EAPS MEETINGS & EVENTS

SPRING FLING
May 25, 2016
11:30 AM-4:00 PM

EAPS FACULTY & STAFF FALL RETREAT
August 18, 2016
Beck Ag Center, Rm 111
8:30 AM – 4:00 PM

EAPS FALL WELCOME BACK PICNIC
August 18, 2016
Happy Hollow Park, Shelter 1
4:30 – 7:00 PM

SPRING 2016 FINAL EXAMS
May 2-7, 2016

COLLEGE OF SCIENCE COMMENCEMENT

Graduate School:
Friday, May 13, 2016
4:00 PM

CoS Undergraduates:
Saturday, May 14, 2016
2:30 PM

All ceremonies are held in the Elliott Hall of Music.

EAPS COLLOQUIA

Qianwen Luo
PhD Candidate
Tuesday, April 26, 2016
4:00 PM
HAMP 2201

Marcia Bjournerud
Lawrence University
Thursday, April 28, 2016
3:30 PM
HAMP 1252

EAPS NEWS

ALUMNI & FRIENDS RECEPTION

EAPS hosted an Alumni and Friends reception in San Francisco during the AAG event on April 1st. Below is a photo from the event (taken by EAPS alumnus Suresh Muthukrishnan).

SPRINGFEST 2016

EAPS participated in spring fest activities in the College of Science tent and Prof. Baldwin and students had a weather balloon launch.

More photos from the event and a video of the balloon launch may be viewed on the EAPS Facebook and Twitter pages.
UNDERGRADUATE AND GRADUATE STUDENT INFORMATION

PUPS (PURDUE UNIVERSITY PLANETARY SCIENCE)

There is a new student club called PUPS (Purdue University Planetary Science)—to provide a sense of community for students who are interested in planetary sciences, as well as, providing encouragement and information about the future of planetary science. The goal is to increase awareness of and the interdisciplinary nature of planetary sciences. Advisor: Briony Horgan. E-mail: briony@purdue.edu

SUMMER REGISTRATION RESEARCH HOURS CHANGE

There has been a change in the registration of Summer research hours (EAPS 69800 and EAPS 69900). Research credits will now cover all three modules instead of just the second and third. Summer session now begins May 16th.

- It’s very important that all graduate students conducting research – on or off campus – be appropriately registered. The number of 69800 and 69900 credits taken during the summer should reflect a graduate student’s research and writing efforts.
- EAPS 69800 and 69900 are scheduled from May 16 through August 2.
- A maximum of nine (9) credits taken during Summer Session are permitted to fulfill graduation requirements.
- Graduate staff must be registered for at least three (3) credits in order to hold their assistantships (i.e., if you are being paid, you must be registered).

As during the Fall/Spring semesters, a Form 23 is required in order to register for research hours. Failure to register by May 16th will invoke a $200 late registration fee. If you have questions contact Kathy Kincade at kkincade@purdue.edu

2016 CSU SACRAMENTO-ECOSYSTEM FIELD CAMP

Spring 2016 field course open to senior geology majors. Note that the entire class is conducted from: June 1-July 10, 2016.

Application forms are available at www.csus.edu/geology. Email application PDF and materials to geology@csus.edu (cc: hausbac@csus.edu) or mail to:
Geology 188 Application
 c/o Geology Department
 California State University, Sacramento
 6000 J Street
 Sacramento, CA 95819-6043

See the attached flyer for more information, schedule, fees, and deadlines. Please contact Brian Hausck at hauuscak@cusu.edu if you have questions.

SHORT TERM STUDY ABROAD PROGRAMS

The GREEN Program offers accredited 8-10 day programs which take students to epicenters of clean tech, sustainability, and innovative industries. Programs available winter, summer, or spring break. See attached flyer.

- Engage in hands-on, experiential education with industry experts and professionals
- Gain behind-the-scenes access to innovative clean energy facilities and sustainability projects
- Supercharge resumes with a global perspective and unique cultural experience
- Network and develop relationships with powerhouse student leaders and professionals
- Bridge the gap between traditional textbook learning and real-time industry insight
- Participate on world-class bucket list adventure excursions
- Earn an academic transcript for transfer credit short term abroad programs for
- future clean energy & sustainability leaders

Apply: www.thegreenprogram.com

SUMMER 3-CREDIT FIELD COURSE OPPORTUNITIES WITH ECOSYSTEM FIELD STUDIES!

Caribbean Ecosystem Field Studies - Study, snorkel & SCUBA dive along the Caribbean coast of Mexico
May 21- June 9

Colorado Ecosystem Field Studies – Study, camp, & hike in the Colorado Rocky Mountains from
June 21 - July 10 or July 18 - August 6

An opportunity to apply classroom & textbook learning while immersed in an incredible ecosystem setting! Gain valuable career skills in hands-on ecosystem field research. Earn 3 undergraduate transfer credits. Also offering post-course, extended credit options of Independent Research & Conservation Internship

Open to students from all universities & majors. Accredited by the University of Montana at Missoula's Environmental Studies. Program: ENST 391- for 3 undergraduate semester transfer credits.

For all course information visit the course website: www.EcoFS.org or see the attached flyer.

Direct any further questions to Professor Steve Johnson, Course Director at steve@EcoFS.org
MERIT-BASED SUPPORT TO GRADUATE STUDENTS

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.

10th ANNUAL GRADUATE CLIMATE CONFERENCE

The 10th Annual Graduate Climate Conference, which will be held October 28-30, 2016 at the University of Washington Pack Forest Conference Center.

The Graduate Climate Conference (GCC) is an interdisciplinary climate conference run by graduate students, for graduate students, with the goal of assembling a broad range of talks and posters featuring high-quality research focused on past, present, and future climate change and its impacts.

They encourage students at all stages of their graduate career to apply and we seek abstracts on climate research from a variety of disciplines from the physical, natural, and social sciences and humanities, including: anthropology, atmospheric sciences, biology, Earth and environmental sciences, economics, engineering, ethics, geography, law, oceanography, public policy, and resource management.

They highly encourage abstracts from students with traditionally under-represented backgrounds.

The abstract submission period opens April 11 and closes June 1. Lodging and meals are covered for all participants. Limited travel funding is also available. Please see our website for more information and for submitting abstracts: www.graduateclimateconference.com

The GCC 2016 organizing committee.

UNIVERSITY NEWS

OpenMP high-performance computing mini course at Purdue set for May 10

Purdue will host a no-fee National Science Foundation workshop May 10 on high-performance computing with OpenMP. The session is for students, staff and faculty looking to gain skills in parallel programming with OpenMP to leverage the power of cutting-edge computational resources, such as Purdue’s community clusters.

The mini course, which includes hands-on lab sessions, is designed to give C and Fortran programmers an introduction to programming with OpenMP. Participants should have a general knowledge of Linux and will gain a working knowledge of how to write OpenMP codes for scalable parallel computing. The NSF and ITaP are sponsoring the event.

Questions: rcac-help@purdue.edu

SPRING FLING SET FOR MAY 25

Spring Fling and many of its traditional events will return this year to Memorial Mall.

The annual appreciation day for faculty, staff, graduate student staff and retirees will be 11:30 a.m. - 4:00 p.m. May 25, 2016.

Spring Fling will offer many of the same activities as in years past, including lunch, a car show, fitness walk, DJ, and yard games. "Purdue's Got Talent," a talent-show activity, will be held in Stewart Center with several other indoor activities, including bingo, zumba and others to be determined later. The registration table and finish line for the annual fitness walk will be in Stewart Center.

Food service and eating space will be outside. Participants also will have the opportunity to give back by donating blood at the bloodmobile or to the Food Finders canned food drive.

http://www.purdue.edu/springfling/Register/index.html
http://www.purdue.edu/springfling/Events/#freePlay

"SKILLS PERFORMANCE" TRAINING OPPORTUNITIES AVAILABLE FOR STAFF

Purdue University - Training offers a wide selection of extension courses for both personal and professional growth. Taught by experts in their fields, the courses provide practical, hands-on experience. And, best of all, anyone can afford them. Take a look through their online catalog for courses that interest you. Then, register for the courses you want right now using the web site below!

Please click here to sign up for upcoming classes: https://www.eventreg.purdue.edu/training/Home.aspx

OTHER NEWS

Please distribute this paid internship announcement to the students in your department https://www.zintellect.com/Posting/Details/2112.
We hope to have two fellows start anytime between June 1, 2016 to December 31, 2016. Therefore, please encourage all to apply now even if they do not graduate until December.

An applied research project, which is administered by the Oak Ridge Associated Universities (ORAU), is available at the Technical Support Center (TSC) of the Office of Water, Office of Ground Water and Drinking Water, U.S. Environmental Protection Agency, in Cincinnati, Ohio. Under the guidance of a mentor, the participant will gain experience and educational benefits from this project looking for emerging contaminants in drinking water.

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**COEUSLITE IRB TRAINING FOR INVESTIGATORS AT WL CAMPUS**

CoeusLite training sessions for Purdue research faculty and staff are scheduled during the months of April and May. Human Research Protection Program (HRPP) and Coeus staff will demonstrate how to submit a new Institutional Research Board (IRB) protocol application through CoeusLite, followed by a question-and-answer session and one-to-one assistance on submissions.

The training sessions are scheduled, as follows:

- **April 27 (W):** 8:30 – 11:00 a.m.
- **May 5 (TH):** 1:00 - 3:30 p.m.
- **May 13 (F):** 9:30 a.m. – 12 p.m.
- **May 16 (M):** 8:30 – 11:00 a.m.
- **May 26 (TH):** 9:30 a.m. – 12:00 p.m.
- **June 3 (F):** 10 a.m. - 12:30 p.m.

Registration is needed. [Click here](#) to register for CoeusLite IRB trainings. Individuals will be notified of corresponding training locations after registration is initiated.

Group trainings may be requested by sending an email to [IRBCoeusLiteTraining@purdue.edu](mailto:IRBCoeusLiteTraining@purdue.edu), or calling the HRPP office at 765-494-5942.

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**SUMMER WORKSHOP IN MATHEMATICAL MODELING OF EARTH’S DYNAMIC SYSTEMS**

This workshop will be an intense, hands-on introduction to the creation and use of numerical models as a method for investigating the dynamics of Earth systems. Participants will learn how to translate their understanding of Earth processes into systems of differential equations, and solve them to test hypotheses concerning both modern and ancient systems. In addition, participants will learn how to apply and evaluate selected existing Earth system models. The short course is open to graduate students and faculty. The event is from **July 31 – Aug 5, 2016** in University Park, PA. See the attached flyer for additional details and registration information.

**FUN FACT OF THE WEEK**

There are thousands of other planets out there!

![Image](https://via.placeholder.com/150)

We have eight planets in our Solar System. However, outside of our Solar System there are thousands of other planets. The extra-solar planets or exo-planets are in orbit around another star. So far we have almost 1800 confirmed new worlds, with another 3000 awaiting confirmation. Astronomers are looking to a star’s goldilocks zone for planets that may be habitable, just like the Earth. The majority of planets discovered so far are hot gas giant planets.

**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](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 McQuern ([fmquern@purdue.edu](mailto:fmquern@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/resources/information_technology/index.html](http://www.eaps.purdue.edu/resources/information_technology/index.html). Also, as an additional resource for information about departmental events, seminars, etc., see our departmental calendar at [http://www.EAPS.purdue.edu/events-calendar.html](http://www.EAPS.purdue.edu/events-calendar.html).
The “Atmospheric Rivers (ARs)” are narrow channels in the atmosphere that transport a massive amount of moisture from the tropics to the midlatitudes. When the moisture reaches the continental US, it can lead to extreme rain/snow, disastrous flooding, along with highly reflective clouds. These clouds modify the energy budget on the Earth’s surface; notably through interacting with radiation, a.k.a. Cloud-Radiative Forcing (CRF).

Although not understood, the AR-CRF might have non-negligible impacts on regional climate. Contemporary climate models, however, are not simulating such processes with adequate fidelity. Hence, I attempt to delineate from observations the various processes affecting the CRF associated with the ARs affecting the US. I extract the spatial-temporal characteristics for 120 wintertime ARs that influenced US during 2000–2008 from multiple satellite and gridded-analysis observations, using statistical methods such as principal component analysis, probability density functions, and correlational analysis aided by heat and mass conservation laws.

I will elaborate on the physical mechanisms of the ARs in producing prolonged and extensive cloudiness, hence CRF, over the US, as well as their probable climate impacts.
Pseudotachylyte, or frictionally-generated melt rock, is considered the only rock type diagnostic of ancient earthquakes. The comparative rarity of pseudotachylyte in ancient fault zones is surprising in light of estimates that ca. 90% of the energy budget of an earthquake is expended in frictional heating. One explanation is that frictional melting (pseudotachylyte generation) is suppressed after the initial rupture on a fault zone because fluids infiltrate the zone and thermal pressurization of these fluids inhibits melting in subsequent seismic events. While this seems plausible for many of the iconic occurrences of pseudotachylyte in otherwise undamaged crystalline rocks, some pseudotachylytes clearly formed in host rocks in which permeability was apparently high and fluids were present at the time of frictional melting. In these fault zones, cataclasites and pseudotachylyte commonly have mutually cross cutting relationships, and both types of fault rock have been complexly intruded into the surrounding damage zone. In contrast, cataclasites associated with pseudotachylyte in pristine crystalline rocks are typically limited to the margins of fault veins or in dilational jogs.

These observations suggest that there may be two distinct physical circumstances under which frictional melting may occur and thus two distinct genetic types of pseudotachylyte. Classic “dry” pseudotachylytes probably represent the initial seismic rupture of intact, low-permeability rock at high effective stress in the absence of fluids. Granulite-hosted pseudotachylytes from Holsnøy, Bergen Arcs, Norway, are excellent illustrations of this type. Newly discovered pseudotachylytes from a Paleoproterozoic shear zone in Marinette County, Wisconsin also fall into this group. When fluids are present in a fault zone, however, the potential for frictional melting depends on the relative rates at which heat and fluids can escape from a fault zone. This second category is exemplified by pseudotachylytes in greenschist-facies turbidites in central Otago, South Island, New Zealand. Pseudotachylytes may therefore form in either of two distinct permeability ‘windows’, depending the nature of the host rock and its antecedent fluid history: for dry, intact rock, the pseudotachylyte window closes once fluids get in, while for hydrous and initially permeable rock, that window closes once fluids can no longer get out.