EES NEWSLETTER
Week of November 8, 2022

TAKE A PEEK INSIDE:

THIS WEEK...
- ANNOUNCEMENTS
- EES 5010 SEMINAR
EESB MENTORING PROGRAM
- JOB OPPORTUNITIES
  - UNDERGRAD/ENTRY-LEVEL
  - PROFESSIONAL/POST-GRAD
INTERNSHIPS, SCHOLARSHIPS, FELLOWSHIPS, & GRANTS (UNDERGRAD & GRAD)
STUDY ABROAD INFO SESSION
EES-RELATED #UIOWA EVENTS
UPCOMING EVENT: HEAVY MINERALS WORKSHOP (11/18)
- BROWN BAG SEMINAR
STUDENT UNDERGRADUATE RESEARCH: FURF 2022

REMINDEERS:
- EARLY REGISTRATION FOR WINTER 2022 / SPRING 2023 COURSES: 11/7 - 12/22
- LAST DAY TO DROP A COURSE WITHOUT DEAN’S APPROVAL - GRADUATE - 11/8
- LAST DAY TO DROP A COURSE WITHOUT DEAN’S APPROVAL - UNDERGRADUATE - 11/14
- LAST DAY TO WITHDRAW WITHOUT DEAN’S APPROVAL - GRADUATE - 11/8
- LAST DAY TO WITHDRAW WITHOUT DEAN’S APPROVAL - UNDERGRADUATE - 11/14
- FALL BREAK: 11/21 - 11/25
  - EES OFFICES WILL BE CLOSED
  - NO NEWSLETTER OR SEMINAR

THIS WEEK...

After a long delay, we are tentatively on track to have AMAG (electronic locks) installed on Trowbridge Hall's front and back doors over the winter break.

The front office is compiling lists of students, faculty, staff, and affiliated personnel who will need access outside of regular building hours.

Regular building hours will remain as follows:

Monday - Thursday: 6AM - 9PM
Friday: 6AM - 5PM

For those authorized to access the building outside of regular hours, you will need to have your Iowa ID cards updated to the current format (an embossed logo on the front and a single black stripe on the back). If you have not already updated your ID, please do so before the end of the Fall '22 semester (12/15/2022).

EES 5010 Geoscience Seminar - 11/11/2022
125 TROWBRIDGE HALL - 3:30pm - IN PERSON ONLY

PRESENTER: DR. ERIC CARSON, INTERIM DIRECTOR/STATE GEOLOGIST, WISCONSIN GEOLOGICAL & NATURAL HISTORY SURVEY (UNIVERSITY OF WISCONSIN-MADISON)

PRESENTATION TITLE: GEOLOGIC MAPPING AND RESEARCH IN WISCONSIN'S DRIFTLESS AREA: UNDERSTANDING THE LATE CENOZOIC EVOLUTION OF NORTH AMERICAN RIVER SYSTEMS
You may also reach out to Ryan Crow (rcrow@usgs.gov) if you have any questions.
Direction of the Center for the Management, Utilization and Protection of Water Resources (Water Center), Tennessee Tech University - Cookville, Tennessee

Position Description: The Center for the Management, Utilization and Protection of Water Resources (known as the Water Center) at Tennessee Tech University is conducting a search for its Director position. The candidate sought will provide long-term vision and leadership for the Center's research mission, oversee scholarly, educational and outreach activities, direct Center laboratory services, and manage the Center staff budget. The Director will also be responsible for establishing a sustained research plan and associated roadmap for the Water Center. This is a 12-month salaried position (not dependent on external funds) with no instructional/teaching expectations. The selected candidate will be expected to work in close collaboration with the Center research area leaders, associated faculty, and staff to expand existing collaborations, create new industry/federal/state/academic partnerships and grow the sponsored research program portfolio. They will establish collaborations among the faculty to pursue sponsored and scholastic research opportunities and develop and implement strategies to sustain and grow future Center research.

The Water Center (https://www.tntech.edu/watercenter) was established in 1984 as a response to regional and national concern about environmental and water-resource related issues. Faculty and students throughout campus work with the Water Center to address issues associated with increasing public demands on water resources, watershed management, hydrology, water quality, aquatic ecology, fisheries, biodiversity, and water and wastewater treatment. The Center also houses a state certified environmental water quality lab.

The selected individual will report to the University's Vice President of Research and Economic Development.

Essential Functions
- Provide leadership to maintain and strengthen the Center's research program and laboratory services, and to guide its strategic planning and direction
- Perform administrative duties related to the Center's research and development projects, manage the budget, and supervise and evaluate the performance of Center staff
- Assist or work in collaboration with faculty members, students, other Centers, University Departments and University Office of Research in developing externally-funded projects
- Develop, implement, and sustain the Center's strategic alliances and partnerships with relevant research organizations, universities and governmental agencies
- Lead a productive externally funded research program within their research expertise
- Facilitate and maintain the Center's advisory board
- Represent the Center and Tennessee Tech University to the public, key stakeholders, academic and industry partners, and state and federal entities

Minimum Qualifications
- The Center Director will have an earned doctorate from an accredited institution in civil and environmental or chemical engineering, environmental sciences, biology or a related area. Five years of experience managing or leading a research program in academia or industry in aquatic biology/ecology, hydrology, water quality, water/wastewater treatment and sustainability or other water-related field is required. Recognized scholarly achievements as measured by high-impact peer reviewed journal publications, and a proven track record of externally-funded research is also required.

Preferred Qualifications
- Proven ability to assemble successful research teams and commitment to working collaboratively with people from different disciplines, including biology, engineering, chemistry and earth sciences, and can advance the current Center research focus areas. Ability to direct and grow a multifaceted water laboratory that serves the local and regional community, as well as University faculty and students. Strong communication and interpersonal skills to work effectively with students, faculty, staff, administrators of the University and external constituents. Participation and leadership in professional societies.

Instructions to Applicants
- Interested individuals will be required to apply online at https://jobs.tntech.edu and send a cover letter, detailed curriculum vitae, statement of interest that describes the applicant's vision for the Water Center and addresses the required and preferred qualifications, statement of research, up to three representative journal articles (co-authored by the applicant, and names, addresses, phone numbers, and e-mail addresses of five references. Any email inquiries and further questions about the position should be sent to Dr. Tania Datta, Search Committee Chair at tdatta@tntech.edu.
- Tennessee Tech University is an AA/EEO employer and does not discriminate on the basis of race, color, religion, ethnic or national origin, sex, disability, age (40 and over), status as a protected veteran, genetic information or any other category protected by federal or state law. Inquiries regarding the nondiscrimination policies should be directed to equity@tntech.edu.

Full-time Geology Lecturer at Queens College, City University of New York
Queens College, City University of New York - Flushing, New York

The School of Earth and Environmental Sciences at Queens College, City University of New York (CUNY) is searching for a full time Lecturer to join our faculty starting in August of 2023. The successful candidate will be an engaging and enthusiastic Teacher-Teacher. Responsibilities will include teaching geology courses, including our large general-education course, Physical Geology, coordinating introductory teaching laboratories, and participating in student advising and curriculum development. After five years of service, the Lecturer will be eligible for a certificate of continuous employment (CCE), which is the equivalent of tenure. Candidates should hold a doctoral degree in Geology or a closely related field by the starting date of the position and show evidence or promise of success as an educator at the undergraduate level. Preferred qualifications include: experience in teaching Earth science undergraduate lecture or laboratory courses as the primary instructor; teaching diverse student populations; advising or mentoring undergraduates; and geologic research; and a demonstrated interest in pedagogy and curriculum development.

CUNY offers a competitive compensation and benefits package to its faculty, covering health insurance, pension and retirement benefits, paid parental leave, and savings programs. We also provide mentoring and support for research, scholarship, and publication as part of our commitment to ongoing faculty professional development. The salary range is between $77,517 and $86,698.

The Kentucky Geological Survey (KGS) seeks applications for a research geologist position in geohealth and/or environmental geochemistry with human health applications. The successful candidate will perform applied research, service, and outreach related to geologic controls on the origin, transport, and fate of contaminants and carcinogens in Kentucky. Work will include continuation of existing KGS collaborations to investigate geological controls on indoor radon and heavy metals in the environment in addition to new research topics identified by the candidate and consistent with the KGS and UK strategic plans. Preference will be given to candidates with one or more degrees in geology or geosciences; demonstrated experience in environmental or geohealth applications of spatial statistics and/or biostatistics; development of innovative geochemical sampling or analysis methods; integration of geologic and epidemiological information; use of geologic information to support public policy decisions; and/or publication of geohealth research in major journals. This position will require CITI human subjects research certification (available through UK after employment begins).

This position would require:
• A PhD in a relevant field at the time of appointment and at least three years of related experience.
• Demonstrated proficiency in the use of modern computational tools such as Matlab, Mathematica, R, or Python, in addition to GIS, for advanced geologic data visualization, analysis, and/or simulation.
• Demonstrated ability to work towards common goals as part of a high-performance team.
• Demonstrated ability to 1) publish research results in peer reviewed scientific journals, reports, and conference abstracts, 2) foster existing and develop new research collaborations within the university and the broader scientific community, and 3) engage in a program of continuous professional development leading to national or international stature in the candidate’s field(s) of specialization.
• Demonstrated potential to conceive and acquire outside funding for research projects relevant to Kentucky.
• Ability to perform laboratory work, geological fieldwork, and general office work in support of KGS research and outreach objectives. This may include fieldwork in rough terrain or inclement weather, occasional lifting of 50 lbs. or more, and occasional overnight travel.

About KGS
The Kentucky Geological Survey is a research center within the University of Kentucky, with an organizational history stretching back to the first publicly funded geological reconnaissance of Kentucky in 1838. With main offices on the UK campus in the heart of Kentucky’s Bluegrass region, KGS comprises approximately 50 full-time equivalent (FTE) scientists and supports staff engaged in a wide range of geological research and service activities beneficial to the Commonwealth of Kentucky. KGS has ties with the university’s Earth and Environmental Science Department, Center for Appalachian Research on Environmental Sciences (UK-CARES), Center for Clinical and Translational Sciences (CCTS), and Center for the Environment; its Colleges of Public Health, Nursing, and Medicine; and other individual researchers across campus. An adjunct faculty appointment in a relevant academic department may be possible. Lexington is a mid-size city that offers a wide range of cultural, social, and recreational amenities in addition to easy commuting and an affordable cost of living. Please visit kgs.uky.edu for additional information about KGS.

Salary Range: $61,693 – 101,795/year
To apply for job # RE36892 Geologist IV (Geohealth Researcher), submit a UK Online Application at https://ukjobs.uky.edu/postings/431442.

If you have any questions, contact HR/Employment, phone (859) 257-9555 press 2. Application deadline is December 15, 2022.

The University of Kentucky is an Equal Opportunity University that values diversity and inclusion. Individuals with disabilities, minorities, veterans, women, and members of other underrepresented groups are encouraged to apply.

Assistant Professor of Structural Geology and/or Petrology, University of Tennessee at Chattanooga

The Department of Biology, Geology, and Environmental Science (BGE) at the University of Tennessee at Chattanooga (UTC) seeks applicants to fill a tenure track position at the Assistant Professor level in Structural Geology and/or Petrology beginning August 1, 2023. We seek candidates who have strong potential for excellence in teaching and who can develop a robust research program that attracts students at all levels. Instruction responsibilities include teaching upper-level undergraduate courses in Petrology (igneous and metamorphic petrology), Structural Geology, and The Dynamic Earth (Plate Tectonics). Preference will be given to applicants who meet the required qualifications and whose research and mentoring would contribute to the M.S. Environmental Science degree.

The full job description including the required qualifications and application materials can be accessed at https://ut.taleo.net/careersection/utc_faculty/jobdetail.ftl?job=22000002h8&tz=GMT-04%3A00&tzname=America%2FNew_York. Applications must be submitted electronically through this link. Review of applications will begin November 28, 2022 and will continue until the position is filled. Questions about this position should be directed to Gretchen Potts, Department Head, Gretchen-Potts@utc.edu.

Assistant Professor, Engineering Geology, Portland State University

The Geology Department and Department of Civil and Environmental Engineering at Portland State University are now accepting applications for a full-time, 9-month, tenure-track Assistant Professor in Engineering Geology to start in Fall 2023. We seek diverse candidates with backgrounds in near surface geology and geotechnical investigations, including but not limited to geologic hazards such as landslides and slope stability, earthquakes, ground motions, and seismic investigations, erosion, flooding, dewatering, groundwater investigations, and the intersection of geologic hazards and climate change. Salary will be negotiated commensurate with years of related experience, applicable skills, market parity, and internal equity.

We are most interested in finding the best candidate for the job, and that candidate may not meet every one of our listed qualifications. Lived experience may count towards the preferred qualifications listed above. If you are excited about this position, we encourage you to apply. Applications will be accepted starting on November 1st, and will be considered until the position is filled.

Apply here: https://jobs.hrc.pdx.edu/postings/39840
Assistant Professor of Geology, St. Lawrence University
St. Lawrence University - Canton, New York

St. Lawrence University seeks a broadly trained hard-rock geologist to teach courses that are essential to our program. This tenure-track Assistant Professor position will begin in August 2023.

To view the complete job description, including minimum qualifications required, as well as application instructions please visit: http://employment.stlawu.edu. All offers of employment are contingent upon the finalist successfully passing a background (including criminal records) check.

St. Lawrence University policy requires all employees and students to be up to date with available vaccinations against Covid-19 including, as applicable, a booster shot. Individuals may apply for a medical or religious exemption from this policy.

Located at 23 Romoda Drive, Canton, New York, St. Lawrence University is an Affirmative Action/Equal Employment Opportunity employer. For additional information about St. Lawrence, please visit SLU's homepage at http://www.stlawu.edu/.

Assistant Professor in Earth and Planetary Surface Processes, University of Washington
University of Washington - Seattle, Washington

The Department of Earth and Space Sciences, in the College of the Environment at the University of Washington, is soliciting applications for two permanent, full-time, 9-month, tenure-track assistant professors in Earth and planetary surface processes.

Position 1: Assistant Professor in Geomorphology

We seek a geomorphologist who will build a strong field-oriented research program. Areas of focus could include but are not limited to landscape evolution and dynamics, fluvial and watershed processes, or cryosphere geomorphic processes. Contributions to interdisciplinary research and teaching in areas such as geologic hazards, field geology, environmental sustainability, or preparation for the professional workforce are desirable.

Position 2: Assistant Professor in Earth and Planetary Surface Processes

We seek applicants in Earth and planetary surface processes, broadly defined. Areas of focus could include but are not limited to weathering and soil-forming processes, biogeochemical cycling, and landscape evolution on Earth and/or other planets. Contributions to interdisciplinary research and teaching in areas such as planetary sciences, remote sensing, geobiology, or critical zone research are desirable.

All University of Washington faculty engage in teaching, research and service. Successful candidates will be expected to build vibrant and externally funded research programs that contribute to science of global significance. For both positions, we value the ability to quantify processes and make observational or theoretical advances specific to the surface and near-surface environment. The successful candidates will teach within the core Earth sciences curriculum at both the undergraduate and graduate levels and will demonstrate a commitment to working collaboratively with other faculty and to mentoring students from a wide range of disciplines, cultures and academic backgrounds.

The successful candidates will join a dynamic interdisciplinary department, including seven new faculty hires in the past four years. The Department of Earth and Space Sciences includes 35 research and teaching faculty, 90 graduate students, and 200 undergraduate majors. Opportunities for interdisciplinary collaboration exist within the department, as well as with other units at UW, including the Schools of Oceanography, Aquatic and Fisheries Sciences, and Environmental and Forest Sciences; the departments of Atmospheric Sciences and Civil and Environmental Engineering; the programs in Astrobiology and Climate Change, the Quaternary Research Center, the eSciences Institute, Future Rivers program, GeoHazards institute, initiatives in subduction zone science, and with USGS geohazards researchers on campus.

The University of Washington is located in the Seattle metropolitan area and offers one of the most exceptional research and teaching environments in the United States. It serves a diverse population of 80,000 students, faculty and staff, including 25% first-generation college students, over 25% Pell Grant students, and faculty from over 70 countries. The College of the Environment seeks to attract and promote a diverse workforce to maintain the excellence of the University, and to offer students richly varied disciplines, perspectives and ways of knowing and learning. UW, the College of the Environment and the Department of Earth and Space Science offer a range of networking, mentoring and professional development opportunities for junior faculty.

QUALIFICATIONS
Applicants must apply through the UW's Interfolio portal at https://apply.interfolio.com/116035. The selected candidates must have a PhD, or foreign equivalent in a relevant field by the start of the appointment. The anticipated start date is September 1, 2023.

APPLICATION INSTRUCTIONS
Applicants should indicate in the cover letter which position best fits their interest and expertise. All applications will be reviewed by a single hiring committee, and all applicants will be considered for both positions. Review of applications will begin January 3, 2023.

Required materials include:
*A one-page cover letter;
*Curriculum vitae with publication list;
*Three statements (no more than 10 pages total) addressing 1) research and leadership accomplishments, as well as future research plans; 2) a statement on teaching and mentoring, including evidence of teaching effectiveness, and 3) contributions or plans to support diversity, equity, and inclusion (see http://www.washington.edu/diversity/diversity-blueprint/);
*Contact information for three (3) references.

Questions about the application process or position in general should be addressed to essasst@uw.edu.
**INTERNSHIP, SCHOLARSHIP, FELLOWSHIP, & GRANT OPPORTUNITIES**

**INTERNSHIP**

**GSA Scientists in Parks Summer Internship** season is approaching! Applications open in early December 2022 and close on January 22, 2023 at 11:59 EDT. Summer season projects start between May and September 2023. Start preparing your application materials now, and seek out your mentor or faculty advisor for more assistance.

Do you know a college student who loves being outdoors? **The Iowa Natural Heritage Foundation** is accepting applications now for our 2023 Summer Land stewardship interns! We have four intern crews spread across the state in the Loess Hills, northeastern Blufflands, and central and eastern Iowa.

Land stewardship interns work hard to maintain and restore native Iowa landscapes while also learning about ecology, land management and wildlife. These interns conduct land management and restoration on some of the most exceptional prairies, wetlands, woodlands and savannas across Iowa.

Applications are due **Monday, January 16, 2023**. Learn more at our website: https://www.inhf.org/about-us/internships/

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**STUDY ABROAD INFO SESSION**

Study Abroad Information Session: Sustainable Chemistry Along the Rhine River - Students are encouraged to attend this information session on November 9th to learn about an amazing opportunity to travel to Germany, Switzerland, and France with Adam Brummett (Chemistry) and Stratis Giannakouros (Sustainability). This faculty-directed course will explore urbanization, biodiversity, conservation, climate change adaptation, and mitigation, in a region at the forefront of advancement in these areas.

Info session is November 9th, 3:30-4:30 in 2520B UCC

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**EES-RELATED #UIOWA EVENTS**

**UPCOMING EVENT: HEAVY MINERALS WORKSHOP**

**BROWNBAG SEMINAR @ NOON, 231 TH**

**Raman spectroscopy in high-resolution heavy-mineral analysis of sedimentary rocks**

Sergio Andò  
Laboratory for Provenance Studies, Department of Earth and Environmental Sciences, University of Milano-Bicocca, Piazza della Scienza 4, 20126, Milan, Italy.  
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In the last 10 years many works using Raman spectroscopy have been successfully applied to the study of the mineralogical composition of modern sediments in different depositional environments and geodynamic settings [1]. This technique expands the possibilities offered by the polarizing microscope and the classical study of mineralogical optical properties, adding a greater ability to semi-quantitatively recognize the composition of the investigated species and allowing to recognize the mineralogy of very small particles, down to a few microns. This tool has in fact opened a new frontier in the exploration of sediment archives preserved both in the continental and marine environment, allowing for the first time to investigate the composition of sediments from 5 to 500 micron [2]. On the continents, aeolian deposits accumulated in the form of loess deposits or sediments trapped in caves and dust deposited on glaciers can be analyzed and characterized with great precision, to infer their source rocks and provenance. Mineralogy of soils can be assessed, and this is fundamental for paleoclimate reconstruction. In a fluvial environment it is possible to analyze the suspended load carried by large rivers and the lake deposits preserved as seasonal layers. In the shallow sea it is possible to study the mineralogy of the deposits piled on the shelf, along the continental slopes it is possible to explore the mineralogical changes of contouritic deposits and the composition of detritus that has travelled thousands of kilometers from the source, in the high mountains, to the deep ocean and deposited as distal turbidites. The technique applied to the study of sediments is in full expansion and every year new groups of minerals are considered and analyzed [3], and new ideas are devised with applications for oil and gas exploration and for the exploitation of sediment resources to produce high quality glass and ceramics. The potential is enormous and points towards automation in the recognition of species commonly encountered in sediments, with strategic applications in the industrial sector, searching for precious minerals (diamonds) or for the characterization and research of strategic minerals concentrated by hydraulic sorting in placer deposits. A global database of the mineralogical composition of sediments has been started thanks to the introduction of Raman spectroscopy. We finally apply this technique deciphering the climate of the past, where the sediments are used as a natural archive of climate change comparing the modern with the historical and ancient sedimentary record.

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Acknowledgements: The Provenance Group in Milan with Marta Barbarano, Laura Borromeo, Eduardo Garzanti, Mara Limonta, Guido Pastore, Alberto Resentini and Danilo Bersani from Parma, Italy.

References
What do we measure in Quantitative Provenance Analysis (QPA)? The rollercoaster of compositional data and the compelling need for Sediment Generation Models (SGM)
Luca Caracciolo
GeoZentrum Nordbayern, Friedrich-Alexander-Universität Erlangen-Nürnberg, Schlossgarten 5, 91054 Erlangen, Germany
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Quantitative Provenance Analysis (QPA) is arguably the most effective tool for reconstructing sediment generation and dispersal at different timescales, and calculate sediment budgets. The latter is a particularly relevant approach which is becoming critical in, for instance, climate change/anthropic impact research. Analytical development has increased the variety of grains that can be analysed and reduced measurement time. As a result, large volumes of compositional data are produced and processed to potentially reconstruct sedimentary provenance to an unprecedented level of precision. Therefore, it should be possible to carry out studies in which (i) inputs from drainage lithologies of ancient sedimentary systems are quantified by inverse modelling, (ii) identify tectonic and climatic perturbations, (iii) landscape modifications, and (iv) reliable calculations of sediment budgets. However, when natural (e.g. mineral fertility, grain-size) and analytical biases (grains number, grain types) are considered, using detrital modes, mineral assemblages, grain chemistry and U-Pb ages, to (e.g.) to solve one or more the of the applications mentioned above, might be considerably harder than expected.

New linear log-ratio models developed for actualistic sedimentary environments indicate that under- and over-representation of provenance signals as a function of lithology and morphological features are much more common than expected. As compositional signatures often fail to provide clear provenance indications, calculating sediment budgets to identify erosion patterns with current models can potentially lead to erroneous estimates. Examples from deep-time SRS show how critical limiting factors in Sediment Routing Systems research as (a) the buffering and shredding of environmental signals, (b) the reworking of material in continental and transitional environments, and (c) the incompleteness of the stratigraphic record, are largely overlooked by the QPA community. Not accounting for SGM strongly limits the accuracy to which ancient SRS can be reconstructed.

SGM and QPA necessarily need to be merged to improve reconstructions of paleogeography, basin architecture, depositional environments, and the distribution of sedimentary facies in deep-time stratigraphy.
Nov. 2, 2022: EES students presented their research projects at FURF (Fall Undergraduate Research Fair), sponsored by ICRU (Iowa Center for Undergraduate Research).

Excellent work by our undergraduates!