

January 2026

Department of Geology and  
Geological Engineering

# Department Newsletter

## Message from the Department

Greetings alumni and friends! Please enjoy reading the new layout for our 2026 alumni newsletter.



Faculty and staff in Geology and Geological Engineering/Museum of Geology – 2025

Front row bottom (l to r): Sarah Keenan, Gokce Ustunisik, and Darrin Pagnac

Second row up (l to r): Chelsea Pederson, Roger Nielsen, and Victoria Karnes

Third row up (l to r): Edward Duke, Liangping Li, and Tim Masterlark

Fourth row top (l to r): Cleo Heenan, Robert Hall, Zhi Ye, and Christopher Pellowski

Absent: Kurt Katzenstein, Nuri Uzunlar, Trevor Waldien, Nathaniel Fox, Darrah Steffen, Samantha Wright, Arden Davis, Jim Fox, James Martin, Colin Paterson, Perry Rahn, Bill Roggenthen, Foster Sawyer, and Larry Stetler



## Anna Baar

Congratulations to Anna Baar, a junior in Geological Engineering, on receiving the \$10,000 RESPEC Undergraduate Research Award. She will work with Dr. Liangping Li on designing a borehole thermal energy storage system for the South Dakota Mines campus during the 2025–26 academic year.

## Olivia Daynes

PhD candidate Olivia G. Daynes recently published a paper entitled “Vapor Undersaturated Ultradepleted MORB Liquids Plagioclase-hosted Melt Inclusions from Garrett Fracture Zone Lavas” in Earth and Planetary Science Letters under the supervision of Dr. Gokce Ustunisk. Daynes’ research was funded by NSF GEO/OCE-2135828 awarded to Ustunisk and Nielsen. Daynes was also nominated and awarded the “William Griffith Fellowship” by South Dakota Mines Council on Graduate Education.

## Madison Betts

PhD candidate Madison X. Betts published a paper entitled Boundary Conditions for the Petrogenesis of Plagioclase Ultraphyric Basalts (PUB) from the Northeast (NE) Pacific Ridge System: Constraints from Plagioclase-hosted Melt Inclusions in *Lithos* from her MS thesis and another paper entitled The Landscape of the Experimental Orthopyroxene/Melt Partitioning Database from the first chapter of her dissertation in *Frontiers in Geochemistry* as part of the special issue on Developments in our Understanding of Upper Mantle Derived from Peridotites. Madison’s research was funded by NSF EAR -2148990 awarded to her PhD advisor Ustunisk and co-PI Nielsen. Madison submitted two research proposals and secured funding from SD Space Consortium and NASA Facility for Astromaterials Research (NFAR) program for additional funding to support her PhD research.

## Samuel Herrboldt

Congratulations to Samuel Herrboldt, who recently took the crown at the GRC 2025 Megawatt Challenge by Seequent, securing the highest-forecast geothermal output using real subsurface data modelled in Leapfrog and Volsung. Samuel will receive free registration to the World Geothermal Congress 2026 in Calgary, provided by Seequent.







## Dr. Chelsea Pederson

This fall, Dr. Chelsea Pederson joined the Geology and Geological Engineering faculty at Mines, bringing a lifelong fascination with Geology and Marine Science that began growing up in California. Her research blends sedimentology and geochemistry to better understand coastal dynamics and reconstruct past climates, with strong relevance to applied geoscience and resource-focused questions. In the classroom, she teaches core undergraduate courses and is especially enthusiastic about integrating field experiences into student learning. Outside of work, she and her family enjoy hiking and other outdoor adventures and are excited to call the Black Hills home.

## Trevor Waldien, Ph.D.

Trevor Waldien, Ph.D., an assistant professor of geology at South Dakota Mines, received a more than \$900,000 National Science Foundation CAREER grant to study the uplift of the Black Hills.



## Dr. Sarah Keenan

Dr. Keenan was awarded a Fulbright Specialist Award to collaborate with Taita Taveta University (TTU) in Voi, Kenya to develop an undergraduate geology program. She will spend January and February in Kenya working with university faculty and staff, and government and industry partners, to design a curriculum that helps TTU educate students to meet Kenya's growing demand for geologists. She is the first Fulbright Specialist from South Dakota Mines and the first specialist from South Dakota to work in Africa.

## Dr. Perry Rahn

Dr. Perry Rahn, professor emeritus of geological engineering, received the AIPG South Dakota Section Lifetime Achievement Award on Sept. 27, 2025.



## Dr. Gokce Ustunisik

Dr. Ustunisik received the Jean E. Simmons International Excellence in Science Education and Mentoring award by Graduate Women in Science.



(Left) Dr. Gokce Ustunisik is with her two students, Erica Cung (MS, GGE 2022) and John Hewitt (MS, GGE 2022) at the graduate student award ceremony. (Right) Dr. Ustunisik and Brian Bormes (BS GEOL, 2018) examine the core samples retrieved from the 4,100-foot level at the Sanford Underground Research Facility.

## Drs. Gokce Ustunisik and Roger Nielsen

Drs. Gokce Ustunisik and Roger Nielsen spent the Spring 2025 at the University of Cambridge, U.K. to expand their research on Mid-Ocean Ridge Volcanism as part of Ustunisik's sabbatical after she was selected for the Derek Brewer Visiting Fellowship of Emmanuel College. This fellowship is awarded to three promising mid-career faculty from over one hundred applicants each year who have contributed high-impact research to their field of expertise in the areas of physical sciences, literature, and engineering.



(Above) Ustunisik signing in as the Derek Brewer Research Fellow at the University of Cambridge, UK after being introduced by master of the Emmanuel College Doug Chalmers.

## Department News



Group photo from the fall field trip to Wind Cave National Park.



## Dr. Larry Stetler & Dr. Laurie Anderson

**Dr. Larry Stetler** retired at the end of the Spring 2025 semester and is 'living the dream'. **Dr. Laurie Anderson**, former department head and current vice president of research, will be retiring from the university in June of this year and will devote her time to research.

Have you recently changed jobs or moved? [Update your contact information here](#) to ensure you receive updates regarding events, campus news and department happenings!

Thank you for your interest in the department! For more updates, follow us on [Facebook](#).