PURDUE UNIVERSITY | Department of Earth, Atmospheric, and Planetary Sciences

EAPS WEEKLY NEWSLETTER

March 21, 2022

Facebook Twitter LinkedIn Instagram Website

EAPS MEETINGS & EVENTS

EAPS FACULTY MEETINGS 3-5pm

- **March 22**
- **March 29** (Primary Committee)
- **April 12** (College of Science Faculty Meeting)
- **April 19**
- **May 3** (Primary Committee)
- **May 10 (tentative)**

PURDUE CALENDAR 2021-22

EAPS K-12 OUTREACH CALENDAR OF EVENTS

REPORT YOUR OUTREACH AND ENGAGEMENT ACTIVITIES

OUTREACH NEWS

Did you know, faculty use the Superheroes of Science YouTube channel for broader impacts on their grants and in their instruction? The channel has had over 10,000 views this year so far. Help us continue to grow the channel and increase the impact by subscribing and sharing videos.

The Purdue University Superheroes of Science Podcast is on most podcast players as well as YouTube!

Social sites:

TikTok SuperHeroesofScience
Facebook EAPS Outreach
Facebook Superheroes of Science
Twitter EAPS departmental outreach web page
Instagram

Tell us about your major. #1minscience

We are giving prizes each month to an entry for the 1 Minute Science Challenge. One of the most popular #1minscience videos we have is Ryland's "What is Environmental Science? Students want to know what you study in your major. Record a **vertical** video that is under 1 minute and send the video to Steven Smith (mrsmith@purdue.edu). You can use your phone or get with Steven and he can record/edit for you in the outreach lab! Let's take a minute and tell the world what we study!

You know that Superheroes of Science is a podcast too, right? **The most downloaded Superheroes of Science podcast episode is our very own Mike Baldwin.** If you haven't listened to it yet, check it out. Also, please leave a positive review to help the rankings.

PUBLICATIONS

- Alvarez-Campos, Odiney, Elizabeth J. Olson, Lisa R. Welp, Marty D. Frisbee, Sebastián A. Zuñiga Medina, José Díaz Rodríguez, Wendy R. Roque Quispe, et al. "Evidence for High-Elevation Salar Recharge and Interbasin Groundwater Flow in the Western Cordillera of the Peruvian Andes." *Hydrology and Earth System Sciences* 26, no. 2 (January 31, 2022): 483–503. https://doi.org/10.5194/hess-26-483-2022.
- **Xi, X.**, Gentine, P., **Zhuang, Q.**, & Kim, S. (2022). Evaluating the variability of surface soil moisture simulated within CMIP5 using SMAP data. *Journal of Geophysical Research: Atmospheres*, 127, e2021JD035363. https://doi.org/10.1029/2021JD035363
- **Liu, L.**, **Zhuang, Q.**, Zhao, D., Zheng, D., Kou, D., & Yang, Y. (2022). Permafrost degradation diminishes terrestrial ecosystem carbon sequestration capacity on the Qinghai-Tibetan plateau. *Global Biogeochemical Cycles*, 36, e2021GB007068. https://doi.org/10.1029/2021GB007068 **PDF**
- **Wang, S.**, M. Zhou, K. Adhikari, **Q. Zhuang**, Z. Bian, Y. Wang, X. Jin, Anthropogenic controls over soil organic carbon distribution from the cultivated lands in Northeast China, *CATENA*, Volume 210, 2022, 105897, ISSN 0341-8162, https://doi.org/10.1016/j.catena.2021.105897.

NEWS/OPPORTUNITIES

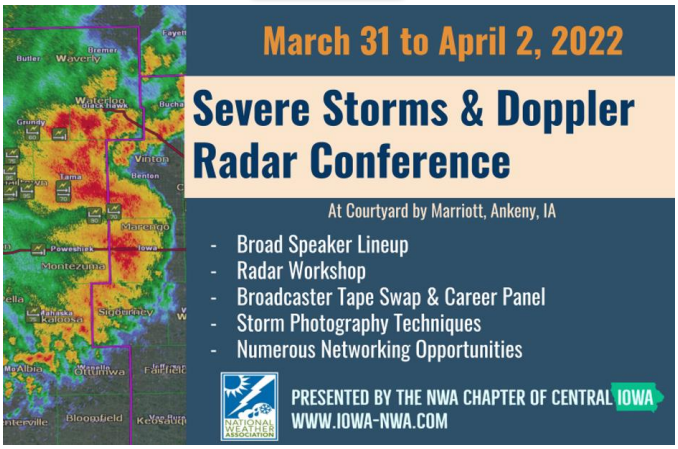
NASA Planetary Science Summer School Applications Due March 30, 2022

Offered by the Jet Propulsion Laboratory in Pasadena, CA, PSSS is a 3-month long career development experience to learn the development of a hypothesis-driven robotic space mission in a concurrent engineering environment while getting an in-depth, first-hand

look at mission design, life cycle, costs, schedule & the inherent trade-offs.
Engineering students close to completion of their MS degree, science & engineering doctoral candidates, recent PhDs, postdocs, & junior faculty who are U.S. Citizens or legal permanent residents (and a very limited number of Foreign Nationals from non-designated countries) are eligible. Applicants from diverse backgrounds are particularly encouraged to apply- we highly value diversity, equity, and inclusion.

Session 1: May 9-Aug 5
Session 2: May 23-Aug 19

With workload of a rigorous 3-hour graduate-level course, participants act as a planetary science mission team during the first 12 weeks of preparatory webinars, with the final culminating week mentored by JPL's Advance Project Design Team for refining the mission concept design & presenting it to a mock expert review board. The culminating week is typically at JPL, but in 2022 it is likely virtual due to COVID-19 pandemic concerns.
Register here . For more information and to apply.



APOPHIS T-7 YEARS: KNOWLEDGE OPPORTUNITIES FOR THE SCIENCE OF PLANETARY DEFENSE

Call for Abstracts and Registration Now Open!
May 11-May 13, 2022
Virtual

The Apophis T-7 Years: Knowledge Opportunities for the Science of Planetary Defense virtual workshop is scheduled for May 11--13, 2022.
This workshop will explore the dynamic details and corresponding science opportunities presented by the April 13, 2029, near-miss passage of the asteroid Apophis.

Call for Abstracts: Abstract submission deadline- March 23, 2022, 5:00 p.m. U.S. Central Daylight Time (GMT ¬-5)
Registration: Registration fees are being collected for this virtual workshop. Only registered attendees will receive an email from Houston Meeting Info with virtual connection information.
Registration is available through May 13, 2022.
For more information, contact: Meeting and Publication Services, USRA/Lunar and Planetary Institute meetinginfo@hou.usra.edu

EAPS GRAD STUDENT RESEARCH OPPORTUNITIES

If you are interested in an EAPS grad research opportunity, click here for more information.

MS AND PHD EAPS STUDENTS BROADEN YOUR GRAD EXPERIENCE

For those MS and PhD students in EAPS that would like to broaden their graduate experiences while at Purdue, EAPS is affiliated with the Computational Interdisciplinary Graduate Programs (CIGP) at Purdue. While working toward a graduate degree in EAPS, graduate students can also have a concentration (specialization) in the area of Computational Science and Engineering (CSE). For more information, click here. A short video about the CIGP/CSE program can be found here.
Fall Application Deadline: October 1
Spring Application Deadline: March 1

METEOROIDS 2022 CONFERENCE

June 13-17, 2022
Virtual

The Meteoroids 2022 local organizing committee has closely watched ongoing developments of the COVID-19 pandemic and met to reconsider in-person delivery in Huntsville, Alabama. Given the recent sharp increase in positive cases and the unpredictable appearance of new variants, the committee has decided to shift the conference from in-person to fully virtual. Although it is disappointing not to be able to meet in person, the health and safety of all participants is our top priority.
Call for Abstracts
Abstract submission deadline - March 30, 2022, 5:00 p.m. U.S. Central Daylight Time (GMT -5)

Visit the Call for Abstracts page at the conference website for the list of topics/sessions, submission guidelines, and presenter information.
Registration
Registration deadline - June 17, 2022
Visit the Registration page at the conference website for more information. Before the conference, registered attendees will receive an email from Houston Meeting Info with virtual connection information.
Meteoroids 2022 is the eleventh international conference in a triennial series of meetings on meteoroids, their origins, and their associated phenomena. Past conferences have featured a combination of invited and contributed talks and posters covering topics such as meteor observational techniques, meteorite recoveries, meteoroid stream dynamics, ablation physics and airbursts, impacts on airless bodies, the production of dust and meteoroids by asteroids and comets, space missions, and spacecraft anomalies.
We look forward to planning a successful conference and to seeing you virtually!

APOLLO 17 – ANGSA WORKSHOP

October 26–28, 2022
Lunar Planetary Institute
Houston, Texas

The 3-day workshop is currently planned as an in-person workshop, October 26–28, 2022, at the Lunar and Planetary Institute in Houston, Texas.
The 50th anniversary of the Apollo 17 mission is in Dec. 2022. By every metric, this mission to the Taurus-Littrow Valley (TLV) was the most accomplished of any of the Apollo missions to the moon, leading to 50 years of extensive, continuing analytical investigations of its observations, samples, photography, and geophysical data.
The goals of this workshop are:
• revisiting the TLV by integrating new geologic and exploration context, new ANGSA sample data, orbital observations, and the full breadth of data sets from all six Apollo landed missions for a fuller understanding of the moon, the sun, and the earth
• establishing links among multiple generations of lunar scientists and engineers as we prepare for our future on the moon
• focusing on scientific and design lessons learned from both Apollo and from ANGSA in preparation for near-term human exploration of the moon.
We will also focus on specific topics, with short reports expected from the breakout groups and presented during the workshop. Presentations and results of the workshop will form the basis of a special issue in a peer-reviewed journal. Manuscripts for this special issue will be due within three months after the workshop.

SCIENCE OBJECTIVES FOR HUMAN EXPLORATION OF MARS WORKSHOP

NEW DATES: May 4-6, 2022
Denver, Colorado

The Science Objectives for Human Exploration of Mars Workshop will be delivered on May 4--6, 2022 (new dates) in Denver, Colorado, with some components available virtually.
The workshop is co-sponsored by NASA's Science Mission Directorate and the Human Exploration and Operations Mission Directorate to actively engage the scientific community to determine what science could be done by human crews on the Martian surface and how it can be achieved. This workshop will discuss the highest priority science objectives for a first human mission to Mars and then develop several different possible concepts of operation that will enable that science. With the Artemis missions, humans will return to the Moon using innovative technologies to explore the lunar surface. We will use what we learn on and around the Moon to send the first astronauts to Mars. A human mission to Mars will be a landmark achievement and a golden opportunity to conduct groundbreaking science on Mars. The potential scope of the science activities is extraordinary.
In-Person registration deadline - April 20, 2022
Virtual registration deadline - May 6, 2022
Registration fees are not being collected for this workshop, but registration is required. Before the workshop, registered attendees will receive an email from Houston Meeting Info with virtual connection information.

BRINES ACROSS THE SOLAR SYSTEM: ANCIENT BRINES

September 12–15, 2022
Reno, Nevada

The Brines Across the Solar System: Ancient Brines conference will focus on integrating diverse fields of study, including but not limited to geology, mineralogy, (astro)biology, chemistry, planetary science, and physics. Of particular interest are the intersections of these fields as they apply to understanding the formation, location, and potential habitability of ancient brines on planetary bodies and any possible biosignatures

that may be observed today. Thematically, the conference is focused on four main topics:

1. Evidence for ancient brines
2. Formation of brines on early planetary bodies
3. Habitability of ancient brines
4. Role of brines in the origins of life

Important: To be added to the mailing list to receive additional information about this conference, **submit an Indication of Interest by May 16, 2022.** **More info here**.

POSITIONS AVAILABLE- CAREER OPPORTUNITIES

METEOROLOGIST POSITIONS AVAILABLE

TEGNA

Multiple meteorology positions are open with TEGNA. **Betsy Kling**, Chief Meteorologist and an anchor for WKYC-TV The Land (Cleveland), is also a Weather Team leader and the lead weather talent recruiter for Tegna, her station's parent company, that owns more than 60 stations across the country. She hoping to make connections now that can be beneficial to those soon-to-be meteorologists as well as the stations in her company looking for budding talent. She is happy to answer any questions you might have about the industry or the job search. She is an AMS-CBM and NWA sealed four-time Emmy winner now in her 25th year in the business.

GEORGIA TECH EAS

Non-tenure track lecturer

The School of Earth and Atmospheric Sciences (EAS) at Georgia Tech invites applications for a non-tenure-track Lecturer position. The lecturer will play a significant role in the first-year courses taught in EAS. This program provides over 1500 students each year with lecture and laboratory instructions. The successful candidate will be expected to provide direct lecture and laboratory instruction to undergraduate students, develop curricula, and advise undergraduate students. An MS degree in Atmospheric Sciences or other related fields is required. More info and how to apply.

POSTDOCTORAL APPOINTMENTS IN THE DEPARTMENT OF ATMOSPHERIC SCIENCES AT THE UNIVERSITY OF ILLINOIS, AND IN THE DEPARTMENT OF EARTH AND ATMOSPHERIC SCIENCES AT CENTRAL MICHIGAN UNIVERSITY

Two postdoctoral research appointments are available in support of a collaborative project between the Department of Atmospheric Sciences at the University of Illinois at Urbana-Champaign, and the Department of Earth and Atmospheric Sciences at Central Michigan University. Both are one-year appointments with the potential for renewal, pending external research grant funding.

The project involves analysis and downscaling of CMIP6 model output to determine characteristics of severe convective storms and associated perils under human-induced climate change.

Accordingly, experience with climate datasets, high-performance computing, numerical modeling, and statistical analysis is required, as is basic knowledge of severe convective storms and the environmental conditions that support their formation.

One of the appointments will be within Prof. Jeff Trapp's research group at the University of Illinois, and the other, within Prof. John Allen's research group at Central Michigan University.

Both appointees are expected to carry out their research responsibilities with limited guidance. Mentoring of the appointees will be conducted according to NSF guidelines. Salary is competitive and commensurate with qualifications and experience.

Essential qualifications include a Ph.D. in Atmospheric Science or in a closely related field, and the experience noted above. Other highly desirable qualifications include excellent written and oral communication.

The positions are available immediately but applications will continue to be accepted until the positions are filled, **with a preference given to those that can start in April 2022.** To apply for the position at Central Michigan University, applicants must upload a letter of interest, curriculum vitae, and contact information for three profession references to www.jobs.cmich.edu . You may contact Professor John Allen with questions at allen4jt@cmich.edu . To apply for the position at University of Illinois, applicants should send a letter of application, curriculum vitae, and contact information for three professional references to jtrapp@illinois.edu .

MRCC HIRING TWO CLIMATE DATA PROGRAMMERS

External Link Internal Link

Job Summary

The Midwestern Regional Climate Center (MRCC) is an operational climate services center supported primarily by a federal contract with the National Oceanic and Atmospheric Association. Its primary role is to provide historical and near-real-time climate data through informational resources that can be applied to a broad range of decision-making stakeholders. Online data monitoring, delivery, and decision-support tools are the most visible means of communicating climate services throughout the 9-state MRCC region that includes Minnesota, Wisconsin, Michigan, Iowa, Illinois, Missouri, Indiana, Ohio, and Kentucky.

Stakeholder engagement is critical for the MRCC to continually meet the climate services needs of the region, promote climate data resources and information, and solicit ideas for how the MRCC can continually improve its stakeholder support. Applied climate research and monitoring by the MRCC helps support the evolving understanding of the regional climate and its impacts on society. Under the guidance of the MRCC / Indiana State Climate Office Director, you will build scientific decision-support and informational tools, modify and enhance pre-existing code and scripts at the MRCC, and work with climate data for the MRCC website, presentations, and relevant reports. You will also contribute to the development of figures and diagrams, perform statistical data analysis, and contribute to other computational needs within the MRCC. Additional duties will include:

- Create and/or modify programming and visualization code that can manipulate atmospheric and environmental datasets (both gridded and station/point).
- Create climatologically relevant figures and diagrams using atmospheric and environmental datasets
- Perform statistical analyses on atmospheric and environmental data using statistical software and programs
- Contribute to the technical / scientific reports for service and / or research projects as needed
- Help support website development and design

Required:

- Bachelor's degree in either an atmospheric or computer science discipline
- 4 years of relevant experience with at least (1) of those years working with observational scientific data that utilized statistical and exploratory data analysis skills
- Development of online tools and/or resources that utilized observational scientific data
- Demonstrated ability to follow and/or develop deadlines and follow through in timely and efficient manner
- Contribute to overall project deliverables

Preferred:

- Master's degree in atmospheric science or related discipline
- 3 years of experience working with observational atmospheric data that utilized statistical and exploratory data analysis skills
- *Development of online tools that utilize data access routines (e.g., APIs) and JSON, GRIB, and netCDF formats
- Experience with JavaScript libraries like HighCharts or Tableau and Tablesorter
- Webpage development
- GIS Server skills
- MySQL (or SQL) database experience

BRYAN ENVIRONMENTAL CONSULTANTS

Homewood, IL

SEEKING PART-TIME TO FULL-TIME POSITIONS

- Bachelor's or Master's degree in environmental engineering, civil engineering, geotechnical engineering, geology
- Knowledge of State and Federal environmental regulations a plus
- Experience with Phase I and II Environmental Site assessments a plus
- Strong writing skills
- Proficient in all Microsoft Office applications
- Must have cell phone and computer (laptop)
- Valid Driver's License

WANG ENGINEERING

SEEKING Engineering Geologists, Geotechnical Engineers

Contact: Cornelia Lidia Marin, PG

POST-DOC OPPORTUNITY - AIR FORCE SCIENCE & TECHNOLOGY FELLOWSHIPS

The National Academies of Sciences, Engineering, and Medicine administers postdoctoral and senior research awards at the U.S. Air Force Research Laboratory (AFRL), the U.S. Air Force Institute of Technology (AFIT), and the U.S. Air Force

Academy (USAFA) under the Air Force Science & Technology Fellowship Program (AF STFP).
Seeking highly qualified candidates who are U.S. citizens and hold, or anticipate earning, a doctorate in a variety of fields of science or engineering.
Application deadline dates (four annual review cycles): February 1, May 1, August 1, November 1
Awardees have the opportunity to:

- Conduct independent research in an area compatible with the interests of the Air Force laboratories
- Devote full-time effort to research and publication
- Access the excellent and often unique Air Force research facilities
- Collaborate with leading scientists and engineers
- Awardee benefits:
- Base stipend starting at $76,542; may be higher based on experience
- Health insurance (including dental/vision), relocation benefits, and a professional travel allowance

Applicants should contact prospective AFRL, AFIT and USAFA Research Adviser(s) at the lab(s) prior to the application deadline to discuss their research interests and funding opportunities.
For detailed program information, to search for AFRL, AFIT, and USAFA Research Opportunities, and to contact prospective Research Adviser(s), visit www.nas.edu/afstfp.

PURDUE ENVISION CENTER (UNDER ITAP) RECRUITING EAPS STUDENTS

At the Envision Center looking to recruit EAPS students with background and interest in weather visualization. Details on the job opening can be found here.

ASTROCAMP

AstroCamp is looking for graduating students (undergraduate or graduate) for a full-time program instructor position for physical sciences and astronomy concepts at their outdoor science school in California. Link to job here.

POSITIONS AVAILABLE IN METEOROLOGY AND ATMOSPHERIC SCIENCE

View current career listings

AGI GEOSCIENCE JOB CENTER

Check listings here.

GRADIENT CORP MULTIPLE OPPORTUNITIES

Please feel free to contact Qian Zhang if you are interested in applying and/or have any questions about the company and the opportunities.

POSTDOC IN STABLE ISOTOPES AND REACTION KINETICS – INDIANA UNIVERSITY

Applications are invited for a Postdoctoral Research Associate at Indiana University, USA. The project aims using non-traditional stable isotopes to measure reaction rates and understand the mechanisms of mineral-aqueous solution reactions. See our recent publications for details (Zhu et al., 2016, Chemical Geology; Zhu et al, 2020, 2021, GCA). The project will employ a combined experimental, analytical, theoretical, and modeling approach.
The successful candidate will hold a Ph.D. in earth sciences or a closely related field. A strong background in either stable isotopes or kinetics and thermodynamics is required. Experience performing aqueous geochemical experiments, and using geochemical equilibrium and kinetics models is highly desirable.
Salary is competitive and includes fringe benefits. The initial appointment will be for one year, with the expectation of renewable for another two years, subject to performance and funding availability. The candidate will be based on the Bloomington campus of Indiana University, and will have access to an extensive suite of analytical tools, including MC-ICP-MS, TIMS, ICP-OES, ICP-MS, FESEM, and FETEM.

NATIONAL WEATHER SERVICE POSITIONS AVAILABLE

Check here for available positions with the National Weather Service.

NEWSLETTER INFO

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. Material for inclusion in the newsletter should be submitted to Cheryl Pierce **by**

5:00pm on Thursday of each week for inclusion in the Monday issue.

For answers to common technology questions and the latest updates from the EAPS Technology Support staff, click here. As an additional resource for information about departmental events, seminars, etc., see our departmental calendar.