EAPS MEETINGS & EVENTS

FALL FACULTY MEETING SCHEDULE
Dec. 1st
HAMP 3201
3:00-4:30 PM

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AGU 2015
December 14-18, 2015
7:00-9:00 PM
Thirsty Bear
San Francisco, California

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AMS 2016
January 10-14, 2016
New Orleans, LA

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LPSC 2016
March 21-25, 2016
The Woodlands, Texas

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DEAN’S VISIT TO DEPARTMENT
April 21, 2016
1:30 - 4:00 PM

EAPS DEFENSES

MS Defense-Tong Yu
November 10th
2:00pm
ARMS 3001
Advisor: Qianlai Zhuang

MS Defense-Kimberle Davis
November 11th
9:00am
HAMP 3201
Advisor: Ken Ridgway

EAPS COLLOQUIA

Kimberly Hoogewind
PhD Candidate
“How Will Severe Thunderstorms Respond to
Anthropogenic Climate Change? Insights from High-
resolution Dynamical Downscaling”
Tuesday, Nov. 10th
4:00 PM
HAMP 2201

Leigh Sterns
University of Kansas
“Tidewater Glacier Dynamics-What We’re Learning from
Increased Observational Data”
Thursday, Nov. 12th
3:30 PM
HAMP 1252

EAPS NEWS

SCIENCE SCOPE JOURNAL

EAPS K-12 Outreach Coordinator Steven Smith and EAPS Graduate Student Christopher Roemmele have now been published a second time this year. Their latest article, “There’s a Glacier in Your Backyard! Modeling Glaciers through Active Learning” can be found in the November issue of Science Scope, a teacher practitioner’s journal published by the National Science Teachers Association. Their article, “Rocking Inquiry: Using the Nature of Science and Discovery to Enhance Teaching Rocks” was published in the summer 2015 issue of The Earth Scientist, the journal of the National Earth Science Teachers Association.

NEWS FROM THE NIYOGI/LAND SURFACE LAB

Recently we hosted a World Urban Data Portal and Tool (WUDAPT) planning workshop. WUDAPT is a tool that allows users to characterize a city based on local climate zones (LCZs) and retrieve data that can be used in other urban modelling tools. Following this workshop, the interdisciplinary, multi-institutional team wrote and submitted a project involving the expansion of WUDAPT in 3D visualization and the automation of data retrieval.
This past week, one of our graduate students, Renee Obringer, attended a regional drought preparation meeting in Louisville, KY. This meeting was hosted by the National Integrated Drought Information System (NIDIS) team, a subset of NOAA. The purpose of the meeting was to discuss the implantation of a drought early warning system (DEWS) in the Midwest regions. In attendance were members of academia, as well as state and federal officials. The outcome of the meeting was the decision that the top priorities for the DEWS system were improved monitoring of soil moisture, providing data in a form that is useable for the stakeholders (useful to useable), and properly managing water resources in drought-afflicted areas.

EAPS FACULTY AND STAFF RESOURCE FUND

The EAPS Faculty and Staff Resource Fund provides faculty and full-time, permanent staff with a simple, open, and transparent way to request resources they need to be productive in their work. This is not intended to replace other sources (e.g. grants, discretionary accounts, start-up, competitive programs on campus, and usual supplies and expenses), rather it is to meet occasional needs that are important for individual productivity and advancement in cases where these other sources are not available to an individual. Examples include professional development course tuition, office needs, and professional conferences.

Procedure:
Applications to the fund should be sent via email (as a pdf) to the Assistant Department Head. Requests must include the following items and not exceed one page.

- applicants name, position title, email address
- a detailed, one paragraph description of what is being requested
- a short explanation of how this will help the individual be productive in their work
- amount requested (this program will accept requests between $200 and $2,000)
- time constraints on what is being requested (e.g., a deadline for registration)

Request deadline is the 20th of each month. Decisions will be made by the 5th of the following month. All requests will be reviewed by a group including the Assistant Department Head, the Business Manager, and at least two members of the EAPS Executive Committee.

MATHEMATICAL CONTINUUM PHYSICS, MATH 598/EAPS 591

SPRING 2016 (Tues & Thurs. 1:30-2:45 PM)
Instructor: Dr. Jon Cushman
CRN: 15509

Lagrangian and Eulerian coordinate system representations are employed throughout all developments. We begin by constructing the fully non-linear strain tensor and analyze its component’s physical significance. This is followed by development of the integral, and subsequently local forms, of conservation of mass, balances of linear and angular momentum and conservation of energy. The 2nd –law of thermodynamics is postulated for the entire body and employed to develop fully non-linear constitutive relations which are subsequently linearized near equilibrium for many classes of fluids and solids. Maxwell’s equations of electrodynamics are introduced, coupled with the conservation and balance laws and subjected to the 2nd – law to obtain generalized field equations. Averaging principles are employed to obtain the conservation and balance laws for mixtures of species and phases of relevance to porous media. Applications are presented for swelling biopolymers (foods and cells), drug delivery substrates, geophysical media (soils, aquifers and petroleum reservoirs), electro-active polymers (soft robotics), and fuel cells (flow batteries). The common structure of all these examples is highlighted.

UNDERGRADUATE NEWS

Mr. Michael Alley, Associate Professor, the Pennsylvania State University
"Re-thinking the Design of Presentation Slides":
Wednesday, Nov. 11th
12:00-1:00 PM
Lawson 1142

No RSVP required! This talk is open to any faculty, graduate students, or undergraduate students.

Please see attached flier for more information.

GRADUATE NEWS

The EAPS Department provides the opportunity for merit-based support to graduate students to present their research at professional conferences. The maximum yearly amount of department support is $400 per graduate student (each fiscal year). Submit your form to Kathy Kincade (Room 2169D/HAMP) no later than one month prior to the start of the conference you plan to attend. Requests after the fact or after that timeframe will not be accepted.

NASA EARTH AND SPACE SCIENCE FELLOWSHIP (NESSF) PROGRAM.

NASA announces a call for graduate fellowship proposals to the NASA Earth and Space Science Fellowship (NESSF) program for the 2016-2017 academic year. This call for fellowship proposals solicits applications from accredited U.S. universities on behalf of individuals pursuing Master of Science (M.Sc.) or Doctoral (Ph.D.) degrees in Earth and space sciences, or related disciplines. The purpose of NESSF is to ensure continued training of a highly qualified workforce in disciplines needed to achieve NASA’s scientific goals. Awards resulting from this competitive selection will be made in the form of training grants to the respective universities.
The deadline for NEW applications is **February 1, 2016**, and the deadline for RENEWAL applications is **March 15, 2016**.

The NESSF call for proposals and submission instructions are located at the NESSF 16 solicitation index page at [http://nspires.nasaprs.com/](http://nspires.nasaprs.com/) - click on "Solicitations" then click on "Open Solicitations" then select the "NESSF 16" announcement. Also refer to "Program Specific Questions" and "Frequently Asked Questions" listed under "Other Documents" on the NESSF 16 solicitation index page.

All proposals must be submitted in electronic format only through the NASA NSPIRES system. The faculty advisor has an active role in the submission of the fellowship proposal. To use the NSPIRES system, the faculty advisor, the student, and the university must all register. Extended instructions on how to submit an electronic proposal package are posted on the NESSF 16 solicitation index page listed above. You can register in NSPIRES at [http://nspires.nasaprs.com/](http://nspires.nasaprs.com/).

For further information contact Claire Macaulay, Program Administrator for NESSF Earth Science Research, Telephone: (202) 358-0151, E-mail: claire.i.macaulay@nasa.gov; or Dolores Holland, Program Administrator for NESSF Heliophysics Research, Planetary Science Research, and Astrophysics Research, Telephone: (202) 358-0734, E-mail: hq-nessf-space@nasa.gov

### MIDWEST GRADUATE RESEARCH SYMPOSIUM (MGRS) 7TH ANNUAL MIDWEST GRADUATE RESEARCH SYMPOSIUM

The University of Toledo Graduate Student Association is proud to present the 7th Annual Midwest Graduate Research Symposium on **Saturday, April 9th, 2016** at the University of Toledo. This event has been recognized as a premier event and is a great opportunity for presenting research, networking, and fostering intercollegiate friendships and collaborations.

**When:**
*April 9, 2016*
*8:00 am – 7:00 pm*

**Where:**
The University of Toledo

**Building:**
Memorial Field House & Student Union

**Contests and Awards**

- **Poster Presentation:** One 1st place, one 2nd place, and one 3rd place winner each receives a plaque and certificate.
- **Oral Presentation:** One 1st place, one 2nd place, and one 3rd place winner each receives a plaque and a certificate.
- **AWIS Award:** One $100.00 award for the top women in a STEM field presenting at the conference.
- **Sigma Xi UT chapter Award**
- **All participants receive participation certificates.**

**OTHER**

**GEOLOGIST 2 POSITION**

Geologist 2

**Job ID:** 599494

Indianapolis, Indiana

Indiana Department of Environmental Management

This Geologist 2 resides in the Geological Services Section of the Science Services Branch of the Office of Land Quality. This position provides geological expertise to project managers in the Remediation Services Branch and Underground Storage Tanks Branch.

Please see attached flier for more information.

**ARGONNE NATIONAL LABORATORY POSITION**

Interested candidates can view and apply to the position at: [http://www.anl.gov/careers/apply-job/postdoctoral-applicants](http://www.anl.gov/careers/apply-job/postdoctoral-applicants)

**Postdoctoral Appointee**

**Requisition Number:** 400355

**Location:** Lemont, IL

**Functional Area:** Research and Development

**Division:** GSS-Global Security Sciences

**Education Required:** Doctorate Degree

**Position Description**

The Global Security Sciences division is seeking a Postdoctoral Applicant to participates as a collaborative member of a multidisciplinary group of professional staff engaged in the analysis of economic, environmental, and natural resource implications of complex adaptive systems.
that are important to sustainable energy and national security.

This Appointee will apply systems science, simulation and advanced methods, including agent-based modeling, to develop sophisticated supply chain, manufacturing, and economic market models and use them to generate results that inform policy, investment, and deployment decisions.

They will identify data sources and manage data resources as required for the development of the complex adaptive system models.

This role will be involved in the development of algorithms that reflect the reality and heterogeneity of agents and decision behaviors within supply chains, energy systems, and other interactive environments.

THE KHORANA PROGRAM AND THE S.N. BOSE PROGRAM

Deadline: January 31, 2016
www.winstepforward.org

Government supported scientific student exchange programs between India and the U.S., are currently accepting applications from U.S. students in all STEM (Science, Technology, Engineering, and Mathematics) as well as Medicine, Pharma, Agriculture, Wild life and Climate Changed based fields.

Please see attached fliers for more information.

2016 DHS HS-STEM SUMMER INTERNSHIPS

The Department of Homeland Security (DHS) is now accepting applications for its 10 week Summer Internship Program in a broad spectrum of research areas. These internships are open to undergraduate and graduate students majoring in homeland security disciplines related to science, technology, engineering and mathematics (HS-STEM). Undergraduate and graduate students receive a 10-week stipend of $6,000 and $7,000, respectively, plus limited travel.

Areas of Research: Engineering, computer science, mathematics, physics, chemistry, biological/life sciences, environmental science, emergency and incident management, social sciences, and more.

U.S. citizenship required.

Deadline for applications: December 16, 2015, 11:59PM EST

For more information visit http://www.orau.gov/dhseducation/internships/ or contact DHSED@ORAU.ORG

Applications must be submitted at https://www.zintellect.com/Posting/Details/1468

ORAU University Partnerships Office
University.partnerships@orau.org
www.orau.org/expenses.

BIRTHDAYS

Tim Filley Nov. 10th
Ken Ridgway Nov. 12th
Gerald Krockover Nov. 12th

IMPORTANT NOTICE ABOUT THIS NEWSLETTER

This newsletter is used as the primary information source for current and upcoming events, announcements, awards, grant opportunities, and other happenings in our department and around campus. Active links to additional information will be provided as needed. Individual email announcements will no longer be sent unless the content is time-sensitive. We will continue to include our publications, presentations and other recent news items as well. Those using paper copies of the newsletter should go to our newsletter archive on the EAPS website at http://www.eaps.purdue.edu/news/newsletters.html and Click on News to access active links as needed. Material for inclusion in the newsletter should be submitted to Fallon (fmcquern@purdue.edu) by 5:00pm on Thursday of each week for inclusion in the Monday issue.

If it is in the newsletter, we assume you know about it and no other reminders are needed. For answers to common technology questions and the latest updates from the EAPS Technology Support staff, please visit http://www.eaps.purdue.edu/info_tech/index.php.

Also, as an additional resource for information about departmental events, seminars, etc., see our departmental calendar at http://calendar.science.purdue.edu/eas/seminars.
PURDUE UNIVERSITY
Department of Earth, Atmospheric, and Planetary Sciences
Colloquia – Fall 2015
Thursdays at 3:30 PM, Room 1252 HAMP (unless noted)

Sept. 22  Subashini Subramanian, PhD Candidate  Advisor: Niyogi
“Land Surface Effects on the Post Landfall Characteristics of Tropical Cyclones”
TUESDAY, 4:30PM, ROOM 2201/HAMP

Sept. 24  Dr. Joseph Morris, Lawrence Livermore National Laboratory  Host: Cushman
“Hydraulic Fracture Simulation: Rising to the Challenge of Unconventional Reservoirs”
EAPS Energy Colloquium

Oct. 1  Prof. Nathan Sheldon, University of Michigan  Host: Horgan
“When Did the Terrestrial Biosphere Become Important to Global Biogeochemistry”

Oct. 8  Prof. Blair Schoene, Princeton University  Host: Caffee
“Constraining Crustal Evolution on Very Short and Very Long Timescales”

Oct. 15  Prof. Qianlai Zhuang, Purdue University
Title: TBA

Oct. 20  Haylee Dickinson, PhD Candidate  Advisor: Freed
“Inferred Rheology and Petrology of the Southern California and Northwest Mexico Mantle from Postseismic Deformation Following the 2010 El Mayor-Cucapah Earthquake”
TUESDAY, 4:00PM, ROOM 2201/HAMP

Oct. 22  Prof. Victor Gensini, College of DuPage  Host: Agee
“Tornadoes: Past, Present and Future”

Oct. 27  Anthony Ingrafea, Cornell University  Host: Cushman
EAPS Energy Colloquium
TUESDAY, 7:00PM, ROOM 112/PHYS

Oct. 29  Prof. Jerry DeGraff, AEG-Jahns Lecturer,  Host: West
“Effective Monitoring for Environmental and Engineering Geology Projects, Case Histories in Mining, Groundwater Contamination and Hot Springs Migration”

Nov. 5  Prof. Kim Novick, Indiana University  Host: Welp
“Mechanisms Limiting Forest Carbon Uptake and Water Use During Drought”

Nov. 10  Kimberly Hoogewind, PhD Candidate  Advisor: Baldwin
Title: TBA
TUESDAY, 4:00PM, ROOM 2201/HAMP
Nov. 12  Prof. Leigh Stearns, University of Kansas  Host: Elliott
“Tidewater Glacier Dynamics – What We’re Learning from Increased Observational Data”

Nov. 19  Prof. Susan Brantley, Pennsylvania State University  Host: Melosh
Title: TBA

Dec. 3  Prof. Paul Staten, Indiana University  Host: Wu
“Metrics, Mechanisms, and Magnitudes of Tropical Widening in a Warming Climate”
How Will Severe Thunderstorms Respond to Anthropogenic Climate Change? Insights from High-resolution Dynamical Downscaling

Kimberly Hoogewind
PhD Candidate

Severe thunderstorms and their hazards—large hail, strong surface wind gusts, and tornadoes—present a significant risk to life and property every year in the United States. Amidst continuing warming of global mean temperature, there is uncertainty regarding the response of these extreme events in a future climate. Several studies in recent years have shown that global climate model (GCM) projections of favorable severe weather environments increase through the 21st century. However, this approach is undoubtedly limited by the assumption that the convective-scale phenomena will be realized within these environments; the resolution of GCMs remain much too coarse to adequately represent the scales at which severe weather phenomena occur, including processes that may lead to the initiation of convective clouds. To better address this question, high-resolution (4 km), dynamically downscaled WRF simulations have been performed using initial and boundary conditions from a high-performing GCM to produce synthetic climatologies of historical (1971-2000) and future (2071-2100) hazardous convective weather. This talk will discuss potential impacts upon the frequency, intensity, and spatiotemporal distributions of severe convective storms under an aggressive climate scenario.

Tuesday, November 10, 2015
4:00 p.m.
Room 2201 HAMP

Refreshments at 3:30 pm
Room 2201/HAMP
Tidewater Glacier Dynamics—What We’re Learning from Increased Observational Data

Leigh Stearns
University of Kansas

Glaciers that terminate in fjords or the open ocean have undergone large changes in the past decade—accelerating, retreating and thinning. These fast-flowing and dynamic tidewater glaciers now account for the majority of ice mass loss in Greenland, Antarctica and Alaska. Our understanding of tidewater glacier dynamics has improved due to the rapid increase in satellite imagery, numerical modeling efforts, and intensive field campaigns over the past decade. We now understand that tidewater glaciers are subject to large changes in flow dynamics on short time-scales ranging from days to decades, as a result of forcings as diverse as ocean tides and climate. This variability makes it difficult to predict tidewater glacier response in a warming climate and so contributes one of the largest sources of uncertainty in current sea level models. I will outline the physical processes that govern tidewater glacier dynamics, describe how we measure and model these processes, and highlight the limitations of our current observational platforms.
Job Title: Geologist 2  
Job ID: 599494  
Location: Indianapolis, IN  
Agency: Indiana Department of Environmental Management

**Job Description:**

This Geologist 2 resides in the Geological Services Section of the Science Services Branch of the Office of Land Quality. This position provides geological expertise to project managers in the Remediation Services Branch and Underground Storage Tanks Branch.

- Review remediation plans for sites handled in the Brownfields, Underground Storage Tanks, State Cleanup, Federal (Superfund and Site Investigation), and Voluntary Remediation programs. Provide geologic expertise for investigations and cleanups in all of these programs.
- Review and assist in developing: remedial investigation plans; feasibility studies; remedial actions, and other related activities.
- Prepare technical reports and correspondence; research equipment and supply costs and may make enforcement referrals.
- Perform fieldwork: oversee soil boring and monitoring well installations; sample soil and groundwater; perform field tests (includes geophysical techniques) and other site investigation activities.
- Communicate complex information to non-geologists via oral and written methods in clear, concise, and understandable terms.
- Work closely with other IDEM scientists and project managers.
- Perform other duties as assigned.

**Responsibilities:**

Incumbent generally works independently, makes decisions/recommendations, and develops alternatives to facilitate site investigations and remediation for a variety of program areas. Supervisor provides broad instructions upon initial assignment. Senior geologists and supervisor review incumbent’s draft and final reports, memos, and routine correspondence for attainment of objectives and agency policy. Incumbent keeps assignments on schedule and periodically gives progress reports when asked.

**Preferred Experience:**

Six (6) years full-time professional experience in geology or hydrogeology. Substitution: Accredited college training in Geology or Hydrogeology may substitute for the required experience on a year for year basis.

**Additional Comments:**

Applicants are asked to paste a resume in the online state application. If contacted for an interview, please provide a college transcript copy.
Benefits:

The State of Indiana offers a comprehensive benefit package which includes:

- Medical / Dental / Vision plans
- Health Savings Account available with Employer Contribution
- Prescription Coverage
- Employee Assistance Program
- Employer-funded Retirement Plan
- Deferred Compensation Plan with Employer Match
- Flexible Spending Account
- Work/life balance: 24 Paid Days Off and 12 Holidays, per year
- Group Life Insurance
- Public Service Loan Forgiveness Program

Want the specifics? Explore the Benefits of Working in State Government!

Equal Employment Opportunity:

The State of Indiana is an Equal Opportunity Employer.

How to Apply:

Interested applicants can apply at: http://bit.ly/1XxnadP
The University of Toledo Graduate Student Association is proud to present the 7th Annual Midwest Graduate Research Symposium on **Saturday, April 9th, 2016** at the University of Toledo. This event has been recognized as a premier event and is a great opportunity for presenting research, networking, and fostering intercollegiate friendships and collaborations. Here at the University of Toledo we strive to improve the world around us by advancing research and education to the cutting edge. We look forward to hosting individuals from around the nation in what promises to be an outstanding day for all involved.

**When:**
April 9, 2016
8:00 am – 7:00 pm

**Where:**
The University of Toledo
**Building:**
Memorial Field House & Student Union

**Free Registration Deadline:**
**March 19th, 2016 at Midnight!**

**Contests and Awards**
- **Poster Presentation:** One 1st place, one 2nd place, and one 3rd place winner each receives a plaque and certificate.
- **Oral Presentation:** One 1st place, one 2nd place, and one 3rd place winner each receives a plaque and a certificate.
- **AWIS Award:** One $100.00 award for the top women in a STEM field presenting at the conference.
- **Sigma Xi UT chapter Award**
  All participants receive participation certificates.
- All participants receive an invitation to the awards dinner following the graduate student symposium.
Information session on Nov 10th, 2015 at 6pm
Biochemistry Laboratories, 433 Babcock Dr, Room 348

**ELIGIBILITY**
- Science, Technology, Engineering, Math, Medicine, Agriculture, and Public Health majors
- Undergraduates with at least junior standing, and graduate students
- Minimum GPA 3.0

For application guidelines refer to: www.winstepforward.org
For program information contact: info@winstepforward.org

Application Deadline: 31 JANUARY 2016