In Memoriam, Jay Quade

1955-2025

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With the October 17, 2025 passing of Jay Quade, the University of Arizona Department of Geosciences lost a preeminent geoscience pioneer and visionary scholar in isotope geochemistry, stratigraphy, field geology, and geochronology. Jay joined the department in 1992 as an Assistant Professor and rose through the ranks to become a Full Professor with a dedicated following of dozens of successful former students, postdocs, and collaborators in numerous disciplines. Jay was renowned for his scientific breadth and the impact he made in so many parts of the Geosciences as well as Anthropology. He made first-order contributions in isotope geochemistry, basin analysis, geomorphology, paleoanthropology, paleoenvironmental reconstruction, and Quaternary science. He put his scientific stamp on every continent except Antarctica, from sea-level to summits higher than 6000 m, in deserts, jungles, on high plateaus and jagged mountain peaks. Fearless but wise and insatiably curious, he explored some of Earth's last remaining great wildernesses in search of geological truths. A consummate field geologist, Jay was also a brilliant laboratory innovator and practitioner. He had a genius for leveraging stratigraphic archives as records of long-term 'experiments' involving complex physical and geochemical processes.

Jay employed many tools in his myriad projects, but isotope geochemistry was particularly dear to his heart. He described it as a tool that traced atoms in chemical and biological systems and left behind a record of the local environment. Though sometimes rather ambiguous, when combined with proper field context and additional lines of evidence it became very powerful. Through his diverse publications and collaborations with his students he changed many sub-fields in isotope geochemistry. There are too many areas to list here, but some of his most important papers address soil isotope geochemistry as a recorder of surface conditions, strontium isotopes as an indicator of chemical weathering and sediment provenance in the Himalaya, isotopic tracers of paleo-elevation, isotopes in hydrated glass as a record of rainfall isotopic composition, in-situ cosmogenic production of ^{14}C in quartz, environmental indicators in spring deposits, pluvial lakes in the desert southwest and in the Atacama and Bolivian Altiplano, and the history of the monsoon in Tibet, Nepal and northern India. A more thorough description of Jay's scientific contributions may be found in Betancourt et al. (2025).

In the lab Jay pursued innovation in isotope geochemistry, often together with his students and post-docs. He was instrumental in the construction of a system that extracted small

amounts of cosmogenically induced ^{14}C in quartz. He also worked on the construction of an ultra-low-level ^{14}C extraction line, which extended ^{14}C ages back to 50,000 years (or older). He got involved in clumped isotope systems early, publishing a major paper on clumped isotopes in soil carbonates. In his last decade Jay was part of a group in the Environmental Isotope Laboratory developing an instrument for the simultaneous measurement of clumped isotopes and triple oxygen isotopes in carbonates based on infrared laser absorption analysis.

Jay was equally adept in the field, measuring detailed stratigraphic sections and doing outcrop sedimentology, mapping, and collecting rock and water/ice samples for isotopic analysis, petrography, geochronology, detrital zircon geochronology, micropaleontology, paleoanthropology and archeology, among others.

Jay received numerous awards throughout his extraordinary career, including the GSA Farouk El Baz Award (2001); Galileo Circle Fellow (University of Arizona, 2007); the Ben Tor Award from Hebrew University (2014); GSA Fellow (2015); AGU Fellow (2015); the Lady Davis Fellowship (Hebrew University, 2016); the Japan Society for the Promotion of Science Fellowship (University of Tokyo, 2017); Geochemical Society Fellow of the European Association of Geochemistry (2017); GSA Arthur L. Day Medal (2018), U.S. National Academy of Sciences Fellow (2024); and Distinguished Alumni Award at the University of Utah (2025).

Jay was a gifted teacher, but it was not something that came naturally and he worked hard over decades to perfect his delivery, vocabulary, didactic style, and teaching philosophy. He taught courses at all levels, from introductory to advanced graduate students, and he was an avidly engaged participant in numerous seminars. In graduate courses he worked to bring a class full of students with varying degrees of background in a topic up to a professional level by pushing the students to interact critically with published papers. Students did not just present a set of recent or important papers, they traced the arguments made in the papers, examined the manipulation of the data (and double-checked the math), and often discussed possible improvements on the authors' approach. When combined with a small original class project, each student had, by the end of the class, both a sophisticated grasp of the subject and experience in writing up and interpreting original results.

Jay was legendary as a field camp instructor; able to map and teach at expert level in practically any type of geologic terrain and rock type, he was also an indefatigable hiker with the ability to cover huge tracts of ground seemingly effortlessly. This ability to move relentlessly fast was rooted in his high school and collegiate record-setting and All-American efforts in middle distance track events. Jay brought the same level of tenacity and stamina required to win footraces into his work life, on hundreds-of-kilometers-long wilderness field traverses, in late-night lab sessions, and in mundane committee jobs in the department.

Jay worked in wild places, and not surprisingly he became a pivotal actor in many wild stories. There was the time he and graduate student Nathan English swam across the raging Seti River in far-west Nepal to collect a sample from a tributary confluence that could only be reached on the other side of the river. They were swept hundreds of meters downstream but managed to not only collect a sample but also to run a titration. On another occasion he put out a several acre forest fire by pulling blazing trees into burned out areas and shoveling its perimeter for eight hours. Then there was the time he found and rescued a student lost for two days in remote western Nepal; the time he buoyed the spirits of his exhausted and declining field partners on a grueling three-week long foot traverse in eastern Nepal by extracting a two-foot long summer sausage from his pack and passing out slices around a spluttering little campfire; and the amazing story of finding the remains of a long-buried homicide victim in the remote Monitor Range in Nevada while he was working for Noranda. The latter story, which has been told and retold around campfires over the course of 25 years of field camps in Nevada, remains a source of fascination and late-night speculation about loose ends. Jay had a knack for finding bodies, a feature that began while he was still in high school in his hometown of Reno, Nevada. On a trans-Sierran backpacking trip, he discovered a small plane crash high in the trees, with a carpet of silver dollars sprinkled about the site. One of the victims had survived and walked out, months before the deep snow melted to reveal the scattered coins to Jay and his pals. Jay had countless stories about vehicular breakdowns or mishaps in places far too remote to expect any assistance. Once, at the end of an exhausting field camp day on top of a high peak in the East Humboldt Range in Nevada, he scampered several thousand feet down the backside of the mountain with his fishing pole to a wilderness lake he was certain would contain plenty of big trout; a few hours later, having climbed back up to the summit and then down again to camp, he fed the entire group on a backpack full of fish. And there was that time he serendipitously surfed atop a wobbling boulder during an earthquake amid a field of other wobbling boulders with polished girth rings in the Atacama Desert, a story he documented in a Geology article (Geology, 2012, 40: 851–854). Jay did not seek stories like these; rather, his involvement in so many remarkable tales was a natural outgrowth of his adventurous spirit and willingness to go to the kinds of places where good stories are likely to originate.

Jay was a quiet, peaceful man. He never sought the limelight. He was a learned, multi-faceted scholar, with a penchant for history. He studied languages earnestly, mastering Spanish and gaining the ability to communicate well in Nepali and French. He was a skilled carpenter, a competent auto mechanic, a prolific gardener, and a persistent angler. Jay was a good listener, and he was purely, but never brutally, honest. If a decision had to be made and he was in a leadership role, he sought advice and never acted rashly. He had an ironic, playful, and occasionally irreverent sense of humor.

Jay enjoyed life in every respect. He had much more science on his agenda, and many projects that he was unable to complete owing to his illness. We have lost not just the scientist in Jay, but more importantly we have lost a wonderful colleague, mentor, teacher and dear friend. Our condolences go out to Jay's wonderful family.

Betancourt, J.L., et al., 2025, Memorial to Jay Quade, 1955-2025: GSA Memorials (https://www.geosociety.org/GSA/gsa/pubs/memorials.aspx)

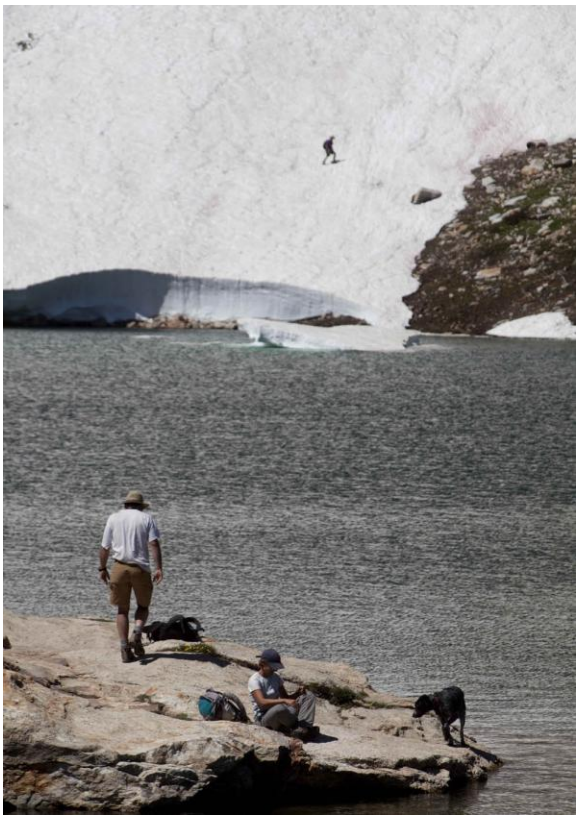
In Wyoming during field camp, photo by Martin Pepper, 2011.

Extricating a vehicle from the Salar de Antofalla, in the ultra-remote Puna Plateau, Argentina, 2011. Jay is mostly hidden underneath the chassis.

Jay after taming a forest fire high in the Monitor Range, 2008.

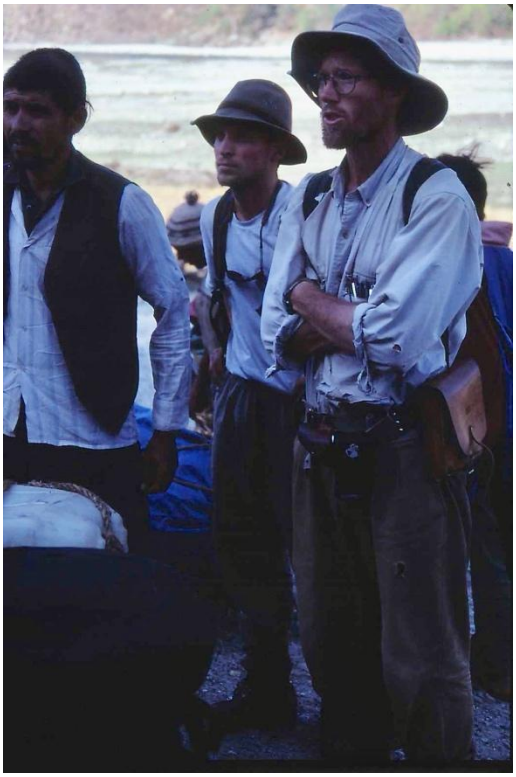
Jay with his son Emeric on top of Mt. Waas (12,337') in the Lasal Mountains, ca. 1999.

UA fieldcampers at the summit of Wheeler Peak in eastern Nevada, with Jay in the center (2011).



At Lamoille Lake in the Ruby Mountains, Nevada on a day off at fieldcamp, 2011. That's Jay on the snow in the background. Photo by Martin Pepper.

Jay with grad student Delores Robinson enjoying the view of the high Himalaya in far west Nepal, 1997.



Jay and grad student Nathan English, tattered, but near the end of an ~500 km foot traverse in the western Nepal Himalaya, 1997.

Jay consulting with local villagers in western Nepal, 2019. Graduate student Anthony Krupa is in the left foreground.