CONGRATULATIONS EAPS 2016 OUTSTANDING ALUMNI!

The Department of Earth, Atmospheric, and Planetary Sciences has honored three of its alumni for their outstanding achievements.

The Outstanding Alumni Award is given annually to alumni who have been successful in their career paths and made impactful contributions in their chosen fields. This year’s recipients were Drs. Martin Doyle, Jin-Shuh Jean, and John McGinnis.

The breadth of experiences between the three awardees demonstrates the diversity of an EAPS education. Dr. Jean is a distinguished professor at the...
National Cheng Kung University in Taiwan, and focuses on medical geology in order to solve epidemic problems. Dr. Doyle, a professor at Duke University, has been serving as the Senior Conservation Finance Fellow at the Department of the Interior’s newly created Natural Resources Investment Center. Dr. McGinnis is the President of Seneca Corporation, and has 30+ years of experience in exploration geology, and has conducted research on every continent, including Antarctica. All three of these recipients have received numerous awards throughout their careers.

The awards were formally presented at a ceremony on Friday, Sept. 23rd.

---

**DR. SHERPAHSON RELEASES BOOK ON TURKEY RUN STATE PARK**

Some EAPS professors look to different ways to engage the public outside of the classroom, and for Dr. Shepardson it was to write a book on Turkey Run State Park (Marshall, Indiana).

“It’s a blending of nature photography and natural history, if you look at natural history books, they tend to be dominated by words with few photos. If you look at nature photography books, they’re dominated by images with few words. I tried to bring these two together to create a visually inspiring and pleasing text at the same time that it’s informative about the natural history of the park.”

The book, entitled A Place Called Turkey Run: A Celebration of Indiana’s Second State Park in Photographs and Words, was released through Purdue University Press last week, and coincides with Indiana’s Bicentennial.

A Place Called Turkey Run is about earth science, but intended for a more general audience. This relates to Dr. Shepardson’s research interest in geoscience education. Dr. Shepardson explained how the book has an outreach and educational element to it.

“Ultimately I put the book together to honor and celebrate Turkey Run in its natural history and natural beauty but I also hope the book helps other visitors to the park to better understand the natural history and to hopefully better appreciate the natural beauty and the natural wonder that is Turkey Run,” he said.

More information on the book can be found through Purdue University Press at [http://www.thepress.purdue.edu/titles/format/9781557537560](http://www.thepress.purdue.edu/titles/format/9781557537560).

---

**ADVANCE PURDUE/OVPEC FACULTY SEARCH COMMITTEE WORKSHOP**

This workshop is open to all faculty and required for serving on a search committee. The session will be held on Oct. 14, from 8:15 a.m. to noon, in the Hall for Discovery and Learning Research, Room 131. A light breakfast will be served.

For those that may be on future faculty search committees, the info and registration for next round of required workshops is via the link below (needs to be completed before you can serve on a search committee): [http://goo.gl/B2PamV](http://goo.gl/B2PamV)

---

**COLLOQUIA**

Sarah Bischoff, PhD Candidate
“Breaking Down the Impact of Strength Heterogeneity on Deformation of the India-Eurasia Collision: A Numerical Modeling Approach”
**September 27, 2016**
HAMP 2201
4:00 PM

Kevin Reed, SUNY-StonyBrook
“High-resolution Global Simulations from Reduced Complexity to Future Projections”
**September 29, 2016**
HAMP 1252
3:30 PM

---

**EAPS DEFENSES**

PhD Defense – Qianwen Luo
**September 27** at 2:00 PM
ABE 205
Advisor: Wen-wen Tung

PhD Defense – Shaoping Liu
**September 29** at 3:00 PM
HAMP 3201

---

[http://www.eaps.purdue.edu/](http://www.eaps.purdue.edu/)
Advisor: Qianlai Zhuang

PhD Defense – Wanchen Wu
**October 3** at 1:30 PM
HAMP 3201
Advisor: Wen-wen Tung

PhD Defense – Subashini Subramanian
**October 5** at 2:00 PM
HAMP 2201
Advisor: Dev Niyogi

---

**STUDENT NEWS**

---

**EXXONMOBIL INTERVIEWS**

Lisa Ryan and Robert Wenger, ExxonMobil Recruiters, will be on campus conducting interviews on **October 13 and 14**.

If you are interested in an interview, please complete an online application and post a copy of your resume and transcripts at [www.exxonmobil.com/apply](http://www.exxonmobil.com/apply) at least one week prior to interviewing. See attached for further information regarding regular employment and internships. If you have previously applied and/or interviewed with ExxonMobil, attended a short course or have had an internship, they encourage you to update your online application as needed.

Lisa and Robert will also give a Geoscience Recruiting presentation at 5pm on Wednesday, **October 12** in Room 2201. Geoscience students are encouraged to attend and learn more about ExxonMobil and the O&G industry. This is not limited to applicants or interviewees.

---

**2017 MAYMESTER 2 WEEK STUDY ABROAD IN BELIZE**

---

**Call out:** Oct 21th
6:00 pm
Hampton Hall Room 2201
Contact: Prof Michalski gmichals@purdue.edu

---

**GRAD JOB FAIR SERIES:**
 **ELEVATOR PITCH AND NETWORKING, RESUMES AND CVS**

**Tues. Sept. 27| Wed. Sept. 28**
PGSC 105AB
6:00-7:00 PM

See attached flier for more details.

---

**16TH ANNUAL AMS STUDENT CONFERENCE**
**21–22 JANUARY 2017**
**SEATTLE, WASHINGTON**

The 2017 AMS Student Conference: Observe the Leaders of Today, Become the Leaders of Tomorrow, will be held **21–22 January 2017**, in Seattle, Washington in association with the 97th AMS Annual Meeting.

Important eligibility requirement: You must be an active 2017 AMS student member to attend the AMS Student Conference. You must be an undergraduate or graduate student to present a poster at the Poster Session!

---

[http://www.eaps.purdue.edu/](http://www.eaps.purdue.edu/)
Registration
Registration is now open! Early registration will be available online until midnight EST on 16 December 2016 at a rate of $40. Starting on 16 December, late registration will be available for $60. To register online, please go to https://secure.ametsoc.org/meet/atreg/ and select the option corresponding to the 16th Annual AMS Student Conference. On-Site registration ($60) may be available if space permits. Attendees must register separately for the 97th AMS Annual Meeting.

Abstract due by: 3 October 2016

*Authors of accepted presentations will be notified via e-mail by early-November 2016.

To submit an abstract free of charge, visit https://ams.confex.com/ams/97Annual/oasys.epl and click on “16th Annual Student Conference” before 3 October 2016.

ANNUAL ESE SYMPOSIUM

Ecological sciences and engineering interdisciplinary graduate program invites you to participate in their annual ESE symposium. Registration is now open. Please mark your calendar for September 28-29, 2016, Discovery Park (MANN and MRGB).

Visit the ESE Symposium Website to get more details regarding the Poster Session, Art Gallery, 3 Minute Thesis, and Speakers. There are prizes for the Poster, Art Gallery, and 3MT competition.

An outline of events can be found below, but please see their detailed agenda online.

Wednesday, September 28th
KEYNOTE SPEAKER – Dr. Riley Dunlap – 7:30 PM

Thursday, September 29th
DISCUSSIONS, PANELS and LECTURES – Throughout the day

POSTER SESSION – 10:30 – 12:00
ART GALLERY – 10:30 – 12:00
THREE MINUTE THESIS – 2:00 - 3:30

10TH ANNUAL ECOLOGICAL SCIENCES AND ENGINEERING SYMPOSIUM

September 28-29, 2016
Discovery Park

More details to come: https://www.purdue.edu/gradschool/ese/symposium/index.html

2016 BIG TEN GRADUATE SCHOOL EXPOSITION

Sunday & Monday
Sept. 25-26, 2016

*Key networking opportunities
*Informational workshops
*Premier graduate school fair
*Comprehensive information regarding graduate school education in:

Engineering - Science - Science-related disciplines - Mathematics - Technology

Please see attached flyer.

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

http://www.eaps.purdue.edu/
STAFF PROFESSIONAL DEVELOPMENT CALL FOR APPLICATIONS

It is time to request nominations for the spring 2017 Staff Professional Development Fund. These applications should be for professional development opportunities that will take place during the spring months.

To apply, please completed the attached application and return it to me by Monday, October 3.

A committee of fellow CoS staff members will then meet to evaluate the applications and make the final funding decisions.

OVERLEAF PRO

The Purdue University Graduate School is providing free Overleaf Pro accounts for all students, faculty and staff who would like to use a collaborative, online LaTeX editor for their projects, presentations and papers. Please see flyer for details.

HARRY S. TRUMAN FELLOWSHIP

Sandia National Laboratories is beginning its ad campaign to attract qualified candidates for its President Harry S. Truman Fellowship in National Security Science and Engineering. The deadline for proposal submission is November 1, 2016. Attached is a letter that was sent from Marcey Hoover (a Purdue grad) to Dean Svensson and a flyer. The flyer contains a link to the Sandia web site which explains the Truman Fellowship in more detail. If you need additional information, please contact Yolanda Moreno (ymoreno@sandia.gov).

See attached letter/flyer.

http://www.eaps.purdue.edu/
www.purdue.edu/apsac/Grants/index.html. Questions may be directed to the Professional Development Subcommittee at APSAC-PD@purdue.edu.

STEM EDUCATION CONFERENCE AT PURDUE
1/12/17
9:00 AM - 4:30 PM

Purdue will be hosting the 2nd Annual Indiana STEM Education Conference at Purdue on 1/12/17 from 9 to 4:30. I hope that you will consider attending this event. We had an outstanding turnout of over 650 people last year and are expecting 1,000 this year.

Proposals are due by 10/15/16. Email to carlacjohnson@purdue.edu. You will be notified of the decision on your proposal by 11/4/16.

Presenters will need to register for the conference at: https://goo.gl/5KbfKP

NSF OPENMP HIGH-PERFORMANCE COMPUTING WORKSHOP AT PURDUE SET FOR OCT. 4

Purdue will host a free workshop focusing on OpenMP programming on Tuesday, Oct. 4, for faculty, staff and students looking to learn more about using OpenMP to leverage the power of cutting-edge computing resources, including Purdue’s community cluster research supercomputers. Participants should leave the National Science Foundation-sponsored workshop with a working knowledge of how to write scalable codes using OpenMP.

Questions: rcac-help@purdue.edu.

http://www.eaps.purdue.edu/
PURDUE UNIVERSITY  
Department of Earth, Atmospheric, and Planetary Sciences  
Colloquia – Fall 2016  
Thursdays at 3:30 PM, Room 1252 HAMP (unless noted)

Sept. 1  Joel Saylor, University of Houston  
“Integrating Stable Isotopes and Basin Analysis for a Paleogene-
Neogene Paleoelevation History of Southern Peru”  
Host: Ridgway

Sept. 8  William McKinnon, Washington University in St. Louis  
“Pluto Revealed! Results from NASA’s New Horizons Mission”  
Host: Melosh

Sept. 13  Wanchen Wu, PhD Candidate  
“The Effects of Continental Aerosols on the Eyewall of a Typhoon”  
Tuesday, 4:00PM, Room 2201/HAMP  
Advisor: Tung

Sept. 15  Peter Colarco, NASA Goddard Space Flight Center  
“Aerosol Modeling Applications in the NASA GEOS-5 Earth  
System Model”  
Host: Harshvardhan

Sept. 22  Oliver Boyd, U.S. Geological Survey  
“Seismic Hazard and Geodesy in the New Madrid Seismic Zone”  
Host: Gilbert/Freed

Sept. 27  Sarah Bischoff, PhD Candidate  
“Breaking Down the Impact of Strength Heterogeneity on Deformation  
of the India-Eurasia Collision: A Numerical Modeling Approach”  
Tuesday, 4:00PM, Room 2201/HAMP  
Advisor: Flesch

Sept. 29  Kevin Reed, SUNY-StonyBrook  
“High-resolution Global Simulations from Reduced Complexity  
to Future Projections”  
Host: Chavas

Oct. 4  Wendell Walters, PhD Candidate  
“The Nitrogen and Oxygen Stable Isotopes of Nitrogen Oxides:  
Implications for Source Partitioning and Evaluation of Atmospheric  
Oxidation Pathways”  
Tuesday, 4:00PM, Room 2201/HAMP  
Advisor: Flesch

Oct. 6  Tim Marshall, Haag Engineering  
“El Reno Tornado and Damage Survey”  
Host: Tanamachi

Oct. 13  TBD  
“ ”  
Host: Caffee

Oct. 20  Fan-Chi Lin, University of Utah  
“Imaging the Yellowstone Magmatic and Hydrothermal System  
Using Seismic Tomography”  
Host: Nowack

Oct. 25  Logan Dawson, PhD Candidate  
“Examination of Mesoscale Feedbacks on Convective Scale  
Predictability During MPEX”  
Tuesday, 4:00PM, Room 2201/HAMP  
Advisor: Baldwin

Oct. 27  Allison Wing, Lamont-Doherty Earth Observatory  
“Clouds, Circulation, and Climate Sensitivity in Cloud Resolving  
Model Simulations of Self-Aggregation of Convection”  
Host: Chavas
<table>
<thead>
<tr>
<th>Date</th>
<th>Speaker</th>
<th>Affiliation</th>
<th>Topic</th>
<th>Advisor</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nov. 1</td>
<td>Shaoqing Liu, PhD Candidate</td>
<td>Advisor: Zhuang</td>
<td>“Quantifying Terrestrial Ecosystem Carbon Dynamics with Mechanistically-based Biogeochemistry Models and In Situ and Remotely Sensed Data”</td>
<td></td>
<td>Tuesday, 4:00PM, Room 2201/HAMP</td>
</tr>
<tr>
<td>Nov. 3</td>
<td>Dave Finnegan, US Army Corps of Engineers</td>
<td>Host: Elliott</td>
<td>“Automated LiDAR Scanning of Tidewater Glacier; Helheim Glacier, Southeast Greenland”</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nov. 8</td>
<td>Matthew Bowers, PhD Candidate</td>
<td>Advisor: Tung</td>
<td>“The Emerging States of Madden-Julian Oscillation Convection Initiation”</td>
<td></td>
<td>Tuesday, 4:00PM, Room 2201/HAMP</td>
</tr>
<tr>
<td>Nov. 15</td>
<td>Adam Stepanek, PhD Candidate</td>
<td>Advisor: Baldwin</td>
<td>“Predictions of Severe Weather Environments by the Climate Forecast System Version 2 Model Suite”</td>
<td></td>
<td>Tuesday, 4:00PM, Room 2201/HAMP</td>
</tr>
<tr>
<td>Nov. 17</td>
<td>Michael King, LASP</td>
<td>Host: Harshvardhan</td>
<td>“Spatial and Temporal Distribution of Tropospheric Clouds Observed by MODIS on Board the Terra and Aqua Satellites”</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dec. 1</td>
<td>Andy Davis, University of Chicago</td>
<td>Host: Caffee</td>
<td>“Stardust in the Laboratory with CHILI”</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dec. 6</td>
<td>Christy Gibson, PhD Candidate</td>
<td>Advisor: Filley</td>
<td>“ ”</td>
<td></td>
<td>Tuesday, 4:00PM, Room 2201/HAMP</td>
</tr>
</tbody>
</table>
Breaking Down the Impact of Strength Heterogeneity on Deformation of the India Eurasia Collision: A Numerical Modeling Approach

Sarah Bischoff
PhD Candidate

Many features of the India-Eurasia (IN-EU) collision zone remain poorly understood. Geophysical observations across the region illuminate lateral and vertical heterogeneities in material properties within both the crust and mantle. Differing interpretations of these observations have led to competing hypotheses for deformation accommodation mechanisms including: subduction of Indian continental lithosphere beneath Tibet, viscous lithospheric thickening, lithospheric delamination, and large-scale lower crustal flow. Lacking the ability to directly sample the Earth’s deeper interior, numerical modeling is uniquely qualified for testing the viability of the proposed hypotheses. We use a 3D finite element model to investigate the impact of variable strength contrasts between the crust and mantle in generating surface deformation patterns in the IN-EU collision zone. With our model, we simulate instantaneous deformation via Stokes flow in COMSOL Multiphysics (www.comsol.com). We capture geometry of the Indian and Eurasian lithosphere with a spherical cap that extends eastward from the Pamir Mountains to Sichuan China and northward from the southern tip of India to Tien Shan mountains, with a vertical thickness extending from surface topography to 100 km below sea level. We use a modified version of Laske et al.’s [2013] CRUST1.0 model to parameterize model density, apply an Indian plate motion velocity boundary condition, and assume a stress free surface and free slip model base. For this set of dynamics we then determine a suite of mechanical strength approximations by generating 3D effective viscosity maps constrained by the vertically-averaged estimates of Flesch et al. [2001] and variable crust and mantle strength contrasts. In addition, seismic and magnetotelluric studies guide our inclusion of weak Eurasian lower crust in Tibet and subducted Indian and Burma slabs. The resulting model horizontal and vertical deformation patterns are then compared with surface observations. Our model results suggest (1) $10^{22}$ Pa•s represents an upper bound for Indian underplate strength if it is coupled to the Eurasian lithosphere, (2) an effective viscosity of less than $10^{20}$ Pa•s is required for appreciable differential mass flux through lower crustal flow, and (3) movement of the lower crust is partitioned by weak fault zones.
High-resolution Global Simulations from Reduced Complexity to Future Projections

Kevin Reed
Stony Brook University

Using global atmospheric models for extreme weather studies is challenging due to the relatively small size of extreme events, intense convection and a host of large-scale--small-scale interactions. Nonetheless, high-resolution (i.e., grid spacing less than 50 km) global models are now becoming a tool of choice to evaluate extreme weather in current and future climate conditions. This talk presents a variety of Community Atmosphere Model version 5 (CAM5) simulations, ranging from simplified global radiative-convective equilibrium (RCE) simulations to full decadal simulations of present-day and future climate. The CAM5 configurations with varying complexity provide useful insights into the model’s ability to simulate characteristics of extremes. Furthermore, future projections using the Representative Concentration Pathway (RCP) 8.5 scenario for greenhouse gas concentrations are assessed and compared to present-day simulations. Overall, this work is part of a continued effort to understand how weather extremes may vary in a changing climate using next-generation high-resolution climate models.
PURDUE RECEPTION
at the SEG Annual Meeting

Monday, October 17
6:00 PM - 8:00 PM
Hyatt Regency, Windsor Room
300 Reunion Boulevard, Dallas
Complimentary heavy hors d’oeuvres

Co-Sponsored by:
Department of Earth, Atmospheric, and Planetary Sciences (EAPS)
and
Summer of Applied Geophysical Experience (SAGE)
9th Annual
Purdue Reception
at the AGU Fall Meeting

Thursday, December 15
7:00 PM - 9:00 PM

ThirstyBear Restaurant, Billar Room
661 Howard Street, San Francisco

Complimentary heavy hors d’oeuvres

Co-sponsored by:
Department of Earth, Atmospheric, and Planetary Sciences (EAPS)
and
Purdue Climate Change Research Center (PCCRC)
In 2012, the University created a performance evaluation policy for staff which included a focus on capturing the professional development activities of staff throughout the year. The College of Science firmly believes that participation in professional development provides long lasting benefits to both the individual staff member and their department. As such, the College desires to support these activities.

**College of Science Professional Development Philosophy:**

- Professional development participation should be available to all full- or part-time, permanent staff—clerical, service, administrative/professional and managerial/professional.
- Professional development should focus on developing skills that will prepare staff to advance at Purdue or to perform their current duties more effectively.
- All supervisors are strongly encouraged to allow appropriate amounts of time for each staff person throughout the year to attend trainings that will help them accomplish their professional development goals. Approval for participation in such activities should be based on the business needs of each area.

**College of Science Professional Development Fund:**

In order to support staff professional development activities, the College has created a Professional Development Fund to financially assist with participation in trainings that involve fees or the purchase of training materials.

**Professional Development Fund Guidelines:**

- Professional Development funds are to be used to support College of Science staff’s participation in activities that will assist them in developing skills that will prepare staff to advance at Purdue or to perform their current duties more effectively.
- Award applications will be requested three times annually with approximately 10 awards per call. Funds requested may be used to defray costs associated with attending professional meetings or seminars, to participate in workshops, or to enroll in professional-oriented courses related to employment responsibilities. The funds must be utilized within two application cycles (Spring awards utilized by the end of Fall, etc.).
- Applications for amounts of up to $1000 will be accepted.
- Individuals are eligible for one award per calendar year.

**Application Deadlines:**

- Spring Application Call – application due by first Monday in October; decisions made by November 30
- Summer Application Call – application due by first Monday in March; decisions made by April 30
- Fall Application Call – application due by first Monday in June; decisions made by July 31
THE 10TH ANNUAL ECOLOGICAL SCIENCES AND ENGINEERING SYMPOSIUM

POLARIZATION
A forum on extreme and radical thought in our environment, society, and technology

September 28 & 29
Discovery Park

KEYNOTE SPEAKER
Dr. Riley Dunlap

Art Gallery
Poster Session
3 Minute Thesis
Discussion Panels

FREE REGISTRATION OPEN TO ALL!

FOR MORE INFORMATION VISIT OUR WEBSITE:
HTTP://WWW.PURDUE.EDU/GRAD SCHOOL/ESE/SYMPOSIUM/
GRAD JOB FAIR SERIES:
ELEVATOR PITCH
AND NETWORKING
PGSC 105AB ● 6 PM TO 7 PM

RESUMÉS AND CVs

CONVERT YOUR CV TO A RESUMÉ
TUE. SEP. 27
Bring your document(s) for peer review

IMPROVE YOUR EXISTING RESUMÉ
UNDERSTAND RESUMÉ DO’S & DON’TS

WED. SEP. 28
LEARN ABOUT PERSONAL BRANDING

Practice your 30-second commercial!
IDENTIFY YOUR NETWORKS

askCCO@PURDUE.EDU ● 765-494-3981

DEVELOP YOUR OWN PITCH

PURDUE CCO CENTER FOR CAREER OPPORTUNITIES