

DR. LEAH E. MORGAN

lemorgan@usgs.gov
<https://www.usgs.gov/staff-profiles/leah-e-morgan>
(303) 236-4729

Employment

United States Geological Survey, Denver

Research Geologist, 2015-present

Scottish Universities Environmental Research Centre, University of Glasgow

Research Associate, 2014

Scottish Universities Environmental Research Centre, University of Glasgow

Marie Curie Postdoctoral Fellow, 2011-2013

Carleton College

March 2014-June 2014

Visiting Assistant Professor, Geology Department

Vrije Universiteit, Amsterdam

August 2009-July 2011

Postdoctoral Fellow with the Marie Curie GTSnext Network

Education

University of California, Berkeley

Ph.D. Earth and Planetary Science, 2009

Carleton College

B.A. Geology, *cum laude*, with distinction in major, 2004

Service

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|--------------|-----------------------------------------------------------------------------------------------------------------------------------------|
| 2021 | Co-Chair, Gordon Research Conference on Geochronology, Mt. Snow, VT |
| 2019 | Vice-Chair, Gordon Research Conference on Geochronology, Waterville Valley, NH |
| 2018-2019 | Chair and Founder, Geochronology Division of the Geological Society of America |
| 2016-present | EARTHTIME Steering Committee Member |
| 2018-present | EarthRates Steering Committee Member |
| 2019-present | International Union for Quaternary Research (INQUA), Committee for the Stratigraphy and Chronology Commission (SACCOM), Advisory Member |
| 2020-present | USGS TRIGA Reactor Operating Committee Member |
| 2017-present | USGS Radiation Safety Committee Member |
| 2016-present | USGS Rocky Mountain Science Seminar Series Convener |
| 2018-2020 | Early Career Advisory Team Member, Geology, Geophysics, and Geochemistry Science Center |

Awards

- *USGS Superior Service Award*, 2019
- *Early Career Researcher Award, IAG*, Goldschmidt Conference, Prague, 2011

Publications

35. Minor, S.A., Caine, J.S., Ruleman, C.A., Fridrich, C.J., Chan, C.F., Brandt, T.R., Holm-Denoma, C.S., **Morgan, L.E.**, Cosca, M.A., and Grauch, V.J.S., 2019, Geologic map of the Poncha Pass area, Chaffee, Fremont, and Saguache Counties, Colorado: U.S. Geological Survey Scientific Investigations Map 3436, 3 sheets, scale 1:24,000.
34. du Bray, E.A., John, D.A., Colgan, J.P., Vikre, P.G., Cosca, M.A., and **Morgan, L.E.**, 2019, Petrology of volcanic rocks associated with silver-gold (Ag-Au) epithermal deposits in the Tonopah, Divide, and Goldfield mining districts, Nevada: U.S. Geological Survey Scientific Investigations Report 2019-5024, 22 p., <https://doi.gov/10.3133/sir20195024>. IP-99110
33. du Bray, E.A., John, D.A., Vikre, P.G., Colgan, J.P., Cosca, M.A., **Morgan, L.E.**, Fleck, R.J., Premo, W.R., and Holm-Denoma, C.S., 2019, Petrographic, geochemical, and geochronologic data for Cenozoic volcanic rocks of the Tonopah, Divide, and Goldfield mining districts, Nevada: U.S. Geological Survey Data Series 1099, 14 p., <https://doi.org/10.3133/ds1099>.
32. McQuarrie, N., Eizenhöfer, P. R., Long, S. P., Tobgay, T., Ehlers, T. A., Blythe, A.E., **Morgan, L.E.**, Gilmore, M.E., Dering, G.M., 2019, The influence of foreland structures on hinterland cooling: evaluating the drivers of exhumation in the eastern Bhutan Himalaya. *Tectonics*, v. 38, no. 9, p. 3283-3310.
31. **Morgan, L.E.**, Johnstone, S.A., Gilmer, A., Cosca, M.A., Thompson, R. A supervolcano and its sidekicks: A 100 ka eruptive chronology of the Fish Canyon Tuff and associated units of the La Garita magmatic system. *Geology*, v. 47, no. 5, p. 453-456.
30. Santiago Ramos, D.P.; **Morgan, L.E.**, Lloyd, N.S., Higgins, J.A., 2018. Reverse weathering in marine sediments and the geochemical cycle of potassium in seawater: Insights from the K isotopic composition ($^{41}\text{K}/^{39}\text{K}$) of deep-sea pore-fluids. *Geochimica et Cosmochimica Acta*.
29. Millikin, A.E.G., **Morgan, L.E.**, Noblett, J., 2018. $^{40}\text{Ar}/^{39}\text{Ar}$ geochronology and petrogenesis of the Table Mountain Shoshonites, Golden, CO. *Journal of Rocky Mountain Geology*, 53 (1): 1–28. doi: <https://doi.org/10.24872/rmgjournal.53.1.1>.
28. **Morgan, L.E.**, Santiago Ramos, D.P., Davidheiser-Kroll, B., Faithfull, J. Lloyd, N.S., Ellam, R., Higgins, J.A., 2018. High-precision $^{41}\text{K}/^{39}\text{K}$ measurements by MC-ICP-MS indicate terrestrial variability of $\delta^{41}\text{K}$. *Journal of Analytical Atomic Spectrometry*, <http://dx.doi.org/10.1039/C7JA00257B>.
27. Shackley, M.S., **Morgan, L.E.**, and Pyle, D. *in press*. Elemental, isotopic, and geochronological variability in Mogollon-Datil Volcanic Province archaeological obsidian, Southwestern New Mexico: Solving issues of inter-source discrimination. *Geoarchaeology*, 1-12, <https://doi.org/10.1002/gea.21672>.
26. **Morgan, L.E.**, Munk, M., Davidheiser-Kroll, B., Warner, N.H., Gupta, S., Slaybaugh, R., Harkness, P. and Mark, D.F., 2017. Instrumentation development for *in situ* $^{40}\text{Ar}/^{39}\text{Ar}$ planetary geochronology. *Geostandards and Geoanalytical Research*, v. 41, 381-396.
25. Mark, D.F., Renne, P.R., Dymock, R.C., Smith, V.C., Simon, J.I., **Morgan, L.E.**, Staff, R.A. and Ellis, B.S., 2017. ‘Radical interpretations’ preclude the use of climatic wiggle matching for resolution of event timings at the highest levels of attainable precision. *Quaternary Geochronology* v. 42, 60-62.

24. Mark, D.F., Renne, P.R., Dymock, R., Smith, V.C., Simon, J.I., **Morgan, L.E.**, Staff, R.A. and Ellis, B.S., 2017. High-precision $^{40}\text{Ar}/^{39}\text{Ar}$ dating of Pleistocene tuffs and temporal anchoring of the Matuyama-Brunhes boundary. *Quaternary Geochronology* v. 39, 1-23.
23. Kavalieris, I., Khashgerel, B.-E., **Morgan, L.E.**, Undrakhtamir, A. and Borohul, A., 2017. Characteristics and $^{40}\text{Ar}/^{39}\text{Ar}$ Geochronology of the Erdenet Cu-Mo Deposit, Mongolia. *Economic Geology* v. 112, 1033-1053.
22. Gilbert, W.H., Doronichev, V.B., Golovanova, L.V., **Morgan, L.E.**, Nunez, L., Renne, P.R. Archaeology and context of Hugub, an important new Late Acheulean locality in Ethiopia's northern rift. *Paleoanthropology*, v. 58 (99).
21. Righter, K., Cosca, M., and **Morgan, L.E.**, Preservation of ancient impact ages on the R chondrite parent body: $^{40}\text{Ar}/^{39}\text{Ar}$ age of hornblende-bearing R chondrite LAP 04840. *Meteoritics and Planetary Science*, v. 51 (9), 1678-1684.
20. **Morgan, L.E.**, Davidheiser-Kroll, B. Pressure disequilibria induced by rapid valve closure in noble gas extraction lines. *Geochemistry, Geophysics, Geosystems*, 16, doi: 10.1002/2015GC005823.
19. **Morgan, L.E.**, 2015. Noble Gas Mass Spectrometry, in: W.J., and J.W. Thompson (eds.), *Encyclopedia of Geoarchaeology*. Springer.
18. **Morgan, L.E.**, 2015. $^{40}\text{Ar}/^{39}\text{Ar}$ and K-Ar Geochronology, in: Gilbert, A.S. (ed.), *Encyclopedia of Scientific Dating Methods*. Springer.
17. Sahle, Y., **L.E. Morgan**, D.R. Braun, W.K. Hutchings. Chronological and behavioral contexts of the earliest Middle Stone Age in the Gademotta Formation, Main Ethiopian Rift, *Quaternary International*, v. 331, p. 6-19.
16. Mark, D.F., M. Petraglia, V.C. Smith, **L.E. Morgan**, D.N. Barfod, B.S. Ellis, N.J. Pearce, J.N. Pal, R. Korisettar, 2014. A high-precision $^{40}\text{Ar}/^{39}\text{Ar}$ age for the Young Toba Tuff and dating of ultra-distal tephra: forcing of Quaternary climate and implications for hominin occupation of India, *Quaternary Geochronology*, v. 21, p. 90-103.
15. Sahle, Y., W.K. Hutchings, D.R. Braun, J.C. Sealy, **L.E. Morgan**, A. Negash, B. Atnafu, 2013. Earliest stone-tipped projectiles from the Ethiopian Rift date to >279,000 years ago. *PLOS ONE*, v. 8, no. 11, e78092.
14. **Morgan, L.E.**, D.F. Mark, J. Imlach, D.N. Barfod, 2013. FCs-EK: A new sampling of the Fish Canyon tuff $^{40}\text{Ar}/^{39}\text{Ar}$ neutron flux monitor, in: Jourdan, F., Mark, D., and Verati, C. (eds.), *Advances in $^{40}\text{Ar}/^{39}\text{Ar}$ Dating: from Archaeology to Planetary Sciences. Geological Society, London, Special Publications*, 378.
13. Renne, P.R., A.L. Deino, F.J. Hilgen, K.F. Kuiper, D.F. Mark, W.S. Mitchell, **L.E. Morgan**, R. Mundil, J. Smit, 2013. Timescales of critical events around the Cretaceous-Paleogene boundary. *Science*, v. 339, p. 684-687.
12. Schoene, B., D.J. Condon, **L.E. Morgan**, N. McLean, 2013. Precision and accuracy in geochronology. *Elements Magazine*, v.9, no.1, p. 23-28.
11. Renne, P.R., S.R. Mulcahy, W.S. Cassata,, **L.E. Morgan**, S.P. Kelley, L. Hlusko, J. Njau, 2012. Retention of inherited Ar by alkali feldspar xenocrysts in a magma: Kinetic constraints from Ba zoning profiles. *Geochimica et Cosmochimica Acta*, v. 93, p. 129-142.
10. **Morgan, L.E.**, P.R. Renne, R. Galotti, G. Kieffer, M. Piperno, J.-P. Raynal, 2012. A chronological framework for a long and persistent archeological record: Melka Kunture, Ethiopia. *Journal of Human Evolution*, v. 62, no. 1, p. 104-115.
9. Frost, S.R., H.L. Schwartz, L. Giemsch, **L.E. Morgan**, P.R. Renne, M. Wildgoose, C. Saanane, F. Schrenk, K. Harvati, 2012. Refined age estimates and paleoanthropological investigation of the Manyara Beds, Tanzania. *Journal of Anthropological Sciences*, v. 90, p. 151-161.
8. Schwartz, H., P.R. Renne, **L.E. Morgan**, M.M. Wildgoose, P.C. Lippert, S.R. Frost, K. Harvati, F. Schrenk, C. Saanane, 2012. Geochronology of the Manyara Beds, northern Tanzania: stratigraphy and new magnetostratigraphy and $^{40}\text{Ar}/^{39}\text{Ar}$ ages. *Quaternary Geochronology*, v. 7, no. 1, p. 48-66.
7. **Morgan, L.E.**, O. Postma, K.F. Kuiper, D.F. Mark, W. van der Plas, S. Davidson, M. Perkin, I. Villa, J.R. Wijbrans, 2011. A metrological approach to measuring $^{40}\text{Ar}^*$

- concentrations in K-Ar and $^{40}\text{Ar}/^{39}\text{Ar}$ mineral standards, *Geochem. Geophys. Geosyst.*, v. 12, p. A0AA20, doi:10.1029/2011GC003719.
- 6. Renne, P.R., A.L. Deino, W.E. Hames, M.T. Heizler, S.R. Hemming, K.V. Hodges, A.A.P. Koppers, D.F. Mark, **L.E. Morgan**, D. Phillips, B.S. Singer, B.D. Turrin, I.M. Villa, M. Villeneuve and J.R. Wijbrans, 2009. Data reporting norms for $^{40}\text{Ar}/^{39}\text{Ar}$ geochronology. *Quaternary Geochronology*, v. 4, no. 5, p. 346-352.
 - 5. Renne, P.R., W.S. Cassata, and **L.E. Morgan**, 2009. The isotopic composition of atmospheric argon and $^{40}\text{Ar}/^{39}\text{Ar}$ geochronology: time for a change? *Quaternary Geochronology*, v. 4, no. 4, p. 288-298.
 - 4. Renne, P. R., **L.E. Morgan**, G. WoldeGabriel, W.K. Hart, Y. Haile-Selassie, and T.D. White, 2009. $^{40}\text{Ar}/^{39}\text{Ar}$ Ages of the Middle Awash Late Miocene, in: Haile-Selassie, Y., and WoldeGabriel, G. (eds.), *Ardipithecus kadabba: Late Miocene evidence from the Middle Awash, Ethiopia*. University of California Press, Berkeley, CA.
 - 3. **Morgan, L.E.**, P.R. Renne, R.E. Taylor, and G. WoldeGabriel, 2009. Archaeological age constraints from eruption ages of obsidian: Examples from the Middle Awash, Ethiopia. *Quaternary Geochronology*, v. 4, p. 193-203.
 - 2. **Morgan, L.E.** and P.R. Renne, 2008. Diachronous Dawn of Africa's Middle Stone Age: New $^{40}\text{Ar}/^{39}\text{Ar}$ ages from the Ethiopian Rift. *Geology*, v. 36, no. 12, p. 967-970.
 - 1. Gihring, T.M., L.-H. Lin, M. Davidson, T.C. Onstott, **L. Morgan**, M. Milleson, T.L. Kieft, E. Trimarco, D.L. Balkwill, and M.E. Dollhopf, 2006. The Distribution of Microbial Taxa in the Subsurface Water of the Kalahari Shield, South Africa. *Geomicrobiology Journal*, v. 23, p. 415-430.