

***The last newsletter before the holidays will be distributed on 12/21/15 and will resume on 1/11/16.**

December 7, 2015

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EAPS MEETINGS & EVENTS

FALL FACULTY MEETING SCHEDULE

Dec. 8th
HAMP 3201
3:00-4:30 PM

SPRING FACULTY MEETING SCHEDULE

Jan. 12th, Feb. 9th, Mar. 22nd, Apr. 12th, 2016
HAMP 3201
3:00-4:30 PM

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**EAPS FACULTY/STAFF HOLIDAY CELEBRATION**

Dec. 9<sup>th</sup>  
12:00-1:30 PM  
HAMP 2201

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AGU 2015

December 14-18, 2015
Reception: **December 17, 2015**
7:00-9:00 PM
ThirstyBear
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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**EAPS AWARDS BANQUET**

**April 18, 2016**  
Buchanan Club of Ross-Ade Pavilion  
Reception: 5:30 PM  
Dinner at 6:00 PM

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ALUMNI ADVISORY BOARD MEETING

April 19, 2016

DEAN'S VISIT TO DEPARTMENT

April 21, 2016
1:30 - 4:00 PM

HOLIDAYS (MAIN OFFICE CLOSED)

CHRISTMAS VACATION

Dec. 24th - Dec. 31st

NEW YEAR'S DAY

Jan. 1st

EAPS PUBLICATIONS

Chang Liao and Qianlai Zhuang, 2015: Reduction of Global Plant Production due to Droughts from 2001 to 2010: An Analysis with a Process-Based Global Terrestrial Ecosystem Model. *Earth Interact.*, 19, 1–21. doi: <http://dx.doi.org/10.1175/EI-D-14-0030.1>

EAPS NEWS

EAPS OMBUDSMAN

What is an Ombudsman? The ombudsmen are an informal, neutral, confidential resource for people in the department, especially students, to raise questions or concerns about any aspect of their academic experience. The EAPS ombudsman is Barbara Gibson (HAMP 2169B; barbara@purdue.edu) –please feel free to contact her if needed.

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**DECEMBER HOLIDAY RECESS**  
(Dec 24<sup>th</sup> - Jan 1<sup>st</sup>)

The main office will be closed from **Dec 24<sup>th</sup> - Jan 1<sup>st</sup>** due to the extended holiday recess. If you plan to be on campus in HAMP, and have an urgent matter arise related to your office or lab (e.g. leaks, etc.), please call 494-8221, which is the Purdue Dispatcher. They will contact maintenance (1st Responder), fire department, or police as appropriate. If it's a true emergency, you will need to dial 911.

## 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.

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## 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

### NASA STUDENT AIRBORNE RESEARCH PROGRAM

The NASA Airborne Science Program invites highly motivated advanced undergraduates who will be rising seniors in summer 2016 to apply for participation in the 8th annual NASA Student Airborne Research Program (SARP 2016). Participants will fly onboard the NASA DC-8 and assist in the operation of instruments to sample and measure atmospheric solar radiation, gases and aerosols. They will also use remote sensing data collected during the program from the NASA ER-2 high-altitude research aircraft to image land and water surfaces in multiple spectral bands. Along with airborne data collection, students will participate in taking measurements at field sites. Students will work in multi-disciplinary teams to study surface, atmospheric, and oceanographic processes. Each student will complete an individual research project from the data collected. Outstanding faculty and staff for this program will be drawn from several universities and NASA centers, as well as from NASA flight operations and engineering personnel.

The eight-week program begins **June 12, 2016** and concludes **August 5, 2016**.

The application deadline is **Tuesday February 2, 2016**.

Apply here: [www.nserc.und.edu/sarp/sarp-2016/](http://www.nserc.und.edu/sarp/sarp-2016/)

For more information, email [sarp2016@nserc.und.edu](mailto:sarp2016@nserc.und.edu)

Watch a video about the program here:

[https://youtu.be/o56\\_07rsyBY](https://youtu.be/o56_07rsyBY)

Please see attached flier for more information.

## GRADUATE NEWS

### 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.

## OTHER

### APPLICATIONS FOR THE 2016 L'ORÉAL USA FOR WOMEN IN SCIENCE FELLOWSHIP PROGRAM ARE NOW OPEN.

In the US, the *For Women In Science* fellowship program awards five post-doctoral women scientists annually with grants of \$60,000 each. Applicants are selected from a variety of fields, including the life and physical/material

sciences, technology (including computer science), engineering, and mathematics.

The application and more information about the L'Oréal USA for Women in Science program can be found at [www.lorealusa.com/forwomeninscience](http://www.lorealusa.com/forwomeninscience). Applications are due on **Friday, February 5, 2016**.

Should you have any questions or require additional information, please e-mail me at [rpacifico@us.loreal.com](mailto:rpacifico@us.loreal.com).

## MATERIALS MANAGEMENT AND DISTRIBUTION SERVICES (MMAD) HOLIDAY SCHEDULE

**December:** Beginning **December 24, 2015** through **January 3, 2016**, which includes the 3 additional recess days, there will be no mail delivery as Purdue University's normal operations will be virtually shut down. Please make sure to drop off any outgoing packages to MMDC no later than 4:00 pm on **Wednesday, December 23<sup>rd</sup>**. Normal operations will begin again on **Monday, January 4<sup>th</sup>**.

If you have FedEx or UPS packages that need to go out you will have to process them online and call FedEx or UPS directly to schedule a pickup.

## BIRTHDAYS

Fallon McQuern  
Leslie Martin

Dec. 9<sup>th</sup>  
Dec. 16<sup>th</sup>



## 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](mailto: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](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>





# NASA Airborne Science Research Internship

Applications accepted Fall 2015 for the NASA Student Airborne Research Program  
June 12 - August 5, 2016, Southern California  
[www.nserc.und.edu/sarp](http://www.nserc.und.edu/sarp)

The NASA Airborne Science Program announces the opportunity for highly motivated rising senior undergraduates to participate in an 8-week summer 2016 internship program in Earth system science using its DC-8 flying laboratory.

The NASA Student Airborne Research Program (SARP) is funded by the NASA Ames Cooperative for Research in Earth Science and Technology (ARC-CREST) and managed by the National Suborbital Education and Research Center (NSERC). SARP 2016 will take place in Southern California with research locations based at the University of California, Irvine and at the NASA Armstrong Aircraft Operations Facility in Palmdale.

Participants will acquire hands-on research experience in all aspects of a scientific campaign, including flying onboard the NASA DC-8, a highly specialized research aircraft used for studying Earth system processes, calibration and validation of space-borne observations, and prototyping instruments for possible satellite missions.

## Multi-disciplinary Research Projects

Participants will work in four multi-disciplinary teams to study surface, atmospheric, and oceanographic processes. Participants will fly onboard the NASA DC-8 and assist in the operation of instruments to sample and measure atmospheric solar radiation, gases and aerosols. They will also use remote sensing data collected during the program from the NASA ER-2 high-altitude research aircraft to image land and water surfaces in multiple spectral bands. Along with airborne data collection, students will participate in taking measurements at field sites.

**APPLICATION DEADLINE IS FEBRUARY 2, 2016**

Applications can be found at:  
[www.nserc.und.edu/sarp/sarp-2016](http://www.nserc.und.edu/sarp/sarp-2016)

Email questions to [sarp2016@nserc.und.edu](mailto:sarp2016@nserc.und.edu)

Mission faculty and research mentors will guide participants through instrument operation, sample analysis, and data reduction. Each student will develop an individual research project from the data collected and will deliver a final presentation on their results. Many students in the past have gone on to present their research at national conferences.

## Academic Background

Applicants must have a strong academic background in any of the physical, chemical, or biological sciences, or engineering and an interest in applying their background to the study of the Earth system. We especially encourage applications from students majoring in Earth, environmental or atmospheric sciences and related disciplines. All participants will receive a stipend, travel costs, as well as housing and transportation during the program.



## Applicants will be selected based on:

- ▶ Excellent academic performance (GPA of at least 3.0/4.0)
- ▶ Science, Technology, Engineering, or Mathematics Major
- ▶ Evidence of interest in Earth system science and hands-on research
- ▶ Promise for contributing to the nation's future workforce as judged by career plans
- ▶ Leadership qualities and ability to perform in teams