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**AGU**  
FALL MEETING

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## Earth and Planetary Surface Processes

Dear EPSP community,

It's summer in the northern hemisphere, and many of us are enjoying the opportunity to spend more focused time on research and perhaps work in-person with colleagues for the first time in a while. This newsletter starts with two pieces of news about our own Past President Dorothy Merritts.

In May, Dorothy was elected to the [National Academies of Sciences](#)! Dorothy is the Harry W. and Mary B. Huffnagle Professor of Geoscience in Franklin & Marshall College's Department of Earth and Environment. She is the first faculty member from F&M to be elected into the NAS.

This is an extremely prestigious honor and reflects Dorothy's decades of research, teaching and service in geomorphology. Dorothy's PhD dissertation research focused on the response of streams to tectonically driven rock uplift, using the field laboratory of the Mendocino Triple Junction region of northern California. This resulted in a series of classic papers that were foundational to the study of linkages among tectonics, climate and geomorphology, which has fueled innovative research for more than three decades. More recently, Dorothy's work in the Mid-Atlantic region has changed the way we think about human influence on river systems, as well as the periglacial evolution of this landscape.

Then, in June, the [Quaternary Geology and Geomorphology](#) division of the Geological Society of America announced that Dorothy is this year's recipient of the Distinguished Career Award! She will be honored at the GSA annual meeting in Denver in October.

Congratulations, Dorothy, and thank you for your many years of service to our community.

Gordon Grant, President

Kimberly Hill, President Elect  
Noah Snyder, Secretary

We invite you to complete a [survey](#) issued by AGU's EPSP Section leadership designed with the help of current and past members of our student committee to learn more about you (our community members) and how EPSP can better serve our members in the areas of career advancement and guidance, community networking opportunities and building an inclusive and diverse climate where all members are treated equitably. We greatly appreciate your honest and thoughtful responses.

All survey responses are anonymous. Results will be summarized by AGU staff and provided to the EPSP Executive Committee, redacting any identifying information. Synthesized results will be made available to the community later this year. If you have any questions or want more information, please e-mail Kimberly Hill (EPSP Section President-Elect, [kmhill@umn.edu](mailto:kmhill@umn.edu)).

We thank the following members of the EPSP community for their work on this effort: Isamar Cortes, Michelle Harris, Hima Hassenruck-Gudipati, Kimberly Hill, Udit Mukherjee and Joel Scheingross.

Hi all,

The AGU Fall Program abstract submission is now OPEN and will be closing **3 August**. Meeting registration and housing opens on 17 August. You can search for EPSP sessions [here](#) and a step-by-step guide to submission [here](#).

The AGU fall meeting will again be a hybrid meeting, with the in-person meeting happening in Chicago, IL. Many of the sessions (both oral and poster sessions) will have both a virtual and in-person component, allowing for all members of AGU to attend in the way that is best for them. For a description of the session types, go [here](#).

If you have questions about submitting an abstract to #AGU2022, please see the Q&A page [here](#) or feel free to email the EPSP Program Committee Chair, [Marisa Palucis](#).

Cheers,  
[The Fall EPSP Program Committee](#)

Dear graduate students,

Are you a new student just embarking on your advanced degree? Or are you nearing graduation with valuable insights to pass on and looking for some mentorship experience? There's a place for you in the new EPSP Mentorship Program.

Interested individuals can apply [here](#) to either give or receive mentorship throughout the Fall 2022 semester. In this EPSP-sponsored program, new master's and PhD students with at least one year of graduate school remaining will receive guidance in a small group discussion format from experienced graduate students. The discussions are an opportunity for students at all levels to share experiences and advice on a range of topics and skills to foster academic success.

Experienced graduate students with at least two years of graduate school experience will have the opportunity to lead three structured discussions with new Master's and PhD students. The topics for these discussions will vary with each group, but potential options include: taking advantage of networking opportunities, pursuing funded research, attending conferences and the scientific publishing process. Suggested discussion materials will be provided to the mentors with the hope that their personal experience will supplement the discussion.

This is a great opportunity for both new and experienced graduate students to learn from one another and build connections across age and experience. Participation will be limited, so apply today!

Sincerely,

The EPSP student committee

**EPSP Connects** will be taking a break in July and August, we'll resume talks in the fall.

It is with much sadness we record the passing on 23 June 2022 of friend, colleague and mentor Peter Molnar.

Peter was born August 25, 1943 in Pittsburgh. He attended Oberlin College, where in 1965 he obtained a degree in Physics, and Lamont-Doherty Geological Observatory where he obtained a PhD in Geophysics from Columbia University in 1970. He followed this with a postdoc appointment at the University of California at San Diego and an exchange scientist position in the USSR before being appointed in 1974 a Professor at MIT. He resigned from his faculty position at MIT in 1986, remaining a senior research associate there until 2000. He enjoyed several visiting appointments at Grenoble, Montpellier, Oxford, Caltech and Santa Barbara before in 2001 accepting an appointment as a Professor in the Department of Geological Sciences and Fellow of CIRES, University of Colorado at Boulder.



Fluent in French and Russian, Peter had a legendary command of numerous disciplines related to the physics of the solid Earth, its oceans and atmospheres and how they influence each other. He was one of the pioneers of Plate Tectonics close to the time of its formulation. In 1969 and 1970, using the distinctive teleseismic signatures of major earthquakes, he and his colleagues published several data-rich articles that for the first time detailed the tectonics of the Caribbean plate, the stress changes in the lithosphere, and the state of stress in descending plates as they sank deep into the Earth's mantle.

These meticulous and lengthy articles set

the scene for many of his future publications. He went on to refine the mechanics of mountain building processes in the Andes and the Himalaya, initially using patterns from earthquakes, but increasingly from the magnetic anomalies on the sea floor and calculations of the fluid mechanics of flowing rocks deep in the Earth's crust and mantle.

Peter possessed an exceptional ability to learn new techniques to solve hitherto insoluble problems, not only in developing new mathematical approaches, but using new data as and when they became available. For example, the collision velocity of India towards Asia required detailed analysis of the magnetic lineations of the Indian Ocean floor imprinted by sea floor spreading volcanism. He and his colleagues' analyses of these were responsible for the iconic image of India's northward passage at rapidly declining speeds from south of the equator to the collision 50 million years ago with what is now Tibet, with the consequent formation of the Himalaya. But the present day, much slower, rate cannot be established from these magnetic lineations. Very-long-baseline-interferometry and GPS provided him with the tools to determine not only the present day collision rate but the internal rate of deformation of Asia. Shortly before these data had become available, he and Paul Tapponnier had examined a mosaic of early Landsat satellite imagery of Tibet and Mongolia and had recognized the exciting details of the splintering of Asia into a series of giant crustal blocks whose movements were facilitated and recorded by enormous earthquakes.

Following this Peter turned his attention to calculations of the fluid dynamics of the thickened crust of Tibet and the implications that the blocks were being translated and jostled by these slowly flowing rocks. This research direction has inspired numerous other scientists to interpret the rise of plateaus elsewhere (e.g. here in Colorado), and earned him in 2014 the prestigious international Crafoord Prize in Geosciences.



Shortly before joining CU Boulder, Peter had realized that the “sudden” appearance of the 5 km elevation Tibetan plateau (a few tens of millions of years ago) must have changed wind patterns on the Earth and hence its weather. Could a study of changing plants and past climates tell us about the timing of the growth of the plateau; and could Tibetan tectonics tell us about climate change? Climatologists acknowledge that their pivotal new understandings of the dynamics of the Asian monsoon are the result of Peter’s innovations. In a 2010 review paper, he and his colleagues quantified these ideas. The key was to focus on the total energy content (moist enthalpy), a simple and powerful idea that dodged the numerous variables that bogged down many climate models, which Peter disliked for their potential ambiguity.

His *modus operandi* was always to identify the next most important problem perceived to be arresting the future progress of Earth science. He instilled this notion in his students and in his colleagues. In evaluation of the work of others, Peter was always the one to focus on the strength of the contribution. He hated metrics like H indices as just rubbish and a waste of time, arguing that you actually have to read the science to evaluate it. And he did that. His favorite question when interviewing a candidate for a faculty position was “*What is the most important question in your field?*” The inquiry would not stop with the reply, of course, but could simply launch into a conversation that could be career-turning in its magnitude. It did not matter what your field was.

In the surface processes field relevant to the EPSP community, Peter played an outsized role for several decades. Starting with his contributions to the intersection of geomorphology and geophysics through the mountain building processes (he was a big player in the Tectonics and Topography conference in 1990 that helped to launch that broad field), he has kept a steady interest in the field. He painstakingly schooled us in the distinction between rock uplift and surface uplift. Yes, he dabbled in geomorphic processes a bit – on glaciers, on cracking of rock as it veers toward the earth’s surface in mountain building events, even in the statistics of floods – but his key influence was this simple: Peter was watching us. He simply raised the bar on every thing we have done in the last three decades, by being a vocal critic, a gadfly, a prod, a friend to those who fought hard for knowledge, and a critic of those he felt were lazy in their thinking.

He had an extraordinary ability to identify talented young scientists and to gather them together to thrash out the details of what solutions were needed to understand new geodynamic, climate, or geomorphological problems. Peter’s grasp of the big-picture was of such breadth that he could often recognize the significance of a colleague’s work better than they themselves, and could contextualize their contributions to others in a way that was both understandable and compelling. Often, he would energize colleagues to organize international meetings to get people to think about these issues. These conferences occurred in South America, in New Zealand, in China, in India and in Tibet, and they were frequently followed by week-long field trips and multipage reports that formed the basis of future collaborative proposals.

He did this with humor and with a wit and intelligence that few could match. Young scientists in awe of his reputation soon learned that he was just a regular bloke who was really interested in them as people and was encouraging them to excel. He would launch them in the right direction with an equation and the need to understand its solution, and he would regularly discuss their ideas and difficulties. His office door was always open.

He seems to have read everything there was to read in numerous disciplines. His file cabinets were full of reprints with underlined phrases and comments. His computer files were full of digital reprints with yellow highlight and if deemed of sufficient interest, often with a one or two paragraph summary of the article. Colleagues used him as a google search engine, long before Google had been established.

His home with Sara, his wonderful wife, was always open to visitors. Very often he would invite visiting lecturers to stay with them, and there he would host generous dinners to encourage further discussion with colleagues invited to join them. Many of our most prestigious lecturers over the last two decades came to Boulder because of invitations from him, or for a chance to discuss science with him.

He loved walking in the mountains, in snow or sunshine. He loved music. He loved science. We all loved him for all of this, and we shall miss him.

Roger Bilham 23 June 2002, with input from Philip England, Gerard Roe, David Battisti, Marin Clark, Carmala Garzioni, Zhang Peizhen, Bob and Suzanne Anderson, Anne Sheehan and Craig Jones. Augmented slightly by Bob Anderson for EPSP newsletter July 11, 2022.

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