Dr. Douglas Miller, Director of the Center for Environmental  
 Informatics and Associate Professor Geography

## Resources - Earth and Environmental Systems Institute (EESI): Strategic Plan 2014-2020 07/1/14

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 ○ EESI High Performance Computing Resource  
  
Resources - Earth and Environmental Systems Institute (EESI): Strategic  
Plan 2014-2020 07/1/14  
  
Earth and Environmental Systems Institute (EESI): Strategic Plan 2014-2020  
07/1/14  
  
Exploring how we live with a changing earth  
  
The EESI Vision  
  
EESI will build an extraordinary community of people who cross boundaries  
to understand the earth system, how it affects people, and how people  
affect it.  
  
To promote this vision in the next five years, EESI will emphasize the  
following initiatives, described below:  
  
 □ EESI Will Promote a Global Water Initiative (GWI)  
 □ EESI Will Promote the Area of Environmental Life Cycle Assessment  
 □ EESI Will Explore Online Graduate Education Opportunities in the  
 Environmental Sciences  
 □ EESI Will Promote the Environmental Instrumentation Infrastructure  
 □ EESI Will Promote the Use of New Cyber-infrastructure, Sensors and Big  
 Data  
 □ EESI Will Promote Diversity  
 □ EESI Will Promote a Home for a University-wide Center in Climate Risk  
 Management  
 □ EESI Will Promote Interactive Science Communication  
  
  
  
What is EESI?  
  
The Earth and Environmental Systems Institute brings together faculty and  
students derived from a cross-section of disciplines who are interested in  
understanding the Earth and how we live with it. In the next five years, we  
will continue to grow an intellectual environment that fosters  
groundbreaking research and excellence in student education. EESI currently  
hosts 22 tenure-line faculty associates, 25 research faculty, 11  
postdoctoral researchers, and 12 administrative staff. Thirty-seven (37)  
faculty at Penn State choose to interact with the institute as EESI  
affiliates. To achieve its goals, EESI receives approximately $1 million in  
University funds, most of which are used for faculty salaries. The  
institute brings in about $3 million in extramural funds that support EESI  
activities. We seek to provide the space, tools, models, data, and people  
to promote excellent science and education directed toward questions

## Resources - EESI Advisory Committee

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Resources - EESI Advisory Committee  
  
EESI Advisory Committee  
  
EESI Advisory Committe Members  
  
 □ Guido Cervone, Department of Geography (voted as EESI rep., serves 07/  
 19 - 06/22)  
 □ Jose Fuentes, Department of Meteorology (EESI Affiliate, serves 07/19 -  
 06/22)  
 □ Todd Sowers, EESI and Geosciences Research Professor (non-tenure line  
 EESI Associate, serves 07/19 - 06/20)  
 □ Alan Taylor, Department of Geography (tenure line EESI Associate,  
 serves 07/18 - 06/21)  
  
  
  
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EESI Committee List  
  
Committees and shared Institute responsibilities for 2015–2016  
  
Revised: 11/30/2015  
  
EESI Representative, EMS Institutes FT&R Faculty Promotion Committee  
  
 □ Doug Miller  
  
EESI Representative, EMS Diversity Council  
  
 □ Bernd Haupt  
  
United Way Campaign  
  
 □ Katerina Kostadinova  
  
Facility Coordinator  
  
 □ Tracy Bernier  
  
EESI Representatives, EMS Communications Committee  
  
 □ Francisco Tutella  
  
EESI Representative, EMS Safety Official  
  
 □ Brandon Forsythe  
  
  
  
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 ○ EESI High Performance Computing Resource  
  
Resources - EESI Steering Committee  
  
EESI Steering Committee  
  
 □ Tim Bralower, Interim Department Head, Department of Geosciences  
 □ David J. Stensrud, Department Head, Department of Meteorology  
 □ Cynthia Brewer, Department Head, Department of Geography  
 □ Sanjay Srinivasan, Department Head, Department of Energy & Mineral  
 Engineering  
  
  
  
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## News

News  
  
News  
  
A listing of news, highlights, and accomplishments of EESI associates,  
affiliates, and staff. If you would like to post EESI news and  
accomplishments, please e-mail Bernd J. Haupt at bjhaupt@psu.edu and/or  
Francisco Tutella at francisco@psu.edu.  
  
News, Highlights, and Accomplishments  
  
2019 News  
  
 □ Field camp a rite of passage for undergraduate geosciences majors -  
 December 2019  
 □ Role of universities examined in disaster-preparedness, response and  
 recovery - December 2019  
 □ Research to Action: The Science of Drawdown conference recap - December  
 2019  
 □ Fourteen Penn State faculty recognized with lifetime honor - November  
 2019  
 □ Homeless female veterans: Out of sight, out of mind - November 2019  
 □ Conference explores role of institutions of higher education in extreme  
 weather - November 2019  
 □ Individual climate models may not provide the complete picture -  
 November 2019  
 □ Pennsylvania State Seismic Network sees activity underground - November  
 2019  
 □ Penn State ICS now the Institute for Computational and Data Sciences -  
 November 2019  
 □ EarthTalks: DOE division director to discuss federal science policy,  
 priorities - November 2019  
 □ College of Earth and Mineral Sciences offering military professional  
 portraits - November 2019  
 □ Renowned carbon capture technology expert Klaus Lackner to speak at  
 Penn State - October 2019  
 □ Penn State students, citizen scientists take snapshot of Shaver's Creek  
 - October 2019  
 □ EarthTalks series brings experts to Penn State to discuss  
 decarbonization - October 2019  
 □ Costs of natural disasters are increasing at the high end - October  
 2019  
 □ Model helps choose wind farm locations, predicts output - September  
 2019  
 □ New research details first days after asteroid strike that killed off  
 dinosaurs - September 2019  
 □ Hurricane Dorian devastates Bahamas; scientists explain storm's unique  
 evolution - September 2019  
 □ Climate conference to feature Penn State researchers Sept. 16-18 -  
 September 2019  
 □ Helping Alaskan coastal communities adjust to global warming -  
 September 2019  
 □ AI in action: Seminars to explore artificial intelligence research  
 possibilities - September 2019  
 □ Researchers identify five factors for better coastal risk-management  
 strategies - August 2019  
 □ Nominations now open for Evan Pugh University Professorships - August  
 2019  
 □ Geosciences doctoral student awarded 2019 NSF Graduate Research  
 Fellowship - August 2019

## Resources - EESI Center Directors

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Resources - EESI Center Directors  
  
EESI Center Directors  
  
 □ Richard Alley – Penn State Ice and Climate Exploration Center (PSICE)  
 □ Sridhar Anandakrishnan – Penn State Ice and Climate Exploration Center  
 (PSICE)  
 □ Seth Blumsack, Karen Fisher-Vanden – Initiative for Energy and  
 Environmental Economics and Policy (EEEP)  
 □ Denice Wardrop – Riparia  
 □ Erica Smithwick – Center for Landscape Dynamics (CLD)  
 □ Klaus Keller – Center for Climate Risk Management Initiative (CLIMA)  
 □ Michael E. Mann – Earth System Science Center (ESSC)  
 □ Doug Miller – Center for Environmental Informatics (CEI)  
 □ Tom Murphy, Andrew Nyblade – Marcellus Initiative for Outreach and  
 Research (MCOR)  
  
  
  
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## Resources - Purchasing Card Questions and Answers

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Resources - Purchasing Card Questions and Answers  
  
Purchasing Card Questions and Answers  
  
Q: How will I know if my p-card expenses require a p-card support form or  
will be included as part of my travel expenses?  
  
A: A good way to check is by logging into ERS and reviewing your imported  
expenses. These expenses will normally be included as part of a travel or  
meal reimbursement report and require either a travel reimbursement  
worksheet or a group meal/meeting form.  
  
Q: When I register for a conference or workshop on my p-card, do I need to  
complete a p-card support form for this expense even though it is part of  
my conference expenses? Why is this not part of the travel form that I  
submit after completion of my trip?  
  
A: The expenses are filtered either into the ERS System or into the IBIS  
Financial System, based on the merchant code of the vendor. Normally,  
vendors who coordinate the registrations, have a merchant code that the  
system filters into the IBIS system which requires a p-card support form.  
  
  
  
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## Seminars & Conferences

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This Week  
  
A weekly listing of seminars in the College of Earth and Mineral Sciences.  
If you would like to advertise an event, please e-mail Beth Tamminga at  
bub6@psu.edu.  
  
 □ This Week's seminars  
  
EarthTalks — sponsored by EESI —  
  
EarthTalks LogoEarthTalks is EESI's semester-long interdisciplinary seminar  
series that seeks to engage the University and broader community in  
examination of some of the complex environmental challenges facing our  
world today. For additional information follow "EarthTalks - Objective &  
Archive"  
  
 □ Fall 2017 EarthTalks Series: The Agriculture-Environment-Energy Nexus:  
 Satiating and Stewarding the Planet  
  
Additional Seminars — sponsored by EESI —  
  
 □ 2019 Shaver’s Creek Watershed Snapshot Sampling  
 □ Reactive Transport Modeling Workshop - April 2014  
 □ 16th Annual Environmental Chemistry and Microbiology Student Symposium  
 □ Highlights of Critical Zone Seminars  
 □ 2012 Spring Ecology Seminar Series  
 □ Frontiers in Earth Systems Ecology Annual Seminar  
  
  
  
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## Seminars & Conferences - This Week

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This Week  
  
Seminar Listings: December 16 - 20, 2019  
  
Monday, December 16  
  
no events  
  
  
Tuesday, December 17  
  
no events  
  
  
Wednesday, December 18  
  
Energy and Environmental Economics and Policy Seminar (EEEP): Rational Food  
Waste and Consistent Estimation of Consumer Demand  
Yang Yu, Ph.D. candidate, Agricultural, Environmental and Regional  
Economics, Penn State  
157 Hosler Building @ 12:00 PM  
add to calendar: Google | Yahoo! | Outlook web | iCalendar file (Apple  
Calendar, Outlook desktop)  
  
  
Thursday, December 19  
  
no events  
  
  
Friday, December 20  
  
no events  
  
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If you would like added to the "This Week" listserve, contact Beth Tamminga  
  
A weekly listing of seminars in the College of Earth and Mineral Sciences  
as well as seminars that may be interesting to EMS faculty and students. If  
you would like to advertise a seminar or talk in "This Week", please send  
the speaker's name, title of talk, affiliation, date and time to: Beth  
Tamminga; 2217 EES Building; 814-863-7091: bub6@psu.edu  
  
Persons with disabilities who anticipate needing accommodations or who have  
questions about physical access may contact Beth Tamminga at 814-863-7091  
in advance of the seminar. This publication is available in alternative  
media on request. Penn State is an equal opportunity, affirmative action  
employer, and is committed to providing employment opportunities to all  
qualified applicants without regard to race, color, religion, age, sex,

## Seminars & Conferences - EarthTalks - Objective & Archive

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Seminars & Conferences - EarthTalks - Objective & Archive  
  
EarthTalks - Objective & Archive  
  
EESI’s EarthTalks Seminar Series: Exploring Critical Environmental Issues  
  
  
  
EarthTalks LogoEarthTalks is EESI's semester-long interdisciplinary seminar  
series that seeks to engage the University and broader community in  
examination of some of the complex environmental challenges facing our  
world today.  
  
The weekly talks feature distinguished researchers and practitioners from  
Penn State as well as from other universities, government agencies and  
nonprofit organizations. Seminars are presented to both a live and online  
audience as well as archived with access through the EESI website.  
  
Recent EarthTalks series have been focused on the critical problems of  
climate change, protecting the planet's water resources and the  
environmental, technical, and social challenges presented by the  
development of the Marcellus Shale natural gas resource.  
  
EESI Faculty associates are encouraged to propose seminar topics of  
strategic interest to EESI to the EESI Director. EESI affiliates may also  
propose topics as appropriate. Faculty who propose topics are expected to  
develop the series in collaboration with a committee. The committee should  
include at least one member from an EMS Department other than the  
faculty-proposer and at least one member from a department in another  
college.  
  
EESI provides $5,000 in funding for EarthTalks as well as staff support to  
help with speakers' travel arrangements and campus schedules. Faculty are  
encouraged to leverage this support with funds from other units.  
  
The Dynamics of Deep Decarbonization  
Organizers: Seth Blumsack and Klaus Keller  
Co-Supported by: EESI, PESTL, CLIMA  
  
Achieving truly deep decarbonization is a uniquely difficult problem  
requiring fundamental changes in multiple interconnected systems (energy,  
agriculture, industry). Decisions made with the intent of avoiding the most  
severe climate change climatic impacts happen in the face of deep and  
dynamic uncertainties. Deep decarbonization decisions may also create  
multiple winners and losers and is thus a problem of managing social change  
in addition to technology transition. This EarthTalks series will invite  
prominent researchers to give talks on energy systems transition, negative  
carbon emissions, terrestrial sequestration, decision-making under  
uncertainty, and public policy relevant to deep decarbonization.

## Seminars & Conferences - 2019 Shaver’s Creek Watershed Snapshot Sampling

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Seminars & Conferences - 2019 Shaver’s Creek Watershed Snapshot Sampling  
  
2019 Shaver’s Creek Watershed Snapshot Sampling  
  
  
  
\*\*VOLUNTEERS NEEDED\*\*  
  
  
  
Date and Time: September 28, 2019, 8:00 a.m. – 2:00 p.m.  
Location: Huntingdon County  
Details: Download Flyer [PDF]  
  
2019 Shavers Creek dnapshot day  
  
  
  
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## Seminars & Conferences - Critical Zone Seminar Series Highlights Earth Surface Research

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Seminars & Conferences - Critical Zone Seminar Series Highlights Earth  
Surface Research  
  
Critical Zone Seminar Series Highlights Earth Surface Research  
  
  
  
At Earth's surface, rocks interact with living organisms in the layer known  
as the Critical Zone. To support research on this zone, EESI partners with  
the Department of Crop and Soil Science to bring notable scientists to Penn  
State to share their Critical Zone (CZ) research.  
  
Listed below are the scientists who have presented their research as part  
of the Critical Zone Seminar series. A committee of CZ researchers at Penn  
State chooses at least one annual speaker for this series. Committee  
members include Jason Kaye and Patrick Drohan, both from Crop and Soil  
Sciences, and Jennifer Macalady and Tim White, both from Geosciences.  
  
  
  
 Recent EarthTalk Seminar Series  
  
 Date Speaker Presentation  
  
 Ron Amundson, professor  
April Environmental Science,  
11, Policy, and Management "Hillslopes and Life"  
2012 University of California –  
 Berkley  
  
 Josh Schimel, professor  
Nov. Ecology, Evolution and Marine  
12, Biology "The Biogeochemistry of Drought"  
2010 University of California,  
 Santa Barbara  
  
 Arjun Heimsath, associate  
Nov. professor "Quantifying Soil Production and  
12, School of Earth and Space Transport Across Diverse  
2009 Exploration Landscapes"  
 Arizona State University  
  
Oct. Larry Wilding, professor "Hydropedology in the Critical  
22, Department of Soil and Crop Zone: A Case Study in central  
2007 Sciences, Texas Hill Country"  
 Texas A&M  
  
 Oliver Chadwick, professor  
April Associate Professor of Water "Impact of Time and Climate on  
30, Resources Hawaiian Soils and Polynesian  
2007 Department of Geography Land-Use Decisions"  
 University of California,

## Seminars & Conferences - Fall 2014 EarthTalks: Exploring the Oceans

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Seminars & Conferences - Fall 2014 EarthTalks: Exploring the Oceans  
  
Fall 2014 EarthTalks: Exploring the Oceans  
  
Mondays at 4:00 pm in 112 Walker Building  
  
  
  
Earth Talks: Exploring the Oceans seminar series is being developed to  
engage the Penn State community in marine research. Marine research is a  
highly interdisciplinary field that spans the wide breadth of Penn State's  
departments, colleges, and institutes. This seminar series is sponsored by  
EESI and PSIEE in conjunction with the Center for Marine Science and  
Technology. Typical seminar format will be two 20-min talks each week,  
except in the cases where invited speakers from off-campus will present a  
45-min presentation. The presentation slots are open to all Penn State  
faculty, researchers, and graduate students conducting research in the  
marine environment. Our hope is to schedule 2 different ocean topics within  
each seminar to attract those with diverse interests to listen, learn, and  
network. The seminar will cover topics from coastal to deep water  
environments, ocean technology, and ocean modelling.  
  
 EarthTalk Seminars by date  
  
Date Speaker Presentation  
  
Sept Anthony Lyons  
22 Penn State Acoustic Imaging of breaking internal waves  
 University  
  
 Jen  
 Miksis-Olds  
Sept and Iliana C-MaST overview  
22 Baums  
 Penn State  
 University  
  
Sept Andrew Thurber  
29 Oregon State Ocean Conservation  
 University  
  
Oct John Parkinson  
6 Penn State Coral Symbiosis  
 University  
  
Oct Raymond Najjar  
6 Penn State Impact of nitrogen deposition on coastal waters  
 University  
  
Oct Lee Kump  
13 Penn State Ocean anoxia  
 University

## Seminars & Conferences - Fall 2012 EarthTalks Series: PSU “Talks” on Water

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 ☆ Seminars & Conferences   
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Seminars & Conferences - Fall 2012 EarthTalks Series: PSU "Talks" on Water  
  
Fall 2012 EarthTalks Series: PSU "Talks" on Water  
  
Mondays at 4:00 pm in 112 Walker Building  
  
  
  
 EarthTalk Seminars by date  
  
Date Speaker Presentation  
  
 Patrick Reed "Petascale Design and Management of  
 Associate Professor of Civil & Space-based Water Cycle Observation  
Aug Environmental Engineering Systems: Bridging Earth Science and  
27 College of Engineering, Penn Astrodynamics"  
 State University  
 Mediasite to view video of talk  
  
 Susan L. Brantley  
 Distinguished Professor of "Water Quality in Areas of  
Sept Geosciences and Hydraulically Fractured Shale in  
10 David Yoxtheimer, Extension the Northeastern U.S."  
 Associate, College of Earth  
 and Mineral Sciences, Penn Mediasite to view video of talk  
 State University  
  
 Armen Kemanian  
 Assistant Professor of "One Piece of the Hydrologic Cycle  
Sept Production Systems Puzzle: Modeling Plant Competition  
17 and Modeling for Water"  
 College of Agricultural  
 Sciences, Mediasite to view video of talk  
 Penn State University  
  
 Beth Boyer "Atmospheric Deposition and its  
 Associate Professor of Water Impacts on Water Quality in  
Sept Resources Pennsylvania"  
24 College of Agricultural  
 Sciences, Mediasite to view video of talk  
 Penn State University  
  
 Bryan Swistock "Baseline Water Quality in  
Oct Senior Extension Associate Groundwater Wells Across the  
1 College of Agricultural Marcellus Region of Pennsylvania"  
 Sciences,  
 Penn State University Mediasite to view video of talk  
  
 Ken Davis (Meteo), Soumaya "Roots, Leaves and Radiation;  
 Belmecheri (Meteo), David Satellites, Sap Flux and Isotopes:  
Oct Eissenstat (Ag Sci), Kusum Progress Towards Understanding the  
8 Naithani (Geog) and Yuning Shi Water and Carbon Dynamics of

## Seminars & Conferences - Fall 2015 EarthTalks: The Next Century of Conservation

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Seminars & Conferences - Fall 2015 EarthTalks: The Next Century of  
Conservation  
  
Fall 2015 EarthTalks: The Next Century of Conservation  
  
Mondays at 4:00 pm in 112 Walker Building  
  
  
  
This seminar series is sponsored by the Earth and Environmental Systems  
Insitute and the Center for Landscape Dynamics. The series foreshadows the  
2016 centennial of the National Parks Service and will inspire the audience  
to imagine what energy and environment conservation will look like in the  
next 100 years. Typical seminar format will be one 60-min talks each week.  
  
 EarthTalk Seminars by date  
  
Date Speaker Presentation  
  
Sept Peter Fulé Megafires, Climate, and Future  
14 Northern Arizona University Forests  
  
 Solar Ecology: Transformation of  
Sept Jeffrey Brownson What "Doing Solar" Will Mean for  
21 Penn State University the Next 100 Years (and Everyone  
 is Invited to the Party)  
 PowerPoint  
  
 Penn State Graduate Students: Graduate Showcase: perspective  
 Joe Keller (Ecology), Russell from the recipients of the Center  
Sept Hedberg (Geography), Lacey for Dynamics 2015 Grad Award -  
28 Goldberg (Architecture), Each student will give an 8-10  
 Debasish Saha, and Erynn Maynard minute talk about their research  
 (Ecology) work.  
  
Oct No seminar   
5  
  
Oct Margaret Brittingham Marcellus and Birds  
12 Penn State University  
  
Oct Peter Newman The Importance and Protection of  
19 Penn State University Soundscapes in National Parks  
  
Oct Doug Boucher The Global “Need” for Food in  
26 Union of Concerned Scientists 2050: What the Numbers Mean  
  
 Managing Ecosystem Transitions in  
Nov Craig Allen an Increasingly Dynamic Global  
2 USGS, Colorado Change World -- A Core Challenge  
 for Conservation in the 21st  
 Century

## Seminars & Conferences - Fall 2019 EarthTalks Series: The Dynamics of Deep Decarbonization

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Seminars & Conferences - Fall 2019 EarthTalks Series: The Dynamics of Deep  
Decarbonization  
  
Fall 2019 EarthTalks Series: The Dynamics of Deep Decarbonization  
  
Mondays at 4:00 p.m. in 112 Walker Building  
  
  
  
Achieving truly deep decarbonization is a uniquely difficult problem  
requiring fundamental changes in multiple interconnected systems (energy,  
agriculture, industry). Decisions made with the intent of avoiding the most  
severe climate change climatic impacts happen in the face of deep and  
dynamic uncertainties. Deep decarbonization decisions may also create  
multiple winners and losers and is thus a problem of managing social change  
in addition to technology transition. This Earth Talks series will invite  
prominent researchers to give talks on energy systems transition, negative  
carbon emissions, terrestrial sequestration, decision-making under  
uncertainty, and public policy relevant to deep decarbonization.  
  
 EarthTalk Seminars by date  
  
Date Speaker Presentation  
  
 Lindsay Anderson "How Do We Get There from Here?  
 Kathy Dwyer Marble and Curt The Challenge and Potential for  
Oct. Marble Faculty Director for Low-Carbon Electric Power  
7 Energy, Atkinson Center for Systems"  
 Sustainability Watch the seminar  
 Cornell University  
  
 Jae Edmonds  
 Chief Scientist and Battelle "The Paris Agreement's Article 6:  
Oct. Fellow, Joint Global Change Estimating its potential to  
14 Research Institute increase ambition"  
 Pacific Northwest National  
 Laboratory  
  
 Hari Osofsky  
Oct. Dean, Penn State Law and Penn "The Regulatory Role of Climate  
21 State School of International Change Litigation"  
 Affairs Watch the seminar  
 Penn State  
  
 Klaus Lackner "Direct Air Capture of CO2 and  
Oct. Director, Center for Negative the Emerging Energy Transition"  
28 Carbon Emissions Watch the seminar  
 Arizona State University  
  
 Tom Richard "Deep Re-carbonization:  
Nov. Director, Penn State Institutes Harnessing Photosynthesis for  
4 of Energy and the Environment Negative Emissions"

## Seminars & Conferences - Spring 2013 EarthTalks Series: Penn State Water Seminars

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Seminars & Conferences - Spring 2013 EarthTalks Series: Penn State Water  
Seminars  
  
Spring 2013 EarthTalks Series: Penn State Water Seminars  
  
Fridays at 12:15-1:15 p.m. in 217 Forest Resources Building (\*unless  
otherwise noted)  
Talks will not be web broadcasted but will be archived and available to  
view at a later date via adobe connect.  
  
  
  
 EarthTalk Seminars by date  
  
 Date Speaker Presentation  
  
 Tony Buda "Hydrologic and Water  
Jan 18 U.S. Department of Agriculture Quality Research in the  
 Penn State University Chesapeake Bay Watershed"  
  
 "Integrating Water, Carbon  
 Chaopeng Shen and Nitrogen: Evaluating  
 Assistant Professor, Department the Coupling Strengths and  
Jan 25 of Civil & Environmental Mutual Influences Using a  
 Engineering, Penn State Process-Based  
 University Surface-Subsurface Model"  
   
  
 Seth Blumsack "Electricity Market  
 Assistant Professor, Department Participation, Ecosystem  
Feb 1 of Energy and Mineral Services and Downstream  
 Engineering, Penn State Flow Regime for  
 University Hydroelectric Power Plants"  
   
  
 Chris Duffy "The Terrestrial Water  
Feb 8 Professor, Department of Civil Cycle and Sustainable  
 & Environmental Engineering, Services"  
 Penn State University   
  
 Robert Brooks "Mid-Atlantic Freshwater  
Feb 15 Professor, Department of Wetlands: Using Science to  
 Geography Inform Policy and Practice"  
 Penn State University   
  
 Sybil Seitzinger, Executive  
 Director, International  
 Geosphere Biosphere Program,  
Saturday Stockholm, Sweden  
Feb 23 Richard Alley, Department of Penn State Carbon Earth  
9:00-5:00 Geosciences, Penn State, Jenni Conference"  
101 Thomas Evans, Department of

## Seminars & Conferences - Spring 2017 EarthTalks Series: The Agriculture-Environment-Energy Nexus: Satiating and Stewarding the Planet

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 ☆ Seminars & Conferences   
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Seminars & Conferences - Spring 2017 EarthTalks Series: The  
Agriculture-Environment-Energy Nexus: Satiating and Stewarding the Planet  
  
Spring 2017 EarthTalks Series: The Agriculture-Environment-Energy Nexus:  
Satiating and Stewarding the Planet  
  
Mondays at 4:00 pm in 112 Walker Building  
  
  
  
 EarthTalk Seminars by date  
  
Date Speaker Presentation  
  
 Tom Murphy "U.S. Shale Production -  
Jan Co-Director of Penn State's Implications for Energy and  
23 Marcellus Center for Outreach and Agriculture"  
 Research Mediasite Link  
 Penn State University  
  
 Tess Russo "Groundwater for agriculture:  
Jan Assistant Professor of global challenges, production  
30 Geosciences, Department of capacity, and long-term  
 Geosciences sustainability"  
 Penn State University Mediasite Link  
  
 Seth Blumsack  
Feb Associate Professor of Energy "Easy and Not-so-Easy Pieces  
13 Economics, Department of Energy for Powering the Plant"  
 and Mineral Engineering Penn Mediasite Link  
 State University  
  
 Klaus Keller "Climate Risk Management in the  
Feb Professor of Geosciences, Anthropocene"  
20 Department of Geosciences Mediasite Link not available  
 Penn State University  
  
 Michael Mann  
Feb Distinguished Professor of "Dire Climate Predictions"  
27 Meteorology, Department of Mediasite Link  
 Meteorology  
 Penn State University  
  
Mar Michael Bradshaw "United Kingdom's Shale  
13 Professor of Global Energy Trilemma"  
 University of Warwick Mediasite Link  
  
 David Yoxtheimer "Unconventional Energy Fluids  
Mar Research Assistant, Marcellus Management: Trends for  
20 Center for Outreach and Research Solution"  
 Penn State University Mediasite Link

## Seminars & Conferences - Frontiers in Earth Systems Ecology Annual Seminar

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Seminars & Conferences - Frontiers in Earth Systems Ecology Annual Seminar  
  
Frontiers in Earth Systems Ecology Annual Seminar  
  
  
  
The "Frontiers in Earth Systems Ecology Annual Seminar" reflects EESI's  
commitment to interdisciplinary research and scholarship in this growing  
area.  
  
This seminar brings to Penn State a respected scientist who has made a  
significant contribution to the field of Earth Systems Ecology. The speaker  
is selected and nominated to the EESI Director or Associate Director by a  
committee of EESI associates and affiliates representing the departments of  
Energy and Mineral Engineering, Geography, Geosciences and Meteorology.  
  
The goals of this seminar series are to increase the visibility of Earth  
Systems Ecology in EMS and across campus and to highlight the disciplinary  
and interdisciplinary contributions of nominees.  
  
The speaker will give a seminar in one of the participating department's  
seminar series with departments rotating each year. That department has  
responsibility for hosting the speaker which includes organizing the  
speaker's calendar and identifying individual faculty, graduate students  
and undergraduate students across EMS, and the University to meet with the  
speaker. The speaker also may participate in classes across departments.  
  
  
  
"Frontiers" Committee  
Seth Blumsack, Energy and Mineral Engineering; José Fuentes, Meteorology;  
Erica Smithwick, Geography; Jim Kasting, Geosciences.  
  
  
  
 "Frontiers" Seminars by date  
  
 Date Speaker Presentation  
  
 Jonathan Foley,  
Friday, director "Solutions for a Cultivated Planet: How  
April Institute on the can we find ways to feed a growing,  
6, 2012 Environment changing world, while sustaining the  
 University of global environment"  
 Minnesota  
  
 Dr. Russell Monson,  
 professor  
2010/ School of Natural n/a  
2011 Resources and the  
 Environment  
 University of Arizona

## Seminars & Conferences - Reactive Transport Modeling Workshop

In This Section  
  
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Seminars & Conferences - Reactive Transport Modeling Workshop  
  
Reactive Transport Modeling Workshop  
  
NSF workshop: Expanding the role of Reactive Transport Modeling (RTM)  
within the Biogeochemical Sciences  
  
  
  
Dates and Location: April 13 – 15, 2014  
Embassy Suites Alexandria Hotel, 1900 Diagonal Road, Alexandria, VA 22314  
  
The workshop will bring together biogeochemists and reactive transport  
modelers to identify key interfaces between reactive transport modeling  
approaches and biogeochemical data collection and analysis. The specific  
goals of the workshop are to (1) identify the frontiers of reactive  
transport in the biogeochemical sciences, and (2) determine what  
educational and infrastructure development is required to achieve these  
goals.  
  
Contents:  
  
 □ Motivation  
 □ Workshop agenda  
 □ One page white paper  
 □ Contacts and organizers  
 □ Workshop Logistics, Travel and Reimbursement  
 □ RTM Survey  
  
We designed a survey to collect feedback from the community about the  
educational and development needs in the area of Reactive Transport  
Modeling for biogeochemical studies. It is a short survey and should take 5  
– 10 minutes to finish. Here is the link to the survey: http://  
kwiksurveys.com/s.asp?sid=tcxmlwthiqxop6t322104  
  
Motivation:  
  
The formation, operation, and evolution of Earth systems are complex due to  
the coupling of physical, chemical, and biological processes in the  
subsurface. Such coupling plays a pivotal role in the conversion of rock to  
soil, release of nutrients from minerals for ecosystem vitality, and  
cycling of biogeochemically important elements and contaminants. Data  
collection and analysis coupled with field observation have provided  
significant insights into the factors that determine the evolution of the  
critical zone. Mechanistic understanding and prediction of the intimately  
coupled processes, however, often requires advanced modeling tools that can  
integrate large and diverse data sets to quantify the effects of individual  
processes, while at the same time provide a window into the coupled  
processes that may control the overall system behavior.  
  
Reactive Transport Modeling (RTM) has been used at various research fronts  
for approximately three decades. It has been used to understand complex

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## Seminars & Conferences - Fall 2010 EarthTalks Series: “Embracing Change: Resilience and Adaptation in Turbulent Times”

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Seminars & Conferences - Fall 2010 EarthTalks Series: "Embracing Change:  
Resilience and Adaptation in Turbulent Times"  
  
Fall 2010 EarthTalks Series: "Embracing Change: Resilience and Adaptation  
in Turbulent Times"  
  
Mondays at 4:00 pm in 112 Walker Building  
  
  
  
"Embracing Change: Resilience and Adaptation in Turbulent Times" is the  
theme for the 2010 EarthTalks seminar series with scientists, policy makers  
and practitioners from across the nation and abroad joining Penn State  
faculty in discussions on visions for a more sustainable and equitable  
future.  
  
The 13-week series takes as a starting point that human activities are  
impacting ecosystems and climate in unprecedented ways and threatening the  
various resource bases that sustain both human and ecological well being.  
  
But rather than give in to doomsday scenarios, the speakers will argue for  
a different approach - resilience or the capacity to regenerate and revive  
after major changes or shocks have occurred.  
  
"Resilience is the concept that we are better off preparing for and  
adapting to an uncertain future now rather than learning by shock," said  
Petra Tschakert, EESI associate and series organizer.  
  
"While acknowledging that challenges, surprises and even chaos may lurk  
around the corner, resilience calls for embracing and working with change  
rather than trying to control it."  
  
Tschakert will lead off the series at 4 p.m. on Monday, August 30, in a  
talk titled "Participatory Learning for Climate Change Adaptation and  
Resilience." Free and open to the public, all talks will be in 112 Walker  
Building.  
  
Other speakers include Susanne Moser (Sept. 13), who has served as a staff  
scientist for climate change at the Union of Concerned Scientists and who  
is a review editor on the IPCC's Special Report on "Managing the Risks of  
Extreme Events and Disasters to Advance Climate Change Adaptation"; Lance  
Gunderson (Oct. 11), founding chair of the Department of Environmental  
Studies at Emory University and former executive director of the Resilience  
Network; and Byron "Ken" Williams (Oct. 18), chief of the Cooperative  
Research Units, U.S. Geological Survey, and lead author of the Department  
of Interior Adaptive Management Technical Guide.  
  
The 2010 EarthTalks series is sponsored by the Earth and Environmental  
Systems Institute (EESI), the College of Earth and Mineral Sciences, the  
John A. Dutton e-Education Institute, the Department of Geography and the  
Penn State Institutes of Energy and the Environment (PSIEE).

## Seminars & Conferences - Fall 2009 EarthTalks Series: "Landscape Change, Climate Change, and Organisms: Ancient to the Future\*"

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Climate Change, and Organisms: Ancient to the Future\*"  
  
Fall 2009 EarthTalks Series: "Landscape Change, Climate Change, and  
Organisms: Ancient to the Future\*"  
  
Mondays at 4:00 pm in 112 Walker Building  
  
  
  
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of Energy and the Environment, the Environment and Natural Resources  
Institute, the EMS Energy Institute, and the College of Agricultural  
Sciences - All talks are open to the public and are scheduled for 4:00 p.m.  
on Mondays in 112 Walker Building  
  
 EarthTalk Seminars by date  
  
 Date Speaker Presentation  
  
 Rudy Slingerland "Landscape Evolution at Geologic Time  
Aug 31 Department of Scales"  
 Geosciences, Penn  
 State University Mediasite to view video of talk  
  
 William A. DiMichele "Variable Effects of Global Warming on  
 Department of Vegetation of the Pennsylvanian  
Sept 14 Paleobiology, 'Coal-Age' Tropics"  
 Smithsonian  
 Institution Mediasite to view video of talk  
  
Tuesday, "Time Travel with a Shovel: How to Use  
Sept 22 Kirk R. Johnson Fossils and Geology to Reconstruct  
4:00 pm Vice President, Denver Ancient Ecosystems"  
in Museum of Nature &  
22 Deike Science Mediasite to view video of talk  
Bldg  
  
 "The Evolution of Monkeys and Apes in  
 Nina G. Jablonski Relation to the Changing Landscapes and  
Sept 28 Head of Department of Environments of the Late Tertiary and  
 Anthropology, Penn Quaternary"  
 State  
 Mediasite to view video of talk  
  
 Bonnie F. Jacobs  
 Chair, Environmental Cancelled  
Oct 5 Science Program, "Cenozoic Evolution of African  
 Southern Methodist Landscapes"  
 University

## Seminars & Conferences - Fall 2008 EarthTalks Series: “Quenching the Thirst: Managing the Water Resources of a Changing Planet”

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Seminars & Conferences - Fall 2008 EarthTalks Series: "Quenching the  
Thirst: Managing the Water Resources of a Changing Planet"  
  
Fall 2008 EarthTalks Series: "Quenching the Thirst: Managing the Water  
Resources of a Changing Planet"  
  
Mondays at 4:00 pm in 112 Walker Building  
  
  
  
EarthTalks Spring 2009 Marcellus Shale Play: Boon or Burden  
  
- a lecture series sponsored by the Earth & Environmental Systems  
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Institute, the EMS Energy Institute, and the College of Agricultural  
Sciences - All talks are open to the public and are scheduled for 4:00 p.m.  
on Mondays in 112 Walker Building  
  
  
  
 EarthTalk Seminars by date  
  
Date Speaker Presentation  
  
 Michael Gooseff "One of These Things is Not Like  
Sept Hartz Family Career Development the Other: Stream Restoration and  
15 Professor, Department of Civil Stream Ecosystem Restoration"  
 Engineering, Penn State  
 University Mediasite to view video of talk  
  
 Upmanu Lall "Global Water Crisis? Prospects,  
 Alan & Carol Silberstein Directions and Science Needs for  
Sept Professor of Engineering, Sustainability"  
22 Department of Earth &  
 Environmental Engineering, Mediasite to view video of talk  
 Columbia University  
  
 Pat Mulholland "Streams as Nitrogen Filters in  
Sept Aquatic Ecologist in the the Landscape"  
29 Environmental Sciences Division,  
 Oak Ridge National Laboratory Mediasite to view video of talk  
  
 "Politics, Markets, and Engineers  
 Martin Doyle in Destroying and Restoring the  
Oct Department of Geography and the American River: From George  
6 Institute for the Environment, Washington to George Bush"  
 University of North Carolina  
 Mediasite to view video of talk  
  
 "Climate Change in the West: It's  
 All About Water"

## Seminars & Conferences - Fall 2007 EarthTalks Series: “Climate Change”

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Seminars & Conferences - Fall 2007 EarthTalks Series: "Climate Change"  
  
Fall 2008 EarthTalks Series: "Quenching the Thirst: Managing the Water  
Resources of a Changing Planet"  
  
Mondays at 4:00 pm in 112 Walker Building  
  
  
  
- a lecture series sponsored by the Earth & Environmental Systems  
Institute, College of Earth & Mineral Sciences, the Penn State Institutes  
of Energy and the Environment, the Environment and Natural Resources  
Institute, the EMS Energy Institute, and the College of Agricultural  
Sciences - All talks are open to the public and are scheduled for 4:00 p.m.  
on Mondays in 112 Walker Building  
  
  
  
 EarthTalk Seminars by date  
  
 Nancy Tuana  
 Director of the Rock Ethics  
Sept Institute, Professor of Philosophy "Ethical Dimensions of  
10 Geoengineering"  
 Klaus Keller  
 Assistant Professor of Geosciences,  
 Penn State University  
  
Sept Michael Mann "The Science of Climate  
17 Associate Professor of Meteorology, Change"  
 Penn State University  
  
Sept Steve Maruszewski "Penn State's Carbon  
24 Deputy Associate Vice President for Footprint"  
 Physical Plant  
  
Oct Fan Zhang "Taxation vs. regulation as  
1 Assistant Professor of Energy Policy a CO2 control policy"  
 and Economics, Penn State University  
  
Oct Klaus Lackner  
8 Professor of Geophysics, Columbia "CO2 Sequestration"  
 University  
  
Oct Carl Hess/Mark Whitfield "Local Government Approaches  
15 State College Borough Govt. to Reducing Greenhouse Gas  
 Emissions"  
  
 Klaus Keller  
 Assistant. Professor of Geosciences,  
 Penn State University

## Seminars & Conferences - Spring 2012 EarthTalks Series: “Electronic Media and Environmental Science: e-Education to e-Data”

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 ○ Additional Seminars  
  
Seminars & Conferences - Spring 2012 EarthTalks Series: "Electronic Media  
and Environmental Science: e-Education to e-Data"  
  
Spring 2012 EarthTalks Series: "Electronic Media and Environmental Science:  
e-Education to e-Data"  
  
Mondays at 4:00 pm in 112 Walker Building  
  
  
  
Electronic media are changing the way we use and find data to understand  
the environment. At the same time, the fraction of U.S. undergraduates that  
took at least one online course between 2000 and 2008 increased from 8-20%.  
Growth in electronic media are thus changing our lives as environmental  
scientists and educators and how we communicate with citizens outside the  
university. This EarthTalks colloquium series will present a slate of  
speakers who will address various aspects of how electronic media is  
changing how we teach and learn and explore the environment, and how this  
media is changing the research university. Speakers will span from local to  
global thinkers on the topic.  
  
 EarthTalk Seminars by date  
  
 Date Speaker Presentation  
  
 Susan L. Brantley "Electronic Media and  
 Director, Earth & Environmental Science: A  
 Environmental Systems Discussion about e-Education to  
Jan 9 Institute, Penn State e-Data"  
 University  
 Mediasite to view video of talk  
 Abstract, Presentation  
  
 Ann Taylor "e-Education for Geographers,  
 Acting Director, Dutton Geoscientists and  
Jan 16 e-Education Institute, Penn Meteorologists"  
 State University  
 Mediasite to view video of talk  
  
 "The Hockey Stick and the  
 Michael Mann Climate Wars: Dispatches from  
Jan 23 Professor of Meteorology, Penn the Front Lines"  
 State  
 Mediasite to view video of talk  
  
 Richard Alley "Communicating Real Science in a  
Jan 30 Evan Pugh Professor of Sound-Bite World"  
 Geosciences  
 Mediasite to view video of talk  
  
 "Emergent e-Education: New  
 Jeffrey Brownson Strategies for Research and

## Seminars & Conferences - Spring 2011 EarthTalks Series: “Managing Resources for Climate Change”

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Seminars & Conferences - Spring 2011 EarthTalks Series: "Managing Resources  
for Climate Change"  
  
Spring 2011 EarthTalks Series: "Managing Resources for Climate Change"  
  
Mondays at 4:00 pm in 112 Walker Building  
  
  
  
Planning how best to manage resources that will be affected by climate  
change is the topic of the Earth & Environmental Systems Institute's (EESI)  
spring EarthTalks seminar. Speakers from government agencies and nonprofit  
organizations are among those who will be addressing "Where Climate Science  
Meets the Road: Managing Resources for Climate Change."  
  
The speakers include:  
  
 □ Nels Johnson, Deputy State Director for The Nature Conservancy, on  
 Monday, Feb. 28  
 □ Chris Pyke, Vice President of Research, U.S. Green Building Council;  
 and Vice Chair, Chesapeake Bay program's Scientific and Technical  
 Advisory Committee, on Monday, March 28;  
 □ Daniel Vimont, Assistant Professor, Atmospheric and Oceanic Sciences,  
 Center for Climatic Research, University of Wisconsin, on Monday, April  
 4;  
 □ Matt Larsen, Associate Director, Climate and Land Use Change, U.S.  
 Geological Survey, on Monday, April 25.  
  
All talks will be held at 4 p.m., 112 Walker Building.  
  
In his talk, Johnson will focus on key findings of the recently completed  
Pennsylvania Climate Change Adaptation Planning Report that identifies the  
most important risks that climate change poses for the state's  
infrastructure, public health, natural resources and recreation and tourism  
industries. The report also indicates steps that can be taken now to reduce  
those impacts.  
  
"We provide current and relevant climate adaptation information to  
stakeholders including legislators, policy makers, government agencies and  
the public," said Johnson, who served as co-chair for the natural resources  
working group that prepared the report.  
  
Johnson also will highlight work by The Nature Conservancy to identify  
resilient landscapes and connectivity area in the central Appalachians.  
  
  
  
Co-sponsored by the Earth & Environmental Systems Institute and Penn State  
Institutes of Energy and the Environment

## Seminars & Conferences - Spring 2009 EarthTalks Series: “Marcellus Shale Play: Boon or Burden”

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Play: Boon or Burden"  
  
Spring 2009 EarthTalks Series: "Marcellus Shale Play: Boon or Burden"  
  
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Institute, the EMS Energy Institute, and the College of Agricultural  
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on Mondays in 112 Walker Building  
  
Additional information on the Marcellus Shale  
  
  
  
 EarthTalk Seminars by date  
  
Date Speaker Presentation  
  
 Terry Engelder "Geology and Resource Assessment  
Jan Professor, Department of of the Marcellus Shale"  
26 Geosciences, Penn State  
 University Mediasite to view video of talk  
  
 "Accommodating a New Straw in  
 Tom Beauduy the Water: Development of the  
Feb Deputy director, Susquehanna Marcellus Shale Formation in the  
2 River Basin Commission Susquehanna River Basin"  
  
 Mediasite to view video of talk  
  
 Timothy Kelsey "Community and Economic  
 State Program Leader, Economic Implications of Marcellus Shale  
Feb and Community Development Development"  
16 Professor of Agricultural  
 Economics, Penn State Cooperative Mediasite to view video of talk  
 Extension, Penn State  
  
 Bryan Swistock "Water Quality Impacts From  
Feb Water Resources Extension Natural Gas Drilling"  
23 Associate, School of Forest  
 Resources, Penn State University Mediasite to view video of talk  
  
 "Navigating Regulatory and  
Mar Ryan Dahl, Rachel Allen Financial Hurdles in the

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## Research - EESI Environmental Scholars

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 ○ Energy-Related Research  
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Research - EESI Environmental Scholars  
  
EESI Centers and Initiatives  
  
EESI Environmental Scholars  
  
In spring 2015, we initiated a revamped EESI Environmental Scholars program  
in the interest of forming connections between departments (and between  
research groups), increasing student diversity, and improving our  
recruiting efforts. The current EESI selection committee is comprised of  
Sridhar Anandakrishnan, professor of geosciences, Chris Forest, associate  
professor of meteorology, and Alan Taylor, professor of geography. Dr.  
Taylor is the current chair of the Committee. The Committee is charged with  
the following:  
  
 □ Choosing a set of four Scholars competitively among the incoming and  
 accepted graduate student applicants in the EESI-affiliated  
 departments, and from EESI Associates initially (all PhD students)  
 □ Sending out a call for nominations to EESI associates, and they will  
 nominate a student (one who has been made an offer).  
 □ The chair will make a ranked list based on the faculty members' summary  
 of their qualifications, and the other committee members will advise.  
  
These Scholars will be part of a cohort of an ongoing recruitment tool that  
will eventually lead to a large enough group to have cohesion and impact.  
The scholars will be offered a $2K top-up in the first year. There will be  
few requirements if they do accept, though we will look for positive  
inducements (dinner, retreats, a cross-disciplinary seminar/lunch)  
  
The Committee Chair will send out an announcement early each spring to EESI  
Associates asking for nominations.  
  
2019-2020 EESI Environmental Scholar Recipients  
  
Susan Kotikot (photo)Susan Kotikot  
Graduate Student  
Department of Geography  
  
Ian Lee (photo)Ian Lee  
Graduate Student  
Department of Geosciences  
   
   
  
Esther Munoz (photo)Esther Munoz  
Graduate Student  
Department of Geosciences

## People - Eye on EESI Research - Francisco Tutella

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 ○ Center/Initiative Directors  
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People - Eye on EESI Research - Francisco Tutella  
  
Eye on EESI Research  
  
Francisco Tutella (photo)Francisco Tutella  
  
January 2019  
  
As Earth and Environmental Systems Institute scientists engage in research  
to understand, predict and find solutions for the most compelling  
environmental issues of our time, Francisco Tutella draws on his experience  
as a writer and former educator to help them communicate their findings.  
  
As the Institute's public relations specialist, Tutellawrites compelling  
stories about the diverse topics studied by EESI researchers. Topics  
include climate change and prediction, greenhouse gas emissions, the impact  
of natural gas development on watersheds in the Marcellus Shale region, the  
use of the internet and social media to predict and respond to natural  
disasters, ice sheets and sea level change, environmental economics,  
critical zone science and climate risk management.  
  
"I have always been interested in science. Also, I like the challenge that  
science writing poses, of taking a complex topic and making it accessible  
to all readers," Tutella says. "Here at EESI I have the opportunity to  
learn more by interviewing the scientists about their groundbreaking  
research, and I have the pleasure of communicating their important findings  
to audiences across Pennsylvania, the nation and the world."  
  
In his spare time, Tutella likes to hike, kayak and read. He can spend  
hours in coffee shops and bookstores. He also writes fiction and poetry and  
dabbles in Italian translation.  
  
Prior to joining EESI in spring 2019, Tutella taught academic writing,  
literature, Italian and English as a second language in northeast  
Pennsylvania. He also worked as a freelance writer for Wilkes University,  
where he earned an MFA in creative writing and honed his science writing  
skills as a graduate assistant in the marketing and communications  
department.  
  
  
  
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## People - Eye on EESI Research - Guido Cervone

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People - Eye on EESI Research - Guido Cervone  
  
Eye on EESI Research  
  
Guido Cervone (photo)Guido Cervone  
  
May 2018  
  
A flood of data is available at our fingertips thanks to things like social  
media and the internet. This data can be helpful in predicting and  
responding to natural disasters, but finding the right information in the  
deluge can be time consuming and difficult.  
  
That's where new EESI associate Guido Cervone and his Geoinformatics and  
Earth Observation laboratory (GEOlab) come in to play.  
  
Cervone, associate professor of geoinformatics and associate director of  
the Institute for CyberScience, and his lab work to develop algorithms that  
can quickly analyze large amounts of data and incorporate useful  
information from social media feeds.  
  
The group is working to help flood prediction and response, to better  
understand short and long-term climate predictions for agriculture and  
energy forecasting and to collect data after environmental disasters like  
the 2011 Fukuskinma nuclear accident.  
  
"Our research is improving society's ability to forecast and respond to a  
range of research areas, including flooding and other natural disasters, as  
well as segments of the energy market, including solar and wind energy  
prediction," Cervone told Penn State news. "Our methodologies could  
ultimately have a big impact in both disaster response and our transition  
to renewable energies."  
  
In addition to his appointments in EESI and Geography and Meteorology and  
Atmospheric Sciences, Cervone is co-chair for the Research Computing  
CyberInfrastructure Executive Committee (RCCI) under the office of the Vice  
President for Research.  
  
He also holds the appointments of Affiliate Scientist at the National  
Center for Atmospheric Research (NCAR) and Adjunct Faculty at the  
Lamont-Doherty Earth Observatory (LDEO), Columbia University. He serves as  
program co-chair for the Natural Hazards focus group of the American  
Geophysical Union (AGU) and Chair for the Education and Outreach advisory  
board of NCAR. In 2013, he received the 'Medaglia di Rappresentanza' from  
the office of the President of the Republic of Italy.  
  
Cervone received his B.D. and M.S. in computer science and his Ph.D. in

## People - Eye on EESI Research - Sarah Ivory

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 ○ EESI Affiliates  
 ○ Center/Initiative Directors  
 ○ Eye on EESI Research  
  
People - Eye on EESI Research - Sarah Ivory  
  
Eye on EESI Research  
  
Sarah Ivory (photo)Sarah Ivory  
  
August 2018  
  
When Sarah Ivory says she's found a goldmine, it's probably not what you'd  
expect. The paeloecologist and new Penn State professor of Geosciences  
finds treasure in a most unusual place – well-preserved piles of ancient  
animal droppings.  
  
Ivory's research involves the study of past ecosystem changes, and  
fossilized urine despots, also called middens, can provide valuable clues  
about ancient vegetation.  
  
"We name all the sites we find," Ivory said. "One was called the hyrax  
goldmine."  
  
Hyrax are small mammals that look like rodents, but are actually most  
closely related to elephants and manatees. Their habit of using the same  
spot to do their business over many generations can provide important clues  
about the past.  
  
Ivory is searching for preserved pollen samples that can tell a story about  
vegetation and climate thousands of years ago. That information can better  
inform future conservation strategies.  
  
This fall, Ivory will travel to Oman to conduct additional research.  
  
"We are going to be hiking through the desert, climbing cliffs and looking  
for fossilized urinary deposits," she said.  
  
Ivory recently joined Penn State as an assistant professor in the  
Department of Geosciences. She is also an associate in the Earth and  
Environmental Systems Institute.  
  
She received her Ph.D. from the University of Arizona and worked there as a  
postdoctoral researcher and as a postdoctoral fellow at Brown University  
before coming to Penn State.  
  
"I'm very excited about coming to Penn State, because they seem to have a  
very strong promotion of and support for interdisciplinary research," she  
said. "I'm really looking forward to being in an environment where that's  
really valued.

## People - Eye on EESI Research - Michele “Shelly” McCall

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People - Eye on EESI Research - Michele "Shelly" McCall  
  
Eye on EESI Research  
  
Michele "Shelly" McCall (photo)Michele "Shelly" McCall  
  
February 2018  
  
Michele "Shelly" McCall hopes she's made the last few months a little  
easier for the people of the Earth and Environmental Systems Institute.  
  
"I'm a problem solver," she said. "I like solving problems, helping people  
and making their lives a little easier."  
  
Shelly was hired in June to be an administrative support assistant for  
EESI. She's done a little bit of everything since – planning events and  
coordinating calendars, providing office support to EESI centers, even  
acting as the unofficial face of the institute, greeting those who come  
through the doors in need of assistance.  
  
Now Shelly will be filling the institute's vacant financial coordinator  
position, where she will handle a range a financial responsibilities to  
help keep EESI running smoothly.  
  
She previously worked in administrative support at the Facilities  
Engineering Institute at the College of Engineering, a position she says  
prepared her for her next chapter.  
  
"She came to us with much of the basic financial knowledge and the  
experience needed in this new position," Tracy Bernier, EESI administrative  
support coordinator, said in announcing Shelly's new position. "We are  
excited that she wants to accept this new, challenging opportunity."  
  
Shelly said she is happy to stay in EESI and take on new challenges within  
the institute.  
  
"It's been interesting to see the environmental side of it," she said of  
her experiences in EESI. "That's what's been different for me."  
  
Recently married, Shelly lives with her husband and children in a home  
outside Centre Hall. Between them, the couple have five children, including  
three currently enrolled within the Penn State system.  
  
  
  
Events & Opportunities

## People - Eye on EESI Research - Sierra Melton

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People - Eye on EESI Research - Sierra Melton  
  
Eye on EESI Research  
  
Sierra Melton (photo)Sierra Melton  
  
October 2018  
  
Sierra Melton dreams of being on ice. The Penn State graduate student  
studies glaciers and hopes to travel to Antarctica one day to see her  
subjects first hand.  
  
Her journey brought her to Penn State, where she is a first-year graduate  
student studying glaciology with her advisors Richard Alley and Sridhar  
Anandakrishnan.  
  
"I've known for a long time I wanted to do some sort of science," Melton  
said. "I feel geoscience is a really good combination of what I love and  
something that's very meaningful to society."  
  
Melton has been selected as one of the 2018-19 Earth and Environmental  
Systems Institute Environmental Scholars.  
  
The scholarships are offered annually to graduate students to form  
connections between departments in the College of Earth and Mineral  
Sciences, and to increase student diversity.  
  
Melton received her undergraduate degree at Colorado College in geology.  
She has a diverse background in geosciences thanks to a pair of summer  
undergraduate research experiences.  
  
She worked at the University of Texas Marine Science Institute studying  
nitrogen cycling in tidally influenced rivers and estuaries. At North  
Carolina State University, she worked with remote sensing equipment to  
study soil erosion at active construction sites.  
  
Along the way, Melton became interested in glaciology. The idea of studying  
a problem straight from the headlines – climate change and sea-level rise –  
appealed to her.  
  
"I decided that I wanted to focus on issues that are happening right now,"  
she said. "I also really decided that I would rather focus on the physics  
side and problems that can be looked at with remote sensing,"  
  
Melton learned more about glaciology while studying abroad in Copenhagen,  
and her instructors there discussed research opportunities back in the  
United States.

## People - Eye on EESI Research - Odette Mina

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People - Eye on EESI Research - Odette Mina  
  
Eye on EESI Research  
  
Odette Mina (photo)Odette Mina  
  
July 2017  
  
Odette Mina works quickly. It's a skill she honed through a career working  
for engineering consulting firms.  
  
Now she is bringing that work ethic to her new job, as managing director of  
the Energy and Environmental Sustainability Laboratories (EESL) at Penn  
State.  
  
"I'm pretty excited with how much we've been able to accomplish in just  
five months," said Mina, who joined EESL in February, becoming its first  
managing director.  
  
Mina has hit the ground running. In her first few months, she has helped  
set rates for the use of all EESL equipment and has pushed forward on a new  
website and other marketing materials to help raise the facility's profile.  
  
Funded by Penn State Institute of Energy and the Environment, EESL is a  
collection of high-tech laboratories located across campus. The goal is to  
give researchers shared access to equipment they may need to conduct their  
research, but might not have funding to purchase on their own.  
  
"We are a multi-user facility, open to all users across Penn State, other  
academic institutions and industry partners," she said. "We really provide  
state-of-the-art instruments they wouldn't necessarily have the ability to  
access if we didn't have these facilities available to them."  
  
EESL's impressive list of equipment includes instrumentation that can  
reveal the ages of ancient materials through high-precision carbon dating  
and that offer high-resolution 3-D imaging of objects, among many others.  
  
Managing all these labs may seem like a big job, but it's one Mina was  
ready for.  
  
"I managed laboratory services for commercial labs for many years, and then  
I managed environmental health and safety consulting services for many more  
years, she said. "So I have pretty strong experience in the business aspect  
of managing science and engineering, with a focus on laboratories."  
  
Mina had previously worked for about 30 years for engineering consulting  
firms. While she has a science background, receiving her bachelor's degree

## People - Eye on EESI Research - Stacey Olsen, Gabriella Rossetto and Perri Silverhart

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People - Eye on EESI Research - Stacey Olsen, Gabriella Rossetto and Perri  
Silverhart  
  
Eye on EESI Research  
  
Stacey Olson (photo)Stacey Olson  
  
October 2017  
  
Their research focuses on a Native America tribal nation's forested home in  
Wisconsin, or on leaf fossils found in remote Patagonia, or perhaps even  
right in Penn State's backyard. But they have at least one thing in common  
– they are the 2017-18 Earth and Environmental Scholars.  
  
Stacey Olsen (Geography), Gabriella Rossetto (Geosciences) and Perri  
Silverhart (Geosciences) have been selected as this year's scholars. The  
scholarships are offered annually to graduate students to form connections  
between department in the College of Earth and Mineral Sciences, and to  
increase student diversity.  
  
Gabriella Rossetto (photo)And diverse is a good way to describe their  
research.  
  
Stacey Olsen is studying the impact that invasive species like the Emerald  
Ash Borer could have on the forests maintained by the Menominee people – a  
Native America tribal national in Wisconsin.  
  
Her work is part of a National Science Foundation funded project to study  
cultural and economic challenges climate change will play on the  
reservation, and how it could inform decision-making about forest  
management.  
  
"I was drawn to the project for its interdisciplinary nature, and because  
it also incorporates indigenous knowledge and values systems," Olsen said.  
  
Olsen uses ecological modeling software that can predict impacts of  
biological disturbances on the forest and analyze them against other  
factors, like a changing climate.  
  
Perri Silverhart (photo)Gabriella Rossetto's work finds her in far-away  
South America. She is studying the monkey puzzle tree, an endangered type  
of evergreen described as a "living fossil" due to the longevity of the  
species.  
  
"The ones that live in South America are very different than the fossil  
record in South America," she said.

## People - Eye on EESI Research - Julie Cosmidis

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People - Eye on EESI Research - Julie Cosmidis  
  
Eye on EESI Research  
  
Julie Cosmidis (photo)Julie Cosmidis  
  
March 2019  
  
From solving a food crisis to changing how scientists understand the fossil  
record of early life on Earth, Julie Cosmidis sees big solutions under the  
microscope.  
  
Assistant professor of geosciences and principal investigator of The  
Biomineral Factory at Penn State, Cosmidis studies the processes by which  
bacteria form minerals, called biomineralization, and how scientists use  
these processes to identify the presence of life in the rock record. She  
also studies organomineralization, the role of organic materials in mineral  
formation.  
  
"These processes are important as they control the mobility and  
bio-availability of different elements in geochemical cycles," said  
Cosmidis. Her lab work focuses on the minerals phosphate, elemental sulphur  
and calcium carbonate.  
  
Phosphate is an important ingredient in fertilizer and can increase crop  
yields by 50 percent. Scientists expect that mining activity will deplete  
all natural phosphate reserves in the coming decades. Cosmidis thinks the  
bacteria responsible for kidney stones may hold the answer to this problem.  
  
Some types of kidney stones form when E. coli in the body turns urine into  
phosphate minerals.  
  
"All the phosphates that a human expels through urination equals the amount  
of the minerals we are mining from rocks that will soon be depleted,"  
Cosmidis said.  
  
She recreates the process in her lab using synthetic urine. Cosmidis wants  
to find a sustainable method for collecting phosphates from urine and then  
optimize the process so scientists can use waste to create fertilizer.  
  
Cosmidis also studies elemental sulfur and its role as a biosignature. A  
biosignature is a physical clue that suggests the presence of life.  
Elemental sulfur forms when bacteria interact with sulfides. Under a  
microscope the bacteria have a slender, threadlike shape. Scientists  
looking at fossilized records view this as proof of life in the past. This  
may not be the case, according to Cosmidis.

## People - Eye on EESI Research - Jenni Evans

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People - Eye on EESI Research - Jenni Evans  
  
Eye on EESI Research  
  
Jenni Evans (photo)Jenni Evans  
  
May 2019  
  
When Jenni Evans mentions ensembles, she's not talking about music but  
tropical cyclones. Evans, professor of meteorology and director of the  
Institute for CyberScience at Penn State, takes an extensive approach to  
studying cyclones that begin in the tropics and then undergo structural  
changes as they move into the mid-latitudes.  
  
"We use really cool machine learning techniques to understand how to take  
150 forecasts of one storm at one time and to understand physically what  
those forecasts mean," Evans said. "We look at the U.S., Canadian, European  
and U.K. models. At the moment we don't use the Japanese or Australian  
models, but that's because we haven't gotten there yet."  
  
Meteorologists call the collection of forecasts an ensemble and use it to  
identify the range of possibility for a storm. For instance, if the models  
predict that a storm will go into the Gulf of Mexico and the ensemble says  
that the storm will not travel farther north than Georgia, then individuals  
are pretty safe in North Carolina and almost certainly safe in  
Massachusetts, Evans explained. She wants to use the ensemble data to  
improve storm forecasts.  
  
Evans is also working with Mark Ballora, professor of music technology, and  
researcher Alex Kowaleski to sonify hurricanes. Sonification involves  
mapping numbers to sounds, Evans said. She works with Ballora to assign  
different sounds to key components of hurricanes, such as wind speed, water  
temperature, symmetry, and latitude. For instance, they use a "whoop whoop  
whoop" to indicate the fastest windspeeds, and the whoops get faster as the  
winds speed up; they also use a "duh duh duh" sound to indicate latitude,  
and the sound gets deeper as the storm moves out of the tropics and passes  
over the cooler water of the higher latitudes. Building on this research,  
Evans is currently working with colleagues in Australia to apply  
sonification to climate change.  
  
Furthermore, Evans is working with faculty partners in the Department of  
Meteorology, former postdoctoral scholar Holly Hamilton, and PhD candidate  
Kelly Nuñez Ocasio to understand how African easterly waves form. African  
easterly waves are areas of relatively low atmospheric pressure that form  
over Africa when hot air from the Sahara Desert meets the cooler, more  
humid air from the tropical monsoon.

## People - Eye on EESI Research - Caitlin Teti

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People - Eye on EESI Research - Caitlin Teti  
  
Eye on EESI Research  
  
Caitlin Teti (photo)Caitlin Teti  
  
August 2019  
  
Caitlin Teti has a blast when it comes to space exploration. And as the new  
education program coordinator for the NASA Pennsylvania Space Grant  
Consortium, or Space Grant, she gets to share her enthusiasm with other  
science and space fans.  
  
"When you hear people talk about NASA, it's always this really cool subject  
and their eyes light up," said Teti, who graduated in 2017 with a  
bachelor's degree in Earth science and policy from Penn State. "To help  
facilitate the connection between them and NASA is a really interesting  
part of my job."  
  
Teti connects individuals to NASA resources by coordinating outreach events  
that promote space and STEM education. She describes herself as a person  
who wants to hit the ground running when presented with a project that she  
finds exciting. That is just what she did shortly after starting with Space  
Grant in April. Teti took a leading role in organizing Penn State's Apollo  
11 50th anniversary events, which included a public rocket launch and a  
speaker and film event featuring former NASA astronaut James Pawelczyk,  
associate professor of physiology and kinesiology at Penn State. The events  
attracted more than 200 and 400 attendees, respectively.  
  
"Being able to put on these free events for the community is really nice,"  
she said. "I've done a lot of work with the communities inside and outside  
State College through a couple grant programs. Being able to give the  
communities free access to science events and inspiring the next generation  
of scientists and people who are interested in space has been my  
motivation."  
  
Teti has ample experience connecting people to science. Before joining  
Space Grant, she worked in various roles at the Shaver's Creek  
Environmental Center. She began as an intern while enrolled at Penn State  
and eventually assumed the role of on-site director of the center's Outdoor  
School, where she helped advance the program and develop the curriculum.  
She also managed 75 campers and 30 university student workers. Teti said  
she gained many skills at Shaver's Creek that she could not in the  
traditional classroom setting, like group management, leadership and  
effective communication – skills she uses in her role at Space Grant.  
  
This fall semester she looks forward to working with the undergraduate and

## People - Eye on EESI Research - Dan Arthur

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People - Eye on EESI Research - Dan Arthur  
  
Eye on EESI Research  
  
Dan Arthur (photo)Dan Arthur  
  
Julymber 2013  
  
Conducting research presents challenges, but turning the data into  
understandable information can be its own puzzle.  
  
Cyberspecialist Dan Arthur joined EESI in May to work with faculty and  
researchers on doing that - finding ways to make their research and data  
accessible to others. That includes working with the Susquehanna Shale  
Hills Critical Zone Observatory project on data management, data  
presentation and promoting CZO activities.  
  
A recent example is the animated graphic that shows the Penn State  
Integrated Hydrologic Model. The model is used to predict soil saturation  
levels in the Susquehanna Shale Hills Critical Zone, a federally funded  
research initiative.  
  
Before joining EESI, Arthur worked at Purdue University as a graduate  
research assistant in atmospheric science, and before that, he was  
worldwide support manager for broadcast editing and webcasting products at  
Pinnacle Systems Inc.  
  
He spent 15 years in video production, support and management for  
manufacturing of broadcast video editing hardware. Arthur also has  
experience in software applications and data management.  
  
He has a master's degree in information and communication science from Ball  
State University and a master's in atmospheric science from Purdue. His  
atmospheric science research involved simultaneous visualization of radar  
and aircraft probe data - which are very different in scale - in 3D, as  
well as using numerical models and field observations to investigate cloud  
and precipitation processes.  
  
In his current position, Arthur can work with faculty and researchers on  
projects such as creating educational and promotional videos, database  
management, generating computerized plots and assisting with creating  
visual representation of data.  
  
  
  
Events & Opportunities

## People - Eye on EESI Research - Linda Bell

Eye on EESI Research  
  
Linda Bell (photo)Linda Bell  
  
May 2014  
  
Space grant programs at 13 universities, special scholarships for students  
and research awards for astrobiologists.  
  
Linda Bell has a hand in it all.  
  
Bell is administrative manager for the NASA Pennsylvania Space Grant  
Consortium and the Penn State Astrobiology Research Center, both of which  
are housed within the Earth and Environmental Systems Institute. The Space  
Grant program, aimed at helping future scientists and engineers pursue  
their passions, marked its 25th anniversary in 2013. In that year alone,  
the Pennsylvania program that Bell helps run awarded grants to about 400  
undergraduate and graduate students.  
  
Bell handles the budgeting from the beginning to the end, including  
proposals, making sure the plans stay on track, overseeing spending and  
trouble-shooting questions from students, faculty and staff. That could be  
students looking for guidance on their scholarships or faculty on the other  
side of the world running into trouble getting the freight they need for  
their research off a boat.  
  
"I enjoy working with the professors," Bell said. "I love collaborating  
with them and getting ideas. It's absolutely amazing what some of these  
consortia are doing. To go to national centers, like Goddard, and see what  
they're doing is absolutely mind blowing."  
  
The Pennsylvania Space Grant program is one of 52 across the country. The  
Space Grant programs include scholarship, fellowships and lab work for  
students at Penn State and other schools around the state. The work crosses  
colleges, drawing participants in Earth and Mineral Sciences, Education,  
Liberal Arts, Engineering and Health and Human Development.  
  
Among those programs is the Women in Science and Engineering Program  
(WISER), which matches female undergraduates at Penn State main campus,  
Altoona and Abington, Temple University and Gannon University with  
professors in science and engineering. About 80 professors are  
participating in this program.  
  
Bell's office also began managing the Astrobiology Research Center in 2013.  
In this position, she works with faculty and graduate students from Penn  
State and other schools including UCLA, Cal Tech, and the Arizona State  
University.  
  
Bell has worked in EESI since December 2007. Before that, she worked in the  
Smeal College of Business for 27 years.  
  
"I just love my job, it is as simple as that!" she said.  
  
  
  
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## People - Eye on EESI Research - Matt Carroll

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People - Eye on EESI Research - Matt Carroll  
  
Eye on EESI Research  
  
Matt Carroll (photo)Matt Carroll  
  
December 2014  
  
EESI is one of the nation's leading earth and environmental science  
research institutes, and its diverse, renowned faculty is engaged in  
innovative studies on some of the most compelling issues of our time.  
  
But how do those researchers share their findings with the public and get  
the word out about the work they are doing? That's where Matt Carroll comes  
in. Matt is a writer who joined EESI in fall 2014. It's his job to write  
compelling and understandable stories based on the often complex research  
being done in EESI and to help publicize the institute.  
  
Matt will tackle a wide range of topics being studied by EESI scientists:  
the impact of climate change on glaciers in the Antarctic, and by  
extension, rising sea levels; the importance of wetlands; effective ways to  
measure greenhouse gas emissions; the potential for natural gas development  
in the Marcellus Shale region and the best ways to assess the potential  
impacts on water quality; how climate change can affect wildfires; and the  
potential for finding other habitable planets.  
  
"There's no shortage of fascinating stories in EESI," Matt said. "It's my  
passion to share important stories, and I know working with our researchers  
will give me to opportunity to do just that."  
  
Prior to joining EESI, Matt worked for several years as a reporter at the  
Centre Daily Times, where he worked a variety of beats, covering Penn State  
University, municipal and county governments and crime and courts.  
  
  
  
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## People - Eye on EESI Research - Anne Danahy

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People - Eye on EESI Research - Anne Danahy  
  
Eye on EESI Research  
  
Anne Danahy (photo)Anne Danahy  
  
July 2014  
  
Science, a topic difficult to understand for many. One of EESI's goals in  
the 2008-2014 strategic plan was hiring an interdisciplinary program  
coordinator/ professional writer to help EESI spread information about the  
work of EMS faculty and students in the environmental sciences.  
  
That's where Anne Danahy comes in. She is a writer who joined EESI in fall  
2012. She has a talent for creating fascinating understandable stories even  
if the topic is complex. Her repertoire is far-reaching. She writes about  
droughts and fires in the Amazon, about habitable planets,  
paleoceanography, birds and their environment, fracking and gas well  
flowback, politics, poverty, climate change and many more topics. She not  
only interviews scientists but also university presidents and trustees,  
school teachers and students and regular citizens.  
  
"One of the favorite parts of my job is talking with scientists and their  
students and learning about the research they're doing," Anne said. "Last  
week, I got to have a FaceTime chat with one researcher while he was on a  
summer program in Alaska, and go watch another researcher and his students  
do field work on vernal pools."  
  
In 2013 Anne was the recipient of the College of Earth and Mineral  
Sciences' Future Star Award. In addition to her job as science writer she  
teaches news writing and is a volunteer host of a Q&A program on the local  
cable television access station, C-NET.  
  
Prior to joining ESSI, Anne worked for about 12 years as a reporter at the  
Centre Daily Times.  
  
  
  
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## People - Eye on EESI Research - Ken Davis

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People - Eye on EESI Research - Ken Davis  
  
Eye on EESI Research  
  
Ken Davis (photo)Ken Davis  
  
September 2013  
  
If a community wanted to cut its greenhouse gas emissions and decided to  
take steps to do it, how would it know if the steps it was taking worked?  
  
A team of researchers from Penn State's College of Earth and Mineral  
Sciences and several other universities has been testing a method for doing  
that, by capturing readings of greenhouse gases in an urban atmosphere.  
Known as INFLUX, The Indianapolis Flux Experiment uses a combination of  
measurements taken on towers and readings from aircraft to find out how  
much carbon dioxide and methane is being emitted from the city.  
  
"It is an independent way to quantify emissions levels and later validate  
changes and reductions. We hope to demonstrate this and learn what is  
required to make this work," said Ken Davis, professor of meteorology at  
Penn State and a lead researcher on the project.  
  
The results are expected to provide data that could be used to establish  
standards for measuring greenhouse gas emissions. The project will document  
the accuracy of the method, and establish open data records that will allow  
for independent verification of the findings.  
  
The Penn State team's part of the project includes deploying and operating  
the sensors that are distributed across the metropolitan region on 12  
communications towers and are designed to measure the greenhouse gases  
carbon dioxide and methane. The towers also host measurements of carbon  
monoxide and other tracers of industrial activity to help identify the  
sources of the greenhouse gases. That data is being coupled with  
measurements taken during 40 flights over the area and with information  
about buildings and their estimated individual energy usage.  
  
Davis said the expression "the atmosphere can't lie" is true in cases like  
this where the atmosphere records the earth's emissions. The tower-based  
sensors offer an independent way to measure changes in emissions, including  
whether reductions are taking place.  
  
Davis explained that this method is really quite simple: As air flows  
across the city, emissions accumulate in the atmosphere. By measuring this  
accumulation and quantifying the wind speed and atmospheric mixing, the  
researchers can infer the emission rates.

## People - Eye on EESI Research - Brandon Forsythe

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People - Eye on EESI Research - Brandon Forsythe  
  
Eye on EESI Research  
  
Brandon Forsythe (photo)Brandon Forsythe  
  
April 2016  
  
On any given day, you might find Brandon Forsythe trekking through the  
woods, wading in a babbling stream or paddling out on a lake.  
  
It might sound like a peaceful vacation, but for Brandon it's another day  
in the office.  
  
Brandon, an EESI research assistant, is responsible for maintaining the  
many instruments, gages and sensors out in the field that make up Penn  
State's Susquehanna Shale Hills Critical Zone Observatory.  
  
It's no small task. There are hundreds of pieces of equipment in the CZO,  
located in Penn State's Stone Valley Forest. The technology measures  
everything from metrological and atmospheric parameters all the way down to  
measurements deep under the soil.  
  
There's a lot of equipment, and even more data being collected, aimed at  
better our understanding of the "critical zone," the thin outer layer of  
Earth that sustains life. The interdisciplinary work looks at the impact of  
water as it move from the canopy of trees through the top layer of the  
earth into the bedrock below, including the chemistry of those  
interactions.  
  
It's the collaborative nature of the project that drew Brandon to Penn  
State.  
  
"I like the interdisciplinary approach of this position," he said. "That  
was one of my biggest draws. There's a lot more involvement, lots of  
opportunities to learn."  
  
Brandon received his degree from Alaska Pacific University and worked for  
the US Geological Survey in Alaska conducting stream gaging and water  
quality sampling projects in that state. He later worked for the USGS in  
Pennsylvania before coming to Penn State.  
  
  
  
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## People - Eye on EESI Research - James Kasting

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People - Eye on EESI Research - James Kasting  
  
Eye on EESI Research  
  
James Kasting (photo)James Kasting  
  
January 2014  
  
In the past few years, interest has grown concerning the "habitable zone"  
around the Sun and other stars. The habitable zone is the region in space  
where a rocky planet similar to Earth can maintain liquid water on its  
surface. We define it that way because life — all life that we know about,  
at least — requires liquid water during at least part of its life cycle.  
  
This topic has heated up in the last few years because NASA's Kepler Space  
Telescope has been counting planets in the habitable zones of other stars.  
Kepler monitored the brightness of approximately 160,000 stars continuously  
from 2009 to 2013, ending when it lost a critical reaction wheel  
(gyroscope) and could no longer point accurately. During that time, Kepler  
detected over 3,500 planets orbiting more than 2,600 stars. Kepler found  
planets by looking for the slight decrease in a star's brightness when a  
planet passes in front of it. Of the 3,500 detected objects, about two  
dozen are rocky planets orbiting within the habitable zones of their parent  
star.  
  
James Kasting's Mars image  
  
  
  
Read the full story in the Centre Daily Times here Centre Daily Times  
  
  
  
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## People - Eye on EESI Research - Brad King

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People - Eye on EESI Research - Brad King  
  
Eye on EESI Research  
  
Brad King (photo)Brad King  
  
March 2014  
  
Before the grants and contracts that support research projects in the Earth  
and Environmental Systems Institute can be submitted, many have to cross  
Brad King's desk.  
  
Now, as part of a six-month administrative fellowship, King, associate  
coordinator of grants and contracts, is learning about what happens once  
faculty and researchers are awarded funding from federal, state and  
industry sponsors.  
  
"In my job, I'm on the other end of the spectrum. I deal with everything  
until we get the award or grant," said King, whose position is with the  
Associate Dean for Graduate Education and Research Office in the College of  
Earth and Mineral Sciences. "What made me want to do this administrative  
fellowship was to see what they're doing with the grant once they got it."  
  
Through the EMS fellowship program, staff interested in expanding their  
expertise by working with mentors in other offices and units can apply to  
become fellows. King is working with Deb Detwiler, the administrative  
assistant in EESI who coordinates research proposals and administers grant  
awards; and Tracy Bernier, administrative assistant to EESI Director Sue  
Brantley.  
  
"I wanted to broaden my administrative knowledge, and I think learning the  
post-award side of things will help me help the researchers on the  
pre-award side too," King said.  
  
On average for the past three years, EESI faculty and researchers have  
submitted 66 proposals a year. That funding supports research across a  
range of subjects from the behavior of ice sheets in the Antarctic to  
ancient leaves buried in forests and streams. Current EESI projects include  
a $12 million National Science Foundation award for the Sustainable Climate  
Risk Management initiative, and $5 million from the NSF for the Susquehanna  
Shale Hills Critical Zone Observatory.  
  
King started his job in EMS in November 2010 after graduating from Penn  
State with a bachelor's in labor studies and employment relations. He had  
at one point majored in professional golf management — but found that  
wasn't his calling.

## People - Eye on EESI Research - Debbie Lambert

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People - Eye on EESI Research - Debbie Lambert  
  
Eye on EESI Research  
  
Debbie Lambert (photo)Debbie Lambert  
  
May 2017  
  
Debbie Lambert does it all.  
  
From organizing workshops and seminars, to greeting guests as they come  
through the doors and answering their questions, to ordering the supplies  
that keep the office running smoothly, Lambert has been a  
jack-of-all-trades for the Earth and Environmental Systems Institute.  
  
Now, after more than 14 years with EESI and more than 22 with Penn State,  
Lambert is set to retire in June.  
  
"I'm a little worried the plants won't get watered after I'm gone," she  
said with a smile.  
  
Lambert wears many hats for EESI and is an invaluable member of the team,  
helping faculty, staff and visitors alike on any number or projects and in  
solving countless issues.  
  
She is the unofficial face of EESI, and those who work closely with her  
quickly appreciate her good humor and her depth of knowledge about the  
institute.  
  
Lambert worked at a number of positions at Penn State before coming to  
EESI, including the Department of Geosciences, where she was a staff  
assistant for now-EESI director Susan L. Brantley. Lambert was interested  
in working for EESI because of the new opportunities it presented.  
  
"I thought there would be new opportunities," she said. "I really did like  
geosciences, and I really missed working with the students. But I really  
like my job here. I'm very happy with greeting people and helping people."  
  
Coincidentally, Lambert was soon reunited with Brantley, who was appointed  
director of EESI. Brantley was replacing former director Eric Barron, who  
at the time had left the university but has since returned to become its  
president.  
  
Lambert said she can now look back on how much EESI has grown since she  
started at the institute. "It was on a much smaller scale than what it is  
now," she said. "It's really grown since then."

## People - Eye on EESI Research - Nooreen Meghani

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People - Eye on EESI Research - Nooreen Meghani  
  
Eye on EESI Research  
  
Nooreen Meghani (photo)Nooreen Meghani  
  
October 2015  
  
Nooreen Meghani is on the hunt for orphaned and abandoned wells.  
  
She got off to a good start on a recent trip to the Allegheny National  
Forest, finding a well long forgotten in the dark woods.  
  
"It's was like a treasure hunt," she said.  
  
That's one down – a couple hundred thousand to go. There are an estimated  
200,000 of these oil and gas wells scattered across Pennsylvania.  
  
Finding them is a big job, and that's why Meghani is turning to citizen  
scientists for some help. She is leading the charge to recruit volunteers  
who can be trained to research where wells might be, find them and monitor  
for potential environmental impacts.  
  
Nooereen Meghani at a well  
  
  
  
An estimated 325,000 wells have been drilled in Pennsylvania since 1859,  
when an oil boom began in the western part of the state. Almost 100 years  
elapsed before regulations in 1956 required wells to be documented, and the  
state only has record of about 125,000.  
  
With no records, it's difficult to find the remaining wells and to assess  
what kind of condition they are in. If damaged or not properly sealed,  
these wells pose environmental risks, both from greenhouse gases like  
methane that can escape into the atmosphere and from oil or gas that could  
affect freshwater aquifers.  
  
"On one hand, you are excited to look for these things," Meghani said.  
"Then you stop and think about what it is you're finding. One of the wells  
we found was shattered and there was just a piece of concrete sticking out  
of the ground. It's a little disturbing."  
  
Penn State is offering new tools to aid in the search - a forum to bring  
community members together and a website that can be used to document found  
wells and track data like well integrity at the surface. The information  
can be used to inform state Department of Environmental Protection

## People - Eye on EESI Research - Terry Noll

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People - Eye on EESI Research - Terry Noll  
  
Eye on EESI Research  
  
Terry Noll (photo)Terry Noll  
  
November 2016  
  
Terry Noll has seen a lot of Pennsylvania.  
  
The Penn State research assistant's work has taken her from the  
endless-mountain wilderness of Sullivan County, to the sweeping farmlands  
of Lancaster County, to the former coal country of Indiana County.  
  
One thing these diverse areas have in common: rural communities grappling  
with sudden changes and complex issues brought on by the Marcellus shale  
gas boom.  
  
And Noll has been there to talk them through it.  
  
For the last four years, Noll has served as project coordinator for an  
effort to educate rural Pennsylvanians about the changes taking place in  
their backyards.  
  
Her work has been part of Marcellus Matters: Engaging Adults in Science and  
Energy, a National Science Foundation-funded project that since 2012 has  
educated people in rural communities about science and energy through the  
lens of Marcellus Shale natural gas development.  
  
"Our project is geared toward providing the education to community members  
to empower them to develop the knowledge and critical thinking skills that  
will allow them to engage in civil dialogue within their communities as  
development occurs," Noll said.  
  
The program, which is winding down and ends in December, has reached  
hundreds in Clearfield, Clinton, Sullivan, Indiana, Lancaster and Lycoming  
counties.  
  
Interdisciplinary researchers from geosciences, arts and architecture,  
agricultural sciences and education traveled to the communities and taught  
residents about everything from the physical science behind unconventional  
shale gas drilling to the social and economic impacts of an energy boom and  
bust cycle.  
  
"I loved the interdisciplinary approach," said Noll, who led multiple-week  
programs in the communities. "We had landscape architects who understood  
impacts on land, geologists who taught about the science behind drilling,

## People - Eye on EESI Research - Kelly Numez Ocasio and Natalie Pawlikowski

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People - Eye on EESI Research - Kelly Numez Ocasio and Natalie Pawlikowski  
  
Eye on EESI Research  
  
Kelly Numez Ocasio and Natalie Pawlikowski (photo)Kelly Numez Ocasio and  
Natalie Pawlikowski  
  
March 2017  
  
From weather systems on the west coast of Africa to wildfires in  
California, a pair of Penn State graduate students are pursuing their  
passions – with some help from the Earth and Environmental Systems  
Institute.  
  
Graduate students Kelly Nunez Ocasio (Meteorology) and Natalie Pawlikowski  
(Geography) are the 2016-17 EESI Environmental Scholars. The scholarships,  
offered each year, are partly aimed at forming connection between  
departments and increasing student diversity.  
  
For Nunez Ocasio, the work she is doing at Penn State hits close to home.  
She was raised in Puerto Rico, and lived through Hurricane Georges, a  
powerful Category 4 hurricane that caused significant damage throughout the  
Caribbean and along the Gulf of Mexico in 1998.  
  
"Ever since I was a kid I experienced tropical storms and hurricanes," she  
said. "I lived the impact of Hurricane Georges and how it affected everyone  
for months. So I was intrigued about how I can help my community."  
  
That journey brought her to Penn State, where she is studying weather  
systems that form in the West African region and potentially churn across  
the Atlantic Ocean and develop into hurricanes and tropical storms. She  
works with Jenni Evans, professor of meteorology and director of the  
Institute for CyberScience.  
  
"What I'm trying to do is better understand how these storms relate to the  
topography of Africa, the atmosphere," Nunez Ocasio said. "How do they  
become potential hazards? We want to be able to track them and understand  
them better to put this information in models and predictions to better  
prepare our society."  
  
Western African is a long way away from where Pawlikowski finds herself  
working. She spent last summer in California, where she studied how fire  
management strategies have changed forest composition in one area.  
  
"Alan Taylor (a Penn State geography professor) did a pretty extensive  
study of Beaver Creek Pinery in Northern California in 1998, and what I did  
was go out and help remeasure it to see how 20 years with no fires would

## People - Eye on EESI Research - Dan Shapich

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People - Eye on EESI Research - Dan Shapich  
  
Eye on EESI Research  
  
Dan Shapich (photo)Dan Shapich  
  
January 2017  
  
Walk into the woods at Penn State's Susquehanna Shale Hills Critical Zone  
Observatory, and it's hard to miss the science happening around you.  
Instruments and gages dot the hillsides and stream beds. Trees are numbered  
with markers and deep pits expose the layers of soil under the ground.  
  
The CZO is part of a National Science Foundation-funded project to study  
the thin, outer layer of Earth that sustains all human life.  
Interdisciplinary scientists measure everything from what nutrients trees  
take from their highest leaves to what happens where soil and bedrock meet  
deep underground.  
  
Dozens of pieces of equipment help scientists collect geochemical,  
geomorphological, ecological, LIDAR and soil data from the site. That's a  
lot of information, and managing it is no small task.  
  
That's where Dan Shapich comes in. Shapich, a data manager with EESI, is  
tasked with making the voluminous information gathered at the site  
available to researchers and the public through the CZO's website, http://  
criticalzone.org/shale-hills/.  
  
"It's a big job," Shapich said.  
  
Since starting at EESI in October, Shapich has been working with research  
assistant Brandon Forsythe to streamline how data is collected at the CZO,  
and in updating the website.  
  
"We are streamlining the data so it can go directly from the sensors right  
to our servers and be automatically displayed without us having to go out  
there manually and download it," Shapich said.  
  
That will help researchers get their information faster, and ensure the  
data they collect is online and available to the public.  
  
Shapich previously worked as a programmer in the College of Engineering. He  
received his undergraduate degree in Information Science Technology and his  
master's degree in Geospatial Intelligence from Penn State.  
  
He said he was drawn to EESI because of the data being collected at the CZO  
and the flexibility offered by the position.

## People - Eye on EESI Research - Jaclyn Stimely

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People - Eye on EESI Research - Jaclyn Stimely  
  
Eye on EESI Research  
  
Jaclyn Stimely (photo)Jaclyn Stimely  
  
September 2016  
  
Jaclyn Stimely quickly learned that the space grant program isn't just  
about astronomy and physics.  
  
"Our programming really is cross-disciplinary," said Stimely, who has been  
the administrative manager for the NASA Pennsylvania Space Grant Consortium  
(PSGC), housed within Penn State's Earth and Environmental Systems  
Institute, since December. The PSGC is one of 52 across the country.  
  
Space Grant programming is aimed at helping future scientists and engineers  
pursue their passions. Stimely knows that can be a truly interdisciplinary  
endeavor.  
  
"We supported an early career biologist at St. Francis University who  
didn't have funding to continue her research through the summer," Stimely  
said. "She studied micro-organisms and the investigation of life in extreme  
environments."  
  
Perhaps that project stuck out for another reason. In college, Stimely  
studied biology at Arcadia University outside Philadelphia. When she  
relocated to the area, Stimely joined the Chemistry Department at Penn  
State, managing the graduate program. She accepted a job with the Space  
Grant program in December 2015.  
  
"It's a rewarding position," she said. "I get to work with different  
institutional programs across the state from the proposal stage to budget  
adjustments to program evaluation."  
  
PSGC provides opportunities for undergraduate and graduate students at 15  
universities across the state, including Penn State. The Space Grant  
programs include scholarships, fellowships and hands-on lab experiences.  
The work crosses colleges, drawing participants in Agricultural Sciences,  
Earth and Mineral Sciences, Eberly College of Science, Education,  
Engineering, Liberal Arts, Information Sciences and Technology, and Health  
and Human Development.  
  
Among those programs is the Women in Science and Engineering (WISER) and  
the Minority Undergraduate Research Experience (MURE). These programs  
provide opportunities to women and minorities, matching them with  
professors in STEM research. The current cohort includes 50 participating

## People - Eye on EESI Research - Tim White

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People - Eye on EESI Research - Tim White  
  
Eye on EESI Research  
  
Tim White (photo)Tim White  
  
March 2015  
  
Penn State senior research associate Tim White plunged into the ice-covered  
Susquehanna River on a snowy Sunday in March.  
  
Swimming in 34-degree water might sound crazy to some, but it's exactly the  
type of training White needs to keep his skills sharp.  
  
It's the closest he's going to get to simulating conditions in Alaska,  
where White travels most years to conduct research off the coast.  
  
His work there focuses on a particularly warm period in Earth's history,  
the Paleocene-Eocene Thermal Maximum, and what it can tell us about our  
future.  
  
Approximately 55 million years ago, during the PETM, the Earth was nearly  
free of icy glaciers and alligators could be found crawling in northern  
Greenland, White said.  
  
"By a fairly large group of scientists, it's thought to be the closest  
analogy to where the Earth is headed in the next 500 years or so," he said.  
"It was a very warm time, when all the information that we're capable of  
gathering suggests there was very little if any polar ice ... ."  
  
But bits of sediment found in the fossil record lead White think there may  
have been ice on the ocean after all, at least seasonally.  
  
If so, it could mean at least some ice formed on the ocean during a time  
when many believe there was little, if any, on the planet.  
  
"We really want to nail this stuff and be able to inform decision-makers in  
an accurate way," he said. "We need to be really confident in our  
reconstructions."  
  
Read the full story in the Centre Daily Times here http://  
www.centredaily.com/2015/03/14/4651647/  
focus-on-research-science-on-ice.html  
  
  
  
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## People - Eye on EESI Research - Peter Wilf

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People - Eye on EESI Research - Peter Wilf  
  
Eye on EESI Research  
  
Peter Wilf (photo)Peter Wilf  
  
November 2013  
  
Fresh fruit? How about a 52.2 million-year-old tomatillo.  
  
That's what Peter Wilf, professor of geosciences and an EESI associate,  
found as part of his work in Argentina. Information on the discovery caught  
the attention of the media when Wilf presented it at the Geological Society  
of America meeting in Denver.  
  
"Though flattened, the ancient fruit ... looks remarkably like a modern  
version of the popular salsa ingredient," Live Science notes in a story  
about the finding.  
  
The discovery is part of the work Wilf, professor of geosciences at Penn  
State, and other researchers are doing in Laguna del Hunco in Argentina.  
  
"There's so much left to discover," Wilf remarked in a radio interview with  
KPCC on the topic.  
  
Read the Live Science story here Live Science  
  
Listen to an interview Wilf did with "Take Two" on 89.3 KPCC Southern  
California public radio KPCC radio  
  
  
  
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## Resources - Computing Resources

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 ○ University Guidelines  
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 ○ EESI High Performance Computing Resource  
  
Resources - Computing Resources  
  
Computing Resources  
  
EESI High Performance Computing Resource  
  
For the last ten years now EESI has offered priority access to large high  
performance computing resources subsidized by various funded research  
efforts and run through the Research Computing and Cyberinfrastructure  
group (formerly known as GEaRs).  
  
Lion-xo remains available well past the orginally intended end of its  
operational life. This resource was primarily funded by the now defunct  
Center for Environmental Kinetic Analysis (CEKA).  
  
Lion-XC is still in the prime of its operational life and should be  
available for several more years. This resource was funded by the Earth  
System Science Center and EESI.  
  
And Lion-XF is the newest HPC cluster that was brought online in 2012. This  
resource was funded by David Pollard and EESI. Lion-XF will be available  
only to a limited number of researchers.  
  
EESI associates who are interested in using these HPC resources may request  
access through John Miley.  
  
These collaborations have been highly successful and on average we have had  
more computing capacity than we could consume.  
  
For the future, individual researchers with small scale HPC needs are  
encouraged to contact the RCC high performance computing group directly to  
discuss how you can work with that group to best meet your needs: https://  
ics.psu.edu/about/  
  
This contact will typically result in a meeting with the HPC group's  
director who can then advise you on how to best spend your grant money. If  
you choose to spend your research dollars with them and become a partner  
you will still receive priority access to whatever cluster you buy into and  
you will get exceptional support.  
  
If you have an existing relationship with us for HPC from a grant funded  
prior to 2009, nothing has changed for you. You may continue just as you  
have been until that grant is gone or you no longer require access. If you  
have any potential future large scale HPC needs we'd like to talk to you  
about how we might be able to work together and subsidize your efforts for  
the good of our local computing community.

## Research - Initiative for Energy and Environmental Economics and Policy (EEEP)

□ Column 2  
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 ○ Data Management Plan  
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Research - Initiative for Energy and Environmental Economics and Policy  
(EEEP)  
  
Initiative for Energy and Environmental Economics and Policy (EEEP)  
  
Co-Directors: Seth Blumsack and Karen Fisher-Vanden  
  
The Initiative for Energy and Environmental Economics and Policy (EEEP) was  
established in 2011 with the goal of promoting policy-relevant economics  
research that lies at the boundary between economic sciences and the study  
of natural or engineered systems. The EEEP initiative is focused primarily  
on the union between energy systems and environmental management and the  
development of quantitative tools to address decision challenges in these  
areas. As an initiative, our goal is to catalyze research in energy and  
environmental systems economics across the University and to build a  
world-class group of economists with interests in interdisciplinary  
collaboration.  
  
EEEP operates as a University-wide initiative with support provided by the  
Earth and Environmental Systems Institute, Penn State Institutes for Energy  
and the Environment, and the Environment and Natural Resources Institute.  
  
Examples of research in energy and environmental systems economics at Penn  
State include:  
  
 □ electricity markets, the smart grid, integrating renewable electricity,  
 and cyber-security in energy infrastructures;  
 □ economic impacts and risks associated with global climate change;  
 □ the design and implementation of energy-efficient building systems;  
 □ valuation of ecosystem services;  
 □ implications of Marcellus Shale natural gas development for energy  
 markets and environmental quality;  
 □ global markets for rare earth minerals.  
  
EEEP activities include a periodic seminar series featuring internal and  
external speakers, and an Initiative Affiliate program for students and  
faculty. Affiliates are eligible for small research and travel grants from  
the Initiative.  
  
  
  
Contact:  
  
Seth Blumsack  
Associate Professor of Energy Economics and Policy  
John and Willie Leone Family Department of Energy and Mineral Engineering  
115 Hosler Building  
The Pennsylvania State University  
University Park, PA 16802  
Phone: 814-863-7597  
E-mail: sab51@psu.edu

## Research - 2017 EESI Call for Center Proposals

In This Section  
  
 □ Column 2  
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Research - 2017 EESI Call for Center Proposals  
  
EESI Centers and Initiatives  
  
2017 EESI Call for Center Proposals  
  
Call for Center Proposals  
  
Earth and Environmental Systems Institute (EESI)  
  
Due date: April 17, 2017  
  
  
  
Call for Proposals for Centers  
  
We seek proposals from EESI associates for new Initiatives or Centers, and  
renewal proposals for existing Centers within EESI. Proposers are  
encouraged to read the University guidelines (RAG05) concerning Center  
status on EESI's website (https://policy.psu.edu/policies/RAG05).  
Initiatives should be proposed especially for activities that are likely to  
be eligible to become Centers as described by the university guidelines.  
  
What is an EESI Center or an EESI Initiative?  
  
A Center or Initiative within EESI represents a focus of interdisciplinary  
research and educational activities fostered by EESI associates and  
affiliates. In general, such a focus generally starts as an Initiative  
(this step can be approved by the EESI Director) and then progresses to  
become a Center (the step must be approved by the Senior Vice President for  
Research). Current Centers/Initiatives that are receiving EESI funding  
include the Center for Climate Risk Management (CLIMA), Center for  
Environmental Informatics (CEI), Earth System Science Center (ESSC), Penn  
State Ice and Climate Research Center (PSICE), Center for Landscape  
Dynamics (CLD), Energy and Environmental Economics and Policy Initiative  
(EEEP), and Riparia. These Centers receive anywhere from $5000 to $15,000  
per year for Center activities. Centers target one or more of the following  
goals over the three-year lifetime of the Center:  
  
 □ promote interaction among faculty, students, and staff in a growing  
 interdisciplinary field within the environmental sciences/engineering/  
 social sciences  
 □ promote excellence in scientific research, especially aligned with  
 EESI's strategic plan  
 □ promote access to computers, analytical instrumentation, or field sites  
 □ foster the securing of extramural funding for multi-PI projects  
 □ promote educational opportunities for students in environmental  
 sciences and engineering, with special attention to udents from  
 under-represented groups

## Research - EESI Center Awards 2014

In This Section  
  
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 ○ Energy-Related Research  
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Research - EESI Center Awards 2014  
  
EESI Centers and Initiatives  
  
EESI Center Awards 2014  
  
2014 Center Funding Support Announced  
  
The last call for center proposals occurred in April 2014 with the centers  
below funded. The dealine for the 2014 call was April 14, 2014  
  
Eight interdisciplinary research initiatives will receive funding support  
from EESI for three consecutive years, beginning in 2014-15. These centers  
are committed to collaborative and forward-looking research on the  
unprecedented environmental challenges facing the earth system.  
  
Several existing centers also will receive funding and, in some cases,  
staff support:  
  
Proposals for funding awards in 2014  
  
 □ Center for Energy and Environmental Economics Policy  
 □ Center for Environmental Informatics  
 □ Center for Climate Risk Management  
 □ Earth System Science Center  
 □ Center for Landscape Dynamics  
 □ Marcellus Center for Outreach and Research  
 □ Penn State Ice and Climate Research Center  
 □ Riparia  
  
Research Centers Supported by EESI  
  
 □ Center for Climate Risk Management (CLIMA)  
  
  
 The Center for Climate Risk Management analyzes scientific, economic,  
 and ethical questions related to climate change risk management.  
 □ Riparia  
  
  
 The Riparia Center's mission is to conduct, facilitate, and coordinate  
 interdisciplinary research, monitoring, and training regarding wetlands  
 and related resources with an emphasis on Mid-Atlantic and Northeastern  
 states.  
 □ Earth System Science Center (ESSC)  
  
  
 ESSC maintains a mission to describe, model, and understand the Earth's  
 climate system.

## Research - EESI Center Awards 2011

In This Section  
  
 □ Column 2  
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 ○ EESI Centers and Initiatives  
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 ○ Job Opportunities  
  
Research - EESI Center Awards 2011  
  
EESI Centers and Initiatives  
  
EESI Center Awards 2011  
  
2011 Center Funding Support Announced  
  
Seven interdisciplinary research initiatives will receive funding support  
from EESI for three consecutive years, beginning in 2011-12. These centers  
are committed to collaborative and forward-looking research on the  
unprecedented environmental challenges facing the earth system.  
  
Included in the seven is the new initiative for Energy and Environmental  
Economics and Policy to be directed by Seth Blumsack that will unify  
current collaborations to create a robust University-wide and  
interdisciplinary research community in energy economics and policy.  
  
Several existing centers also will receive funding and, in some cases,  
staff support:  
  
 □ Center for Environmental geoChemistry and Genomics (CECG) led by Jenn  
 Macalady  
 CECG promotes research and teaching in environmental chemistry and  
 geochemistry.  
 □ Center for Environmental Informatics (CEI) led by Doug Miller  
 CEI focuses on the development of new and innovative approaches to the  
 creation and dissemination of environmental information resources.  
 □ Center for Climate Risk Management (CLIMA) led by Klaus Keller  
 The Center for Climate Risk Management analyzes scientific, economic,  
 and ethical questions related to climate change risk management.  
 □ Earth System Science Center (ESSC) led by Michael Mann  
 ESSC maintains a mission to describe, model, and understand the Earth's  
 climate system.  
 □ Penn State Ice and Climate Research Center (PSICE) led by Sridhar  
 Anandakrishnan  
 The Center for Penn State Ice and Climate Research integrates  
 glaciology, seismology, modeling and climatology.  
 □ Riparia led by Rob Brooks  
 The Riparia Center's mission is to conduct, facilitate, and coordinate  
 interdisciplinary research, monitoring, and training regarding wetlands  
 and related resources with an emphasis on Mid-Atlantic and Northeastern  
 states.  
 □ Energy and Environmental Economics and Policy Initiative (EEEP)  
 EEEP supports and promotes integrative research at the boundary of  
 economics, public policy, and engineered/environmental systems.  
 □ Marcellus Center for Outreach and Research  
 The Marcellus Center for Outreach and Research will be the research,  
 information and education leader for the Appalachian region by

## People - Eye on EESI Research - Sridhar Anandakrishnan

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 ○ Eye on EESI Research  
  
People - Eye on EESI Research - Sridhar Anandakrishnan  
  
Eye on EESI Research  
  
Sridhar Anandakrishnan (photo)Sridhar Anandakrishnan  
  
December 2012  
  
Sridhar Anandakrishnan is away for the winter holiday, somewhere summer is  
in full swing -- an ice sheet at the end of the earth.  
  
The Penn State professor of geosciences is leading the University team  
that's part of a project on the Pine Island Glacier, an extension of the  
Antarctic ice sheet. The goal of the National Science Foundation-funded  
initiative is to get a better understanding of how the glacier, the ocean  
and the ice shelf are interacting, and what that could mean if water  
temperatures rise.  
  
The project includes teams from NASA, the University of Alaska, New York  
University, the Naval Postgraduate School and the British Antarctic Survey.  
It's the first of its kind to focus on the Pine Island Glacier, a remote  
region that can only be reached a few months a year in an airplane that  
lands on skis.  
  
"It's a pretty spectacular spot," Anandakrishnan, a faculty member in Penn  
State's Earth and Environmental Systems Institute, said before leaving  
campus to join doctoral student Kiya Riverman and research associate Leo  
Peters, who are part of his team.  
  
Riverman and Peters arrived at the site – literally a camp on the ice –  
after Thanksgiving. If the weather cooperates, Anandakrishnan is traveling  
first to McMurdo Base on Ross Island and from there will communicate with  
the team at Pine Island Glacier.  
  
An ice shelf is an extension of the Antarctic ice sheet, but, unlike the  
ice sheet, ocean water flows in the cavity underneath the shelf.  
Anandakrishnan compared the cycle of melting and freezing that goes on to a  
bank account: Snowfall gradually adds to the glacier, which in turn flows  
out to the ocean, leading to "withdrawals" from the account. When it snows,  
more ice goes back into the bank account.  
  
"If the cycle is nicely balanced, everybody is happy," he said.  
  
But if more ice flows out into the ocean than snow goes back into the  
glacier, that means a rise in the sea level. If temperatures climb, one  
possibility is that the melting ice shelves – floating extensions of the  
ice sheet – will shrink and provide less of a buffer between the ocean and

## People - Eye on EESI Research - Bernd J. Haupt

□ Column 1  
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People - Eye on EESI Research - Bernd J. Haupt  
  
Eye on EESI Research  
  
Bernd J. Haupt (photo)Bernd J. Haupt  
  
October 2012  
  
Bernd Haupt is a faculty member at Penn State University. Bernd, who  
originally hails from Germany, received his Ph.D. from Kiel University in  
Oceanography, marine Geology, and Meteorology. He has sailed on numerous  
research cruises throughout the world including the North Atlantic, North  
Sea, Baltic, South China Sea, and Mediterranean. An experienced sailor, he  
earned a Sporthochseeschifferschein, the highest German non-commercial  
sailing license. Bernd has published many articles, served as coeditor of  
the book "The oceans and rapid climate change: Past, present, and future",  
and regularly speaks at conferences. He enjoys lecturing on oceanography,  
meteorology, and world geography and was named the "2012 Altoona College  
Outstanding Lecturer".  
  
Bernd has served on numerous proposal-writing teams and acquired  
substantial external funding to support my academic interests. His skills  
in programming, numerical ocean and climate modeling, and technology have  
benefited researchers and students from EMS as well as those he collaborate  
with across campus and throughout the academic community. In particular,  
Bernd has been collaborating for the past couple of years with faculty at  
Penn State Institutes of the Environment on several projects. These  
projects, which encompass varying aspects of research, outreach, and  
teaching include developing geospatial analysis tools and GIS map services  
for NOAA/NWS climate data, integrating fisheries data with hydrologic and  
geographic data for the State of Maryland, and joint projects funded by the  
U.S. Geological Survey to develop publicly accessible Chesapeake Bay and  
Delaware Estuary visualization and analysis tools and the FAA NoiseQuest  
program. The overall goals of these projects are to further scientific  
investigation into the region, educate students and citizens about the  
estuaries and oceans, and to provide tools for teaching.  
  
For a little bit over three years Bernd joint a group of scientists from  
PSU's meteorology department working on the Chequamegon  
Ecosystem-Atmosphere Study (ChEAS), a multi-organizational research effort  
studying biosphere/atmosphere interactions within a northern mixed forest  
in Northern Wisconsin as well as high-precision, high-accuracy CO[2] mixing  
ratio measurements in collaboration with Ameriflux towers and support of  
the INFLUX (INdianapolis FLUX) program.  
  
Besides his daily research Bernd is working on acquiring global patent  
rights on oil confinement since there is a need not only for oil

## People - Eye on EESI Research - David Pollard

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People - Eye on EESI Research - David Pollard  
  
Eye on EESI Research  
  
David Pollard (photo)David Pollard  
  
February 2013  
  
David Pollard's work is taking him back in time five million years, not  
only to learn about the past but also what could be coming in the future.  
  
Pollard, a senior scientist in Penn State's Earth and Environmental Systems  
Institute, is developing computer programs that can model the behavior of  
ice sheets in the past, and from that gain insight into what upcoming  
generations could see.  
  
"Understanding how ice sheets have responded in the past can help to  
predict how they will respond to future warming and contribute to sea level  
rise and flooding," Pollard said.  
  
The computer model Pollard created simulates how the Antarctic ice sheet  
has advanced and retreated over the last 5 million years. He notes that one  
sector, the West Antarctic Ice Sheet, rests on bedrock far below sea level  
and is particularly vulnerable to warming ocean temperatures. The model  
code describes not only the current characteristics of the ice sheet – such  
as the velocity of ice flow and temperatures of the ice – but also  
simulates how the ice extent and thickness change over time.  
  
To assess the accuracy of the model, Pollard, along with Robert DeConto, a  
professor at the University of Massachusetts, compared its results to  
actual geological data from the multinational ANDRILL project gathered by  
drilling into sediments below floating ice fringing West Antarctica. The  
natural variations of the ice sheet simulated by the model corresponded  
well with the stacked layers in the sediment cores over the last 5 million  
years, allowing scientists to expand the relevance of the data beyond the  
local drill site to the entire region of West Antarctica.  
  
Now, Pollard is focusing the model on a smaller region of the West  
Antarctic coast that includes Pine Island Glacier, an area where the ice  
has begun to dramatically thin and flow faster in recent decades. By  
zooming in on a small region, the spacing between model grid points can be  
finer, improving the details of the simulations. Other researchers at Penn  
State and elsewhere are also paying close attention to Pine Island and  
nearby glaciers (http://live.psu.edu/story/63448 -- Link expired).  
  
Pollard's model includes the warming effects of both ocean and atmospheric  
temperatures. Ocean temperatures affect the ice via floating ice shelves —

## People - Eye on EESI Research - Alan Taylor

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People - Eye on EESI Research - Alan Taylor  
  
Eye on EESI Research  
  
Alan Taylor (photo)Alan Taylor  
  
April 2013  
  
Who could find fault with Smokey the Bear, the gentle Ursus whose advice  
many Americans grew up following? Perhaps the spotted owl, for starters. To  
flourish, the endangered bird that's native to the western United States  
needs certain types of forests that aren't found in places where severe  
wildfires have occurred.  
  
Smokey, of course, encourages people to take steps to prevent fires, not  
start them. But, suppression of naturally occurring blazes can have  
unintended consequences. Whether those include increasing the possibility  
for wildfires to become severe has been the focus of research Alan Taylor,  
Penn State professor of geography, recently completed.  
  
Taylor's study focused on a mixed conifer forest in part of the Lassen  
National Forest in northern California known as the Cub Creek Research  
Natural Area that was the site of a wildfire in 2008. The unusual history  
of that preserved area that has never been logged allowed Taylor to look at  
whether a forest would burn the same way in two different time periods:  
one, in the 1880s, before fire suppression policy took effect, and the  
other in 2008 after it was being practiced.  
  
Taylor said that, in general, the burning patterns were similar, but with  
an important difference.  
  
"We lost more of the forest in the valley bottom because of the changes  
caused by fire suppression," Taylor said. "We lost 20 to 25 percent more  
than expected of the large, older growth trees."  
  
What the research found, through a combination of analyzing satellite data  
and field measurements, is that the high severity portions of the 2008 fire  
affected not only younger forests on upper slopes and ridgetops where they  
had burned severely in the 19th century but older more diverse forests in  
the valleys that had escaped high severity fire in the past. Tree ring  
dating of fire scars show that forests in the valley had burned many times  
in the past 300 years but not severely.  
  
"Historically, fires operated in a way that tended to be less severe in  
valley bottoms and lower slopes," Taylor said. "Now, because of fire  
suppression, they tend to burn at a higher severity and you lose that  
habitat."

## People - Eye on EESI Research - Jennifer Williams

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People - Eye on EESI Research - Jennifer Williams  
  
Eye on EESI Research  
  
Jennifer Williams (photo)Jennifer Williams  
  
Jennifer Williams  
  
May 2013  
  
A 100 foot core extracted from the south ridge of the Shale Hills CZO  
catchment in central Pennsylvania was one of the items on display at Penn  
State's Earth and Environmental Systems Institute recently during this  
year's Susquehanna Shale Hills Critical Zone Observatory "All Hands"  
meeting.  
  
The Penn State project – known as SSHCZO – is focused on a section of Stone  
Valley in Huntingdon County. It's part of a National Science Foundation  
initiative aimed at understanding the "critical zone" – the Earth's outer  
skin that sustains life.  
  
The May meeting of faculty, students and post-doctorate researchers who are  
part of the Penn State project included an opening seminar by invited guest  
Kip Solomon, a groundwater hydrologist at the University of Utah,  
presentations on the latest research and a poster session. The core on hand  
was drilled from a section of the Rose Hill Shale and will provide  
researchers with a way to investigate the chemistry and mineralogy of that  
section of earth and how it changed over time.  
  
Other presentations this year included observations of the groundwater  
beneath the Shale Hills CZO; a profile of shale soil, micrometeorology at  
Shale Hills and a new approach to quantifying the pore structure of rocks.  
  
"The 'All Hands' meeting gives the faculty, students and post-doctorates  
who are part of the CZO a chance to share their recent activities and  
findings with each other and discuss their new ideas and next steps," said  
Jennifer Williams, a research assistant at Penn State and program and data  
coordinator of SSHCZO.  
  
The SSHCZO includes nine faculty, five post-doctoral researchers, eight  
graduate students and three undergraduates. It is one of six projects that  
are part of the national initiative.  
  
  
  
(Read the full story at Penn State News)

## Research - EESI Proposed Centers and Initiatives 2014 (CEEEP)

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## Research - EESI Proposed Centers and Initiatives 2014 (CEI)

□ Column 2  
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## Research - EESI Proposed Centers and Initiatives 2014 (CLIMA)

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Revised: 11/30/2015  
  
EESI Representative, EMS Institutes FT&R Faculty Promotion Committee  
  
 □ Doug Miller  
  
EESI Representative, EMS Diversity Council  
  
 □ Bernd Haupt  
  
United Way Campaign  
  
 □ Katerina Kostadinova  
  
Facility Coordinator  
  
 □ Tracy Bernier  
  
EESI Representatives, EMS Communications Committee  
  
 □ Francisco Tutella  
  
EESI Representative, EMS Safety Official  
  
 □ Brandon Forsythe  
  
  
  
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## Resources - Earth and Environmental Systems Institute (EESI): Strategic Plan 2014-2020 07/1/14

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Plan 2014-2020 07/1/14  
  
Earth and Environmental Systems Institute (EESI): Strategic Plan 2014-2020  
07/1/14  
  
Exploring how we live with a changing earth  
  
The EESI Vision  
  
EESI will build an extraordinary community of people who cross boundaries  
to understand the earth system, how it affects people, and how people  
affect it.  
  
To promote this vision in the next five years, EESI will emphasize the  
following initiatives, described below:  
  
 □ EESI Will Promote a Global Water Initiative (GWI)  
 □ EESI Will Promote the Area of Environmental Life Cycle Assessment  
 □ EESI Will Explore Online Graduate Education Opportunities in the  
 Environmental Sciences  
 □ EESI Will Promote the Environmental Instrumentation Infrastructure  
 □ EESI Will Promote the Use of New Cyber-infrastructure, Sensors and Big  
 Data  
 □ EESI Will Promote Diversity  
 □ EESI Will Promote a Home for a University-wide Center in Climate Risk  
 Management  
 □ EESI Will Promote Interactive Science Communication  
  
  
  
What is EESI?  
  
The Earth and Environmental Systems Institute brings together faculty and  
students derived from a cross-section of disciplines who are interested in  
understanding the Earth and how we live with it. In the next five years, we  
will continue to grow an intellectual environment that fosters  
groundbreaking research and excellence in student education. EESI currently  
hosts 22 tenure-line faculty associates, 25 research faculty, 11  
postdoctoral researchers, and 12 administrative staff. Thirty-seven (37)  
faculty at Penn State choose to interact with the institute as EESI  
affiliates. To achieve its goals, EESI receives approximately $1 million in  
University funds, most of which are used for faculty salaries. The  
institute brings in about $3 million in extramural funds that support EESI  
activities. We seek to provide the space, tools, models, data, and people  
to promote excellent science and education directed toward questions

## Research - EESI Center Awards 2017

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EESI Centers and Initiatives  
  
EESI Center Awards 2017  
  
2017 EESI Call for Proposals  
  
Eight existing centers and initiatives responded to the 2017 EESI Call for  
Proposals that went out in early Spring 2017. The PI's of each proposal  
will be giving their presentations on Monday, May 1st. The presentation  
schedule is attached. The public is invited to attend these presentations.  
  
Decisions on funding support for the next three years will be announced in  
June.  
  
  
  
2017 Center Proposals  
  
 □ Energy and Environmental Economics and Policy Initiative (EEEPI)  
 □ Center for Environmental Informatics (CEI)  
 □ Center for Climate Risk Management (CLIMA)  
 □ Earth System Science Center (ESSC)  
 □ Center for Landscape Dynamics (CLD)  
 □ Marcellus Center for Outreach and Research (MCOR)  
 □ Penn State Ice and Climate Research Center (PSICE)  
 □ Riparia  
  
  
  
Schedule for EESI Center Proposal Presentations  
  
Date: May 01, 2017  
Location: 117 EES Building  
  
 Time Center Director Comments  
  
10:00 - 10:20 Closed Meeting Opening comments from Sue  
am Brantley  
  
10:20 - 10:40 ESSC M. Mann 20 minutes including questions  
am  
  
10:40 - 11:00 Riparia R. Brooks 20 minutes including questions  
am  
  
11:00 - 11:20 EEEPI S. Blumsack 20 minutes including questions  
am

## Research - Scholar in Resident (SIR) Faculty Program

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Research - Scholar in Resident (SIR) Faculty Program  
  
EESI Centers and Initiatives  
  
Scholar in Resident (SIR) Faculty Program  
  
The Scholar in Residence (SIR) for EMS faculty is a professional  
advancement grant in research or teaching for outstanding EESI Associates  
and Affiliates. The Departments of the recipients receive support for a  
semester to allow the Associate to focus on the scholarship of research or  
teaching and learning in the interdisciplinary environmental sciences.  
Depending on the available support, Scholars will reside (i.e. have office  
space in) in EESI during the academic year of, or the year after, a  
successful application.  
  
The SIR program targets support to individuals pursuing work of strategic  
interest to EESI as outlined in the EESI Strategic Plan. EESI offers  
$10,000 to the department of the Scholar-in-Residence to release each  
recipient from all classroom teaching responsibilities for the semester in  
exchange for residence in EESI. The SIR recipient must be in residence in  
the Earth and Engineering Science Building during the semester. During the  
award period, the recipient will also serve in an advisory capacity to the  
Director of the Institute.  
  
An acknowledgement of the SIR in any publications or material developed for  
distribution is expected (e.g. research was undertaken when the author was  
an EESI Scholar-in-Residence (January-July, 2010).  
  
  
  
How to Apply  
  
Applicants should submit a statement describing the proposed work  
(including the timing) and how a SIR grant would contribute to these  
activities, their most current curriculum vitae, a letter of support from  
their department head, and their most current faculty activity report.  
Individuals are encouraged to contact Susan L. Brantley (sxb7@psu.edu) to  
discuss their plan for use of a SIR before developing their proposal. The  
application for a SIR can be submitted by mail or email to Susan L.  
Brantley (sxb7@psu.edu), Director, Earth and Environmental Systems  
Institute, 2217 EES, Penn State University, University Park, PA 16802.  
  
  
  
Fall 2009 Scholar in Residence Recipients are:  
  
 □ Dr. Eric Kirby, Associate Professor of Geosciences  
 □ Dr. Douglas Miller, Director of the Center for Environmental  
 Informatics and Associate Professor Geography

## Research - Environmental Student Ambassador (ESA) Program

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Research - Environmental Student Ambassador (ESA) Program  
  
EESI Centers and Initiatives  
  
Environmental Student Ambassador (ESA) Program  
  
EESI is seeking EMS undergraduate students interested in enhancing  
environmental stewardship and outreach in the University community and  
beyond to become Environmental Student Ambassadors.  
  
Funds are available to support the activities of an ESA by applying with a  
faculty sponsor in your EMS department. ESAs will be selected on the basis  
of a proposed project that improves the health and sustainability of the  
environment for the local community, for EMS, or for the University. The  
projects could, but are not required to, be executed in collaboration with  
University units (e.g. Physical Plant, the Arboretum at Penn State),  
student clubs (e.g. Ecoaction), community groups (e.g. ClearWater  
Conservancy, Millbrook Marsh), or an environmental group (e.g. Nature  
Conservancy, SIerra Club). Projects could focus on, for example, developing  
new educational or outreach materials for the public, improving the carbon  
footprint, recycling, energy audits, or removing invasive species in  
conservation areas.  
  
Environmental Student Ambassadors will receive financial and staff support  
for their activities for a semester but longer projects will be considered.  
  
Student ambassadors will need a faculty sponsor who is willing to serve as  
a mentor during the implementation of the project. The ESA could become  
part of a student curriculum by registering for independent study credits  
in consultation with their faculty mentor. ESAs are also expected to share  
project results with the EESI community at an informal lunch.  
  
EESI has allocated $2,500 annually to support the activities of the ESA  
program. Salary support will not be provided for the ESA. Acknowledgment of  
the ESA in any presentation or educational/outreach materials developed for  
distribution is expected.  
  
Applications to become an Environmental Student Ambassador should include:  
  
 □ A two-page statement describing the proposed project and how it will  
 enhance environmental stewardship and outreach in the University  
 Community  
 □ A schedule of activities and project deliverables  
 □ A budget that identifies how funds will be spent  
 □ A letter of support from a faculty sponsor  
 □ Letters of support from any collaborating partners<  
  
Applications will be accepted at anytime during a semester for projects in  
the following semester(s). Please submit your application to: Tracy

## Research - Director’s Awards

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Research - Director's Awards  
  
EESI Centers and Initiatives  
  
Director's Awards  
  
EESI Associates are invited to apply for up to $1000 per year to visit  
funding agencies or workshops for new initiatives promoted by agencies.  
Available funding is limited and can be used only for travel and hotel.  
  
How to Apply:  
  
Applicants should send their request to: Shelly McCall (maf37@psu.edu)  
  
  
  
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Earth and Environmental Systems Institute  
2217 Earth-Engineering Sciences Building  
University Park, PA 16802-6813  
Contact Us / Find a Person  
  
Engage with Us  
  
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## Research - Funding for Workshops

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Research - Funding for Workshops  
  
EESI Centers and Initiatives  
  
Funding for Workshops  
  
EESI will provide funding for short focused workshops to enable groups of  
researchers to interact to move key ideas forward to increase the impact of  
research programs or to position research programs to lead in emerging  
areas of interdisciplinary environmental science. In its role as a leading  
environmental institute, EESI is well-positioned to facilitate workshops  
that support the research programs of our EESI Associates and Affiliates.  
  
Workshop structure:  
  
EESI seeks proposals from EESI Associates to run small workshops to support  
their research programs. Workshop proposals can fall into one of three  
categories:  
  
 1. Proposals for scientific workshops that are tightly focused. Topics  
 should be both timely and of interest to a group of EESI Associates and  
 Affiliates that reside in different academic units at Penn State, and  
 to scientists at other institutions.  
 2. Proposals for workshops designed to bring together a group of  
 prospective PIs to develop multi-disciplinary research proposals.  
 3. Proposals for workshops supported by extramural funds that will utilize  
 EESI facilities or EESI staff.  
  
Considerable flexibility is given to how the workshops will be run.  
Workshops with the following characteristics are especially encouraged:  
  
 □ limited duration (likely 1 – 1.5 days)  
 □ focused on a disciplinary or topical area consistent with EESIs mission  
 □ limited size (~20 or fewer participants)  
 □ inclusive of junior researchers (senior graduate students and postdocs)  
 as well as a diversity of groups  
  
A steering committee of at least 3 people is expected to participate in  
developing and running proposed workshops.  
  
EESI can fund one workshop per calendar year and any EESI Associate is  
eligible to submit a proposal. Proposals will be evaluated by the EESI  
Advisory Committee. Individuals are encouraged to contact Sue Brantley (  
brantley@essc.psu.edu) to discuss their workshop idea before developing a  
proposal. Proposals that further EESI strategic goals as summarized in the  
Strategic Plan, proposals that involve multiple EESI Associates, and  
proposals that are co-sponsored by other units on campus are particularly  
encouraged.

## Research - EESI Proposed Centers and Initiatives 2014 (Riparia)

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## Research - EESI Proposed Centers and Initiatives 2017 (CLD)

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## Research - EESI Proposed Centers and Initiatives 2017 (CLIMA)

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## Research - EESI Proposed Centers and Initiatives 2017 (Riparia)

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## Research - EESI Proposed Centers and Initiatives 2017 (EEEPI)

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## Research - EESI Proposed Centers and Initiatives 2017 (CEI)

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## Research - EESI Proposed Centers and Initiatives 2017 (ESSC)

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## News Archive 2017 - Guido Cervone

2017 News, Highlights, and Accomplishments  
  
Guido Cervone joins EESI as an associate.  
  
November 2017  
  
Guido CervoneWe're pleased to announce Dr. Guido Cervone, associate  
professor in the Department of Geography is joining EESI as an associate.  
  
In addition to his appointments in EESI and Geography, Guido serves as  
associate director of the Institute for CyberScience and director of  
GeoInformatics and Earth Observation Lab at Penn State. He also is co-Chair  
for the Research Computing CyberInfrastructure Executive Committee (RCCI)  
under the office of the Vice President for Research.  
  
Guido received his B.D. and M.S. in computer science and his Ph.D. in  
Computational Science and Informatics from George Mason University. His  
expertise is in geoinformatics, machine learning and remote sensing, and  
his research focuses on the development and application of computational  
algorithms for the analysis of remote sensing, numerical modeling and  
social media spatio-temporal "Big Data." The main problem domains are  
related to environmental hazards and renewable energy forecasting.  
  
He also holds the appointments of Affiliate Scientist at the National  
Center for Atmospheric Research (NCAR) and Adjunct Faculty at the  
Lamont-Doherty Earth Observatory (LDEO), Columbia University. He serves as  
program co-chair for the Natural Hazards focus group of the American  
Geophysical Union (AGU) and Chair for the Education and Outreach advisory  
board of NCAR. In 2013 he received the 'Medaglia di Rappresentanza' from  
the office of the President of the Republic of Italy.  
  
We are excited to have someone with Dr. Cervone's skillset, experience and  
talent join us in EESI. Please join me in welcoming him to the institute.  
  
  
  
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## News Archive 2017 - EESL Green program

2017 News, Highlights, and Accomplishments  
  
Energy and Environmental Sustainability Laboratories to launch EESLGreen  
program  
  
August 2017  
  
EESL Stack of MoneyThe Energy and Environmental Sustainability Laboratories  
(EESL) are excited to launch the EESLGreen program at the Cheese and Wine  
Open House event on August 31, 2017 (http://www.iee.psu.edu/event/  
eesl-open-house-wine-and-cheese-event).  
  
The goal of this EESLGreen program is to help Penn State researchers fund  
analytical costs for projects that require use of any or all of the EESL  
multi-user research facilities. Please visit our website at http://  
eesl.iee.psu.edu to learn about our services and capabilities.  
  
 1. Your project idea  
 2. Your team member names, advisor's name and unit affiliations  
 3. Reason why you don't have money to fund the project  
 4. The analytical services that you plan to use,  
 5. Budget  
  
Note that anything over one page will not be read.  
  
Submit your proposal via email to oom5021@psu.edu no later than 5 p.m. on  
Monday August 28, 2017. Each award will be $1,000–$2,500.  
  
To qualify for the award, proposers must be present when announced (at some  
point around or before 6:20 p.m.).  
  
EESLGreen funds must be used no later than May 31, 2018.  
  
  
  
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## News Archive 2017 - Living Filter Corn Irrigation

2017 News, Highlights, and Accomplishments  
  
Living Filter Corn Irrigation  
  
February 2017  
  
UNIVERSITY PARK, Pa -- Changes in climate can rapidly impact even the  
deepest freshwater aquifers according to Penn State and Columbia University  
hydrologists.  
  
The researchers found that responses to climate variations can be detected  
in deep groundwater aquifers faster than expected - in many cases within a  
year.  
  
Living Filter Corn Irrigation  
  
Because rain water may take years to reach deep aquifers through natural  
infiltration, the findings suggest another factor is involved, such as  
pumping of aquifers done by agricultural industries.  
  
"We saw a rapid response in deep groundwater levels to both major climate  
cycles and local precipitation," said Tess Russo, associate in Penn State's  
Earth and Environmental Systems Institute. "These aquifers are so deep, we  
expect it takes years for precipitation to make its way down, so if it's  
not natural recharge causing the response of groundwater to changes in  
precipitation, then it may be coming from pumping changes."  
  
The research, published in Nature Geoscience, sheds new light on  
groundwater budgets in the U.S. and better defines how water held in deep  
aquifers could change with the climate. Groundwater used by municipalities  
and industry is almost always drawn from deep wells, which provide a more  
reliable source of water than shallow aquifers, especially during times of  
drought.  
  
Click here for more information on this story.  
  
Photo cutline: Corn Irrigation at Penn State's "Living Filter"  
Photo credit: Emily Woodward/Penn State  
  
  
  
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## News Archive 2017 - DOE - Penn State Collaboration

2017 News, Highlights, and Accomplishments  
  
DOE - Penn State Collaboration  
  
Project to develop computational tools for coupled human-natural systems  
  
January 2017  
  
UNIVERSITY PARK, Pa -- EESI hosting new collaboration between University  
and DOE  
  
Klaus Keller, Chris Forest and Rob Nicholas, associates in the Earth and  
Environmental Systems Institute, will take part in a new five-year, $20  
million project between Penn State, Stanford University and the U.S.  
Department of Energy (DOE).  
  
DOE - Penn State Collaboration  
  
Through the project, researchers will seek to develop an integrated  
modeling and analysis framework to assess impacts of variability and change  
in the Earth system. Co-led by Karen Fisher-Vanden (Ag Econ), the project  
involves nearly 30 Penn State collaborators across Earth and Mineral  
Sciences, Agricultural Sciences, Engineering, Eberly College of Science,  
and Penn State Law.  
  
EESI is hosting the project, which is co-located with the Network for  
Sustainable Climate Risk Management on the third floor office suite of the  
Earth-Engineering Science Building.  
  
Click here for more information on the project.  
  
  
  
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## News Archive 2016 - Leaf study brings boom to CZO

2016 News, Highlights, and Accomplishments  
  
Leaf study brings boom to CZO  
  
October 2016  
  
UNIVERSITY PARK, Pa -- It wasn't hunting season, but a Penn State  
researcher took aim at the target and fired. Nothing moved except some  
leaves floating gently to the ground – a perfect shot.  
  
Leaf study brings boom to CZO  
  
  
  
It was those leaves that Penn State graduate student Lillian Hill and her  
team were after earlier this year when they trekked out into the woods with  
a shotgun. It may seem unusual, but it's actually a common method to bring  
down samples that grow high in the canopy – called sun leaves.  
  
It's those hard-to-reach leaves that Hill needs. She is studying what  
nutrients trees take from their leaves before dropping them, and what that  
process can tell us about what's happening underneath.  
  
"Plants suck up whatever is in the soil that they need, and they put it in  
their leaves to do the types of reactions they need to keep themselves  
going," Hill said.  
  
Before the leaves fall, plants resorb any nutrients they need to reserve  
for the next year. If they take back a specific nutrient, it might mean  
they are not getting enough from the soil.  
  
"That's why we are looking at older canopy trees, they kind of learn what  
to resorb," Hill said, whose advisors are Jason Kaye, professor of soil  
biogeochemistry, and Roman DiBiase, assistant professor of geosciences and  
associate in the Earth and Environmental Systems Institute at Penn State.  
  
Hill will head back out to the woods this month to collect more samples.  
Her job will be much easier, thanks to the changing seasons. Hill will take  
the live leaves she previously collected, and the dead leaves she'll find  
this fall, run them through equipment in the lab, and compare nutrient  
content.  
  
Her work can tell us what nutrients are missing from the soil and therefor  
what is limiting trees' growth in any particular location. This can also  
offer researchers information about the soil and bedrock underneath are  
interacting.  
  
Hill is comparing limiting nutrients at locations with shale bedrock and  
sandstone found within Penn State's Susquehanna Shale Hills Critical Zone  
Observatory.  
  
"We're also taking soil samples out here at multiple depths and analyzing  
that for the same suite of nutrients," Hill said. "That gives us an idea if  
there is a difference in nutrient limitation between sandstone and shale.  
That's my big question."  
  
The sites are part of Penn State's CZO, one in a network funded by the  
National Science Foundation that links diverse geographical locations  
across the U.S. where researchers are studying the thin layer that supports  
all human life. Dr. Susan L. Brantley, Distinguished Professor of

## News Archive 2016 - Upcoming discussion on science and politics

2016 News, Highlights, and Accomplishments  
  
Upcoming discussion on science and politics  
  
Michael Mann  
  
October 2016  
  
Michael Mann, Distinguished Professor of Meteorology and associate in the  
Earth and Environmental Systems Institute at Penn State, will be among the  
panelists in a discussion Thursday, Oct. 13 about the role of scientists  
helping to shape policy for a more sustainable future.  
  
Holt, Hudson, and Mann science politics panel 2016  
  
The discussion, "Scientist-Citizen: Science Policy in the Age of Promise  
and Peril," featuring Rush Holt, executive officer of the American  
Association for the Advancement of Science (AAAS), will be held in the  
Freeman Auditorium in Penn State's HUB-Robeson Center at 7 p.m. on Oct. 13.  
Mann and Peter Hudson, director of Huck Institutes of the Life Sciences and  
the Willaman Professor of Biology, will join Holt.  
  
Mann said that the current environmental challenges and the upcoming  
elections make the event particularly timely.  
  
"Many of the leading challenges we face today as a civilization lie at the  
nexus of science and policy," said Mann. "As we approach our next  
presidential election, it is critical that these challenges be brought to  
the forefront of our political discourse. This forum provides an  
opportunity to do that right here at Penn State."  
  
Holt, Hudson, and Mann science politics panel flyer 2016  
  
Click here for the full story: Retired congressman, AAAS CEO Holt to lead  
panel on science and politics - October 2016.  
  
  
  
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## Resources - EESI Advisory Committee

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EESI Advisory Committe Members  
  
 □ Guido Cervone, Department of Geography (voted as EESI rep., serves 07/  
 19 - 06/22)  
 □ Jose Fuentes, Department of Meteorology (EESI Affiliate, serves 07/19 -  
 06/22)  
 □ Todd Sowers, EESI and Geosciences Research Professor (non-tenure line  
 EESI Associate, serves 07/19 - 06/20)  
 □ Alan Taylor, Department of Geography (tenure line EESI Associate,  
 serves 07/18 - 06/21)  
  
  
  
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## Resources - EESI Center Directors

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 □ Richard Alley – Penn State Ice and Climate Exploration Center (PSICE)  
 □ Sridhar Anandakrishnan – Penn State Ice and Climate Exploration Center  
 (PSICE)  
 □ Seth Blumsack, Karen Fisher-Vanden – Initiative for Energy and  
 Environmental Economics and Policy (EEEP)  
 □ Denice Wardrop – Riparia  
 □ Erica Smithwick – Center for Landscape Dynamics (CLD)  
 □ Klaus Keller – Center for Climate Risk Management Initiative (CLIMA)  
 □ Michael E. Mann – Earth System Science Center (ESSC)  
 □ Doug Miller – Center for Environmental Informatics (CEI)  
 □ Tom Murphy, Andrew Nyblade – Marcellus Initiative for Outreach and  
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## Resources - EESI Steering Committee

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 □ Tim Bralower, Interim Department Head, Department of Geosciences  
 □ David J. Stensrud, Department Head, Department of Meteorology  
 □ Cynthia Brewer, Department Head, Department of Geography  
 □ Sanjay Srinivasan, Department Head, Department of Energy & Mineral  
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## Resources - Purchasing Card Questions and Answers

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Resources - Purchasing Card Questions and Answers  
  
Purchasing Card Questions and Answers  
  
Q: How will I know if my p-card expenses require a p-card support form or  
will be included as part of my travel expenses?  
  
A: A good way to check is by logging into ERS and reviewing your imported  
expenses. These expenses will normally be included as part of a travel or  
meal reimbursement report and require either a travel reimbursement  
worksheet or a group meal/meeting form.  
  
Q: When I register for a conference or workshop on my p-card, do I need to  
complete a p-card support form for this expense even though it is part of  
my conference expenses? Why is this not part of the travel form that I  
submit after completion of my trip?  
  
A: The expenses are filtered either into the ERS System or into the IBIS  
Financial System, based on the merchant code of the vendor. Normally,  
vendors who coordinate the registrations, have a merchant code that the  
system filters into the IBIS system which requires a p-card support form.  
  
  
  
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## News Archive 2019 - Registration open for 2019 Shale Network Workshop

2019 News, Highlights, and Accomplishments  
  
Registration open for 2019 Shale Network Workshop  
  
March 2019  
  
Shale Network drill pad photoThe workshop will be held May 16 and 17 at the  
Nittany Lion Inn in State College, Pa. The theme of this year's workshop is  
"Monitoring Communities and Their Environment."  
  
The workshop provides an opportunity for citizen scientists, researchers,  
government officials, energy company representatives, and environmental  
professionals to compare lessons learned about water and environmental  
issues within areas where shale energy development is occurring.  
  
The 2019 workshop features a field trip to two shale energy-related sites  
that manage solid and liquid wastes derived from well drilling and oil and  
gas production. The first is a tour of the Eureka Resources Williamsport,  
Pa. facility, an oil and gas wastewater management plant. This facility is  
designed for the pretreatment, recycling and disposal of wastewater from  
natural gas drilling and production operations in the Marcellus and Utica  
Shales. The second is a tour of the Wayne Township Landfill in Clinton  
County, Pa. The landfill manages drilling cuttings and muds generated  
primarily from shale well drilling operations and uses some novel practices  
to minimize the industry's environmental footprint. In addition, the  
facility hosts a compressed natural gas filling station for vehicles,  
including trash hauling vehicles.  
  
  
  
Details Shale Network Workshop can be found here.  
  
  
  
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## News Archive 2016 - CZO hosts Summer Scholars

2016 News, Highlights, and Accomplishments  
  
CZO hosts Summer Scholars  
  
CZO Summer Scholars walk in Researchers' shoes  
  
September 2016  
  
UNIVERSITY PARK, Pa -- If you need directions around the sloping, forested  
hills near Penn State's Shaver's Creek Environmental Center, just ask  
Connor Martin.  
  
CZO REU Summer Scholar 2016  
  
Summer CZO REU students and Penn State researchers run an experiment to  
test soil infiltration rates at the Garner Run site in Penn State's  
Susquehanna Hills Critical Zone Observatory (CZO). The team hoped to  
compare the numbers to infiltration rates over rocky sections of the site.  
  
  
  
Martin spent his summer trekking through the woods -- pencil, maps and GPS  
unit in hand. He was part of a team mapping the ground cover, from soil and  
dead leaves to rocky outcroppings, of the Garner Run site in Penn State's  
Susquehanna Hills Critical Zone Observatory (CZO).  
  
"We have pages covered in numbers," Martin said. "One means rocky with no  
canopy, two means a complete soil mantle, and so on. We walked through the  
woods writing these numbers as we go."  
  
CZO REU Summer Scholar 2016His work has helped produce detailed maps of the  
site, which is part of a Nation Science Foundation-funded network of  
observatories studying the thin layer of Earth that supports human life.  
The numbers he collected could someday help lead to a better understanding  
of the geological processes that shaped the region in the past, and how the  
land surface might behave in the future.  
  
Martin, a geosciences student at the University of Pittsburgh, was one of  
17 undergraduates from Penn State and universities across the country who  
this year participated in the CZO summer Research Experience for  
Undergraduates and Teachers (REU/RET) program.  
  
The program, sponsored by the NSF and hosted by Penn State's Earth and  
Environmental Systems Institute, paired students with researchers at CZO  
locations at Penn State and the Stroud Environmental Center in southeastern  
Pennsylvania and northern Delaware.  
  
The goal is to introduce students to the type of cross-disciplinary  
research happening in a CZO, giving them real-world experience and giving  
scientists help with their work.  
  
"We are getting lots of field work, lots of experience and we're putting  
some skills to the test," Martin said. "It's really cool to just think  
about the big picture, how the ecosystem and plants and soil and rocks all  
come together."  
  
The CZO program is a network of 10 sites in diverse geographical locations  
in the United States, along with a national office, that studies the layer  
of the Earth that stretches from the tops of trees to the deepest fresh  
groundwater with a cross disciplinary approach. Researchers come from a

## News Archive 2016 - Jenni Evans - Interim Director of the Penn State Institute for Cyberscience (ICS)

Institute for Cyberscience (ICS)  
  
2016 News, Highlights, and Accomplishments  
  
Jenni Evans - Interim Director of the Penn State Institute for Cyberscience  
(ICS)  
  
January 2016  
  
Please see the memo below from Neil Sharkey.  
  
\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*  
  
DATE: January 13, 2016  
  
FROM: Neil A. Sharkey  
  
TO: Academic Leadership Council  
 President's Council  
 ICS Faculty and Staff  
 RCCI Executive Committee  
 University Research Council  
  
SUBJ: Interim Director of the Penn State Institute for Cyberscience (ICS)  
  
I am pleased to announce that Jenni L. Evans, Professor of Meteorology, has  
accepted the position of interim director of Penn State's Institute for  
Cyberscience, effective February 1, 2016.  
  
Jenni is taking over for Padma Raghavan who is stepping down as the  
founding Director of ICS to become Vice Provost for Research at Vanderbilt  
University. Evans will assume responsibilities for the management and  
direction of ICS while we conduct a national search for the next permanent  
director of this vitally important Penn State Institute.  
  
Dr. Evans received her B.Sc. (Honors) and Ph.D. in Applied Mathematics from  
Monash University in 1984 and 1990 respectively. She served as visiting  
scientist with the Naval Postgraduate School in Monterey, California and as  
research scientist with the Commonwealth Scientific and Industrial Research  
Organization (CSIRO) in Melbourne, Australia before being appointed as an  
assistant professor of Meteorology at Penn State University in 1992. Jenni  
was promoted to associate professor with tenure in 1998 and full professor  
in 2005, with a joint appointment in the Earth and Environmental Systems  
Institute. She served as interim director of the Earth and Environmental  
Systems Institute in 2013 and as interim director of the Penn State  
Institutes for Energy and Environment during the 2014-15 academic year.  
  
Dr. Evan's research interests are organized around the themes of tropical  
cyclones, tropical convection and climate change. She is a member of a  
small group of scientists who recognized and developed the research area of  
extratropical transition of tropical cyclones, and the forecasting tool she  
developed during that effort is actively used by the U.S. and Canadian  
National Hurricane Centers as well as the U.S. Air Force Weather Squadron,  
the Joint (U.S. Navy/Air Force) Typhoon Warning Center, and the Australian  
Bureau of Meteorology and Japanese Meteorological Agency. Her research has  
been supported by the National Science Foundation, NASA, the EPA and the  
U.S. Navy. Dr. Evans has served as the Professional Team Lead Meteorologist  
for the Florida Commission for Hurricane Loss Projection Methodology since  
2003, and in 2010 she was elected a Fellow of the American Meteorological  
Society.

## News Archive 2016 - SCRiM hosts Summer Scholars

2016 News, Highlights, and Accomplishments  
  
SCRiM hosts Summer Scholars  
  
Students' research aims at issues surrounding climate change  
  
September 2016  
  
UNIVERSITY PARK, Pa -- Some think of summer as a quiet time on a college  
campus, but a diverse group of students spent their break hard at work on a  
common problem – climate change.  
  
Students and recent graduates from Penn State and universities across the  
country gathered this summer at the University Park campus as part of the  
2016 Summer Scholars Program, hosted by the Network for Sustainable Climate  
Risk Management (SCRiM).  
  
SCRiM Summer Scholar 2016  
  
The Summer Scholars program brings together students with diverse  
backgrounds – from environmental studies to statistics to philosophy – and  
pairs them with SCRiM researchers for nine weeks of full-time work on  
independent research projects.  
  
As their backgrounds would suggest, the 21 students explored climate change  
from a number of perspectives, including studying possible social impacts  
on the people threatened most by rising sea levels, and developing tools to  
help decision makers faced with complex issues.  
  
"When you think of climate change, you usually think of science and hard  
facts behind it," said Zabrenna Griffiths, an undergraduate at Florida  
Agricultural and Mechanical University who participated in the program. "I  
really like the approach SCRiM takes. It's interdisciplinary, so you have  
an ethical side, a statistical side and a science side."  
  
SCRiM, a National Science Foundation-supported research network centered at  
Penn State, seeks to find sustainable, scientifically sound,  
technologically feasible, economically efficient and ethically defensible  
climate risk management strategies.  
  
"I think climate change is a very interdisciplinary problem," said Rachana  
Ghimire, an undergraduate student at Washington and Lee University and  
summer scholar. "Since it's that type of problem, it requires that type of  
solution, and I think that's what makes SCRiM so unique."  
  
Ghimire worked this summer under the supervision of Martin Vezer, a  
postdoctoral scholar with SCRiM, analyzing flood maps and social  
vulnerability in a section of New Orleans. Ghimire said she gained valuable  
insight working with her mentor and alongside students from varying  
backgrounds.  
  
"In my program this year, we have geology majors, we have biology majors,  
we have ecology majors, we have economics majors and we have philosophy  
majors," she said. "We have all these people from all these disciplines  
being drawn to climate change and looking for different solutions."  
  
Nina Preston, another summer scholar, studied potential risk of sea level  
rise for people in low lying areas of Bangladesh. Before coming to Penn  
State, Preston didn't know much about how ice dynamics influence sea level  
rise globally. Moving forward, she said, it will be an important part of

## News Archive 2015 - Richard Alley receives BBVA Foundation award

2015 News, Highlights, and Accomplishments  
  
Richard Alley receives BBVA Foundation awardRichard Alley (photo)  
  
January 2015  
  
Please join us in congratulating Professor Richard Alley on being awarded  
the prestigious BBVA Foundation Frontiers of Knowledge Award in Climate  
change. In its citation, the jury praised Alley for his "pioneering  
research" into the "mechanics of ice and its implications for abrupt  
climate change."  
  
Jury member Miquel Canals refereed to Alley as "our best interpreter of  
ice. Although there are others working in different aspects of the field,  
he is the one who completed the circle: in ice he has read the history of  
the atmosphere, with its phases of abrupt change. He has elucidated its  
mechanisms of formation and deformation and how it interacts with climate.  
Alley explains the present while keeping a window open to the past and  
analyzing possible future paths."  
  
The BBVA Foundation awards seek to recognize and encourage world-class  
research and artistic creation, prizing contributions of lasting impact for  
their originality, theoretical significance and ability to push back the  
frontiers of the known world. Previous winners include Wally Broecker,  
Klaus Hasselmann, Nicholas Stern, Isaac Held, Susan Solomon, and  
Christopher Field.  
  
"Climate change doesn't just mean the globe is warming, it also means ice  
is melting," said Dr. Susan L. Brantley, who nominated Alley for the award.  
"Richard Alley is the premier ice specialist in the world and has done more  
than anyone to educate us about changing and moving polar ice. Richard and  
I have worked together for many years in Penn State's Earth and  
Environmental Systems Institute and I am exceedingly proud of his  
accomplishments. This award is richly deserved."  
  
More info here:  
http://en.wikipedia.org/wiki/BBVA\_Foundation\_Frontiers\_of\_Knowledge\_Award#  
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## News Archive 2015 - David Pollard receives Paul F. Robertson Award for Breakthrough of the Year

Breakthrough of the Year  
  
2015 News, Highlights, and Accomplishments  
  
David Pollard receives Paul F. Robertson Award for Breakthrough of the Year  
David Pollard (photo)  
  
April 2015  
  
Pollard wins breakthrough of the year award.  
  
David Pollard, a senior scientist with the Earth and Environmental Systems  
Institute, was honored Sunday for his pioneering work modeling glacial ice  
in Greenland and Antarctica.  
  
Pollard received the Paul F. Robertson Award for Breakthrough of the Year  
at the College of Earth and Mineral Sciences' annual Wilson Awards Banquet.  
  
Created in 2012 with support from a generous gift by EMS alumnus Paul F.  
Robertson, the award is given for breakthroughs in research or in the  
scholarship of teaching.  
  
"Dave deserves this award because he is the preeminent person in the world  
who understands how to model ice sheets and ice shelves," said Susan L.  
Brantley, distinguished professor of geosciences and director of EESI. "His  
model is really the best model in terms of quantitatively predicting what  
happens to an ice sheet and ice shelves in terms of change, evolution over  
time. And we are really interested in this, because as the climate changes  
the ice sheet is melting and how that impacts sea level will really impact  
humans around the planet."  
  
Pollard, who has worked at Penn State for 17 years, has developed a  
world-renowned model noted for its ability to run simulations over  
long-time frames quickly and without sacrificing accuracy. His recent work  
examines the grounding zone, the edges of an ice sheet where the ice  
becomes afloat on the ocean. The zone is a critical region that is  
projected to contribute to sea level rise as ice there melts, breaks and  
enters the ocean at an accelerating pace.  
  
"Dave has picked out a very interesting way of putting the real physics of  
unstable grounding zones in between really fast pieces of his model on  
either side, so it does a good job of getting the grounding zone right,  
without bogging down the model so it can't do the simulations you need,"  
said Richard Alley, Evan Pugh professor of geosciences and director of  
PSICE, who along with Brantley nominated Pollard for the award.  
  
Pollard's model suggests there is a potential for self-accelerating,  
runaway retreat as more and more grounded ice in the West Antarctic  
interior is lost to the ocean. Changes in the ice are already contributing  
to sea level rise, and are expected to accelerate in the future.  
  
"One of the primary reasons we study these big ice sheets is because of the  
potential effect on sea level," Pollard said. "There is so much water  
stored up in these big ice sheets that if substantial parts of them melt in  
the future, as they have in the past, that could change sea level."  
  
  
  
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## News Archive 2014 - Marcellus Matters educates citizens about science

2014 News, Highlights, and Accomplishments  
  
Marcellus Matters educates citizens about scienceDave Yoxtheimer water  
quality testing (photo)  
  
February 2014  
  
Marcellus Center for Outreach and Research  
  
As natural gas development stretched across Pennsylvania, a group of Penn  
State researchers began looking for ways to educate the public not just on  
drilling in the Marcellus Shale, but on the science behind it.  
  
From that came Marcellus Matters: Engaging Adults in Science and Energy, a  
project started in 2012 with a $1.9 million grant from the National Science  
Foundation.  
  
Read the full story in the Centre Daily Times Centre Daily Times  
  
  
  
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## News Archive 2014 - EESI talk highlights opportunities for National Institute of Health funding

Institute of Health funding  
  
2014 News, Highlights, and Accomplishments  
  
EESI talk highlights opportunities for National Institute of Health funding  
  
December 2014  
  
This week, researchers learned about potential funding availability from  
NIH during a pizza lunch at EESI. Lorraine Mulfinger, associate director of  
the strategic interdisciplinary research office, presented an introduction  
on the topic and discussed awards that could be available to EESI and EMS  
researchers. There are 402 awards totaling $152 million actively funded by  
NIH at Penn State.  
  
Documents included in the box show active NIH climate projects, suggested  
research activities for Superfund Hazardous Substance Research and Training  
Program Center grants, proposal success rates and other helpful links. In  
addition, the following website contains a priority list of substances that  
will be the subject of toxicological profiles, which was discussed during  
the lunch: http://www.atsdr.cdc.gov/SPL/index.html  
  
Those who are interested can also register in a workshop on the NIH grant  
writing and review process. The workshop will be held from 8:30 a.m. to  
11:30 a.m. Monday, Dec. 15 at the Bennett Pierce Living Center at 110  
Henderson Building. Attendees will learn what NIH agencies are looking for  
when reviewing grant proposals, how to develop competitive research plans  
and how to increase their chances for funding. Registration can be  
completed here: https://redcap.ctsi.psu.edu/redcap/surveys/?s=CAScTidF6Z  
  
  
  
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## News Archive 2014 - Climate scientist Michael E. Mann will be one of the recipients of the Pongo Award

recipients of the Pongo Award  
  
2014 News, Highlights, and Accomplishments  
  
Climate scientist Michael E. Mann will be one of the recipients of the  
Pongo AwardPongo award (photo)  
  
The Orang Utan Republik Foundation (OURF) will be holding its annual  
fundraising event on Sunday, October 19, 2014 (4-7pm).  
  
October 2014  
  
The theme this year is, "Raising Funds, Raising Hope." The idea is that by  
raising funds for OURF's conservation education programs, there is  
continued hope to save orangutans in Indonesia.  
  
The OURF awards committee will be honoring a number of individuals, some  
celebrities, with the distinguished Pongo Awards for their contribution "to  
the improved understanding and appreciation of orangutans and endangered  
species, rainforest habitat, and for improving conditions for orangutans  
and other animals". Climate scientist Michael E. Mann will be one of the  
recipients of the Pongo Award this year for his research that provided  
important global temperature data and a strong case for global warming.  
  
More info here:  
http://www.orangutanrepublik.org/programs/the-pongo-awards  
  
  
  
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## Archive 2014 - Penn State AGU Reception

2014 News, Highlights, and Accomplishments  
  
Penn State AGU Reception  
  
Thursday, December 18, 2014, from 6:00pm - 8:00pm at the Parc 55 Wyndham  
Hotel (Market Street Room), 55 Cyril Magnin Street, San Francisco.  
  
November 2014  
  
Dear PSU Faculty, Students, Alumni, and Friends,  
  
If you are planning to attend the Fall AGU Meeting in December, we hope you  
stop by our reception to say hi to old friends and meet new ones.  
Co-sponsored by EESI and the College of EMS, the reception will be held on  
Thursday, December 18, 2014, from 6:00pm - 8:00pm at the Parc 55 Wyndham  
Hotel (Market Street Room), 55 Cyril Magnin Street, San Francisco.  
  
Hope to see many of you there!  
  
Sue Brantley  
  
Pongo award (photo)  
  
  
  
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## News Archive 2013 - EESI and PSIEE to host talk on “The Risks and Rewards of Science Communication”

2013 News, Highlights, and Accomplishments  
  
EESI and PSIEE to host talk on "The Risks and Rewards of Science  
Communication"Flier for Nancy Baron talk (photo)  
  
Speaker to share lessons learned from a decade working with scientists  
  
Nancy Baron, a science communications trainer and coach, will give a talk,  
"The Risks and Rewards of Science Communication," at 1 p.m. Thursday, Sept.  
26, 2013, in room 114 of the Earth Engineering Science Building on the Penn  
State campus. The talk is free and open to the public and will be followed  
by a reception in room 217 EES Bldg.  
  
Baron is director of science outreach at COMPASS, which helps scientists  
communicate their work to journalists, policy makers and the public. She is  
author of "Escape from the Ivory Tower: A Guide to Making Your Science  
Matter," lead trainer for the Leopold Leadership Program and recipient of  
the 2013 Peter Benchley Ocean Award for Excellence in Media.  
  
Baron's visit is sponsored by the Penn State Institutes of Energy and the  
Environment and the Earth and Environmental Systems Institute in the  
College of Earth and Mineral Sciences.  
  
  
  
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## News Archive 2013 - EESI and PSIEE faculty participate in science communications workshop

communications workshop  
  
2013 News, Highlights, and Accomplishments  
  
EESI and PSIEE faculty participate in science communications workshopIliana  
Baums and reporter (photo)  
  
October 2013  
  
Scientists who master the art of communication not only do a good job  
explaining their work and its importance, they become better scientists in  
the process.  
  
That was the message of Nancy Baron, a science communications expert who  
talked at Penn State in September as part of a workshop she held for  
faculty in the College of Earth and Mineral Sciences' Earth and  
Environmental Systems Institute and the Penn State Institutes of Energy and  
the Environment.  
  
"Going public forces you to distill facets of your work, and to think  
harder about the questions, the scientific questions, what's known and  
what's still left to discover," Baron said. "Being a communicator isn't an  
add-on. It makes you better at science."  
  
Peter Wilf and colleagues (photo)  
  
Baron is director of science outreach at COMPASS, which helps scientists  
communicate their work to journalists, policy makers and the public. She is  
author of "Escape from the Ivory Tower: A Guide to Making Your Science  
Matter," lead trainer for the Leopold Leadership Program and recipient of  
the 2013 Peter Benchley Ocean Award for Excellence in Media.  
  
Among the advice Baron shared with the students and faculty in the audience  
was to be transparent when presenting information; find effective metaphors  
for explaining complex subjects; and be yourself.  
  
The Penn State Institutes of Energy and the Environment and the Earth and  
Environmental Systems Institute in the College of Earth and Mineral  
Sciences sponsored her visit to University Park. Along with the talk, "The  
Risks and Rewards of Science Communication," Baron's visit included a  
daylong workshop with EMS and PSIEE faculty focused on finding ways to  
effectively communicate their research subjects.  
  
Penn State faculty at workshop (photo)"People will turn to you because you  
have that clarity of expression — the ability to cut to the chase," she  
said. "So if each of you was to think of somebody who you really admire as  
a leader, chances are they are an effective communicator."  
  
  
  
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## News Archive 2013 - EESI project part of new NSF report focused on research taking place in the “critical zones”

taking place in the "critical zones"  
  
2013 News, Highlights, and Accomplishments  
  
EESI project part of new NSF report focused on research taking place in the  
"critical zones"  
  
Report features Penn State EESI initiative looking at areas impacted by  
Marcellus Shale gas drilling  
  
July 2013  
  
A new report from the National Science Foundation offers a look at the work  
being done by researchers who are studying what is known as the Earth's  
critical zone, including the research a Penn State team is leading in the  
Susquehanna Shale Hills.  
  
"Discoveries in the Critical Zone: Where Life Meets Rock" by Cheryl Dybas,  
of the NSF, is available as a pdf on the Critical Zone Observatory website.  
  
In the introduction to the report, Wendy Harrison, director of the Division  
of Earth Sciences at the NSF, says that scientists involved in the projects  
are "seeking answers."  
  
"They're working to understand Earth's critical zone -- the region between  
the top of the tree canopy and the base of weathered rock -- and its  
response to climate and land use changes," Harrison says.  
  
The section of the report focused on the Susquehanna Shale Hills in  
Pennsylvania notes that the project being led by Sue Brantley,  
distinguished professor of geosciences at Penn State, has been expanded to  
include a Marcellus Shale Research Network, focused on collecting data  
about water quality in the region where natural gas drilling using deep  
horizontal drilling has taken off.  
  
"Successfully developing new energy resources while maintaining healthy  
ecosystems is the very heart of sustainability," Brantley says.  
  
For the full report, go to the Critical Zone Observatory or the NSF.  
  
  
  
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## News Archive 2013 - EESI staff learn about Penn State’s expanded composting program

program  
  
2013 News, Highlights, and Accomplishments  
  
EESI staff learn about Penn State's expanded composting programAl  
Matyasovsky (photo)  
  
Composting expert Al Matyasovsky discusses Univeristy's efforts to cut  
waste  
  
November 2013  
  
Penn State is giving new life to thousands of tons of garbage that would  
typically get shipped to a landfill -- turning it into a gardener's dream  
ingredient -- compost.  
  
The program, formerly known as "No Can Do" and now named "Mobius" is being  
expanded to include composting bins in buildings all across campus. The  
university is asking faculty, staff and students to toss that banana peel,  
paper napkin and unfinished sandwich into building composting bins, not the  
garbage cans.  
  
"It's about doing the right thing with our waste and managing it," said Al  
Matyasovsky, supervisor of central support services in the Office of  
Physical Plant, during a recent talk he gave about composting to faculty  
and staff in the College of Earth and Mineral Sciences' Earth and  
Environmental Systems Institute.  
  
The composting program is now in about 70 buildings, including  
Earth-Engineering Science and Deike buildings. Matyaskovsky said about four  
to five buildings are being added each week, with an end goal of reaching  
all 742 buildings on campus in the next few years. It's part of the  
University-wide effort to dramatically reduce landfill waste, which  
includes other initiatives such as the annual Trash to Treasure sale. In  
that case, students who are moving out of on-campus housing donate their  
usable items that are then resold rather than being pitched in the garbage  
and sent to a landfill.  
  
In the case of composting, faculty, staff and students toss their organic  
garbage in the composting bin. Those bins are outfitted with compostable  
bags made from corn starch and cotton seed and collected frequently to head  
off problems with odor and insects. The composting rule, Matyasovsky said,  
is: "if it rots, pitch it in."  
  
From those bins, the compost is taken to the university's central  
composting site, where it's turned into black gold that's later used to  
fertilize the plants and trees around campus. Last year, Penn State  
produced 15,372 tons of garbage, but 9,853 tons or 65 percent of it was  
diverted from the landfills. That year, the university produced 1,300 tons  
of compost — a number that will grow as the program expands.  
  
"We're not going to be satisfied until nothing goes into a landfill,"  
Matyasovsky said. For more information on the program, go to Penn State  
Sustainability  
  
  
  
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## News Archive 2013 - Michael Mann, one of 50 most influential people

2013 News, Highlights, and Accomplishments  
  
Michael Mann, one of 50 most influential people  
  
September 2013  
  
Bloomberg Markets named Mann one of the "50 Most Influential" people  
  
Penn State climate expert Michael Mann is among the top thinkers of the  
day, according to the annual list from Bloomberg.  
  
Bloomberg Markets named Mann one of the "50 Most Influential" people on the  
magazine’s third annual list of thinkers, policy makers, bankers, corporate  
power brokers and money managers. The list will be published in the October  
issue of Bloomberg Markets. (Read article)  
  
The article notes that Mann and his colleagues "are the climate scientists  
who brought the world the so-called hockey stick graph, showing a sharp  
rise in global temperatures in the last century. He responds to climate  
change deniers on his RealClimate blog."  
  
Mann is a distinguished professor of meteorology, director of the Earth  
System Science Center and a faculty member in the College of Earth and  
Mineral Sciences' Earth and Environmental Systems Institute. Among his  
better known works are the books Dire Predictions: Understanding Global  
Warming (2008) and The Hockey Stick and the Climate Wars: Dispatches from  
the Front Lines (2012).  
  
  
  
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## News Archive 2013 - Sue Brantley, Richard Alley to receive honorary degrees

2013 News, Highlights, and Accomplishments  
  
Sue Brantley, Richard Alley to receive honorary degrees  
  
EESI Director Sue Brantley and Evan Pugh Professor Richard Alley to be  
honored  
  
May 2013  
  
Sue Brantley, EESI director and a distinguished professor of geosciences,  
and Richard Alley, Evan Pugh professor of geosciences, will each receive an  
honorary degree from a university in recognition of their contributions to  
their field.  
  
The University of Wisconsin-Madison will honor Alley May 17 as part of the  
school's commencement ceremonies. Alley is recognized internationally as a  
leader in his field and has been honored for his work in the field of  
climate change. He was elected to the National Academy of Sciences in 2008  
and, as a member of the Intergovernmental Panel on Climate Change, was part  
of the group that received the 2007 Nobel Peace Prize.  
  
Department of Geoscience Chair Brad Singer noted that Alley has made  
exceptional efforts to bring his research to his students, the public and  
policymakers.  
  
"He has dedicated himself to explaining this science, and its implications  
for society, to a broad audience," Singer said in a release from the  
University of Wisconsin.  
  
Alley earned a doctorate from the University of Wisconsin-Madison in 1987.  
  
Brantley will receive an honorary doctorate from the University of  
Lausanne, Switzerland, May 31.  
  
Brantley is recognized for her pioneering work applying chemical and  
physical principles to geological processes at the earth's surface,  
including weathering and erosion. Her recent work includes studying the  
Critical Zone, the surface of the planet that sustains life.  
  
Brantley was elected to the National Academy of the Sciences and the  
Geological Society of America in 2012.  
  
  
  
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## News Archive 2013 - Study finds need for water quality data in the Marcellus Shale region

Marcellus Shale region  
  
2013 News, Highlights, and Accomplishments  
  
Review finds need for more water quality data in the Marcellus shale region  
  
May 2013  
  
What to do with Marcellus Shale wastewater is one of the biggest concerns  
in Pennsylvania, and few published studies have evaluated such wastewater  
effects on regional waters, according to a review coauthored by professors  
at the University of Pittsburgh and Penn State University.  
  
Published online today in the peer-reviewed journal Science, the review  
stresses the need for scientific data on water pollution caused by  
hydraulic fracturing and cites a lack of monitoring stations and  
requirements concerning confidentiality as potential causes. The review is  
titled "Impact of Shale Gas Development on Regional Water Quality."  
  
Susan L. Brantley, Distinguished Professor of Geosciences at Penn State and  
coauthor of the review, said the findings highlight the need for more  
thorough and consistent water quality monitoring and more information about  
risk factors associated with the different parts of the region where deep  
horizontal drilling is taking place.  
  
"Natural gas migration is a well-known natural phenomenon in many areas of  
Pennsylvania even before gas well drilling. When gas wells are drilled,  
sometimes the gas migrates around the well and into the groundwater. Though  
this is not common, more information is needed about the site-specific risk  
factors that contribute to those problems," Brantley said. "Geological  
conditions can vary from one gas drilling site to another, and without that  
information it will be difficult to definitively answer the question of  
whether gas extraction through hydraulic fracturing is having an impact of  
water resources."  
  
Intensive extraction of gas inside of the Marcellus shale began in the  
eastern United States in 2005 and the Marcellus has quickly become one of  
the top five unconventional gas reservoirs in the country. Previous studies  
have estimated this area could yield 489 trillion cubic feet of natural  
gas—an amount requiring high volumes of water used for what is often  
referred to as "slickwater fracturing."  
  
Major concerns for the public have been whether stray methane can  
contaminate water supplies and whether the chemicals in the fluid used  
during the hydraulic fracturing process pose a threat to drinking water  
aquifers. The U.S. Environmental Protection Agency is currently studying  
the risks to groundwater from hydraulic fracturing.  
  
"While stray gas can be minor and easily remedied, there has been one case  
attributed to a Marcellus shale well in which stray gas accumulation in a  
private water well was associated with an explosion that blew a concrete  
lid off the well," said Brantley, director of the Earth and Environmental  
Systems Institute at Penn State.  
  
The main cause of stray gas in private water wells is not having an  
adequate cement seal around the well and to a sufficient depth, which can  
allow the natural gas to migrate up into the groundwater.  
  
"However, there is no evidence for widespread increase in methane  
concentration in Pennsylvania groundwater. Instead, levels are similar to  
those recorded in New York, which has a moratorium on large-volume

## News Archive 2013 - EESI research featured on new YouTube and Facebook pages

pages  
  
2013 News, Highlights, and Accomplishments  
  
EESI research featured on new YouTube and Facebook pages  
  
"Slices of Time" and other videos available online  
  
June 2013  
  
“Slices of Time,” a 13-minute video explaining how the earth’s surface can  
change in processes that happen in millionths of a second or over the  
course of millions of years, is available on Penn State’s Earth and  
Environmental Systems Institute’s YouTube and Facebook pages.  
  
Using a stream affected by acid mine drainage to explain how changes occur  
in a landscape, the video shows what happens in that stream over time —  
from water molecules attacking the pyrite at speeds too fast to see with  
the naked eye to weathering breaking down rocks naturally over thousands of  
years.  
  
Another video on the EESI YouTube and Facebook pages features the  
interdisciplinary research being done through the Susquehanna Shale Hills  
Critical Zone Observatory project. The Penn State researchers explain the  
work they’re doing in the Huntingdon County Shale Hills as part of a larger  
National Science Foundation initiative aimed at understanding the earth’s  
critical zone.  
  
To watch the videos, go to: EESI's Facebook page or to EESI's YouTube page  
  
  
  
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## News Archive 2013 - University recognizes four from EMS with 2013 awards for teaching, research, service

for teaching, research, service  
  
2013 News, Highlights, and Accomplishments  
  
University recognizes four from EMS with 2013 awards for teaching,  
research, serviceRodney Erickson and Susan L. Brantley (photo)  
  
EESI Director Sue Brantley among those honored  
  
March 2013  
  
Three faculty members and a staff member in the College of Earth and  
Mineral Sciences were among those singled out this year for recognition by  
the University for excellence in education and research.  
  
Susan L. Brantley, distinguished professor of geosciences and director of  
the Earth and Environmental Systems Institute, received the Faculty Scholar  
Medal for work in the physical sciences. Peter Wilf, associate professor of  
geosciences, received a George W. Atherton Award for Excellence in  
Teaching. Robert Crane, professor of geography and director of the Alliance  
for Education, Science, Engineering and Development in Africa, received the  
W. LaMarr Kopp International Achievement Award for advancing the  
university's international mission. Martha Traverse, administrative  
assistant, received the Staff Excellence Award.  
  
President Rodney Erickson presented the 2013 awards at a recent recognition  
event. The honors are given to faculty and staff each year in honor of  
outstanding contributions. The four EMS employees were among those singled  
out for their excellence in teaching, research and service.  
  
"Penn State's strengths in the engineering and physical sciences are its  
imprimatur. Sue, Peter, Rob and Martha are the latest members of the  
College of Earth and Mineral Sciences to prove that they are a cut above,"  
said William Easterling, dean of the College.  
  
Brantley received the 2013 award for physical sciences in recognition of  
her pioneering work in applying chemical and physical principles to  
geological processes at the earth's surface, including weathering and  
erosion.  
  
Brantley said she was honored and surprised to get the Faculty Scholar  
medal at a college and university with so many talented scientists.  
  
"The best part of getting the medal was listening to the stories of all the  
other awardees, and being part of the terrific creativity we have here at  
Penn State," she said.  
  
Brantley has been a faculty member at Penn State since 1986. Her recent  
work includes research focused on the "critical zone," the planet's surface  
that sustains human life. One nominator said that the quantitative reactive  
transport models she developed represent a breakthrough for modeling  
weathering in the critical zone on the geological time scale and that the  
results have "broad implications" for understanding the role that  
weathering plays in soil formation, the fate of contaminants and the  
sequestration of anthropogenic carbon dioxide.  
  
Brantley is also a founder of the Shale Network, a collaborative effort by  
researchers from Penn State and other institutions to collect data on water  
quality in the shale gas drilling regions.  
  
In addition to her research and teaching, Brantley is director of the Earth

## News Archive 2012 - Richard Alley Receives STEM Leadership Hall of Fame Award

Award  
  
2012 News, Highlights, and Accomplishments  
  
Richard Alley Receives STEM Leadership Hall of Fame AwardRichard Alley  
(photo)  
  
Richard Alley, Ph.D., Evan Pugh Professor of Geosciences, Penn State  
University  
  
Washington, D.C. - U.S. News & World Report is pleased to announce the  
inaugural recipients of the U.S. News STEM Leadership Hall of Fame Awards.  
The five honorees were selected from an impressive field of nominees by a  
distinguished committee of industry, academic, and nonprofit leaders in the  
science, technology, engineering, and math fields (STEM). The Hall of Fame  
Awards ceremony is the capstone of the U.S. News STEM Solutions 2012 Summit  
(which takes place in Dallas from June 27-29), an unprecedented gathering  
of business executives, educators, HR managers, philanthropists,  
policymakers, and technology companies united in one critical objective:  
creating a national consensus on the development of a STEM workforce.  
  
The U.S. News STEM Leadership Hall of Fame honorees are:  
  
Richard Alley, Ph.D., Evan Pugh Professor of Geosciences, Penn State  
  
Mary Good, Ph.D., Special Advisor to the Chancellor for Economic  
Development, University of Arkansas at Little Rock  
  
Freeman A. Hrabowski III, Ph.D., President, University of Maryland,  
Baltimore County  
  
Tom Luce, Chairman, National Math + Science Initiative  
  
Ray Mellado, Chairman and CEO, Great Minds in STEM  
  
In choosing the honorees, the committee sought out leaders who have  
achieved measurable results in STEM fields, challenged established  
processes and conventional wisdom, inspired a shared vision, and motivated  
legions of future STEM professionals. They valued innovation, resilience,  
and adaptability. "The committee focused on identifying individuals whose  
commitment and dedication to STEM have left a lasting legacy and a  
blueprint to a future pathway filled with an abundance of STEM  
specialists," says Brian Kelly, Editor and Chief Content Officer of U.S.  
News. "We need the guidance and mentorship of experts like these if we're  
going to make progress on this critical challenge."  
  
  
  
The awards ceremony, sponsored by Dell and presented by STEMConnector™, is  
scheduled for Friday, June 29, from 12 to 2 p.m. at the Dallas Sheraton  
Hotel and includes a luncheon and panel discussion with the honorees. Steve  
Schuckenbrock, President, Dell Services, the global IT services and  
business solutions unit of Dell, will introduce the awardees.  
  
U.S. News STEM Solutions 2012 - A Leadership Summit is a mission-critical  
event focused on the shortage of science- and tech-related skills in the  
American workforce. U.S. News & World Report, together with  
Innovate+Educate, STEMConnector™ and more than 50 key organizations will  
bring together for the first time on a national stage major corporations,  
leading educators, top policymakers, and education technology companies to  
create a collective that will fill jobs now and advance the future STEM

## News Archive 2012 - New Faculty Member Publishes in Nature

2012 News, Highlights, and Accomplishments  
  
New Faculty Member Publishes in NatureJennifer Balch (photo)  
  
Jennifer K. Balch, who will join the faculty in Penn State’s Department of  
Geography in August 2012 as an assistant professor and EESI associate,  
co-authored a recent publication in Nature, entitled "The Amazon basin in  
transition." Jennifer is currently a postdoctoral associate at UC Santa  
Barbara’s National Center for Ecological Analysis and Synthesis(NCEAS). Her  
research looks at the patterns and processes that underlie fire disturbance  
and ecosystem recovery, particularly in tropical forests.  
  
The recent Nature article reveals that human activity has begun to alter  
the regional water and energy cycles of the Amazon basin. The danger is  
that the Amazon may be shifting from a carbon sink to a carbon source. A  
strong sign of a new disturbance regime is the high number of recent  
large-scale wildfires, which are a byproduct of intentional fires in  
Brazil’s ‘arc of deforestation.’ In addition, it shows that ongoing  
interactions of deforestation, fire, and climate change have the potential  
to alter carbon storage, rainfall patterns and river discharge on an even  
larger basinwide scale. These wildfires are extremely frequent, occurring  
every few years, compared with every couple centuries in the past. To view  
the UCSB-NCEAS press-release go to: http://www.ia.ucsb.edu/pa/display.aspx?  
pkey=2630.  
  
  
  
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## News Archive 2012 - Sue Brantley: “The Power of Data is in Sharing”

2012 News, Highlights, and Accomplishments  
  
Sue Brantley: "The Power of Data is in Sharing"Susan L. Brantley (photo)  
  
April 2012  
  
Research project develops collaborative tool for water quality data. A new  
database, using a platform supported by the National Science Foundation  
that channels available water quality data into a searchable format, was  
demonstrated at the Shale Network 2012 Workshop at Penn State’s University  
Park campus in April.  
  
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## News Archive 2012 - Brantley Elected to the National Academy of Sciences

2012 News, Highlights, and Accomplishments  
  
Brantley Elected to the National Academy of SciencesSusan L. Brantley  
(photo)  
  
Susan L. Brantley, Distinguished Professor of Geosciences, Earth and  
Environmental Systems Institute, Pennsylvania State University, University  
Park, was elected to the National Academy of Sciences on May 1, 2012. The  
National Academy of Sciences (NAS) is a private, non-profit society of  
distinguished scholars engaged in scientific research and dedicated to  
advancing science and technology for the public good. Members are elected  
to the National Academy of Sciences in recognition of their distinguished  
and continuing achievements in original research, and it is arguably the  
highest honor that a U.S. scientist can receive. The nation's leaders in  
Congress and the White House often turn to the Academy for advice on  
scientific issues that often affect policy decisions.  
  
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## News Archive 2012 - Ken Davis Measures Greenhouse Gas Emissions for World Economic Forum

Economic Forum  
  
2012 News, Highlights, and Accomplishments  
  
Ken Davis Measures Greenhouse Gas Emissions for World Economic Forum  
  
January 2012  
  
Ken Davis’s research group is measuring greenhouse gas emissions from the  
World Economic Forum in Davos, Switzerland. The meeting started on 25  
January and runs through Sunday, 29 January. Picarro, Inc., an instrument  
company that makes greenhouse gas sensors, was selected to be a technology  
innovation demonstration company at the WEF, and recruited Davis's research  
group as partners in the demonstration. Davis's group is a leader in  
developing the techniques needed to measure regional greenhouse gas fluxes  
using atmospheric budgets, and has a long history of working with Picarro  
instruments in their field experiments. The demonstration is monitoring CO2  
emissions from the mountain village of Davos in near real time as the WEF  
takes place. In addition to the Picarro greenhouse gas sensors, the  
experiment relies heavily upon meteorological simulations using the Weather  
Research and Forecast realtime forecasting system with chemistry, a  
community model modified for experiments such as this by scientists in the  
Department of Meteorology. The investigators hope to detect changes in  
emissions that occur as a result of the WEF, showing the utility of the  
method for monitoring "urban metabolism." These methods could be used by  
cities to evaluate the efficacy of efforts to reduce urban greenhouse gas  
emissions. Picarro hopes that the demonstration will serve as a call to  
city leaders to adopt active monitoring of urban greenhouse gas emissions.  
Results of the study will be released this Friday, 27 January.  
  
More information, including observations and models of CO2 concentrations  
and fluxes around Davos created by Picarro and Penn State scientists, can  
be seen at http://citycarbon.picarro.com.  
  
This project is supported in part by the Penn State Institutes of Energy  
and the Environment (PSIEE) and the College of Earth and Mineral Sciences.  
Davis is Professor of Meteorology in the Department of Meteorology, and is  
a faculty associate of the Earth and Environmental Systems Institute, both  
part of the College of Earth and Mineral Sciences. Other Penn State  
researcher contributing to the project include Aijun Deng, Thomas Lauvaux,  
Natasha Miles and Scott Richardson, all members of the Department of  
Meteorology.  
  
Davos News Release - January 27, 2012  
  
  
  
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## News Archive 2012 - EESI announces a new High Performance Computing resource

resource  
  
2012 News, Highlights, and Accomplishments  
  
EESI announces a new High Performance Computing resource  
  
October 2012  
  
EESI would like to announce a new High Performance Computing resource that  
is available:  
  
Research Computing and Cyberinfrastructure (RCC) has just brought their  
newest HPC cluster, Lion XG, on line. Each computing server blade includes  
two Intel Xeon E5-2665 2.4 GHz 8-core processors (Sandybridge series), with  
64 or 128 gigabytes of 1600 MHz memory (4 or 8 gigabytes per core), 2.5" 1  
terabyte 7200 rpm NL-SAS drive, 56 gigabits/second FDR Infiniband  
interconnect (Mellanox Connect-X3 HCA and switches), and a separate 10  
gigabits/second Ethernet network and also a 10 Gbps uplink. This hardware  
is likely to have a formal life span of three years but RCC typically runs  
a cluster several years beyond that period.  
  
David Pollard received NSF funds to contribute to this for his research,  
and EESI partnered to secure priority access to 15 nodes on Lion-XG for  
EESI associates. As an EESI associate, if you would like to use this new  
cluster please contact John Miley at jmiley@eesi.psu.edu to arrange access.  
  
One important thing to note about Lion-XG is that it is running RedHat  
Enterprise Linux 6 as its operating system whereas the older Lion-X systems  
are all running RedHat Enterprise Linux 5. Because of this some codes that  
were compiled on the older systems will not run on Lion-XG without  
recompilation. In particular, if you are running anything on the older  
systems that was compiled with RCC's OpenMPI implementation, you will need  
to recompile due to ABI incompatibilities with the new OpenMPI version.  
Eventually all RCC cluster will be upgraded to RedHat Enterprise Linux 6.  
  
To see how Lion-XG compares to previous RCC clusters: http://  
rcc.its.psu.edu/resources/hpc/ (Lion-XG was decommissioned in December  
2017; link expired)  
  
For more specific details on Lion-XG please see: http://rcc.its.psu.edu/  
resources/hpc/lionxg/ (Lion-XG was decommissioned in December 2017; link  
expired)  
  
For information on using and accessing Lion-XG please see the RCC lion-x  
user guide: http://rcc.its.psu.edu/user\_guides/systems/lionx/ (Lion-XG was  
decommissioned in December 2017; link expired)  
  
  
  
Please also note that whenever you write a proposal to get more such HPC  
equipment, EESI often can partner with you to provide more priority access  
to others in EESI.  
  
  
  
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## News Archive 2012 - Michael Mann and David Pollard Elected 2012 AGU Fellows

2012 News, Highlights, and Accomplishments  
  
Michael Mann and David Pollard Elected 2012 AGU Fellows  
  
February 2012  
  
EESI Associates Michael Mann and David Pollard have been elected 2012  
Fellows of the American Geophysical Union. To be elected a Fellow of AGU is  
a special tribute for those who have made exceptional scientific  
contributions. Nominated Fellows must have attained acknowledged eminence  
in the Earth and space sciences. Primary criteria for evaluation in  
scientific eminence are major breakthrough/discovery and paradigm shift.  
This designation is conferred upon not more than 0.1% of all AGU members in  
any given year. New Fellows are chosen by a Committee of Fellows.  
  
PSU Live (Link expired)  
  
  
  
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## News Archive 2012 - ShaleNetwork Workshop Held April 22-23 in State College, PA

College, PA  
  
2012 News, Highlights, and Accomplishments  
  
ShaleNetwork Workshop Held April 22-23 in State College, PA  
  
April 2012  
  
Forty-one participants attended the ShaleNetwork Workshops at the Atherton  
Hotel, State College, PA on April 22-23, 2012. The workshop was presented  
by researchers from Penn State University, the University of Pittsburgh,  
Dickinson College, and the Consortium of Universities for the Advancement  
of Hydrologic Sciences, Inc. (CUAHSI). With funds from the National Science  
Foundation (NSF), these researchers have been working since October 2011 to  
create the ShaleNetwork database as an online database. The ShaleNetwork  
team is also testing whether the inclusion of data from groups of citizen  
scientists can promote discovery and public education. The database  
currently contains data from community watershed groups, academic  
scientists, government agencies, and industry and includes analyses of 60  
different constituents for some samples.  
  
Of the 41 workshop attendees, 23 derived from universities, 6 from  
government agencies, 2 from environmental consulting firms, 3 from county  
district offices, and 7 from non-profit organizations. The participants  
were introduced to the ShaleNetwork database through HydroDesktop (  
www.hydrodesktop.org) a publicly available web service maintained by  
CUAHSI. By placing the ShaleNetwork database online at a CUAHSI  
Hydroserver, the data can be accessed along with data from the United  
States Geologic Survey, the Environmental Protection Agency, and other  
groups hosting data on Hydroservers around the country. Currently, data has  
been uploaded for surface waters, groundwaters, waste effluent, flowback  
and production waters.  
  
For additional information regarding the workshop and ShaleNetwork, the  
website can be found at: http://www.shalenetwork.org/  
  
  
  
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## News Archive 2012 - Changing the Moral Climate on Climate Change

2012 News, Highlights, and Accomplishments  
  
Changing the Moral Climate on Climate Change  
  
April 2012  
  
April 30th at 7 pm in room 101 Thomas Building at Penn State’s University  
Park, a group of esteemed Penn State faculty and one graduate student/  
lecturer will confront the climate change denial machine. Over the last few  
years, we have been discouraged by the successful of "the merchants of  
doubt," a well-organized and well-funded climate change disinformation  
campaign. The five presenters of “Changing the Moral Climate on Climate  
Change” believe that as people working at a top-flight research and  
teaching institution, they have a responsibility to both inform the public  
about the many aspects of climate change – from social to environmental –  
and call for better action from universities in democratic society.  
  
Presentations come from Dr. (Juris) Donald Brown from Science, Technology,  
and Society and former Clinton administration UN representative and blogger  
at Climate Ethics, Peter Buckland, A.B.D. in Educational Theory and Policy  
and co-host of Sustainability Now Radio, Dr. Janet Swim from Psychology and  
chair of the 2009 American Psychological Associations task force on the  
psychology of climate change, Dr. Rick Schuhmann, an environmental engineer  
and Director of Penn State’s Engineering Leadership program, and Dr.  
Michael Mann, director of Penn State’s Earth System Science Center, member  
of the 2007 Nobel Peace Prize-winning Intergovernmental Panel on Climate  
Change, and author of The Hockey Stick and the Climate Wars.  
  
  
  
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## News Archive 2011 - 2011 San Francisco AGU Reception

2011 News, Highlights, and Accomplishments  
  
2011 San Francisco AGU Reception  
  
December 2011  
  
On Dec 7, 2011, EESI co-hosted a reception with the Departments of  
Geography, Geosciences, and Meteorology for all Penn State faculty,  
students, and alums at the Annual American Geophysical Union meeting in San  
Francisco. More than 130 people attended the event in the Parc 55 Wyndham  
Hotel to enjoy food and drinks together overlooking Market Street in  
downtown San Francisco. Students and alums from the three departments, plus  
from programs in Energy and Mineral Engineering, Ecology, Biology, Civil  
and Environmental Engineering, and Crop and Soil Science were in  
attendance. A few alumni of online programs were also in attendance and  
were pleased to meet their online advisors. Other attendees came from  
locations as far away as Scotland, Australia, and South Africa to attend  
the AGU meeting. Friends from Oak Ridge National Laboratory, National  
Science Foundation, and University of Texas Austin and other institutions  
were also in attendance.  
  
  
  
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## News Archive 2011 - Richard Alley Receives the Stephens Schneider Award for Climate Communication

Climate Communication  
  
2011 News, Highlights, and Accomplishments  
  
Richard Alley Receives the Stephens Schneider Award for Climate  
Communication  
  
December 2011  
  
December 6, 2011, Climate One at the Commonwealth Club presented Dr.  
Richard Alley, esteemed geologist and professor at Pennsylvania State  
University, the first Stephen Schneider Award for Climate Communication.  
The event was held in San Francisco, California near where the 2011  
American Geophysical Union Conference took place.  
  
Dr. Richard Alley is known for his clever presentation of key climate  
change issues to the public. He has testified before Congress using his  
bald head to illustrate ice age cycles, recorded a video on geoscience  
while playing Johnny Cash, and hosted the PBS documentary “Earth: The  
Operators Manual.” At the event, Dr. Alley offers fresh insights in climate  
science, communication, and the politicization of scientific inquiry.  
Several distinguished scientists and friends of the late Stanford  
climatologist, Stephen Schneider, were in the audience and Dr. Alley and  
two other scholars closed the program with a tune.  
  
Climate One programs are broadcast on public radio and local access  
television. Their live audience has the opportunity to be face to face with  
leaders in energy efficiency and environmental policies.  
  
More information about Climate One and upcoming programs can be found on  
their website, and tickets can be purchased for upcoming programs here.  
  
Centre Daily Times publication. (CDT link expired)  
  
  
  
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## News Archive 2011 - Richard Alley receives prestigious Heinz Award

2011 News, Highlights, and Accomplishments  
  
Richard Alley receives prestigious Heinz AwardDavid Pollard (photo)  
  
September 2015  
  
Penn State University Professor, Dr. Richard Alley, discovered massive  
climate shifts can happen abruptly  
  
PITTSBURGH, September 13, 2011 − Teresa Heinz and the Heinz Family  
Foundation today announced Richard Alley, Ph. D., a professor at The  
Pennsylvania State University and leader in climate and polar ice studies,  
as a recipient of a $100,000 Heinz Award. Dr. Alley has been a professor at  
The Pennsylvania State University in University Park, Pa. since 1988.  
  
Dr. Alley's research broke open the field of "abrupt climate change," with  
his discovery that the last Ice Age came to an abrupt end over a period of  
only three years. This has significant implications for the present day as  
it debunked the myth that climate change is a very slow process, and  
suggests that some climate changes in response to human-induced activities,  
particularly the burning of fossil fuels, may arrive more rapidly than  
expected. Dr. Alley and others had removed two-mile long polar ice core  
samples in Greenland and in Antarctica to study climate history and  
elements that lead to climatic changes.  
  
"Dr. Alley"s research on ice cores has provided an essential cornerstone to  
the study of environmental change," Teresa Heinz, chairman of the Heinz  
Family Foundation, said today. "He discovered that such changes can be  
abrupt and massive and he is able to communicate these complex ideas in a  
clear and compelling way."  
  
Dr. Alley is considered one of the most active voices in communicating  
earth sciences to the general public. Earlier this year, he hosted a PBS  
special on climate change and sustainable energy called Earth: The  
Operators' Manual. He authored a companion book by the same name that was  
targeted to everyday Americans. From low-tech solutions to high-tech  
innovations, the documentary shows the wide range of practical options  
available to meet Earth's growing need for energy.  
  
"Climate change is an enormous challenge that requires big action. Our  
grandchildren will one day ask us to explain the choices our leaders made  
today," said Dr. Alley.  
  
Now in their 17th year, the Heinz Awards honor visionaries who have made  
extraordinary contributions to the environment, a life-long area of  
commitment for the late U.S. Senator John Heinz. Dr. Alley and nine others  
are recognized for their significant efforts benefitting the environment.  
This year's awards total $900,000.  
  
Dr. Alley is active in the scientific community, having presided over the  
National Academy of Sciences' report Abrupt Climate Change: Inevitable  
Surprises, and as a lead author on the International Panel of Climate  
Change Fourth Assessment Report: Working Group I: ThePhysical Science Basis  
.Regularly testifying before congressional committees and policymakers on  
climate change, he joined other prominent scientists last year at a  
briefing on Capitol Hill sponsored by the American Association for the  
Advancement of Science to address questions raised by climate change  
skeptics.  
  
In addition to Dr. Alley, the 17th Heinz Awards are honoring the following

## News Archive 2011 - Brantley honored with Arthur L. Day Medal

2011 News, Highlights, and Accomplishments  
  
Brantley honored with Arthur L. Day Medal  
  
October 2011  
  
Susan L. Brantley, director of the Earth and Environmental Systems  
Institute, is the recipient of the 2011 Arthur L. Day Medal from the  
Geological Society of America (GSA).  
  
GSA announced Brantley's award in its July 2011 issue of GSA Today.  
  
Brantley, Distinguished Professor of Geosciences, is a leading scientist in  
the study of the complex chemical and geological processes that shape and  
transform the Critical Zone, the part of the Earth where rock meets life  
extending from groundwater to the top of vegetation. She has been credited  
with making breakthrough contributions in understanding weathering  
processes and their interaction with the atmosphere and biological systems  
and with being a pioneer in the application of iron isotopes to soil  
processes.  
  
"Her uncommon vision has broken ground in geochemical research by  
identifying new and significant research avenues for her colleagues in her  
own generation and the next," wrote one nominee of Brantley's  
contributions.  
  
Another nominee described Brantley as "the outstanding aqueous geochemist  
of her generation."  
  
Her research investigating geochemical processes in natural systems has  
been supported by the National Science Foundation, the U.S. Department of  
Energy and NASA. She is a co-PI of the 20-acre Susquehanna Shale Hills  
Observatory, located near the University's Stone Valley Recreation Center  
and part of the NSF-supported Critical Zone Observatory network.  
  
In the 63-year history of the award, Brantley is the first Penn State  
faculty member to receive the Arthur L. Day Medal while working at the  
University. The 1967 prize went to O. Frank Tuttle, who joined Penn State  
in 1953 and served as dean of the College of Mineral Industries from  
1959-60 but who was at Stanford University when he received the medal.  
  
  
  
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## News Archive 2011 - Graduate Students Receive Support From ESSI And CGS To Conduct International Research

Conduct International Research  
  
2011 News, Highlights, and Accomplishments  
  
Graduate Students Receive Support From ESSI And CGS To Conduct  
International Research  
  
November 2011  
  
The Earth and Environmental Systems Institute (EESI) in partnership with  
the Center for Global Studies (CGS) is helping six EMS graduate students  
expand their research to international settings.  
  
The students, who submitted proposals, will each receive $1,000 to support  
research-related activities including field work, visits to key research  
facilities and visits to collections to be undertaken in 2011.  
  
"By including an international setting in their research, these students  
have the opportunity to increase the impact of their thesis or dissertation  
research," said Alan Taylor, EESI associate director.  
  
The six selected to receive funding include:  
  
 □ Maureen Biermann (geography), "The framing of climate change adaptation  
 in global funding mechanisms," South Africa;  
 □ Knut Christianson (geosciences), "The importance of basal sliding in  
 glacier dynamics: empirical studies at Engabreen Norway," Norway;  
 □ Ashlee Dere (geosciences), "Shale weathering rates and watershed mass  
 balance at the Plynlimon Forest," Wales;  
 □ Katie Dietrich (geography), "Learning through uncertainties: processes  
 and arenas for envisioning the future in rural Ghanian communities,"  
 Ghana;  
 □ Julianne Hagarty (geosciences), "Land use, soil chemistry, water  
 quality and Buruli ulcer in gold mining areas in west Africa," Ghana;  
 □ Cassandra Knight (geosciences), "Gondwanan rainforest biogeography:  
 insights from rare Eocene fossils of the Monimiaceae and  
 Atherospermataceae (Laurales)," Argentina.  
  
The students will present their work at a CGS-sponsored event.  
  
  
  
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## News Archive 2011 - ‘Toward a Marcellus Flowback Water “Signature”, and Perspectives on Environmental Impacts’

Environmental Impacts'  
  
November 2011  
  
Carl Kirby, Bucknell University, Department of Geology  
  
The most likely sources of surface and groundwater contamination from  
hydraulic fracturing for natural gas extraction from the Marcellus and  
other shales are disturbance of coalbed methane, well casing failure, and  
surface leaks and spills. Currently there is no reliable chemical  
“signature” or “fingerprint” that can delineate Marcellus flowback waters  
from other sources with high conductivity such as mine drainage or road  
salt. A combination of selected geochemical parameters including Cl, Br,  
SO4, and stable isotopes appears that it will provide unique identifiers  
for Marcellus flowback waters.  
  
Q: Is gas extraction and production in the Marcellus safe?  
  
A: Is driving a car safe?  
  
The above is the wrong question. What we need to know is the risks of  
environment impacts due to shale gas extraction. Much of the data we need  
to understand the risks is lacking. The risks need to be analyzed and then  
compared to past and especially environmental impacts of extractive  
industries and other development.  
  
  
  
Dr. Kirby's talk will take place in 112 Walker Building at 4:00 p.m. on  
November 14  
  
  
  
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## News Archive 2011 - Marcellus Center for Outreach & Research Seminars

2011 News, Highlights, and Accomplishments  
  
Marcellus Center for Outreach & Research Seminars  
  
October 2011  
  
Marcellus Seminar – Monday, Oct. 3 at 4 p.m.  
  
Former DEP Secretary John Hanger to Discuss Marcellus Shale Regulations,  
Impacts  
  
John Hanger, who oversaw the Department of Environmental Protection from  
2008-2011, will address natural gas drilling in the Marcellus Shale at 4  
p.m. Monday, Oct. 3.  
  
His talk, "The Real Environmental, Economic and Energy Choices Facing  
Pennsylvania and the Nation," will cover a variety of Marcellus-related  
topics including discussion of Pennsylvania's current regulations governing  
gas extraction and production and how they compare to other states.  
  
Open to the public, the talk will be in 112 Walker.  
  
As DEP secretary, Hanger was in charge of permitting and regulation of gas  
drilling in Pennsylvania. He oversaw development and implementation of new  
rules governing drilling of wells and disposal of drilling wastewater.  
  
Hanger's talk is sponsored by the Penn State Marcellus Center for Outreach  
and Research (MCOR) and the Earth & Environmental Sciences Institute  
(EESI). It is part of EESI's EarthTalks Seminar Series.  
  
  
  
Marcellus Center Brown Bag – Monday, Oct. 6 at Noon  
  
Talk to Focus on New Method for Direct 4D Mapping of Fractures in Gas  
Reservoirs  
  
Peter Geiser, Global Geophysical Services, Inc., will discuss the use of  
tomographic fracture imaging (TFI) to provide detailed images of natural  
fault and drilling-induced fracture fairways of natural gas and other fluid  
reservoirs on Thursday, Oct.6 at noon in 117 Earth-Engineering Sciences  
(EES) Building.  
  
In his talk, Geiser will present an overview of the geological and  
geophysical basis for the TFI technology and then discuss three case  
studies of the technology in Tumbler Ridge, British Columbia; Barnett  
Shale, Wise County, Texas; and southwestern West Virginia.  
  
  
  
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## News Archive 2011 - 2011 Center Funding Support Announced

2011 News, Highlights, and Accomplishments  
  
2011 Center Funding Support Announced  
  
August 2011  
  
Seven interdisciplinary research initiatives will receive funding support  
from EESI for three consecutive years, beginning in 2011-12. These centers  
are committed to collaborative and forward-looking research on the  
unprecedented environmental challenges facing the earth system.  
  
Included in the seven is the new initiative for Energy and Environmental  
Economics and Policy to be directed by Seth Blumsack that will unify  
current collaborations to create a robust University-wide and  
interdisciplinary research community in energy economics and policy.  
  
Several existing centers also will receive funding and, in some cases,  
staff support:  
  
 □ Center for Environmental geoChemistry and Genomics (CECG) led by Jenn  
 Macalady;  
 □ Center for Environmental Informatics (CEI) led by Doug Miller;  
 □ Center for Climate Risk Management (CLIMA) led by Klaus Keller;  
 □ Earth System Science Center (ESSC) led by Michael Mann;  
 □ Penn State Ice and Climate Exploration Center (PSICE) led by Sridhar  
 Anandakrishnan;  
 □ Riparia led by Rob Brooks  
  
The funding awards were decided as a result of the EESI Center Competition  
held in May which included proposal presentations by center directors who  
detailed their initiatives, goals and objectives.  
  
In addition to these centers, one EESI-affiliated research center not  
seeking funds also made a presentation at the competition. The Marcellus  
Center for Outreach and Research, led by Mike Arthur and Tom Murphy,  
benefits from space and staff support associated with EESI.  
  
  
  
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## News Archive 2011 - EESI Center Competition

2011 News, Highlights, and Accomplishments  
  
EESI Center Competition  
  
May 2011  
  
On May 2, from 9:00 am – 12:00 pm, EESI Center Directors (and proposed  
Directors) will be presenting their proposals in which they detail their  
initiatives, goals and objectives. Faculty-directed, EESI centers are  
leaders in interdisciplinary and collaborative research in environmental  
science and draw members from across colleges. Proposal presentations will  
be held from 9:00 am – 12:00 pm in 117 EES Building. The public is welcome  
to attend these presentations. For a schedule, please click here.  
  
Proposals have been submitted for the following centers (click on each to  
view proposal):  
  
 □ Center for Climate Risk Management (Renewal)  
 □ Center for Energy and Environmental Economics and Policy (New)  
 □ Center for Environmental Chemistry and Geochemistry (Renewal)  
 □ Center for Environmental Informatics (Renewal)  
 □ Earth System Science Center (Renewal)  
 □ Marcellus Center for Outreach and Research (Renewal)  
 □ Penn State Ice and Climate Research Center (Renewal)  
 □ Riparia (Renewal)  
  
  
  
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## News Archive 2011 - Anandakrishnan elected as Fellow of the American Geophysical Union

Geophysical Union  
  
2011 News, Highlights, and Accomplishments  
  
Anandakrishnan elected as Fellow of the American Geophysical UnionSridar  
Anandakrishnan (photo)  
  
April 2011  
  
Sridar Anandakrishnan, EESI Associate and professor of geosciences, has  
been elected Fellow of the American Geophysical Union.  
  
His election is a recognition of his scientific contributions on the  
dynamics of ice sheets in Antarctica and Greenland.  
  
Not more than one in 1,000 AGU members are elected as Fellows each year.  
  
  
  
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## News Archive 2011 - Brantley - Report, Video Examines Processes that Drive Changes in Earth’s Surface

Changes in Earth's Surface  
  
2011 News, Highlights, and Accomplishments  
  
Brantley - Report, Video Examines Processes that Drive Changes in Earth's  
Surface  
  
April 2011  
  
EESI Director Susan L. Brantley contributed to the National Research  
Council's recent report identifying nine research challenges and four  
research initiatives designed to advance the study of how Earth's  
landscapes change.  
  
The report, Landscapes on the Edge: New Horizons for Research on Earth's  
Surface, considers questions including "What does our planet's past tell us  
about its future?" and "How do ecosystems and landscapes co-evolve?"  
  
For more information, visit:  
  
 □ http://dels.nas.edu/Materials/Videos/Landscapes-Edge  
 □ http://www.youtube.com/watch?v=hqt5HLAOQE0&playnext\_from=TL&videos=  
 I55fxyMecao  
 □ http://www.nap.edu/catalog.php?record\_id=12700  
  
  
  
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## News Archive 2011 - New EESI-Supported Initiative in Energy and Environmental Economics and Policy

Environmental Economics and Policy  
  
2011 News, Highlights, and Accomplishments  
  
New EESI-Supported Initiative in Energy and Environmental Economics and  
Policy  
  
July 2011  
  
EEEP - established in Summer 2011  
  
EESI is one of several research units on campus supporting a new  
cross-College Initiative focused on the study of economic and policy  
challenges related to energy production and utilization; the management of  
environmental resources; and the environmental impacts of energy systems.  
The Energy and Environmental Economics and Policy Initiative (EEEP) was  
established during the summer of 2011, following the annual EESI Center  
Competition. The Initiative also receives support from PSIEE and the  
Environment and Natural Resources Institute, housed in the College of  
Agriculture. Seth Blumsack, from the Leone Family Department of Energy and  
Mineral Engineering; and Karen Fisher-Vanden, from Agricultural Economics  
and Rural Sociology, are the Initiative's co-Directors. Both are trained  
economists but work on research problems that cut across disciplinary  
boundaries.  
  
The Initiative's goals are to create a network of policy economists across  
Penn State whose activities focus on energy and environmental systems; and  
to foster interdisciplinary research at the boundary of economics, policy  
and the study of environmental or engineered systems. "Our Initiative  
recognizes that society’s energy and environmental challenges are more  
intertwined than ever before," said Blumsack. "Penn State has long had  
strengths in both energy and environmental economics across the University,  
which is a unique and powerful combination. Through EEEP we are hoping to  
coalesce these strengths into a more recognized network."  
  
The Initiative's activities include running a regular seminar series  
featuring distinguished speakers from inside and outside the University,  
and offering support to participating faculty and graduate students working  
on energy or environmental economics research. The seminar series began in  
the fall of 2011 and will continue into the spring. The seminars have  
featured speakers from Resources for the Future and Carnegie-Mellon  
University, along with Penn State energy and environmental economists.  
Blumsack and Fisher-Vanden are also in the process of seeking approval to  
transform the Initiative into a University-recognized Center. Once Center  
status has been attained, a public web site will be established featuring  
information about the Center’s activities and offering a public portal to  
energy and environmental economics at Penn State.  
  
Examples of current research projects involving faculty associated with the  
Initiative include:  
  
 □ Co-Director Karen Fisher-Vanden is a lead author for the IPCC fifth  
 assessment report, in the Climate Change Mitigation working group.  
 □ R.J. Briggs has been investigating the role of deregulation and  
 institutional change in the electric power sector on air emissions from  
 generating plants.  
 □ Co-director Seth Blumsack has published two recent papers examining the  
 impacts of wind energy development on environmental quality. One  
 paper, published in Energy Policy discusses how wind-turbine siting  
 decisions affect emissions from electric power systems (see figure);  
 the other, forthcoming in Journal of Regulatory Economics, demonstrates

## News Archive 2011 - Herndon receives International Association of GeoChemistry Faure Award

GeoChemistry Faure Award  
  
2011 News, Highlights, and Accomplishments  
  
Herndon receives International Association of GeoChemistry Faure Award  
  
June 2011  
  
Elizabeth Herndon, Department of Geosciences graduate student and CZEN and  
CEKA member, was awarded the prestigious Faure Award during the 9th  
International Symposium on the GeoChemistry of the Earth's Surface for her  
poster entitled, "Movement of Manganese Contamination Through the Critical  
Zone." The conference was held June 3-7, 2011 at the University of Colorado  
in Boulder.  
  
The IAGC Faure Award is given to the best student research presentation at  
each IAGC-sponsored conference or IAGC-organized technical session at a  
major conference. A student research presentation is defined as one with a  
student as senior author that is presented at the meeting by the student.  
This award consists of a certificate and a complementary 1-year membership  
to IAGC for the year following receipt of the award. The award recipient  
will be profiled in the IAGC Newsletter and on the Association website.  
  
  
  
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## News Archive 2011 - Keller uses Earth System Analysis to improve Climate Decisions

Decisions  
  
2011 News, Highlights, and Accomplishments  
  
Keller uses Earth System Analysis to improve Climate DecisionsKlaus Keller  
(photo)  
  
January 2011  
  
Imagine you have to decide whether and how much to raise a levee to protect  
a coastal community from the projected rise in sea levels associated with  
climate change.  
  
You know that sea levels have risen during the last century and are  
projected to continue to rise-leading to an increased risk of flooding  
absent of adaptations. You also know that raising the levee will reduce the  
flooding risk.  
  
The question is how much would you raise the levee?  
  
One option is to heighten the levee by a small amount, hoping that the  
future sea level rise will be at the low end of the projections. A more  
expensive but arguably safer option is to build a higher levee that can  
handle the high-end of the sea-level projections.  
  
"A workable risk management strategy has to be scientifically sound,  
economically efficient, and ethically defensible—which requires an  
interdisciplinary approach," says Klaus Keller, director of the Center for  
Climate Risk Management (CLIMA) and associate professor of geosciences.  
"Analyzing those strategies requires that natural and social scientists and  
ethicists collaborate effectively—a non-trivial challenge.  
  
"However, this is a stimulating challenge because the collaborations  
between decision makers, stakeholders and natural and social scientists can  
lead to exciting, mission-oriented basic research," Keller says.  
  
CLIMA helps this research by catalyzing the interdisciplinary interactions  
that improve the analysis and design of climate risk management strategies.  
  
To return to the example of how high to raise the levee, the design of  
flood risk management strategies is often driven by low-probability,  
high-impact events such as one-in-100- or one-in-10,000-year flooding.  
Characterizing those low-probability, high-impact events requires  
mechanistically sound models that are carefully tested and calibrated with  
instrumental and paleo observations.  
  
Keller acknowledges that all models are imperfect, but argues that some can  
still be useful to improve decisions.  
  
"The basic choice is often: Do we wait for better data and models and in  
the meantime neglect low-probability, high-impact events or do we analyze  
them with imperfect but still useful models?" Keller says. "Neglecting  
low-probability, high-impact events can lead to downward biases in risk  
estimates."  
  
While climate science is a well-established and active science,  
considerable uncertainties—such as about future sea levels—still remain.  
But uncertainty does not have to result in paralysis.  
  
We make many decisions under deep uncertainty: which career path to pick,  
whether to marry or whether to purchase life insurance. Hedging against a

## News Archive 2011 - April 25 EarthTalks Speaker Matthew Larsen, U.S. Geological Survey

Geological Survey  
  
2011 News, Highlights, and Accomplishments  
  
April 25 EarthTalks Speaker Matthew Larsen, U.S. Geological Survey  
  
April 2011  
  
Speaker to address managing predicted water-resources stresses and  
water-related hazards  
  
Matthew Larsen, U.S. Geological Survey, will discuss the critical  
challenges facing national governments attempting to mitigate current and  
predicted water-resources challenges and water-related hazards as part of  
the spring EarthTalks series, "Where Climate Science Meets the Road:  
Managing Resources for Climate Change."  
  
His talk, "Global Change and Water Resources Management Challenges in the  
Next 100 Years," is scheduled for 4 p.m., Monday, April 25, in 112 Walker.  
  
"The U.S. and other regions of the world are engaged in national-scale,  
multi-year population, land use and economic experiments which pose major  
water-resources challenges and potential conflicts for the 21st century,"  
said Larsen, associate director with Climate and Land Use Change (USGS).  
  
"Those include expansion of and shift to irrigated agriculture, degradation  
of riparian and estuarine ecosystems, and population increases in  
water-scarce regions. In addition, climate change models predict  
precipitation and streamflow patterns will change in coming decades,"  
Larsen said.  
  
"The challenges that we face this century include a combination of local  
and national management problems that are already upon us, as well as  
emerging and future problems that are closely associated with rising  
temperature and changes in the distribution of precipitation," Larsen said.  
  
Before being named associate director for Climate and Land Use Change in  
2010, Larsen served as USGS's associate director for water. He also has  
served as the chief scientist for hydrology and led the USGS National  
Research Program in hydrology.  
  
The 2011 spring EarthTalks seminar series, "Where Climate Science Meets the  
Road: Managing Resources for Climate Change," is sponsored by the Earth and  
Environmental Systems Institute (EESI). For the full list of speakers,  
visit Spring 2011 EarthTalks Series: "Managing Resources for Climate  
Change".  
  
  
  
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## News Archive 2011 - Seamus McGraw - Marcellus Shale Author

2011 News, Highlights, and Accomplishments  
  
Seamus McGraw - Marcellus Shale Author  
  
September 2011  
  
Marcellus Author: "It's About Making Hard Choices in a Hard Land in Hard  
Times"  
  
Journalist and Pennsylvania native Seamus McGraw will share portraits of  
northeastern Pennsylvania landowners who suddenly discover their farms sit  
atop a natural gas bonanza and their struggles to make the right family,  
environmental and moral decisions about leasing their land Thursday, Sept.  
15 in the Foster Auditorium, 102 Paterno Library.  
  
In The End of Country published in June 2011, McGraw draws on his personal  
knowledge of the region and its residents to weave together a portrait of  
the land and the people against the backdrop of Marcellus Shale  
development.  
  
Some environmentalists have decried what they see as the book's endorsement  
of a fossil fuel while some in the industry have bristled at its candid  
portrayal of the risks of natural gas drilling, dubbing it "'Gasland' on  
paper," McGraw says.  
  
"My book is not about dogmatic, partisan, ideological points of view but  
about very real people trying to do the right thing in a very complicated  
situation," McGraw says. "I want people to see and identify with the  
reality that transcends the dogma."  
  
Open to the public, McGraw's reading and talk will begin at noon. A book  
signing will follow at 1 p.m. This event is sponsored by the Penn State  
Marcellus Center for Outreach and Research (marcellus.psu.edu) and the Penn  
State University Libraries. For more information, contact the Marcellus  
Center, (814) 865-1587 or marcellus@psu.edu.  
  
  
  
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## News Archive 2011 - March 28 EarthTalks Speaker Chris Pyke

2011 News, Highlights, and Accomplishments  
  
March 28 EarthTalks Speaker Chris Pyke  
  
March 2011  
  
Speaker to examine links between Green Building and Climate Change  
Adaptation  
  
Chris Pyke, vice president of research for the U.S. Green Building Council,  
will discuss how green building can advance resilience and adaptation to  
climate change as part of the spring EarthTalks series, "Where Climate  
Science Meets the Road: Managing Resources for Climate Change."  
  
His talk, "Green Building and Climate Change: Developing Practical  
Strategies for Adaptation and Resilience in Built Environments," is  
scheduled for 4 p.m., Monday, March 28, in 112 Walker.  
  
Green building offers a vision for built environments that are better for  
people and the environment and has become a core part of the real estate  
industry around the world, Pyke says. Today, green building professionals  
understand the role of the built environment in mitigating greenhouse gas  
emissions. But connections to resilience and adaptation have yet to be  
made, and practical, science-based strategies and tools are not widely  
available.  
  
Pyke also serves as the vice chair of the Chesapeake Bay Program's  
Scientific and Technical Advisory Committee. He is a lead author on Chapter  
9: Buildings for Working Group III (Mitigation for Climate Change) for the  
next assessment report from the Intergovernmental Panel on Climate Change.  
  
The 2011 spring EarthTalks seminar series, "Where Climate Science Meets the  
Road: Managing Resources for Climate Change," is sponsored by the Earth and  
Environmental Systems Institute (EESI). For the full list of speakers,  
visit Spring 2011 EarthTalks Series: "Managing Resources for Climate  
Change".  
  
  
  
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## News Archive 2011 - April 4 Dan Vimont EarthTalks Speaker

2011 News, Highlights, and Accomplishments  
  
April 4 Dan Vimont EarthTalks Speaker  
  
April 2011  
  
Speaker to address challenges in Climate Change Assessment and Information  
Transfer  
  
Dan Vimont, assistant professor in the University of Wisconsin's  
Atmospheric and Oceanic Sciences Department, will discuss how the Wisconsin  
Initiative on Climate Change Impacts (WICCI) is both assessing climate  
change impacts on Wisconsin’s natural and built resources and developing  
adaptation strategies for a wide variety of stakeholders.  
  
His talk, "The Wisconsin Initiative on Climate Change Impacts: Adapting to  
Climate Change in Wisconsin," is scheduled for 4 p.m., Monday, April 4, in  
112 Walker.  
  
"One of the challenges of assessing and adapting to climate change involves  
linking information between physical, biological, and social systems,"  
Vimont said. "This information sharing is essential across multiple scales  
of activity and through multiple channels."  
  
WICCI is engaged in that communication, and Vimont will share the  
organization’s activities with an emphasis on illustrating how WICCI's  
organizational structure facilitates communication between different  
groups.  
  
Vimont, who serves on the WICCI Science Council, also will present a set of  
downscaled climate data for Wisconsin, including a description of how the  
downscaling technique addresses needs of multiple assessment activities.  
  
The 2011 spring EarthTalks seminar series, "Where Climate Science Meets the  
Road: Managing Resources for Climate Change," is sponsored by the Earth and  
Environmental Systems Institute (EESI). For the full list of speakers,  
visit Spring 2011 EarthTalks Series: "Managing Resources for Climate  
Change".  
  
  
  
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## News Archive 2009 - Brooks receives 2009 Faculty Outreach Award

2009 News, Highlights, and Accomplishments  
  
Brooks receives 2009 Faculty Outreach AwardRobert Brooks (photo)  
  
May 2009  
  
2009 Faculty Outreach Award  
  
Robert Brooks, Professor of Geography, will receive the 2009 Faculty  
Outreach Award. This is a prestigious, university-wide award that Dr.  
Brooks has been more than worthy to receive for several years. He will  
receive the award at the President's annual University Faculty and Staff  
Awards Luncheon in March.  
  
Congratulations, Rob!  
  
Outreach Magazine Article  
  
  
  
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## News Archive 2008 - Brooks adresses wetlands

2008 News, Highlights, and Accomplishments  
  
Brooks adresses wetlandsRobert Brooks (photo)  
  
October 2008  
  
Robert Brooks to address critical role of wetlands in healthy ecosystems.  
  
Human activities from farming to construction have degraded many of the  
region's wetlands, but people are learning how to "build" wetlands that  
perform vital ecosystem services such as floodwater storage, water-quality  
improvement and biodiversity conservation.  
  
That's among the conclusions that Rob Brooks, professor of geography and  
ecology, has reached after 15 years of assessment and restoration research  
in collaboration with faculty, staff, and students of the Penn State  
Cooperative Wetlands Center. Brooks will share those findings on Monday,  
Oct. 20,as part of this year’s EarthTalks colloquium series, "Quenching the  
Thirst."  
  
His talk, scheduled for 4 p.m. on Monday, Oct. 20, in 112 Walker Building,  
is free and open to the public.  
  
"Our research has documented the degradation in flora, faunal communities  
and physical attributes, as well as the reduction in wetland functions,  
that has been caused by human activities," says Brooks, who is the Director  
of the Cooperative Wetlands Center. "Fortunately, our data from natural  
reference wetlands can be used to design restored and mitigated wetlands  
and to assess their performance."  
  
As part of his talk, "Understanding Wetlands, the Other Water: Origins,  
Assessment and Restoration," Brooks will discuss freshwater wetlands, where  
they are found, how they are formed and what ecosystems services they  
provide. He also will examine how wetlands’ interact with streams, rivers,  
lakes and estuaries in a watershed context.  
  
"Quenching the Thirst" is sponsored by the Earth and Environmental Systems  
Institute, the College of Earth and Mineral Sciences, the College of  
Agricultural Sciences and the Penn State Institutes of Energy and the  
Environment.  
  
  
  
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## News Archive 2008 - Budget justification proposal text

2008 News, Highlights, and Accomplishments  
  
Budget justification proposal text  
  
July 2008  
  
Text for budget justification sections of proposals  
  
The following text segments are for use by proposers in their Budget  
Justification sections, regarding the contribution to EESI scientific  
computing support discussed above. Note that this is the exact text that  
proposers must use.  
  
Federal funding, EESI associate:  
The bulk of computing will be performed on the high-performance Linux  
cluster Lion-XO, partially owned by EESI and maintained by the High  
Performance Computing Group (HPC) at Penn State University. EESI provides  
access at the highest priority level for job scheduling on the Lion-XO to  
any EESI associate on a funded basis. EESI computer support personnel will  
work with , providing necessary scientific computational research support  
for the proposed work. To work with the Lion-XO, each EESI associate must  
provide approximately $5000 of salary support per year for the EESI support  
personnel.  
  
Federal funding, CEKA associate: (see note below).  
The bulk of computing will be performed on the high-performance Linux  
cluster Lion-XO, partially owned by CEKA and maintained by the High  
Performance Computing Group (HPC) at Penn State University. CEKA provides  
access at the highest priority level for job scheduling on the Lion-XO to  
any CEKA associate on a funded basis. CEKA computer support personnel will  
work with , providing necessary scientific computational research support  
for the proposed work. To work with the Lion-XO, each CEKA associate must  
provide approximately $5000 of salary support per year for the CEKA support  
personnel.  
  
Note: CEKA PIs do not need to make this contribution for research under the  
main CEKA grant, since it is already budgeted into the CEKA funding. It  
does apply if a CEKA PI writes another proposal involving use of the CEKA  
Linux cluster.  
  
Non-federal funding:  
The bulk of computing will be performed on the high-performance Linux  
cluster Lion-XO, partially owned by EESI and maintained by the High  
Performance Computing Group (HPC) at Penn State University. EESI provides  
access at the highest priority level for job scheduling on the Lion-XO to  
non-federally funded investigators on a funded basis. EESI computer support  
personnel will work with , providing necessary scientific computational  
research support for the proposed work. To work with the Lion-XO, each  
investigator must negotiate the salary support per year for the EESI  
support personnel. Priority on the Lion-XO cluster will be given to  
NSF-funded projects.  
  
  
  
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## News Archive 2008 - Proposed 2008-09 Research Centers

2008 News, Highlights, and Accomplishments  
  
Proposed 2008-09 Research Centers  
  
November 2008  
  
New research centers proposed for EESI  
  
Proposals for several new centers committed to interdisciplinary research  
and educational activities in environmental sciences were recently aired at  
the EESI Center Proposal Presentations (May 7) as directors of those  
centers detailed their initiatives, noting goals and objectives.  
  
EESI supports faculty-directed centers with operating funds and staff and  
by providing physical space. Currently, 10 centers are part of EESI.  
  
Directors of six of EESI's existing centers also outlined their work. Those  
centers include the Center for Energy and Environmental Risk, CEER, Center  
for environmental Kinetics Analysis, CEKA, Center for Environmental  
Informatics, CEI, Earth System Science Center, ESSC, Penn State Ice and  
Climate Research Center, PSICE, and the Center for Public Policy Research  
on the Environment, Energy and Community. EESI also is home to the  
Northeastern Regional Center of the DOE National Institute for Climate  
Change Research located at Penn State.  
  
The proposed new centers include: Center for Climate Risk Management, CRIM,  
which would be directed by Klaus Keller and which would build  
interdisciplinary collaborations among faculty in engineering, economics,  
earth sciences and statistics. Klaus indicated climate risk management is a  
fast-growing field, and a center with that focus was a natural extension of  
Penn State's expertise in climate risk assessment.  
  
Center for Land-Air-Water Studies, CLAWS, which will bring together climate  
and soil scientists, chemical and biological oceanographers,  
hydrogeologists and glaciologists to study the critical interfaces of  
global climate change. The center's activities and foci will include  
process studies and fieldwork Anne Thompson would serve as director.  
  
Riparia which would draw upon and expand the work of the Cooperative  
Wetlands Center. Its focus would include wetlands ecology, landscape  
hydrology and watershed management. Rob Brooks would serve as director.  
  
The centers which will receive EESI support for 2008-09 will be announced  
in early June.  
  
For more information on EESI centers, visit: RESEARCH - EESI Centers and  
Initiatives.  
  
  
  
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## News Archive 2007 - Brantley eletected 2007 AGU Fellow

2007 News, Highlights, and Accomplishments  
  
Brantley eletected 2007 AGU FellowSusan L. Brantley (photo)  
  
May 2007  
  
Sue Brantley, director of EESI has been elected as a new American  
Geophysical Union (AGU) Fellow for 2007. AGU is the largest organization of  
Earth and space scientists, with 48,000 members worldwide. AGU has a  
diverse program for recognizing members and others who have made  
outstanding contributions to the advancement of the geophysical sciences,  
to the service of the community, and to the public’s understanding. This  
designation is conferred upon not more than 0.1% of all AGU members in any  
given year. New Fellows are chosen by a Committee of Fellows.  
  
This honor is a tribute to Dr. Brantley's profound contributions to  
environmental geochemistry, her innovation and leadership in developing new  
scientific initiatives, and her major impact on national geoscience  
education. Congratulations!  
  
  
  
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## News Archive 2007 - Alley and Arthur Fellows of AAAS

2007 News, Highlights, and Accomplishments  
  
Alley and Arthur Fellows of AAASRichard Alley (photo)  
  
Richard Alley and Michael Arthur have been elected as Fellows of AAAS  
(American Association for the Advancement of Science).  
  
October 2007  
  
Dr. Richard Alley is an international authority on the dynamics of ice  
sheets, their stability in the light of climate change, and the ancient  
climate record contained within them.  
  
  
  
Michael Arthur (photo)Dr. Michael Arthur is responsible for major  
innovations in the way we interpret Earth's sedimentary carbon cycle and  
how it has changed from the Archean to the present.  
  
EESI Associate, Professor Richard Alley has received yet another great  
honor. Richard has been selected as the 2007 recipient of the Roger Revelle  
Medal by AGU. The medal recognizes outstanding contributions in atmospheric  
sciences, atmosphere-ocean coupling, atmosphere-land coupling,  
biogeochemical cycles, climate, or related aspects of the Earth system, and  
Richard joins an incredibly prestigious array of former recipients:  
Kutzbach, Cicerone, Hansen, Broecker, just to name a few. Congratulations  
Richard!  
  
  
  
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## News Archive 2007 - CEKA/EESI high performance computing resource

2007 News, Highlights, and Accomplishments  
  
CEKA/EESI high performance computing resource  
  
July 2007  
  
The Center for Environmental Kinetics Analysis (CEKA) within the Earth and  
Environmental Systems Institute (EESI) has had its high performance Lion-XO  
cluster online for approximately 18 months now. It continues to be a highly  
successful venture, with 35 active users and full utilization of its  
capacity.This cluster is maintained and operated by the High Performance  
Computing Group (HPC/GEaRS/ASET/ITS) at Penn State University, and CEKA/  
EESI owns 32 quad-processor nodes on this cluster. Although primarily  
intended for CEKA research, this cluster is available for use by any EESI  
associate, with the following proviso. In order to participate, the EESI  
associate must provide a contribution of $5000 per year in salary for EESI  
support personnel (J. Miley, D. Pollard and a computational chemistry  
support person), to provide scientific computational support for EESI users  
of the cluster.  
  
This scientific support will involve general advice on software, Fortran,  
numerical methods, and help with a limited set of particular models (for  
chemistry: GAUSSIAN, VASP; for climate: GENESIS, MOM2, RegCM3, in-house  
ice-sheet and vegetation models).The standard HPC/GEaRS method of  
computer-time priority and allocation applies to all participating EESI  
users, as follows.  
  
Each group is assigned a fair-share target equal to the percentage of the  
cluster that they own. For CEKA/EESI, this is currently 44.4% (owning 32\*4  
= 128 out of a total 288 CPUs in Lion-XO). Group usage is tracked by HPC  
over a sliding window that is typically 6 weeks.  
  
As long as the group's usage as a whole is less than their target, their  
jobs continue to run at highest priority. If at any time the group's  
sliding-window usage rises above their target, their jobs will run at low  
priority (treated as non-partner users) until their usage drops below the  
target again. Besides the group-based fair-share above, there is a  
user-based fair share between members of the same group. This is weighted  
many orders of magnitude lower than the group-based fair-share, so that it  
is negligible between groups but still works within them. Although the  
CEKA-group fair-share allocation is shared between all EESI users, it is  
anticipated that over-use will not occur, especially in the next few years,  
and substantial fractions of it will be available to individual heavy  
users. Note that participation with a $5000 EESI-support contribution  
provides much more high-priority CPU-time than an individual purchase of  
one or two nodes on a GEaRS cluster: for instance, the purchase of one  
4-quad node would cost ~$5000 or more, but would only provide fair-share  
usage of 1.4% of Lion-XO, compared to a substantial fraction of CEKA/EESI's  
44.4%.The recently reconstituted Earth System Science Center headed by  
Michael Mann has purchased a similar HPC resource that has been subsidized  
by EESI. This cluster will be managed very similarly to Lion-X0. This  
system has just come online and preliminary testing is about to be  
finished. The system is named Lion-XC and is an Intel based cluster  
currently comprised of 96 nodes. Each node has two dual core 3.0 GHz  
Woodcrest CPU's. By mid-summer this cluster will be fully populated with  
128 dual processor nodes. The ESSC's target priority usage on this system  
is 25% of it's overall future capacity.  
  
Test results indicate a potential for Lion-XC to run jobs up to 30% faster  
than Lion-XO. There is capacity for 5 researchers to purchase time on this

## Seminars & Conferences - Spring 2017 EarthTalks Series: The Agriculture-Environment-Energy Nexus: Satiating and Stewarding the Planet

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Agriculture-Environment-Energy Nexus: Satiating and Stewarding the Planet  
  
Spring 2017 EarthTalks Series: The Agriculture-Environment-Energy Nexus:  
Satiating and Stewarding the Planet  
  
Mondays at 4:00 pm in 112 Walker Building  
  
  
  
 EarthTalk Seminars by date  
  
Date Speaker Presentation  
  
 Tom Murphy "U.S. Shale Production -  
Jan Co-Director of Penn State's Implications for Energy and  
23 Marcellus Center for Outreach and Agriculture"  
 Research Mediasite Link  
 Penn State University  
  
 Tess Russo "Groundwater for agriculture:  
Jan Assistant Professor of global challenges, production  
30 Geosciences, Department of capacity, and long-term  
 Geosciences sustainability"  
 Penn State University Mediasite Link  
  
 Seth Blumsack  
Feb Associate Professor of Energy "Easy and Not-so-Easy Pieces  
13 Economics, Department of Energy for Powering the Plant"  
 and Mineral Engineering Penn Mediasite Link  
 State University  
  
 Klaus Keller "Climate Risk Management in the  
Feb Professor of Geosciences, Anthropocene"  
20 Department of Geosciences Mediasite Link not available  
 Penn State University  
  
 Michael Mann  
Feb Distinguished Professor of "Dire Climate Predictions"  
27 Meteorology, Department of Mediasite Link  
 Meteorology  
 Penn State University  
  
Mar Michael Bradshaw "United Kingdom's Shale  
13 Professor of Global Energy Trilemma"  
 University of Warwick Mediasite Link  
  
 David Yoxtheimer "Unconventional Energy Fluids  
Mar Research Assistant, Marcellus Management: Trends for  
20 Center for Outreach and Research Solution"  
 Penn State University Mediasite Link

## Seminars & Conferences - Fall 2015 EarthTalks: The Next Century of Conservation

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Seminars & Conferences - Fall 2015 EarthTalks: The Next Century of  
Conservation  
  
Fall 2015 EarthTalks: The Next Century of Conservation  
  
Mondays at 4:00 pm in 112 Walker Building  
  
  
  
This seminar series is sponsored by the Earth and Environmental Systems  
Insitute and the Center for Landscape Dynamics. The series foreshadows the  
2016 centennial of the National Parks Service and will inspire the audience  
to imagine what energy and environment conservation will look like in the  
next 100 years. Typical seminar format will be one 60-min talks each week.  
  
 EarthTalk Seminars by date  
  
Date Speaker Presentation  
  
Sept Peter Fulé Megafires, Climate, and Future  
14 Northern Arizona University Forests  
  
 Solar Ecology: Transformation of  
Sept Jeffrey Brownson What "Doing Solar" Will Mean for  
21 Penn State University the Next 100 Years (and Everyone  
 is Invited to the Party)  
 PowerPoint  
  
 Penn State Graduate Students: Graduate Showcase: perspective  
 Joe Keller (Ecology), Russell from the recipients of the Center  
Sept Hedberg (Geography), Lacey for Dynamics 2015 Grad Award -  
28 Goldberg (Architecture), Each student will give an 8-10  
 Debasish Saha, and Erynn Maynard minute talk about their research  
 (Ecology) work.  
  
Oct No seminar   
5  
  
Oct Margaret Brittingham Marcellus and Birds  
12 Penn State University  
  
Oct Peter Newman The Importance and Protection of  
19 Penn State University Soundscapes in National Parks  
  
Oct Doug Boucher The Global “Need” for Food in  
26 Union of Concerned Scientists 2050: What the Numbers Mean  
  
 Managing Ecosystem Transitions in  
Nov Craig Allen an Increasingly Dynamic Global  
2 USGS, Colorado Change World -- A Core Challenge  
 for Conservation in the 21st  
 Century

## Seminars & Conferences - Fall 2014 EarthTalks: Exploring the Oceans

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Seminars & Conferences - Fall 2014 EarthTalks: Exploring the Oceans  
  
Fall 2014 EarthTalks: Exploring the Oceans  
  
Mondays at 4:00 pm in 112 Walker Building  
  
  
  
Earth Talks: Exploring the Oceans seminar series is being developed to  
engage the Penn State community in marine research. Marine research is a  
highly interdisciplinary field that spans the wide breadth of Penn State's  
departments, colleges, and institutes. This seminar series is sponsored by  
EESI and PSIEE in conjunction with the Center for Marine Science and  
Technology. Typical seminar format will be two 20-min talks each week,  
except in the cases where invited speakers from off-campus will present a  
45-min presentation. The presentation slots are open to all Penn State  
faculty, researchers, and graduate students conducting research in the  
marine environment. Our hope is to schedule 2 different ocean topics within  
each seminar to attract those with diverse interests to listen, learn, and  
network. The seminar will cover topics from coastal to deep water  
environments, ocean technology, and ocean modelling.  
  
 EarthTalk Seminars by date  
  
Date Speaker Presentation  
  
Sept Anthony Lyons  
22 Penn State Acoustic Imaging of breaking internal waves  
 University  
  
 Jen  
 Miksis-Olds  
Sept and Iliana C-MaST overview  
22 Baums  
 Penn State  
 University  
  
Sept Andrew Thurber  
29 Oregon State Ocean Conservation  
 University  
  
Oct John Parkinson  
6 Penn State Coral Symbiosis  
 University  
  
Oct Raymond Najjar  
6 Penn State Impact of nitrogen deposition on coastal waters  
 University  
  
Oct Lee Kump  
13 Penn State Ocean anoxia  
 University

## Seminars & Conferences - Fall 2015 EarthTalks: Jeffrey Brownson’s presentation

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Fall 2015 EarthTalks: The Next Century of Conservation  
  
Jeffrey Brownson's presentation  
  
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## Seminars & Conferences - Reactive Transport Modeling Workshop

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Seminars & Conferences - Reactive Transport Modeling Workshop  
  
Reactive Transport Modeling Workshop  
  
NSF workshop: Expanding the role of Reactive Transport Modeling (RTM)  
within the Biogeochemical Sciences  
  
  
  
Dates and Location: April 13 – 15, 2014  
Embassy Suites Alexandria Hotel, 1900 Diagonal Road, Alexandria, VA 22314  
  
The workshop will bring together biogeochemists and reactive transport  
modelers to identify key interfaces between reactive transport modeling  
approaches and biogeochemical data collection and analysis. The specific  
goals of the workshop are to (1) identify the frontiers of reactive  
transport in the biogeochemical sciences, and (2) determine what  
educational and infrastructure development is required to achieve these  
goals.  
  
Contents:  
  
 □ Motivation  
 □ Workshop agenda  
 □ One page white paper  
 □ Contacts and organizers  
 □ Workshop Logistics, Travel and Reimbursement  
 □ RTM Survey  
  
We designed a survey to collect feedback from the community about the  
educational and development needs in the area of Reactive Transport  
Modeling for biogeochemical studies. It is a short survey and should take 5  
– 10 minutes to finish. Here is the link to the survey: http://  
kwiksurveys.com/s.asp?sid=tcxmlwthiqxop6t322104  
  
Motivation:  
  
The formation, operation, and evolution of Earth systems are complex due to  
the coupling of physical, chemical, and biological processes in the  
subsurface. Such coupling plays a pivotal role in the conversion of rock to  
soil, release of nutrients from minerals for ecosystem vitality, and  
cycling of biogeochemically important elements and contaminants. Data  
collection and analysis coupled with field observation have provided  
significant insights into the factors that determine the evolution of the  
critical zone. Mechanistic understanding and prediction of the intimately  
coupled processes, however, often requires advanced modeling tools that can  
integrate large and diverse data sets to quantify the effects of individual  
processes, while at the same time provide a window into the coupled  
processes that may control the overall system behavior.  
  
Reactive Transport Modeling (RTM) has been used at various research fronts  
for approximately three decades. It has been used to understand complex

## Seminars & Conferences - Critical Zone Seminar Series Highlights Earth Surface Research

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Seminars & Conferences - Critical Zone Seminar Series Highlights Earth  
Surface Research  
  
Critical Zone Seminar Series Highlights Earth Surface Research  
  
  
  
At Earth's surface, rocks interact with living organisms in the layer known  
as the Critical Zone. To support research on this zone, EESI partners with  
the Department of Crop and Soil Science to bring notable scientists to Penn  
State to share their Critical Zone (CZ) research.  
  
Listed below are the scientists who have presented their research as part  
of the Critical Zone Seminar series. A committee of CZ researchers at Penn  
State chooses at least one annual speaker for this series. Committee  
members include Jason Kaye and Patrick Drohan, both from Crop and Soil  
Sciences, and Jennifer Macalady and Tim White, both from Geosciences.  
  
  
  
 Recent EarthTalk Seminar Series  
  
 Date Speaker Presentation  
  
 Ron Amundson, professor  
April Environmental Science,  
11, Policy, and Management "Hillslopes and Life"  
2012 University of California –  
 Berkley  
  
 Josh Schimel, professor  
Nov. Ecology, Evolution and Marine  
12, Biology "The Biogeochemistry of Drought"  
2010 University of California,  
 Santa Barbara  
  
 Arjun Heimsath, associate  
Nov. professor "Quantifying Soil Production and  
12, School of Earth and Space Transport Across Diverse  
2009 Exploration Landscapes"  
 Arizona State University  
  
Oct. Larry Wilding, professor "Hydropedology in the Critical  
22, Department of Soil and Crop Zone: A Case Study in central  
2007 Sciences, Texas Hill Country"  
 Texas A&M  
  
 Oliver Chadwick, professor  
April Associate Professor of Water "Impact of Time and Climate on  
30, Resources Hawaiian Soils and Polynesian  
2007 Department of Geography Land-Use Decisions"  
 University of California,

## Seminars & Conferences - Frontiers in Earth Systems Ecology Annual Seminar

In This Section  
  
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Seminars & Conferences - Frontiers in Earth Systems Ecology Annual Seminar  
  
Frontiers in Earth Systems Ecology Annual Seminar  
  
  
  
The "Frontiers in Earth Systems Ecology Annual Seminar" reflects EESI's  
commitment to interdisciplinary research and scholarship in this growing  
area.  
  
This seminar brings to Penn State a respected scientist who has made a  
significant contribution to the field of Earth Systems Ecology. The speaker  
is selected and nominated to the EESI Director or Associate Director by a  
committee of EESI associates and affiliates representing the departments of  
Energy and Mineral Engineering, Geography, Geosciences and Meteorology.  
  
The goals of this seminar series are to increase the visibility of Earth  
Systems Ecology in EMS and across campus and to highlight the disciplinary  
and interdisciplinary contributions of nominees.  
  
The speaker will give a seminar in one of the participating department's  
seminar series with departments rotating each year. That department has  
responsibility for hosting the speaker which includes organizing the  
speaker's calendar and identifying individual faculty, graduate students  
and undergraduate students across EMS, and the University to meet with the  
speaker. The speaker also may participate in classes across departments.  
  
  
  
"Frontiers" Committee  
Seth Blumsack, Energy and Mineral Engineering; José Fuentes, Meteorology;  
Erica Smithwick, Geography; Jim Kasting, Geosciences.  
  
  
  
 "Frontiers" Seminars by date  
  
 Date Speaker Presentation  
  
 Jonathan Foley,  
Friday, director "Solutions for a Cultivated Planet: How  
April Institute on the can we find ways to feed a growing,  
6, 2012 Environment changing world, while sustaining the  
 University of global environment"  
 Minnesota  
  
 Dr. Russell Monson,  
 professor  
2010/ School of Natural n/a  
2011 Resources and the  
 Environment  
 University of Arizona

## Seminars & Conferences - 2019 Shaver’s Creek Watershed Snapshot Sampling

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Seminars & Conferences - 2019 Shaver’s Creek Watershed Snapshot Sampling  
  
2019 Shaver’s Creek Watershed Snapshot Sampling  
  
  
  
\*\*VOLUNTEERS NEEDED\*\*  
  
  
  
Date and Time: September 28, 2019, 8:00 a.m. – 2:00 p.m.  
Location: Huntingdon County  
Details: Download Flyer [PDF]  
  
2019 Shavers Creek dnapshot day  
  
  
  
Events & Opportunities  
  
 □ This Week  
 □ Job Opportinities  
━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━  
  
Tweets by PSUEarth  
  
  
  
Quick Links  
  
 □ Resources for Faculty & Staff  
 □ Educational Equity  
 □ Research Administration  
 □ Safety & Emergency Information  
  
Contact Us  
  
  
Earth and Environmental Systems Institute  
2217 Earth-Engineering Sciences Building  
University Park, PA 16802-6813  
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 □ Privacy

## Seminars & Conferences - Fall 2019 EarthTalks Series: The Dynamics of Deep Decarbonization

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Seminars & Conferences - Fall 2019 EarthTalks Series: The Dynamics of Deep  
Decarbonization  
  
Fall 2019 EarthTalks Series: The Dynamics of Deep Decarbonization  
  
Mondays at 4:00 p.m. in 112 Walker Building  
  
  
  
Achieving truly deep decarbonization is a uniquely difficult problem  
requiring fundamental changes in multiple interconnected systems (energy,  
agriculture, industry). Decisions made with the intent of avoiding the most  
severe climate change climatic impacts happen in the face of deep and  
dynamic uncertainties. Deep decarbonization decisions may also create  
multiple winners and losers and is thus a problem of managing social change  
in addition to technology transition. This Earth Talks series will invite  
prominent researchers to give talks on energy systems transition, negative  
carbon emissions, terrestrial sequestration, decision-making under  
uncertainty, and public policy relevant to deep decarbonization.  
  
 EarthTalk Seminars by date  
  
Date Speaker Presentation  
  
 Lindsay Anderson "How Do We Get There from Here?  
 Kathy Dwyer Marble and Curt The Challenge and Potential for  
Oct. Marble Faculty Director for Low-Carbon Electric Power  
7 Energy, Atkinson Center for Systems"  
 Sustainability Watch the seminar  
 Cornell University  
  
 Jae Edmonds  
 Chief Scientist and Battelle "The Paris Agreement's Article 6:  
Oct. Fellow, Joint Global Change Estimating its potential to  
14 Research Institute increase ambition"  
 Pacific Northwest National  
 Laboratory  
  
 Hari Osofsky  
Oct. Dean, Penn State Law and Penn "The Regulatory Role of Climate  
21 State School of International Change Litigation"  
 Affairs Watch the seminar  
 Penn State  
  
 Klaus Lackner "Direct Air Capture of CO2 and  
Oct. Director, Center for Negative the Emerging Energy Transition"  
28 Carbon Emissions Watch the seminar  
 Arizona State University  
  
 Tom Richard "Deep Re-carbonization:  
Nov. Director, Penn State Institutes Harnessing Photosynthesis for  
4 of Energy and the Environment Negative Emissions"

## Seminars & Conferences - Fall 2014 EarthTalks: Miksis-Olds’ and Baums’s presentation

□ Column 3  
 ☆ Seminars & Conferences   
 ○ This Week  
 ○ EarthTalks - Objective & Archive  
 ○ Additional Seminars  
  
Seminars & Conferences - Fall 2014 EarthTalks: Miksis-Olds' and Baums's  
presentation  
  
Fall 2014 EarthTalks: Exploring the Oceans  
  
Jennifer L. Miksis-Olds' and Iliana Baums' presentation  
  
September 22, 2014  
  
  
  
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EarthTalks Fall 2014 - Miksis-Olds and Baums presentation - page 04  
  
  
  
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EarthTalks Fall 2014 - Miksis-Olds and Baums presentation - page 06  
  
  
  
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EarthTalks Fall 2014 - Miksis-Olds and Baums presentation - page 08  
  
  
  
EarthTalks Fall 2014 - Miksis-Olds and Baums presentation - page 09  
  
  
  
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EarthTalks Fall 2014 - Miksis-Olds and Baums presentation - page 11

## Seminars & Conferences - Spring 2013 EarthTalks Series: Penn State Water Seminars

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 ☆ Seminars & Conferences   
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 ○ EarthTalks - Objective & Archive  
 ○ Additional Seminars  
  
Seminars & Conferences - Spring 2013 EarthTalks Series: Penn State Water  
Seminars  
  
Spring 2013 EarthTalks Series: Penn State Water Seminars  
  
Fridays at 12:15-1:15 p.m. in 217 Forest Resources Building (\*unless  
otherwise noted)  
Talks will not be web broadcasted but will be archived and available to  
view at a later date via adobe connect.  
  
  
  
 EarthTalk Seminars by date  
  
 Date Speaker Presentation  
  
 Tony Buda "Hydrologic and Water  
Jan 18 U.S. Department of Agriculture Quality Research in the  
 Penn State University Chesapeake Bay Watershed"  
  
 "Integrating Water, Carbon  
 Chaopeng Shen and Nitrogen: Evaluating  
 Assistant Professor, Department the Coupling Strengths and  
Jan 25 of Civil & Environmental Mutual Influences Using a  
 Engineering, Penn State Process-Based  
 University Surface-Subsurface Model"  
   
  
 Seth Blumsack "Electricity Market  
 Assistant Professor, Department Participation, Ecosystem  
Feb 1 of Energy and Mineral Services and Downstream  
 Engineering, Penn State Flow Regime for  
 University Hydroelectric Power Plants"  
   
  
 Chris Duffy "The Terrestrial Water  
Feb 8 Professor, Department of Civil Cycle and Sustainable  
 & Environmental Engineering, Services"  
 Penn State University   
  
 Robert Brooks "Mid-Atlantic Freshwater  
Feb 15 Professor, Department of Wetlands: Using Science to  
 Geography Inform Policy and Practice"  
 Penn State University   
  
 Sybil Seitzinger, Executive  
 Director, International  
 Geosphere Biosphere Program,  
Saturday Stockholm, Sweden  
Feb 23 Richard Alley, Department of Penn State Carbon Earth  
9:00-5:00 Geosciences, Penn State, Jenni Conference"  
101 Thomas Evans, Department of

## Seminars & Conferences - Fall 2012 EarthTalks Series: PSU “Talks” on Water

In This Section  
  
 □ Column 3  
 ☆ Seminars & Conferences   
 ○ This Week  
 ○ EarthTalks - Objective & Archive  
 ○ Additional Seminars  
  
Seminars & Conferences - Fall 2012 EarthTalks Series: PSU "Talks" on Water  
  
Fall 2012 EarthTalks Series: PSU "Talks" on Water  
  
Mondays at 4:00 pm in 112 Walker Building  
  
  
  
 EarthTalk Seminars by date  
  
Date Speaker Presentation  
  
 Patrick Reed "Petascale Design and Management of  
 Associate Professor of Civil & Space-based Water Cycle Observation  
Aug Environmental Engineering Systems: Bridging Earth Science and  
27 College of Engineering, Penn Astrodynamics"  
 State University  
 Mediasite to view video of talk  
  
 Susan L. Brantley  
 Distinguished Professor of "Water Quality in Areas of  
Sept Geosciences and Hydraulically Fractured Shale in  
10 David Yoxtheimer, Extension the Northeastern U.S."  
 Associate, College of Earth  
 and Mineral Sciences, Penn Mediasite to view video of talk  
 State University  
  
 Armen Kemanian  
 Assistant Professor of "One Piece of the Hydrologic Cycle  
Sept Production Systems Puzzle: Modeling Plant Competition  
17 and Modeling for Water"  
 College of Agricultural  
 Sciences, Mediasite to view video of talk  
 Penn State University  
  
 Beth Boyer "Atmospheric Deposition and its  
 Associate Professor of Water Impacts on Water Quality in  
Sept Resources Pennsylvania"  
24 College of Agricultural  
 Sciences, Mediasite to view video of talk  
 Penn State University  
  
 Bryan Swistock "Baseline Water Quality in  
Oct Senior Extension Associate Groundwater Wells Across the  
1 College of Agricultural Marcellus Region of Pennsylvania"  
 Sciences,  
 Penn State University Mediasite to view video of talk  
  
 Ken Davis (Meteo), Soumaya "Roots, Leaves and Radiation;  
 Belmecheri (Meteo), David Satellites, Sap Flux and Isotopes:  
Oct Eissenstat (Ag Sci), Kusum Progress Towards Understanding the  
8 Naithani (Geog) and Yuning Shi Water and Carbon Dynamics of

## Seminars & Conferences - Spring 2012 EarthTalks Series: “Electronic Media and Environmental Science: e-Education to e-Data”

In This Section  
  
 □ Column 3  
 ☆ Seminars & Conferences   
 ○ This Week  
 ○ EarthTalks - Objective & Archive  
 ○ Additional Seminars  
  
Seminars & Conferences - Spring 2012 EarthTalks Series: "Electronic Media  
and Environmental Science: e-Education to e-Data"  
  
Spring 2012 EarthTalks Series: "Electronic Media and Environmental Science:  
e-Education to e-Data"  
  
Mondays at 4:00 pm in 112 Walker Building  
  
  
  
Electronic media are changing the way we use and find data to understand  
the environment. At the same time, the fraction of U.S. undergraduates that  
took at least one online course between 2000 and 2008 increased from 8-20%.  
Growth in electronic media are thus changing our lives as environmental  
scientists and educators and how we communicate with citizens outside the  
university. This EarthTalks colloquium series will present a slate of  
speakers who will address various aspects of how electronic media is  
changing how we teach and learn and explore the environment, and how this  
media is changing the research university. Speakers will span from local to  
global thinkers on the topic.  
  
 EarthTalk Seminars by date  
  
 Date Speaker Presentation  
  
 Susan L. Brantley "Electronic Media and  
 Director, Earth & Environmental Science: A  
 Environmental Systems Discussion about e-Education to  
Jan 9 Institute, Penn State e-Data"  
 University  
 Mediasite to view video of talk  
 Abstract, Presentation  
  
 Ann Taylor "e-Education for Geographers,  
 Acting Director, Dutton Geoscientists and  
Jan 16 e-Education Institute, Penn Meteorologists"  
 State University  
 Mediasite to view video of talk  
  
 "The Hockey Stick and the  
 Michael Mann Climate Wars: Dispatches from  
Jan 23 Professor of Meteorology, Penn the Front Lines"  
 State  
 Mediasite to view video of talk  
  
 Richard Alley "Communicating Real Science in a  
Jan 30 Evan Pugh Professor of Sound-Bite World"  
 Geosciences  
 Mediasite to view video of talk  
  
 "Emergent e-Education: New  
 Jeffrey Brownson Strategies for Research and

## Seminars & Conferences - Spring 2011 EarthTalks Series: “Managing Resources for Climate Change”

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 ☆ Seminars & Conferences   
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 ○ EarthTalks - Objective & Archive  
 ○ Additional Seminars  
  
Seminars & Conferences - Spring 2011 EarthTalks Series: "Managing Resources  
for Climate Change"  
  
Spring 2011 EarthTalks Series: "Managing Resources for Climate Change"  
  
Mondays at 4:00 pm in 112 Walker Building  
  
  
  
Planning how best to manage resources that will be affected by climate  
change is the topic of the Earth & Environmental Systems Institute's (EESI)  
spring EarthTalks seminar. Speakers from government agencies and nonprofit  
organizations are among those who will be addressing "Where Climate Science  
Meets the Road: Managing Resources for Climate Change."  
  
The speakers include:  
  
 □ Nels Johnson, Deputy State Director for The Nature Conservancy, on  
 Monday, Feb. 28  
 □ Chris Pyke, Vice President of Research, U.S. Green Building Council;  
 and Vice Chair, Chesapeake Bay program's Scientific and Technical  
 Advisory Committee, on Monday, March 28;  
 □ Daniel Vimont, Assistant Professor, Atmospheric and Oceanic Sciences,  
 Center for Climatic Research, University of Wisconsin, on Monday, April  
 4;  
 □ Matt Larsen, Associate Director, Climate and Land Use Change, U.S.  
 Geological Survey, on Monday, April 25.  
  
All talks will be held at 4 p.m., 112 Walker Building.  
  
In his talk, Johnson will focus on key findings of the recently completed  
Pennsylvania Climate Change Adaptation Planning Report that identifies the  
most important risks that climate change poses for the state's  
infrastructure, public health, natural resources and recreation and tourism  
industries. The report also indicates steps that can be taken now to reduce  
those impacts.  
  
"We provide current and relevant climate adaptation information to  
stakeholders including legislators, policy makers, government agencies and  
the public," said Johnson, who served as co-chair for the natural resources  
working group that prepared the report.  
  
Johnson also will highlight work by The Nature Conservancy to identify  
resilient landscapes and connectivity area in the central Appalachians.  
  
  
  
Co-sponsored by the Earth & Environmental Systems Institute and Penn State  
Institutes of Energy and the Environment

## Seminars & Conferences - Fall 2010 EarthTalks Series: “Embracing Change: Resilience and Adaptation in Turbulent Times”

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Seminars & Conferences - Fall 2010 EarthTalks Series: "Embracing Change:  
Resilience and Adaptation in Turbulent Times"  
  
Fall 2010 EarthTalks Series: "Embracing Change: Resilience and Adaptation  
in Turbulent Times"  
  
Mondays at 4:00 pm in 112 Walker Building  
  
  
  
"Embracing Change: Resilience and Adaptation in Turbulent Times" is the  
theme for the 2010 EarthTalks seminar series with scientists, policy makers  
and practitioners from across the nation and abroad joining Penn State  
faculty in discussions on visions for a more sustainable and equitable  
future.  
  
The 13-week series takes as a starting point that human activities are  
impacting ecosystems and climate in unprecedented ways and threatening the  
various resource bases that sustain both human and ecological well being.  
  
But rather than give in to doomsday scenarios, the speakers will argue for  
a different approach - resilience or the capacity to regenerate and revive  
after major changes or shocks have occurred.  
  
"Resilience is the concept that we are better off preparing for and  
adapting to an uncertain future now rather than learning by shock," said  
Petra Tschakert, EESI associate and series organizer.  
  
"While acknowledging that challenges, surprises and even chaos may lurk  
around the corner, resilience calls for embracing and working with change  
rather than trying to control it."  
  
Tschakert will lead off the series at 4 p.m. on Monday, August 30, in a  
talk titled "Participatory Learning for Climate Change Adaptation and  
Resilience." Free and open to the public, all talks will be in 112 Walker  
Building.  
  
Other speakers include Susanne Moser (Sept. 13), who has served as a staff  
scientist for climate change at the Union of Concerned Scientists and who  
is a review editor on the IPCC's Special Report on "Managing the Risks of  
Extreme Events and Disasters to Advance Climate Change Adaptation"; Lance  
Gunderson (Oct. 11), founding chair of the Department of Environmental  
Studies at Emory University and former executive director of the Resilience  
Network; and Byron "Ken" Williams (Oct. 18), chief of the Cooperative  
Research Units, U.S. Geological Survey, and lead author of the Department  
of Interior Adaptive Management Technical Guide.  
  
The 2010 EarthTalks series is sponsored by the Earth and Environmental  
Systems Institute (EESI), the College of Earth and Mineral Sciences, the  
John A. Dutton e-Education Institute, the Department of Geography and the  
Penn State Institutes of Energy and the Environment (PSIEE).

## Seminars & Conferences - Fall 2009 EarthTalks Series: "Landscape Change, Climate Change, and Organisms: Ancient to the Future\*"

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Seminars & Conferences - Fall 2009 EarthTalks Series: "Landscape Change,  
Climate Change, and Organisms: Ancient to the Future\*"  
  
Fall 2009 EarthTalks Series: "Landscape Change, Climate Change, and  
Organisms: Ancient to the Future\*"  
  
Mondays at 4:00 pm in 112 Walker Building  
  
  
  
- a lecture series sponsored by the Earth & Environmental Systems  
Institute, College of Earth & Mineral Sciences, the Penn State Institutes  
of Energy and the Environment, the Environment and Natural Resources  
Institute, the EMS Energy Institute, and the College of Agricultural  
Sciences - All talks are open to the public and are scheduled for 4:00 p.m.  
on Mondays in 112 Walker Building  
  
 EarthTalk Seminars by date  
  
 Date Speaker Presentation  
  
 Rudy Slingerland "Landscape Evolution at Geologic Time  
Aug 31 Department of Scales"  
 Geosciences, Penn  
 State University Mediasite to view video of talk  
  
 William A. DiMichele "Variable Effects of Global Warming on  
 Department of Vegetation of the Pennsylvanian  
Sept 14 Paleobiology, 'Coal-Age' Tropics"  
 Smithsonian  
 Institution Mediasite to view video of talk  
  
Tuesday, "Time Travel with a Shovel: How to Use  
Sept 22 Kirk R. Johnson Fossils and Geology to Reconstruct  
4:00 pm Vice President, Denver Ancient Ecosystems"  
in Museum of Nature &  
22 Deike Science Mediasite to view video of talk  
Bldg  
  
 "The Evolution of Monkeys and Apes in  
 Nina G. Jablonski Relation to the Changing Landscapes and  
Sept 28 Head of Department of Environments of the Late Tertiary and  
 Anthropology, Penn Quaternary"  
 State  
 Mediasite to view video of talk  
  
 Bonnie F. Jacobs  
 Chair, Environmental Cancelled  
Oct 5 Science Program, "Cenozoic Evolution of African  
 Southern Methodist Landscapes"  
 University

## Seminars & Conferences - Spring 2009 EarthTalks Series: “Marcellus Shale Play: Boon or Burden”

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Seminars & Conferences - Spring 2009 EarthTalks Series: "Marcellus Shale  
Play: Boon or Burden"  
  
Spring 2009 EarthTalks Series: "Marcellus Shale Play: Boon or Burden"  
  
Mondays at 4:00 pm in 112 Walker Building  
  
  
  
EarthTalks Spring 2009 Marcellus Shale Play: Boon or Burden  
  
- a lecture series sponsored by the Earth & Environmental Systems  
Institute, College of Earth & Mineral Sciences, the Penn State Institutes  
of Energy and the Environment, the Environment and Natural Resources  
Institute, the EMS Energy Institute, and the College of Agricultural  
Sciences - All talks are open to the public and are scheduled for 4:00 p.m.  
on Mondays in 112 Walker Building  
  
Additional information on the Marcellus Shale  
  
  
  
 EarthTalk Seminars by date  
  
Date Speaker Presentation  
  
 Terry Engelder "Geology and Resource Assessment  
Jan Professor, Department of of the Marcellus Shale"  
26 Geosciences, Penn State  
 University Mediasite to view video of talk  
  
 "Accommodating a New Straw in  
 Tom Beauduy the Water: Development of the  
Feb Deputy director, Susquehanna Marcellus Shale Formation in the  
2 River Basin Commission Susquehanna River Basin"  
  
 Mediasite to view video of talk  
  
 Timothy Kelsey "Community and Economic  
 State Program Leader, Economic Implications of Marcellus Shale  
Feb and Community Development Development"  
16 Professor of Agricultural  
 Economics, Penn State Cooperative Mediasite to view video of talk  
 Extension, Penn State  
  
 Bryan Swistock "Water Quality Impacts From  
Feb Water Resources Extension Natural Gas Drilling"  
23 Associate, School of Forest  
 Resources, Penn State University Mediasite to view video of talk  
  
 "Navigating Regulatory and  
Mar Ryan Dahl, Rachel Allen Financial Hurdles in the

## Seminars & Conferences - Fall 2014 EarthTalks: Katherine H. Freeman’s presentation

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presentation  
  
Fall 2014 EarthTalks: Exploring the Oceans  
  
Katherine H. Freeman's presentation  
  
October 13, 2014  
  
  
  
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## Seminars & Conferences - Fall 2014 EarthTalks: Maria Herrmann’s presentation

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Seminars & Conferences - Fall 2014 EarthTalks: Maria Herrmann's  
presentation  
  
Fall 2014 EarthTalks: Exploring the Oceans  
  
Maria Herrmann's presentation  
  
November 10, 2014  
  
  
  
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## Seminars & Conferences - Fall 2014 EarthTalks: Lee R. Kump’s presentation

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## Seminars & Conferences - Fall 2014 EarthTalks: John Parkinson’s presentation

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## Seminars & Conferences - Fall 2014 EarthTalks: Dan Tomaso’s and Raymond Najjar’s presentation

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## Seminars & Conferences - Susan L. Brantley’s Spring 2012 EarthTalks Series Abstract

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Susan L. Brantley's Spring 2012 EarthTalks Series Abstract  
  
Dr. Susan L. Brantley, Director, Earth & Environmental Systems Institute  
  
I invite members of EESI, EMS, and the broader university community to  
engage in a conversation about how electronic media are changing the way we  
use and find data to understand the environment. Many changes are occurring  
and EESI would like to encourage a conversation on this broad topic. For  
example, the fraction of U.S. undergraduates that took at least one online  
course between 2000 and 2008 increased from 8-20%. National Science  
Foundation supports an open data policy for all projects. The USGS is  
providing online water quality and quantity data for citizens; weather  
models are presented online for all to use and see. Sensors and cell phones  
are being used for data collection. Growth in computer capability and  
electronic media are changing our lives as environmental scientists and  
educators and how we communicate with citizens outside the university. I do  
not have the answers about where we are going: but I invite interested  
university members - especially from EESI and EMS -to participate in a  
conversation on this topic and how Penn State can lead in this area. Please  
join me on Monday, January 9, at 4:00 p.m. in 112 Walker Building to start  
the semester-long series and the conversation.  
  
  
  
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## Seminars & Conferences - Rick Hooper’s Spring 2012 EarthTalks Series Abstract

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Rick Hooper's Spring 2012 EarthTalks Series Abstract  
  
Rick Hooper, Executive Director, CUAHSI, Consortium of Universities for  
Advancement of Hydrologic Sciences  
  
"Sharing Water Data for Research, Education, and Citizen Engagement: The  
web services revolution"  
  
The emergence of data transmission standards and protocols for  
computer-to-computer web services has transformed the way that government  
agencies, academic researchers, and citizen scientists can discover,  
publish, and display data. The Consortium of Universities for the  
Advancement of Hydrologic Science, Inc. (CUAHSI) has been developing a  
Hydrologic Information System based using these services and standards that  
allow these groups to publish their data and register metadata in a central  
catalog. Client software can access these services and presente it to  
users. Hydrodesktop, one client developed by CUAHSI HIS, is designed as an  
integrated GIS and data analysis tool (using R) is designed for  
researchers. Other clients can also be developed for these standards for  
other audiences, such as citizens. These technologies open up new ways for  
collaboration and outreach for university scientists.  
  
  
  
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## Seminars & Conferences - Fall 2008 EarthTalks Series: “Quenching the Thirst: Managing the Water Resources of a Changing Planet”

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Thirst: Managing the Water Resources of a Changing Planet"  
  
Fall 2008 EarthTalks Series: "Quenching the Thirst: Managing the Water  
Resources of a Changing Planet"  
  
Mondays at 4:00 pm in 112 Walker Building  
  
  
  
EarthTalks Spring 2009 Marcellus Shale Play: Boon or Burden  
  
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on Mondays in 112 Walker Building  
  
  
  
 EarthTalk Seminars by date  
  
Date Speaker Presentation  
  
 Michael Gooseff "One of These Things is Not Like  
Sept Hartz Family Career Development the Other: Stream Restoration and  
15 Professor, Department of Civil Stream Ecosystem Restoration"  
 Engineering, Penn State  
 University Mediasite to view video of talk  
  
 Upmanu Lall "Global Water Crisis? Prospects,  
 Alan & Carol Silberstein Directions and Science Needs for  
Sept Professor of Engineering, Sustainability"  
22 Department of Earth &  
 Environmental Engineering, Mediasite to view video of talk  
 Columbia University  
  
 Pat Mulholland "Streams as Nitrogen Filters in  
Sept Aquatic Ecologist in the the Landscape"  
29 Environmental Sciences Division,  
 Oak Ridge National Laboratory Mediasite to view video of talk  
  
 "Politics, Markets, and Engineers  
 Martin Doyle in Destroying and Restoring the  
Oct Department of Geography and the American River: From George  
6 Institute for the Environment, Washington to George Bush"  
 University of North Carolina  
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 "Climate Change in the West: It's  
 All About Water"

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Fall 2008 EarthTalks Series: "Quenching the Thirst: Managing the Water  
Resources of a Changing Planet"  
  
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 EarthTalk Seminars by date  
  
 Nancy Tuana  
 Director of the Rock Ethics  
Sept Institute, Professor of Philosophy "Ethical Dimensions of  
10 Geoengineering"  
 Klaus Keller  
 Assistant Professor of Geosciences,  
 Penn State University  
  
Sept Michael Mann "The Science of Climate  
17 Associate Professor of Meteorology, Change"  
 Penn State University  
  
Sept Steve Maruszewski "Penn State's Carbon  
24 Deputy Associate Vice President for Footprint"  
 Physical Plant  
  
Oct Fan Zhang "Taxation vs. regulation as  
1 Assistant Professor of Energy Policy a CO2 control policy"  
 and Economics, Penn State University  
  
Oct Klaus Lackner  
8 Professor of Geophysics, Columbia "CO2 Sequestration"  
 University  
  
Oct Carl Hess/Mark Whitfield "Local Government Approaches  
15 State College Borough Govt. to Reducing Greenhouse Gas  
 Emissions"  
  
 Klaus Keller  
 Assistant. Professor of Geosciences,  
 Penn State University

## Seminars & Conferences - Spring 2009 EarthTalks Series: Marcellus Shale Resource Page

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EarthTalks Spring 2009 Marcellus Shale Play: Boon or Burden  
  
Maps and Images  
  
 □ Marcellus Shale isopleth (formation thickness) map  
 □ Marcellus Shale extent map  
  
Papers and Articles  
  
 □ Unconventional shale-gas systems: The Mississippian Barnett Shale of  
 north-central Texas as one model for thermogenic shale-gas assessment,  
 Daniel M. Jarvie, Ronald J. Hill, Tim E. Ruble, and Richard M.  
 Pollastro  
 □ Palaeoceanographic controls on geochemical characteristics of  
 organic-rich Exshaw mudrocks: role of enhanced primary production, Mark  
 L. Caplan , R. Marc Bustin  
 □ Marcellus Shale Play's Vast Resource Potential Creating Stir In  
 Appalachia, Terry Engelder and Gary G. Lash  
 □ Water Facts #28: Gas Well Drilling and Your Private Water Supply,  
 College of Agricultural Sciences, Cooperative Extension School of  
 Forest Resources prepared by Bryan Swistock  
 □ Potential Development of the Natural Gas Resources in the Marcellus  
 Shale New York, Pennsylvania, West Virginia, and Ohio, National Park  
 Service Natural Resource Program Center  
 □ Shale Gas: Focus on the Marcellus Shale, Lisa Sumi for the Oil & Gas  
 Accountability Project  
 □ Geology of the Devonian black shales of the Appalachian Basin, John  
 Roen US Geologic Survey  
 □ Assessment of Undiscovered Natural Gas Resources in Devonian Black  
 Shales, Appalachian Basin, Eastern U.S.A.Appalachian Basin, Eastern  
 U.S.A., Robert C. Milici US Geologic Survey  
  
Presentations  
  
 □ Pennsylvania's Oil & Gas Extraction Industry Partnership, The  
 Pennsylvania Oil & Gas Association  
 □ Gas Well Activity and Regulatory Requirements In the Susquehanna River  
 Basin, Susquehanna River Basin Commission  
  
Web Links  
  
 □ Natural Gas Impacts, Cooperative Extension, Penn State College of  
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Back to: Spring 2009 EarthTalks Series: "Marcellus Shale Play: Boon or

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## Research - EESI Proposed Centers and Initiatives 2014 (CEI)

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## Research - EESI Proposed Centers and Initiatives 2014 (CLD)

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http://jaywen.com/  
  
Events & Opportunities  
  
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Events & Opportunities  
  
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## Research - EESI Proposed Centers and Initiatives 2017 (CLD)

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## Research - EESI Proposed Centers and Initiatives 2017 (CLIMA)

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## Research - EESI Proposed Centers and Initiatives 2017 (Riparia)

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## Research - EESI Proposed Centers and Initiatives 2017 (EEEPI)

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## Research - EESI Proposed Centers and Initiatives 2017 (ESSC)

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## Research - EESI Proposed Centers and Initiatives 2017 (MCOR)

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## Research - EESI Proposed Centers and Initiatives 2017 (PSICE)

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## Research - EESI Proposed Centers and Initiatives 2014 (PSICE)

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## Research - EESI Proposed Centers and Initiatives 2014 (Riparia)

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## Research - EESI Proposed Centers and Initiatives 2014 (MCOR)

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## Seminars & Conferences - Fall 2014 EarthTalks: Katherine H. Freeman’s presentation

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## Seminars & Conferences - Fall 2014 EarthTalks: Lee R. Kump’s presentation

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## Seminars & Conferences - Fall 2014 EarthTalks: Miksis-Olds’ and Baums’s presentation

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## Seminars & Conferences - Fall 2014 EarthTalks: Najjar’s presentation

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## Seminars & Conferences - Fall 2014 EarthTalks: John Parkinson’s presentation

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## Seminars & Conferences - Susan L. Brantley’s Spring 2012 EarthTalks Series Abstract

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Abstract  
  
Susan L. Brantley's Spring 2012 EarthTalks Series Abstract  
  
Dr. Susan L. Brantley, Director, Earth & Environmental Systems Institute  
  
I invite members of EESI, EMS, and the broader university community to  
engage in a conversation about how electronic media are changing the way we  
use and find data to understand the environment. Many changes are occurring  
and EESI would like to encourage a conversation on this broad topic. For  
example, the fraction of U.S. undergraduates that took at least one online  
course between 2000 and 2008 increased from 8-20%. National Science  
Foundation supports an open data policy for all projects. The USGS is  
providing online water quality and quantity data for citizens; weather  
models are presented online for all to use and see. Sensors and cell phones  
are being used for data collection. Growth in computer capability and  
electronic media are changing our lives as environmental scientists and  
educators and how we communicate with citizens outside the university. I do  
not have the answers about where we are going: but I invite interested  
university members - especially from EESI and EMS -to participate in a  
conversation on this topic and how Penn State can lead in this area. Please  
join me on Monday, January 9, at 4:00 p.m. in 112 Walker Building to start  
the semester-long series and the conversation.  
  
  
  
Events & Opportunities  
  
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Contact Us  
  
  
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University Park, PA 16802-6813  
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## Seminars & Conferences - Rick Hooper’s Spring 2012 EarthTalks Series Abstract

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Rick Hooper's Spring 2012 EarthTalks Series Abstract  
  
Rick Hooper, Executive Director, CUAHSI, Consortium of Universities for  
Advancement of Hydrologic Sciences  
  
"Sharing Water Data for Research, Education, and Citizen Engagement: The  
web services revolution"  
  
The emergence of data transmission standards and protocols for  
computer-to-computer web services has transformed the way that government  
agencies, academic researchers, and citizen scientists can discover,  
publish, and display data. The Consortium of Universities for the  
Advancement of Hydrologic Science, Inc. (CUAHSI) has been developing a  
Hydrologic Information System based using these services and standards that  
allow these groups to publish their data and register metadata in a central  
catalog. Client software can access these services and presente it to  
users. Hydrodesktop, one client developed by CUAHSI HIS, is designed as an  
integrated GIS and data analysis tool (using R) is designed for  
researchers. Other clients can also be developed for these standards for  
other audiences, such as citizens. These technologies open up new ways for  
collaboration and outreach for university scientists.  
  
  
  
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## Seminars & Conferences - Spring 2009 EarthTalks Series: Marcellus Shale Resource Page

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EarthTalks Spring 2009 Marcellus Shale Play: Boon or Burden  
  
Maps and Images  
  
 □ Marcellus Shale isopleth (formation thickness) map  
 □ Marcellus Shale extent map  
  
Papers and Articles  
  
 □ Unconventional shale-gas systems: The Mississippian Barnett Shale of  
 north-central Texas as one model for thermogenic shale-gas assessment,  
 Daniel M. Jarvie, Ronald J. Hill, Tim E. Ruble, and Richard M.  
 Pollastro  
 □ Palaeoceanographic controls on geochemical characteristics of  
 organic-rich Exshaw mudrocks: role of enhanced primary production, Mark  
 L. Caplan , R. Marc Bustin  
 □ Marcellus Shale Play's Vast Resource Potential Creating Stir In  
 Appalachia, Terry Engelder and Gary G. Lash  
 □ Water Facts #28: Gas Well Drilling and Your Private Water Supply,  
 College of Agricultural Sciences, Cooperative Extension School of  
 Forest Resources prepared by Bryan Swistock  
 □ Potential Development of the Natural Gas Resources in the Marcellus  
 Shale New York, Pennsylvania, West Virginia, and Ohio, National Park  
 Service Natural Resource Program Center  
 □ Shale Gas: Focus on the Marcellus Shale, Lisa Sumi for the Oil & Gas  
 Accountability Project  
 □ Geology of the Devonian black shales of the Appalachian Basin, John  
 Roen US Geologic Survey  
 □ Assessment of Undiscovered Natural Gas Resources in Devonian Black  
 Shales, Appalachian Basin, Eastern U.S.A.Appalachian Basin, Eastern  
 U.S.A., Robert C. Milici US Geologic Survey  
  
Presentations  
  
 □ Pennsylvania's Oil & Gas Extraction Industry Partnership, The  
 Pennsylvania Oil & Gas Association  
 □ Gas Well Activity and Regulatory Requirements In the Susquehanna River  
 Basin, Susquehanna River Basin Commission  
  
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 □ Natural Gas Impacts, Cooperative Extension, Penn State College of  
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