Dr. Rebecca M. Flowers

Curriculum Vitae

Professor of Geological Sciences, University of Colorado Boulder
Director, CU TRaIL (Thermochronology Research and Instrumentation Lab)

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Professor Rebecca Flowers develops and applies geochronology methods – radiometric dating techniques that can decipher the time records stored in rocks - and combines them with geological observations to address an array of Earth science problems. She and her research team have tackled questions ranging from the origins of the Great Unconformity and the Grand Canyon to the genesis of iron ores and diamond-bearing kimberlites to the impact histories of the Moon and Mars. She established and leads the Thermochronology Research and Instrumentation Lab (TRaIL), which has produced data for >260 scientists and students worldwide and generates thousands of analyses annually. Flowers' lab is innovating new geochronology methods on a variety of minerals, including those used to date, locate, and understand the origin of critical mineral deposits. The lab's instrumentation includes an ASI Alphachron quadrupole He system, an Agilent 7900 quadrupole ICP-MS, an ESI NWR193UC excimer laser, a KLA ZETA-20 optical profiler, and a custom, in-house-built He extraction and measurement system.

EDUCATION

2005	**PhD,** Geology and Geochemistry, Massachusetts Institute of Technology
2000	**MSc,** Geology, University of Utah
1998	**BSc,** Geology, College of William & Mary

PROFESSIONAL EXPERIENCE

2020-present	**Professor**, Dept of Geological Sciences, University of Colorado Boulder
2014-2020	**Associate Professor**, Dept of Geological Sciences, University of Colorado Boulder
2016-2017	**Visiting Professor**, Dept of Geosciences, University of Tübingen, Germany
2007-2014	**Assistant Professor**, Dept of Geological Sciences, University of Colorado Boulder
2005-2007	**Postdoctoral Scholar**, Division of Geological and Planetary Sciences, Caltech

AWARDS AND HONORS

2024	Fellow of the Geological Society of America
2022	Geosphere Exceptional Reviewer
2019	CU ASSETT Faculty Fellow
2018	CU Research & Innovation (RIO) Faculty Fellow
2017-2018	EarthScope Distinguished Speaker
2016-2017	Alexander von Humboldt Research Fellowship
2015-2016	Mineralogical Society of America Distinguished Lecturer
2010-2015	NSF CAREER award
1999-2003	NSF Graduate Research Fellowship

RESEARCH

PUBLICATIONS

denotes *graduate student advisee, **undergraduate student advisee, §postdoc mentee

In Review

94. *Diaz, C.A., **Rollin, S.M., **Flowers, R.M.**, Crow, C.A., Metcalf, J.R., in review, Non-Mercurian origin of ungrouped achondrite NWA 7325 from phosphate (U-Th)/He thermochronology: a test of planetary derivation: *Meteoritics and Planetary Science*.

93. *Peak, B.P. and **Flowers, R.M.,** in review, Detrital zircon double dating reconstructs the missing Grenville foreland and Great Unconformity exhumation: *Tectonics*.

92. Penserini, B.D., Morell, K.D., **Flowers, R.M.,** Yanites, B.J., and Kumar, A., in review, Quaternary slip along the Himalayan crest as a novel driver of drainage capture: *Tectonics*.

Published

91. **Flowers, R.M.** and Arrowsmith, J.R., 2026, Strategic micro-awards train the next generation and grow a cross-disciplinary scientific community: The AGeS program example: *Earth and Space Science*, 13, e2025EA004884, https://doi.org/10.1029/2025EA004884.

90. Metcalf, J.R. and **Flowers, R.M.,** 2026, Technical note: Design, construction, automation, and first-principles calibration of a low volume He measurement line: *Geochronology*, v. 8, p. 447-462, https://doi.org/10.5194/gchron-8-447-2026.

89. *Diaz, C.A., **Flowers, R.M.**, Crow, C.A., Metcalf, J.R., and Economos, R., 2026, Heterogeneous ejection temperatures recorded in a "low-shock" Martian meteorite by (U-Th)/He thermochronology and a high-pressure phosphate polymorph: *Earth and Planetary Science Letters*, v. 679, https://doi.org/10.1016/j.epsl.2026.119826.

88. Crow, C.A. Erickson, T.M., Economos, R., Lehman-Franco, K., Boyce, J.W., Richards, A.M.., *Diaz, C.A., **Flowers, R.M.,** Brounce, M., Schoene, B., and Benowitz, J.A., 2026, Three-body evidence of ca. 3.7 Ga to 3.2 Ga bombardment across the inner solar system: *Geology*, v. 54, no. 8, https://doi.org/10.1130/G54386.1.

87. McDermott, R., Kreiner, D.C., Jones III, J.V., Regan, S.P., Metcalf, J.R., **Flowers, R.M.**, 2026, Integrating detrital magnetite geochemistry and (U-Th)/He chronometry as a sediment provenance tool in geologic and metallogenic terranes: *Chemical Geology*, https://doi.org/10.1016/j.chemgeo.2026.123448.

86. Fuentes, A.J., §Courtney-Davies, L., **Flowers, R.M.,** Zhang, Y., and Swanson-Hysell, N.L., 2026, Reply to the comment by Rasmussen et al., on: Evolution of iron formation to ore during Ediacaran to early Paleozoic tectonic stability: *Earth and Planetary Science Letters*: v. 679, https://doi.org/10.1016/j.epsl.2026.119865.

85. **Flowers, R.M.** and *Peak, B.P., 2025, Context matters: Modeling themochronologic data in geologic frameworks using the Great Unconformity as a case study: *Earth and Planetary Science Letters-Frontiers Article,* https://doi.org/10.1016/j.epsl.2024.119061.

84. *Zeigler, S.D., **Flowers, R.M.,** Pearson, D.G., §Courtney-Davies, L., Kjarsgaard, B.A, Richardson, S.H., **Berkhahn, K., Metcalf, J.R., and Cabral-Neto, I., 2025, Paired megacrystic zircon (U-Th)/He and U/Pb dating reveals kimberlite eruption ages, protracted emplacement histories, and

insights into megacryst genesis: *Chemical Geology*, https://doi.org/10.1016/j.chemgeo.2025.123033.

83. Fuentes, A.J., §Courtney-Davies, L., **Flowers, R.M.,** Zhang, Y., and Swanson-Hysell, N.L., 2025, Evolution of iron formation to ore during Ediacaran to early Paleozoic tectonic stability: *Earth and Planetary Science Letters,* v. 671, https://doi.org/10.1016/j.epsl.2025.119621.

82. Mahan, K.H., Condit, C.B., **Flowers, R.M.,** §Courtney-Davies, L., Bridges, J., and Godana, K., 2025, Late-stage dextral transpression in the Paleoproterozoic Big Sky Orogen of southwestern Montana: Implications for shear zone heterogeneity and evolution of the northern Wyoming craton: *Journal of the Geological Society*, https://doi.org/10.1144/jgs2024-252.

81. §Courtney-Davies, L., **Flowers, R.M.,** Siddoway, C.S., Tasistro-Hart, A., and Macdonald, F.A., 2024, Hematite U-Pb dating of Snowball Earth meltwater events: *Proceedings of the National Academy of Sciences*, v. 127 (47), https://doi.org/10.1073/pnas.2410759121.

80. *Zeigler, S.D., *Baker, M., Metcalf, J.R., and **Flowers, R.M.,** 2024, The Geometric Correction Method for zircon (U-Th)/He chronology: Correcting for systematic error and assigning uncertainties to alpha-ejection corrections and eU concentrations: *Geochronology*, v. 6, 199–226, https://doi.org/10.5194/gchron-6-199-2024.

79. **Kainz, S.J., Abbott, L.D., **Flowers, R.M.,** Olsson, A., Fernandez, S., and Metcalf, J.R., 2024, Cenozoic exhumation across the High Plains of southeastern Colorado from (U-Th)/He thermochronology: *Lithosphere*, https://doi.org/10.2113/2023/lithosphere_2023_310.

78. *Sturrock, C.P., **Flowers, R.M.,** Kohn, B.P., and Metcalf, J.R., 2024, Phanerozoic burial and erosion history of the southern Canadian Shield from (U-Th)/He thermochronology: *Minerals*, v. 14, 57, https://doi.org/10.3390/min14010057.

77. Apen, F.E., Rudnick, R.L., **Flowers, R.M.,** Gaynor, S.P., and Cottle, J.M., 2024, Metasomatism of the Wyoming craton lower crust during the Laramide orogeny: Extending the record of lithosphere hydration across western North America: *Earth and Planetary Science Letters,* v. 641*,* https://doi.org/10.1016/j.epsl.2024.118832.

76. **Flowers, R.M.,** Zeitler, P.K., Danišík, M., Reiners, P.W., Gautheron, C., Ketcham, R.A., Metcalf, J.R., Stockli, D.F., Enkelmann, E., and Brown, R.W., 2023, (U-Th)/He chronology: Part 1. Data, uncertainty, and reporting: *Geological Society of America Bulletin* special volume on the *Reporting and Interpretation of Geochronologic data,* v. 135 (1-2), p. 104–136, https://doi.org/10.1130/B36266.1.

75. **Flowers, R.M.,** Ketcham, R.A., Enkelmann, E., Gautheron, C., Reiners, P.W., Metcalf, J.R., Danišík, M., Stockli, D.F., and Brown, R.W., 2023, (U-Th)/He chronology: Part 2. Considerations for evaluating, integrating, and interpreting conventional individual aliquot data: *Geological Society of America Bulletin* special volume on the *Reporting and Interpretation of Geochronologic data*, v. 135 (1-2), p. 137–161, https://doi.org/10.1130/B36268.1.

74. *Peak, B.P., **Flowers, R.M.,** Macdonald, F.A., 2023, Ediacaran-Ordovician tectonic and geodynamic drivers of Great Unconformity exhumation on the southern Canadian shield: *Earth and Planetary Science Letters*, v. 619, https://doi.org/10.1016/j.epsl.2023.118334.

73. *Zeigler, S.D., Metcalf, J.R., and **Flowers, R.M.,** 2023, A practical method for assigning uncertainty and improving the accuracy of alpha-ejection corrections and eU concentrations in

apatite (U-Th)/He chronology: *Geochronology*, v. 5, p. 197-228, https://doi.org/10.5194/gchron-5-197-2023.

72. §Martin, P.E., Metcalf, J.R., and **Flowers, R.M.,** 2023, Calculation of uncertainty in the (U-Th)/He system: *Geochronology*: v. 5, p. 91-107, https://doi.org/10.5194/gchron-5-91-2023.

71. §Martin, P.E., Macdonald, F.A., McQuarrie, N., **Flowers, R.M.**, and Maffre, P.J.Y., 2023, The rise of New Guinea and the fall of Neogene global temperatures: *Proceedings of the National Academy of Sciences,* https://doi.org/10.1073/pnas.2306492120.

70. Stanley, J.R. and **Flowers, R.M.,** 2023, Localized Cenozoic erosion on the southern African Plateau: A signal of topographic uplift?: *Geology*, v. 51, p. 549-553, https://doi.org/10.1130/G50790.1.

69. Macdonald, F.A., Yonkee, W.A., **Flowers, R.M.,** and Swanson-Hysell, N.L., 2023, Neoproterozoic of Laurentia, *in* Whitmeyer, S.J., Williams, M.L., Kellett, D.A., and Tikoff, B., eds., Laurentia: Turning Points in the Evolution of a Continent: Geological Society of America Memoir 220, p. 331–380, https://doi.org/10.1130/2022.1220(19).

68. Lamont, E.A., Sousa, F.J., Meigs, A.J., Jayangondaperumal, R., **Flowers, R.M.,** Anilkumar, A., Woodring, D., and Sobel, E.R., 2023, Accretion of the NW Himalayan foreland pre-dates Late Cenozoic climate change: Terra Nova, v. 35, p. 41-48, http://doi.org/10.1111/ter.12627.

67. **Flowers, R.M.** and Arrowsmith, J.R., 2022, AGeS^3: Micro-funding an inclusive community grassroots effort to better understand the Earth system: *GSA* Today, Groundwork article, v. 32 (12), p. 52-53, https://doi.org/10.1130/GSATG549GW.1.

66. **Flowers, R.M.,** Ketcham, R.A., Macdonald, F.A., Siddoway, C.S., Havranek, R.E., 2022, Existing thermochronologic data do not constrain Snowball glacial erosion below the Great Unconformities: *Proceedings of the National Academy of Sciences*, Letter to the Editor, v. 119, No. 38, https://doi.org/10.1073/pnas.2208451119.

65. *Havranek, R.E. and **Flowers, R.M.**, 2022, Zircon (U-Th)/He data for the Colorado Front Range "fourteeners" and testing Cryogenian exhumation of sub-Great Unconformity basement: *Chemical Geology*, v. 591, https://doi.org/10.1016/j.chemgeo.2021.120702.

64. *Peak, B.A., **Flowers, R.M.**, Macdonald, F.A., and Cottle, J.M., 2022, Forum, Reply to Comment on: Zircon (U-Th)/He thermochronology reveals pre-Great Unconformity paleotopography in the Grand Canyon region: Geology, 50 (3): e544, https://doi.org/10.1130/G49965Y.1.

63. Abbott, L.D., **Flowers, R.M.,** Metcalf, J., Falkowski, S., and Niazy, F., 2022, Post-Laramide, Eocene epeirogeny in Colorado – The result of a mantle drip?: *Geosphere*, https://doi.org/10.1130/GES02434.1.

62. Pu, J.P., Macdonald, F.A., Schmitz, M.D., Rainbird, R.H., Bleeker, W., Peak, B.A., **Flowers, R.M.,** Hoffman, P.F., Rioux, M., and Hamilton, M.A., 2022, Emplacement of the Franklin large igneous province and initiation of the Sturtian Snowball Earth: *Science Advances,* v.8, doi:10.1126/sciadv.adc9430.

61. *Peak, B.A., **Flowers, R.M.**, Macdonald, F.A., and Cottle, J.M., 2021, Zircon (U-Th)/He thermochronology reveals pre-Great Unconformity paleotopography in the Grand Canyon region: *Geology*, v. 49, https://doi.org/10.1130/G49116.1.

60. *Sturrock, C.P., **Flowers, R.M.,** and Macdonald, F.A., 2021, The late Great Unconformity of the central Canadian Shield: *Geochem. Geophys. Geosyst.,* https://doi.org/10.1029/2020GC009567.

59. Metcalf, J.R. and **Flowers, R.M.,** 2021, (U-Th)/He Chronology, *Encyclopedia of Geology*, 2nd Edition, p. 66-75, https://doi.org/10.1016/B978-0-12-409548-9.12385-1.

58. Stanley, J.R., Braun, J., Baby, G., Guillocheau, F., Robin, C., **Flowers, R.M.**, Brown, R., Wildman, M., Beucher, R., 2021, Constraining plateau uplift in southern Africa by combining thermochronology, sediment flux, topography, and landscape evolution modeling: *Journal of Geophysical Research: Solid Earth, 126,* e2020JB021243, https://doi.org/10.1029/2020JB021243.

57. **Flowers, R.M.,** Macdonald, F.A., Siddoway, C.S., and *Havranek, R., 2020, Diachronous development of Great Unconformities before Neoproterozoic Snowball Earth: *Proceedings of the National Academy of Sciences,* v. 117 (19), www.pnas.org/cgi/doi/10.1073/pnas.1913131117.

56. *Baughman, J.S. and **Flowers, R.M.**, 2020, Mesoproterozoic burial of the Kaapvaal craton, southern Africa during Rodinia supercontinent assembly from (U-Th)/He thermochronology: *Earth and Planetary Science Letters*, v. 531, https://doi.org/10.1016/j.epsl.2019.115930.

55. *Stanley, J.R. and **Flowers, R.M.,** 2020, Mesozoic denudational history of the lower Orange River and eastward migration of erosion across the southern African Plateau: *Lithosphere*, https://doi.org/10.1130/L1121.1.

54. McDannell, K.T. and **Flowers, R.M.**, 2020, Vestiges of the ancient: Deep-time noble gas thermochronology: *Elements* issue "Noble gas thermochronology", v. 16 (5), p. 325-330, https://doi.org/10.2138/gselements.16.5.325.

53. Duvall, A.R., Harbert, S.A., Upton, P., Tucker, G., Flowers, R.M., and Collett, C., 2020, River patterns reveal two stages of landscape evolution at an oblique convergent margin, Marlborough Fault System, New Zealand: *Earth Surface Dynamics*, v. 8, p. 177-194, https://doi.org/10.5194/esurf-8-177-2020.

52. *Robinson, K.H., **Flowers, R.M.,** and Metcalf, J.R., 2019, Rutile (U-Th)/He thermochronology: Temperature sensitivity and radiation damage effects: *Geochem. Geophys. Geosyst.* 20, https://doi.org/10.1029/2019GC008484.

51. Collett, C., Duvall, A.R., **Flowers, R.M.,** Tucker, G.E., and Upton, P., 2019, The timing and style of oblique deformation within New Zealand's Kaikoura Ranges and Marlborough Fault system from low-temperature thermochronology: *Tectonics,* v. 38, p. 1250-1272, https://doi.org/10.1029/2018TC005268.

50. **Flowers, R.M.** and Ehlers, T.E., 2018, Influence of rock erodibility on the interpretation of thermochronologic data: *Earth and Planetary Science Letters*, v. 482, p. 312-323, https://doi.org: 10.1016/j.epsl.2017.11.018.

49. **Flowers, R.M.,** Arrowsmith, R., McConnell, V., Metcalf, J.R., Rittenour, T., and Schoene, B.S. 2018, The AGeS2 (Awards for Geochronology Student research) Program: Supporting community geochronology needs and interdisciplinary science: *GSA Today, Groundwork article*, v. 29, p. 36-37, https://doi.org/10.1130/GSATG392GW.1.

48. *Baughman, J.S. and **Flowers, R.M.,** 2018, Deciphering a 2 Gyr-long thermal history from a multichronometer (U-Th)/He study of the Phalaborwa carbonatite, South Africa: *Geochem. Geophys. Geosyst.*, v. 19, https://doi.org/10.1029/2017GC007198.

47. §Kelly, N.M., **Flowers, R.M.,** Metcalf, J.R., and Mojzsis, S.J., 2018, Late accretion to the Moon recorded in zircon (U-Th)/He thermochronometry: *Earth and Planetary Science Letters,* v. 482, p. 222-235, https://doi.org/10.1016/j.epsl.2017.11.009.

46. **Weisberg, W.R., Metcalf, J.R., **Flowers, R.M.,** 2018, Response to comment on "Distinguishing slow cooling versus multiphase cooling and heating in zircon and apatite (U-Th)/He datasets: the case of the McClure Mountain syenite standard": *Chemical Geology*, v. 498, p. 153-156, https://doi.org/10.1016/j.chemgeo.2018.07.033.

45. **Weisberg, W.R., Metcalf, J.R., **Flowers, R.M.,** 2018, Distinguishing slow cooling versus multiphase cooling and heating in zircon and apatite (U-Th)/He datasets: the case of the McClure Mountain syenite standard: *Chemical Geology*, v. 485, p. 90-99, https://doi.org/10.1016/j.chemgeo.2018.03.038.

44. Powell, J., Schneider, D., Desrochers, A., **Flowers, R.M.,** Metcalf, J.R., Gaidies, F., and Stockli, D.F., 2018, Low-temperature thermochronology of Anticosti Island: A case study on the application of conodont (U-Th)/He thermochronology to carbonate basin analysis: *Marine and Petroleum Geology*, v. 96, p. 441-456, https://doi.org/10.1016/j.marpetgeo.2018.05.018.

43. *Baughman, J.S., **Flowers, R.M.,** Metcalf, J.R., and Dhansay, T., 2017, Influence of radiation damage on titanite He diffusion kinetics: Geochimica et Cosmochimica Acta, v. 205, p. 50-64, https://doi.org/10.1016/j.gca.2017.01.049.

42. *Johnson, J.E., **Flowers, R.M.,** Baird, G.B., and Mahan, K.H., 2017, "Inverted" zircon and apatite (U-Th)/He dates from the Front Range, Colorado: High-damage zircon as a low temperature (<50°C) thermochronometer: *Earth and Planetary Science Letters*, v. 466, p. 80-90, https://doi.org/10.1016/j.epsl.2017.03.002.

41. **Flowers, R.M.,** Farley, K.A., and Ketcham, R.A., 2016, Response to comment on: "A reporting protocol for thermochronologic modeling illustrated with data from the Grand Canyon": *Earth and Planetary Science Letters,* v. 441, p. 213, https://doi.org/10.1016/j.epsl.2016.02.024.

40. *Landman, R.L., **Flowers, R.M.,** Rosenau, N.A., and Powell, J., 2016, Conodont (U-Th)/He thermochronology: A case study from the Illinois Basin: *Earth and Planetary Science Letters*, v. 56, p. 55-65, https://doi.org/10.1016/j.epsl.2016.10.003.

39. *Stanley, J.R. and **Flowers, R.M.,** 2016, Dating kimberlite emplacement with zircon and perovskite (U-Th)/He geochronology: *Geochem. Geophys. Geosyst.* doi: 10.1002/2016GC006519, v. 17, p. 4517-4533, https://doi.org/10.1002/2016GC006519.

38. **Flowers, R.M.,** Farley, K.A., and Ketcham, R.A., 2015, A reporting protocol for thermochronologic modeling illustrated with data from the Grand Canyon: *Earth and Planetary Science Letters,* v. 432, p. 425-435, https://doi.org/10.1016/j.epsl.2015.09.053.

37. *Ault, A.K., **Flowers, R.M.,** and Bowring, S.A., 2015, Synchroneity of cratonic burial phases and gaps in the kimberlite record: Episodic magmatism or preservational bias?: *Earth and Planetary Science Letters,* v. 410, p. 97-104, https://doi.org/10.1016/j.epsl.2014.11.017.

36. *Stanley, J.R., **Flowers, R.M.,** and Bell, D.R., 2015, Erosion patterns and mantle sources of topographic change across the southern African Plateau derived from the shallow and deep records of kimberlites, *Geochem. Geophys. Geosyst.* v. 16, p. 3235-3256, doi:10.1002/2015GC005969, https://doi.org/10.1002/2015GC005969.

35. Condit, C.B., Mahan, K.H., Ault, A.K., and **Flowers, R.M.,** 2015, Foreland-directed propagation of high-grade tectonism in the deep roots of a Paleoproterozoic collisional orogen, SW Montana, USA: *Lithosphere*, https://doi.org/10.1130/L460.1.

34. **Flowers, R.M.**, 2014, News & Views, Geomorphology: Tales of Topography: Nature Geoscience, v. 7, p. 483-485, https://doi.org/10.1038/ngeo2177.

33. **Flowers, R.M.** and Farley, K.A., 2013, Response to Comments on "Apatite $^{4}He/^{3}He$ and (U-Th)/He evidence for an ancient Grand Canyon: *Science*, v. 340, p. 143-c, https://doi.org/10.1126/science.1234203.

32. *Ault, A.K., **Flowers, R.M.,** and Bowring, S.A., 2013, Phanerozoic surface history of the Slave craton: *Tectonics*, v. 32, p. 1-18, https://doi.org/10.1002/tect.20069.

31. *Landman, R.L. and **Flowers, R.M.,** 2013, (U-Th)/He thermochronologic constraints on the evolution of the northern Rio Grande rift, Gore Range, Colorado and implications for rift propagation models: *Geosphere*, v. 9, p. 170-187, https://doi.org/10.1130/GES00826.1.

30. *Stanley, J.R., **Flowers, R.M.,** and Bell, D.R., 2013, Kimberlite (U-Th)/He dating links surface erosion with lithospheric heating, thinning, and metasomatism in the southern African Plateau: *Geology*, v. 14, p. 1243-1246, doi:10.1130/G34797.1, https://doi.org/10.1130/G34797.1.

29. **Flowers, R.M.** and Farley, K.A., 2012, Apatite $^{4}He/^{3}He$ and (U-Th)/He evidence for an ancient Grand Canyon, *Science*, v. 338, p. 1616-1619, https://doi.org/10.1126/science.1229390.

28. **Flowers, R.M.,** *Ault, A.K., Kelley, S.A., Zhang, N., and Zhong, S., 2012, Epeirogeny or eustasy? Paleozoic-Mesozoic vertical motion of the North American continental interior from thermochronometry and implications for mantle dynamics: *Earth and Planetary Science Letters*, v. 317-318, p. 436-445, https://doi.org/10.1016/j.epsl.2011.11.015.

27. *Ault, A.K. and **Flowers, R.M.,** 2012, Is apatite U-Th zonation information necessary for accurate interpretation of apatite (U-Th)/He thermochronometry data?: *Geochimica et Cosmochimica Acta*, v. 79, p. 60-78, https://doi.org/10.1016/j.gca.2011.11.037.

26. *Ault, A.K., **Flowers, R.M.,** and Mahan, K.H., 2012, Quartz shielding of sub-10 um zircons from radiation damage-enhanced Pb loss: an example from a metamorphosed mafic dike, northwestern Wyoming craton: *Earth and Planetary Science Letters*, v. 339-340, p. 57-66, https://doi.org/10.1016/j.epsl.2012.04.025.

25. Farley, K.A. and **Flowers, R.M.,** 2012, (U-Th)/Ne and multidomain (U-Th)/He systematics of a hydrothermal hematite from eastern Grand Canyon: *Earth and Planetary Science Letters,* v. 359-360, p. 131-140, https://doi.org/10.1016/j.epsl.2012.10.010.

24. Moser, D.E., Cupelli, C.L., Barker, I., **Flowers, R.M.,** Bowman, J.R, Wooden, J., and Hart, R.J., 2012, Reply to the discussion by Rajesh and Knoper on "New shock phenomena for dating and reconstruction of large impact basins revealed by zircon microstructural (EBSD, CL), U-Pb and

(U-Th)/He analysis of the Vredefort dome": *Canadian Journal of Earth Sciences*,v. 49, p. 863-864, https://doi.org/10.1139/e2012-014.

23. Zhang, N., Zhong, S., and **Flowers, R.M.,** 2012, Predicting and testing continental vertical motion histories since the Paleozoic: *Earth and Planetary Science Letters*, v. 317-318, p. 426-435, https://doi.org/10.1016/j.epsl.2011.10.041.

22. **Flowers, R.M.** and Kelley, S.A., 2011, Interpreting data dispersion and "inverted" dates in apatite (U-Th)/He and fission-track datasets: An example from the U.S. midcontinent: *Geochimica et Cosmochimica Acta,* v. 75, p. 5169-5186, https://doi.org/10.1016/j.gca.2011.06.016.

21. Moser, D.E., Cupelli, C.L., Barker, I., **Flowers, R.M.,** Bowman, J.R, Wooden, J., and Hart, R.J., 2011, New shock phenomena for dating and reconstruction of large impact basins revealed by zircon microstructural (EBSD, CL), U-Pb and (U-Th)/He analysis of the Vredefort dome: *Canadian Journal of Earth Sciences*, Special Issue on the theme of *Geochronology* in honor of Tom Krogh, v. 48, p. 117-139, https://doi.org/10.1139/E11-011.

20. **Flowers, R.M.** and Schoene, B., 2010, (U-Th)/He thermochronometry constraints on unroofing of the eastern Kaapvaal craton and significance for uplift of the southern African Plateau: *Geology*, v. 38, p. 827-830, https://doi.org/10.1130/G30980.1.

19. **Flowers, R.M.,** 2010, The enigmatic rise of the Colorado Plateau, Research Focus: *Geology*, v. 38, p. 671-672, https://doi.org/10.1130/focus072010.1.

18. **Flowers, R.M.,** Schmitt, A., and Grove, M., 2010, Decoupling of U-Pb dates from chemical and crystallographic domains in granulite-facies zircon: *Chemical Geology*, v. 270, p. 20-30, https://doi.org/10.1016/j.chemgeo.2009.11.002.

17. **Flowers, R.M.,** 2009, Exploiting radiation damage control on apatite (U-Th)/He dates in cratonic regions: *Earth and Planetary Science Letters,* v. 277, p. 148-155, https://doi.org/10.1016/j.epsl.2008.10.005.

16. **Flowers, R.M.,** Ketcham, R.A., Shuster, D.L., and Farley, K.A., 2009, Apatite (U-Th)/He thermochronometry using a radiation damage accumulation and annealing model: *Geochimica et Cosmochimica Acta*, v. 73, p. 2347-2365, https://doi.org/10.1016/j.gca.2009.01.015.

15. *Ault, A.K., **Flowers, R.M.,** and Bowring, S.A., 2009, Phanerozoic burial and unroofing history of the western Slave craton and Wopmay orogen from apatite (U-Th)/He thermochronometry, *Earth and Planetary Science Letters*, v. 284, p. 1-11, https://doi.org/10.1016/j.epsl.2009.02.035.

14. **Flowers, R.M.,** Bowring, S.A., Mahan, K.H., Williams, M.L., and Williams, I.S., 2008, Stabilization and reactivation of cratonic lithosphere from the lower crustal record in the western Canadian shield: C*ontributions to Mineralogy and Petrology*, v. 156, p. 529-549, https://doi.org/10.1007/s00410-008-0301-5.

13. **Flowers, R.M.**, Wernicke, B.P., and Farley, K.A., 2008, Unroofing, incision and uplift history of the southwestern Colorado Plateau from apatite (U-Th)/He thermochronometry: *GSA Bulletin*, v. 120, p. 571-587, https://doi.org/10.1130/B26231.1.

12. Mahan, K.H., Goncalves, P., **Flowers, R.,** Williams, M.L., and Hoffman-Setka, D., 2008, The role of heterogeneous strain in the development and preservation of a polymetamorphic record in high-P

granulites, western Canadian shield: *Journal of Metamorphic Geology,* v. 26, p. 669-694, https://doi.org/10.1111/j.1525-1314.2008.00783.x.

11. **Flowers, R.M.,** Shuster, D.L., Wernicke, B.P., and Farley, K.A., 2007, Radiation damage control on apatite (U-Th)/He dates from the Grand Canyon region, Colorado Plateau: *Geology*, v. 35, p. 447-450, https://doi.org/10.1130/G23471A.1.

10. **Flowers, R.M.,** Bowring, S.A., and Reiners, P.W., 2006, Low long-term erosion rates and extreme continental stability documented by ancient (U-Th)/He dates: *Geology*, v. 34, p. 925-928, https://doi.org/10.1130/G22670A.1.

9. **Flowers, R.M.,** Bowring, S.A., and Williams, M.L., 2006, Timescales of high-pressure, high-temperature metamorphism and mafic dike anatexis, Snowbird tectonic zone, Canada: *Contributions to Mineralogy and Petrology*, v. 151, p. 558-581, https://doi.org/10.1007/s00410-006-0066-7.

8. **Flowers, R.M.,** Mahan, K.H., Bowring, S.A., Williams, M.L., Pringle, M.S., and Hodges, K.V., 2006, Multistage exhumation and juxtaposition of lower continental crust in the western Canadian Shield: Linking high-resolution U-Pb and $^{40}Ar/^{39}Ar$ thermochronometry with P-T-D paths: *Tectonics*, 25, https://doi.org/10.1029/2005TC001912.

7. Mahan, K.H., Williams, M.L., **Flowers, R.M.,** Jercinovic, M.J., Baldwin, J.A., and Bowring, S.A., 2006, Geochronological constraints on the Legs Lake shear zone with implications for regional exhumation of lower crust, western Churchill Province, Canadian Shield, Canada: *Contributions to Mineralogy and Petrology*, v. 152, p. 223-242, https://doi.org/10.1007/s00410-006-0106-3.

6. Shuster, D.L., **Flowers, R.M.**, and Farley, K.A., 2006, The influence of natural radiation damage on helium diffusion kinetics in apatite: *Earth and Planetary Science Letters*, v. 249, p. 148-161, https://doi.org/10.1016/j.epsl.2006.07.028.

5. **Flowers, R.M.,** Bowring, S.A., Tulloch, A.J., and Klepeis, K.A., 2005, Tempo of burial and exhumation within the deep roots of a magmatic arc, Fiordland, New Zealand: *Geology*, v. 33, p. 17-20, https://doi.org/10.1130/G21010.1.

4. **Flowers, R.M.,** Royden, L.H., and Bowring, S.A., 2005, Isostatic constraints on lithospheric thermal evolution: Application to the Proterozoic orogen of the southwestern United States, *in* Karlstrom, K.E. and Keller, R.G., eds., The Rocky Mountain region – An evolving lithosphere: Tectonics, geochemistry and geophysics: *American Geophysical Union Monograph 154,* p. 125-138, https://doi.org/10.1029/154GM10.

3. **Flowers, R.M.,** Royden, L.H., and Bowring, S.A., 2004, Isostatic constraints on the assembly, stabilization, and preservation of cratonic lithosphere: *Geology*, v. 32, p. 321-324, https://doi.org/10.1130/G20177.2.

2. **Flowers, R.M.,** Moser, D.E. and Hart, R.J., 2003, Evolution of the amphibolite- granulite facies transition exposed by the Vredefort impact structure, Kaapvaal Craton, South Africa: *Journal of Geology*, v. 111, p. 455-470, https://doi.org/10.1086/375282.

1. Moser, D.E., **Flowers, R.M.** and Hart, R.J., 2001, Birth of the Kaapvaal tectosphere 3.08 billion years ago: *Science*, v. 291, p. 465-468, https://doi.org/10.1126/science.291.5503.465.

Other Publications

2. **Flowers, R.M.,** Arrowsmith, R., Metcalf, J.R., Rittenour, T., and Schoene, B.S., 2014, New EarthScope Geochronology Graduate Student Research and Training Program, *inSights the EarthScope Newsletter,* Fall 2014, p. 3.
1. **Flowers, R.M.,** 2009, Pushing back the Age of the Grand Canyon: *OUTCROP*, Newsletter of the Rocky Mountain Association of Geologists, v. 58, no. 9, p. 8, 12-13.

GRANT FUNDING

External Grant Funding

Pending

EDMAP, The Educational Component of the National Cooperative Geologic Mapping Program, Mapping and data synthesis of Cryogenian sandstone (quartzite) injectites in Boulder and Grand Counties, Colorado, **co-PI** (lead PI: K. Mahan), **$69,174** requested, 08/2026-08/2028.

NASA Solar System Science, (U-Th)/He Chronology of Apollo Zircons to Elucidate the Cryptic Late Impact Flux of the Moon and Lunar-Material Provenance, **lead PI** (co-PI: C. Crow), **$443,477** requested for CU, 11/01/26-10/31/29.

Active

27. **NSF Tectonics,** EAR-2333105, "Collaborative Research: Development of topography in the northern Sierra Nevada: Reconciling differences in uplift history and causes through multi-source thermochronologic data", co-PI (lead PI: E. Cassel; co-PI: R. Cecil), **$386,491 to CU***,* 8/15/24-8/14/27.

26. **NSF Instrumentation and Facilities,** EAR-2311978, "Advancing and Broadening Access to Laser-Ablation (U-Th)/He Thermochronology", **lead PI** (co-PI: J. Metcalf), **$865,370** to CU, 07/15/2023- 06/30/2028.

Past

25. **NASA Solar System Workings**, "Collaborative Research: Building a Global Record of Lunar Magmatism and Impact Processes: A Consortium Study of Apollo Regolith Apatite," **co-PI** (lead PI: C. Crow; co-PIs: J. Boyce, M. Brounce, R. Economos, B. Schoene), **$192,651** to Flowers, 1/1/20-12/31/23.

24. **NSF Petrology & Geochemistry, Geophysics,** EAR-1844182, "Deciphering lithospheric and deeper mantle contributions to the surface history of the North American Arctic from the unique mantle to surface record of kimberlites", **lead PI** (co-PI: S. Zhong), **$388,842 to CU**, 7/1/19-6/30/22.

23. **NSF Frontier Research in Earth Sciences**, EAR-2218547, "Collaborative Research: Human Infrastructure for a National Geochronology Consortium: Micro-funding an inclusive community grassroots effort to better understand the Earth system", **lead PI** (co-PIs: R. Arrowsmith, L. Arthurs, V. McConnell), **$528,702 to CU**; **$2,485,259** total consisting mostly of funds to support three micro-award programs, 8/1/22-7/31/27. Terminated on 4/25/25 during U.S. federal transition.

22. **NSF Geobiology & Low Temperature Geochemistry**, EAR-2203532, "Collaborative Research: EAGER: Developing new high spatial resolution hematite (U-Th)/(He-Pb) double dating techniques to date ancient oxidation," **co-PI** (lead-PI: P. Martin; co-PI: N. Swanson-Hysell), **$80,155** to CU, 12/1/21-11/30/22.

21. **NSF Sedimentary Geology & Paleobiology,** EAR-1822119, "Collaborative Research: Did the formation of the Great Unconformity trigger oxygenation and the Cambrian explosion?", **lead PI**

(co-PI: F. Macdonald), **$229,950 to CU,** 9/1/18-8/31/20.

20. **NSF Instrumentation & Facilities,** EAR-1920648, "Acquisition of a 193 nm excimer laser-ablation system, hardware for a custom quadrupole He system, and an optical profiler for in situ (U-Th)/He and U-Pb geo- and thermochronology at the University of Colorado Boulder", **lead PI** (co-PI: J. Metcalf), **$499,562 to CU,** 9/1/19-2/28/22.

19. **NSF Frontier Research in Earth Sciences**, EAR-1925489, "Collaborative Research: Do arc-continent collisions in the tropics set the Earth's climate state?", **co-PI** (lead PI: F. Macdonald; co-PIs: J. Chiang, O. Jagoutz, L. Lisiecki, N. Swanson-Hysell), **$279,152 to CU,** 8/1/19-7/31/22.

18. **NSF Instrumentation & Facilities,** Supplement to "Acquisition of a 193 nm excimer laser-ablation system, hardware for a custom quadrupole He system, and an optical profiler for in situ (U-Th)/He and U-Pb geo- and thermochronology at the University of Colorado Boulder", **lead PI** (co-PI J. Metcalf), **$68,695** supplement, 9/1/21-8/31/22.

17. **NSF Tectonics, Petrology & Geochemistry,** EAR-1759200, "Collaborative Research: AGeS2 (Awards for Geochronology Student research) Program: Democratizing access to geochronology and promoting interdisciplinary science", **lead PI** (co-PIs: R. Arrowsmith, V. McConnell), **$94,964 to CU**; $850,400 total consisting mostly of student award funds, 9/1/18-7/31/21.

16. **NSF Tectonics Program,** EAR-1450181, "Hypsometric history of the North American continental interior and implications for mantle dynamics", **lead PI** (with co-PI S. Zhong), **$296,833**, 8/1/15-7/31/18.

15. **NSF Instrumentation and Facilities Program,** EAR-1559306, "Acquisition of a quadrupole ICPMS system for (U-Th)/He thermochronology and trace element analysis at the University of Colorado Boulder", **lead PI** (with co-PI J. Metcalf), **$183,646,** 8/1/16-7/31/18.

14. **NSF EarthScope,** Supplement to "Collaborative Research: Earthscope geochronology: A student research and training program and EarthScope Institute", **lead PI** (co-PIs R. Arrowsmith, J. Metcalf, T. Rittenour, B. Schoene), **$69,681** supplement ($11,369 to CU), 8/1/17-7/31/18.

13. **Alexander von Humboldt Fellowship for Experienced Researchers,** "Influence of rock strength variations on the exhumation history of cratons", **sole PI, $39,550 EUR,** 7/10/16-7/9/17.

12. **NSF EarthScope Program,** EAR-1358514, "Collaborative Research: Earthscope geochronology: A student research and training program and EarthScope Institute", **lead PI** (co-PIs R. Arrowsmith, J. Metcalf, T. Rittenour, B. Schoene), **$348,407** ($56,845 to CU), 8/1/14-7/31/17.

11. **NASA Cosmochemistry Program,** NNX14AG31G, "Coupled U-Pb and (U-Th)/He geochronology of lunar zircons", **co-PI** (with lead PI S. Mojzsis and co-PI J. Metcalf), **$390,001,** 1/1/14-12/31/16.

10. **NSF CIDER program,** funds to convene workshop in spring 2015 entitled "Integrating Dynamic Topography with Surface and Geological Processes" in Boulder, CO, with Shijie Zhong and Thorsten Becker, **$18,750,** 2014-2015.

9. **ACS Petroleum Research Fund, New Directions Grant 53526-ND8,** "Quantitative constraints on thermal histories in carbonates and marine shales: Conodont (U-Th)/He thermochronometry", **sole PI, $100,000,** 6/1/13-8/31/15.

8. **NSF Tectonics Program,** EAR-1321735, "Collaborative Research: Tracing the geomorphic signature of strike-slip faulting in Marlborough Hill Country, South Island, NZ", **co-PI** (with lead PI A. Duvall and co-PI G. Tucker), **$419,519,** 9/1/13-8/31/17, with no-cost extension.

7. **NSF Instrumentation and Facilities Program,** EAR-1126991, "Early Career: Acquisition of a He system for (U-Th)/He thermochronology at the University of Colorado, Boulder", **sole PI, $320,000,** 9/15/11-8/31/15.

6. **NSF Directorate for Education and Human Resources,** Enhanced Experience Supplement to "CAREER: Evolution of the southern African Plateau using advances in (U-Th)/He thermochronometry, and enhancing student critical thinking in science", **sole PI, $35,000**, 6/15/16-7/31/17.

5. **NSF Tectonics Program,** EAR-0951518, "CAREER: Evolution of the southern African Plateau using advances in (U-Th)/He thermochronometry, and enhancing student critical thinking in science", **sole PI, $531,933**, 6/15/10-6/14/15.

4. **ACS Petroleum Research Fund, New Investigator Grant 47476-G8,** "Evolution of the Rio Grande Rift in the heart of the southern Rockies: Cooling and unroofing history of the Gore Range, Colorado", **sole PI, $50,000,** 3/1/08-2/28/10

3. **NSF Tectonics Program,** EAR-071145, "Quantifying the stability of continents using advances in apatite (U-Th)/He, $^{4}He/^{3}He$ and U/Pb thermochronometry", **sole PI, $193,144,** 9/1/07-8/31/12.

Internal Grant Funding

Past

2. **CU College of Arts & Sciences Renovation Fund Award,** CU TRaIL (U-Th)/He lab renovation**, lead faculty member** (with J. Metcalf), $99,863, 1/1/20-12/31/20.

1. **CU Renovation and Infrastructure Improvement Award** (U-Th)/He lab renovation, **lead faculty member** (with J. Metcalf)**, $62,688,** 8/1/16-7/31/17

INVITED TALKS

Invited Talks in Departmental Seminars

2026 University of Wyoming, Dept of Geology and Geophysics
2025 University of Colorado Boulder, Geology Club
University of Colorado Boulder, Alumni Advisory Board, Dept of Geological Sciences
2023 Colby College, Geology Dept, virtual
2021 Stony Brook University, Dept of Geosciences, virtual
East Carolina University, Dept of Geology, virtual
University of Texas at Arlington, Dept of Earth and Environmental Sciences, virtual
2020 University of California Santa Barbara, Dept of Earth Science
2019 Utah State University, Geology Dept - Forster Lecturer selected by graduate students (two talks)
2018 Yale University, Dept of Geology & Geophysics
College of William & Mary, Geology Dept, 100 years of Women Geoscience Celebration
University of Puerto Rico, Dept of Geology
Appalachian State University, Dept of Geological and Environmental Sciences
Lawrence University, Dept of Geology
2017 Harvard University, Earth & Planetary Sciences
University of Alberta, Dept of Earth and Atmospheric Sciences – Grace Anne Stewart speaker selected by graduate students
Montana State University, Dept of Geology

Southern Methodist University, Roy Huffington Dept of Earth Sciences
University of Potsdam, Institute of Earth and Environmental Science
GFZ German Research Center, Earth Surface Process Modeling Group
University of Bristol, School of Earth Sciences
Cardiff University, School of Earth and Ocean Sciences
University of Franche-Compte, Institute of the Environment
2016 University of Tuebingen, Dept of Geologie and Geodynamik
University of Illinois Champaign-Urbana, Dept of Geology
Grand Valley State University, Dept of Geology
Bowling Green State University, Dept of Geology
University of Arizona, Dept of Geosciences
New Mexico State University, Dept of Geological Sciences
Texas Tech, Dept of Geosciences
2015 University of Idaho, Dept of Geological Sciences
Idaho State University, Dept of Geosciences
University of Montana, Dept of Geosciences
2014 Rice University, Dept of Earth Sciences
University of Houston, Dept of Earth and Atmospheric Sciences – brownbag seminar
Utah State University, Dept of Geology
UNAVCO, Boulder, CO
University of North Carolina Chapel Hill, Dept. of Geological Sciences
University of Northern Colorado, Dept of Earth and Atmospheric Sciences
2013 University of Utah, Dept. of Geology and Geophysics
Princeton University, Dept. of Geosciences
University of Oregon, Dept. of Geological Sciences (two talks)
New Mexico Tech, Dept. of Earth and Environmental Science (two talks)
U.S. Geological Survey, Lakewood, CO
University of the Witwatersrand, School of Geosciences, South Africa
2012 University of Wyoming, Dept. of Geology and Geophysics
Southern Methodist University, Dept. of Earth Sciences
Colorado State University, Dept. of Geosciences
Colorado College, Geology Department
Colorado Scientific Society, Lakewood, Colorado
2011 University of Nevada, Las Vegas, Dept. of Geoscience
The University of the Free State, Dept. of Geology, South Africa
Nelson Mandela Metro University, Dept. of Geosciences, South Africa
2010 Stanford University, Dept. of Geological and Environmental Sciences
2009 University of Texas, Austin, Jackson School of Geological Sciences (two talks)
Boston University, Dept. of Earth Sciences
Colorado School of Mines, Dept. of Geology and Geological Engineering
Four Corners Geological Society, Colorado
2008 University of New Mexico, Dept. of Earth and Planetary Sciences
University of Florida, Dept. of Geological Sciences
University of Montana, Dept. of Geosciences
University of Wyoming, Dept. of Geology and Geophysics
Colorado State University, Dept. of Geosciences
2007 University of Colorado, Boulder, Dept. of Geological Sciences
University of California, Davis, Dept. of Geology
California Institute of Technology, Geoclub Seminar
2006 University of North Dakota, Dept. of Geology and Geological Engineering
North Dakota State University, Dept. of Geosciences
University of Colorado, Boulder, Dept. of Geological Sciences

University of Arizona, Dept. of Geosciences
University of Tennessee, Knoxville, Dept. of Earth and Planetary Sciences
University of Texas, El Paso, Dept. of Geological Sciences
2005 University of Calgary, Dept. of Geology and Geophysics
California Institute of Technology, Geoclub Seminar
University of California, Los Angeles, Dept. of Earth and Space Sciences
University of California, Santa Cruz, Dept of Earth Sciences
University of Texas, El Paso, Dept. of Geological Sciences
Vanderbilt University, Dept. of Earth and Environmental Sciences

Other Invited Talks

2017 EAR, National Science Foundation Headquarters, Arlington, VA – Future of the AGeS (Awards for Geochronology Student research) program

Invited Talks to Public Groups

2021 Science from Your Sofa, College of Arts & Sciences, University of Colorado Boulder, virtual
Commencement Speaker, Dept of Geological Sciences, University of Colorado Boulder
2020 Colorado Scientific Society
2014 Collegiate Peaks Forum Series, Buena Vista, CO; Southwest Seminars, Santa Fe, NM
2013 Café Scientifique, University of Colorado, Colorado Springs
2012 Academy for Lifelong Learning, Denver, CO

Invited and Keynote Talks at Meetings

denotes *graduate mentee and **undergraduate mentee
GSA – Geological Society of America; AGU – American Geophysical Union; GAC-MAC – Geological Association of Canada-Mineralogical Association of Canada

20. **Flowers, R.M.** and Arrowsmith, J.R., 2025, Building a collaborative scientific community: Lessons from the AGeS program: TIMES (Time Integrated Matrix for Earth Sciences) Workshop, Carnegie Science, Washington D.C., August 2025.

19. **Flowers, R.M.,** Macdonald, F.A., Peak, B.A., Siddoway, C.S., Sturrock, C.P., Havranek, R., and Ketcham, R.A., 2022, Development of the Great Unconformities: How old are they? National GSA meeting, Denver, CO, October 2022.
Pardee session: "The Proterozoic-Phanerozoic Transition: Laying the Foundation for the Modern Earth System"

18. **Flowers, R.M.,** Arrowsmith, R., McConnell, V., Metcalf, J.R., Rittenour, T., Schoene, B.S., Eriksson, S., 2019, The AGeS2 (Awards for Geochronology Student research 2) program: An update and seeking community input on its future**:** National GSA meeting, Phoenix, AZ, September 2019.
Session: "Diversifying Geochronology: Innovations in techniques, applications, and perspectives"

17. **Flowers, R.M.,** Bowring, S.A., Zhong, S., Macdonald, F.A., 2019, Deep-time (U-Th)/He thermochronology, the missing sedimentary record, and the Great Unconformity: Gordon Research Conference on "Geochronology: Timing, tempo, and drivers of biotic evolution", Waterville, NH, August 2019.
Session: "Supercontinents and biogeography"

16. **Flowers, R.M.,** *Baughman, J.S., *Robinson, K.H., and Metcalf, J.R., 2018, Titanite and rutile (U-Th)/He thermochronology: Diffusion kinetics, radiation damage effects, and utility: 2018 International Conference on Thermochronology, Quedlinburg, Germany. September 2018.
Session: "Noble gas diffusion applied to thermochronology"

15. **Flowers, R.M.,** *Baughman, J.S., *Johnson, J.E., and Metcalf, J.R., 2017, The expanding temperature sensitivity range of (U-Th)/He thermochronology from improved understanding of the "big three" (apatite, zircon and titanite): approaches and examples: National GSA meeting, Seattle, WA, October 2017.
Session: "Improvements and Challenges in Geochronology: Organizing the Past while Planning for the Future"

14. **Flowers, R.M.,** Arrowsmith, R., Metcalf, J.R., Rittenour, T., Schoene, B.S., Hole, J., Pavlis, T., Wagner, L., Whitmeyer, S., and Williams, M.L., 2015, Geology, Geochronology, and EarthScope: The EarthScope AGeS program and a new idea for a 4D-Earth initiative: Fall AGU meeting, San Francisco, CA, December 2015.
Session: "Crustal structure and evolution across the continental US from 10 years of Earthscope investigations: What have we learned and what are the open questions?"

13. **Flowers, R.M.,** *Baughman, J.S., *Johnson, J.E., *Landman, R.L., *Stanley, J.R., **Weisberg, W.R., and Metcalf, J.R., 2015, Expanding the temperature sensitivity range and applicability of the (U-Th)/He system: some examples National GSA meeting, Baltimore, MD, November 2015.
Session: "Novel Methods, Applications, and Data Interpretations in Thermochronology"

12. **Flowers, R.M.,** *Ault, A.K., Zhong, S., and Bowring, S.A., 2015, Exploring relationships between kimberlite distributions, mantle dynamics, and the hypsometric history of the North American cratonic interior: Spring
AGU/GAC-MAC Joint Assembly meeting, Montreal, Canada, May, 2015.
Session: "Origin of cratonic mantle lithosphere, diamonds, and deeply sourced volatile-rich melts: Processes and timescales"

11. **Flowers, R.M.** and Farley, K.A., 2014, Grand Canyon, models, and the interpretation of thermochronology data: Thermo2014, 14th International Conference on Thermochronology, Chamonix, France, September 2014.
Session: "Landscape evolution on different timescales"

10. **Flowers, R.M.,** 2013, Kimberlites, thermochronology, and the Phanerozoic elevation change histories of cratons: Keynote speaker, post-AGU Cooperative Institute for Dynamic Earth Research symposium, Berkeley, CA, December 2013.

9. **Flowers, R.M.,** Blackburn, T.J., Kelley, S.A., and *Ault, A.K., 2013, Evidence for post-100 Ma deposition, erosion and vertical motion of North American interior regions lacking preserved Cretaceous cover: Invited Speaker, Fall AGU meeting, San Francisco, CA, December 2013.
Session: "Origin, evolution, and impacts of high topography in continental interiors"

8. **Flowers, R.M.** and Farley, K.A., 2013, Constraints on an ancient Grand Canyon and the topographic evolution of the southwestern Colorado Plateau from thermochronometry: Invited Speaker, National GSA meeting, Denver CO, October 2013.
Session: "Paleotopography"

7. **Flowers, R.M.,** *Ault, A.K., Kelley, S.K., Zhang, N., and Zhong, S., 2011, Deciphering the history and causes of the cryptic rise and fall of continental interiors using low temperature thermochronology: Invited Speaker, Fall AGU meeting, San Francisco, CA, December 2011.
Session: "The long road to flat – Towards understanding the drivers and quantifying change in 'dead' orogens"

6. **Flowers, R.M.,** *Ault, A.K., Kelley, S.A., Zhang, N., and Zhong, S., 2011, Testing mantle dynamic models from thermochronology constraints on the rise and fall of continental interiors: Invited Speaker, Special meeting on Dynamic Topography organized by the Royal Astronomical Society, Geological Society and the British Geophysical Association, September 2011.

5. **Flowers, R.M.,** 2010, Interpretation of apatite (U-Th)/He thermochronometry data from cratonic rocks: Invited speaker, Thermo2010, 12th International Conference on Thermochronology, Glasgow, Scotland, August 2010.
Session: "Interpretation of thermochronology data: Limitations and potential"

4. **Flowers, R.M.,** 2010, Deciphering unroofing, paleotopography and elevation gain of cratonic plateaus using (U-Th)/He thermochronometry: case studies from the Colorado Plateau and southern Africa: Keynote speaker, Structural Geology and Tectonics Forum, Madison, WI, May 2010.
Session: "Exhumation and large scale tectonics"

3. **Flowers, R.M.,** Wernicke, B.P., and Farley, K.A., 2009, Constraints on Early Tertiary incision and uplift of the Grand Canyon region of the Colorado Plateau from apatite (U-Th)/He thermochronometry: Invited speaker, AGU Joint Assembly, Toronto, Canada, May 2009.
Session: "Surface geological and tectonic constraints on time-dependent mantle convection"

2. **Flowers, R.M.,** 2008, High to low temperature geo- and thermochronology and the reactivation and stability of continental lithosphere, western Canadian shield: Keynote speaker, Goldschmidt international geochemistry meeting, Vancouver, Canada, July 2008.
Session: "4D structure of the continental crust: greenstones to granulites"

1. **Flowers, R.M.** and Kelley, S., 2008, Thermal histories in sedimentary basins from integrated low-temperature thermochronometry: An example from the High Plains of New Mexico and western Texas: Invited speaker, Goldschmidt international geochemistry meeting, Vancouver, Canada, July 2008.
Session: "Sedimentary basin development and evolution"

I am an author on 12-18 abstracts per year submitted to national and international meetings.

ADVISING

Current Graduate Student Advisees (3)
Connor Diaz, PhD, Fall 2022-present, ***NSF Graduate Research Fellow***
John Allard III, PhD, Fall 2025-present.
Paige McDowell, MSc, Fall 2025-present.

Past PhD Student Advisees (7)
Spencer Zeigler, PhD, Fall 2020-2025, ***NSF Graduate Research Fellow,*** Kimberlites, cratons, and chronometers. Now a senior data scientist with the State of Colorado.
Barra Peak, PhD, Fall 2019-2024, ***CU Chancellors Fellow***, Continental breakup, mountain building, and the Great Unconformity: The exhumation history of North America's most iconic erosional surface using zircon (U-Th)/He thermochronology. Now Postdoctoral Fellow at UT-Austin.
Colin Sturrock, PhD, 2015-2021, Deciphering burial and erosion histories across the interior of the Canadian shield and implications for mantle dynamics. Now at USGS.
Jaclyn Baughman, PhD, 2013-2018, Bridging high and low temperature thermal histories across the Kaapvaal craton, southern Africa from advances in titanite and zircon (U-Th)/He thermochronology. Now Assistant Professor at Humboldt State University.

Jessica Stanley, PhD, 2010-2015, Discerning erosion patterns and mantle sources of topography across the southern African Plateau from the shallow and deep records of kimberlites. ***NSF Graduate Research Fellow.*** Now Assistant Professor at University of Idaho.

Rachel Landman, PhD 2011-2015, Thermochronologic investigations of Cenozoic unroofing and surface uplift in the southern Rocky Mountains and High Plains.

Alexis Ault, PhD, 2007-2012, Constraints on craton stability from thermochronologic and geochronologic studies of the Slave and Wyoming cratons. ***NSF Graduate Research Fellow.*** Now Full Professor at Utah State University. Awarded a CAREER grant and the International Early Career Thermochronology Prize.

Past MSc Student Advisees (5)

Morgan Baker, MSc, 2019-2022, Correcting for systematic error and estimating uncertainties of alpha-ejection corrections and eU values for the zircon (U-Th)/He method. Now in permanent lecturer position at Appalachian State University.

Katherine Robinson, MSc, 2017-2019, Development of rutile (U-Th)/He thermochronology. Now a Sponsored Project Specialist at CU JILA.

Rachel Havranek, MSc, 2015-2017, Coupling vertical transect zircon (U-Th)/He and Raman spectroscopy data to constrain Colorado Front Range evolution. Now postdoc at University of Utah.

Josh Johnson, MSc, 2013-2015, "Inverted" zircon and apatite (U-Th)/He dates and interpretation of high-damage zircon from the southern Rocky Mountains, Front Range, Colorado. Now at Idaho Conservation League, Ketchum, Idaho.

Rachel Landman, MSc, 2008-2010, Tertiary cooling history of the Gore Range: a northern Rio Grande Rift flank uplift, central Colorado.

Past Postdoctoral Researchers (3)

Dr. Liam Courtney-Davies, 2023-2025. PhD from University of Adelaide, Australia. Now assistant professor at San Diego State University.

Dr. Catherine Ross, 2024-2025. NSF Postdoctoral Fellow. PhD from UT Austin. Now assistant professor at Baylor University.

Dr. Peter Martin, 2020-2022. PhD from Caltech. Now at KoBold Metals.

Current Research Associates in Lab Group (2)

Dr. James Metcalf, 2012-present. PhD from Stanford University.

Dr. Cullen Kortyna, 2024-present. PhD from UT-Austin.

Past Research Associate in Lab Group (1)

Dr. Jeff Benowitz, Jan 2022-April 2022. PhD from University of Alaska Fairbanks.

Geochronology Mentor for AGeS Students (7)

Aurora Rosenberger, WSU PhD student, 2024 AGeS project entitled: "Investigating temporal connections between normal faulting, ductile stretching, and detachment faulting in the Snake Range core complex, Nevada"

Anthony Fuentes, UC Berkeley PhD student, 2024 AGeS project entitled: "Towards Resolving the Red Bed Controversy: Developing the Capacity for Detrital Hematite U/Pb Geochronology"

Brian Penserini, UCSB PhD student, 2021 AGeS project entitled: "Testing Multiple Hypotheses for Large-Scale Capture Events using low-T Thermochronometry, Sutlej River, western Himalaya".

Nicolas Perez-Consuegra, Syracuse PhD student, 2020 AGeS project entitled: ;"Using apatite 4He/3He and (U-Th)/He thermochronology to unravel the timing and mechanism of incision of the Cauca River Canyon in the northern Andes".

Ellen Lamont, Oregon State University PhD student, 2019 AGeS project entitled: "Evaluating Late Cenozoic Mountain Range Evolution in India's Himalayan Fold-and-Thrust Belt".

Matthew Morriss, University of Oregon PhD student, 2016 AGeS project entitled: "Thermochronometric constraints on the age of Hells Canyon, testing lithospheric foundering in NE Oregon".
Mariana Bonich, Syracuse University PhD student, 2015 AGeS project entitled: "Deciphering novel methods to link source rock to sediment sink: Overcoming the 'stepladder effect'".

RESESS (Research Experiences in Solid Earth Science for Students) Underrepresented Undergraduate Interns in TRaIL (7)
Kaden Berkhahn, 2023, RESESS summer intern in collaboration with PhD student Spencer Zeigler and postdoc Dr. Liam Courtney-Davies.
Addison Curtis, 2022, RESESS summer intern in collaboration with PhD student Barra Peak.
Haley May, 2018, RESESS summer intern in collaboration with PhD student Colin Sturrock.
Fatima Niazy, 2017, RESESS summer intern in collaboration with Dr. Lon Abbott and Dr. Jim Metcalf.
Wes Weisberg, 2014-2016, RESESS summer intern in collaboration with Dr. Jim Metcalf.
Brandt Scott, 2015, RESESS summer intern in collaboration with Dr. Jim Metcalf.
Cristina Lugo-Centeno, 2012, RESESS summer intern in collaboration with Dr. Alison Duvall.

Current and Past Undergraduates working in (U-Th)/He Lab (30+. Subset listed.)
Syd Stevens. Spring 2025. Undergraduate research assistant.
Helena Calegari. Spring 2025. Undergraduate research assistant.
Sabrina Kainz, 2020-2022, Honors thesis in collaboration with Dr. Lon Abbott
- Recipient of ***2023 NSF Graduate Research Fellowship***

Spencer Zeigler, 2018-2020, Research project.
- Recipient of ***2020 NSF Graduate Research Fellowship***

Lane Daigle, 2018-2019, GEOL mentoring program and UROP in collaboration with Dr. Ben Johnson
Kristin Putnam, Research project in collaboration with Dr. Lon Abbott
Evan Schanock, Research project in collaboration with Dr. Lon Abbott
Noah McCorkel, 2017, Honors thesis in collaboration with Dr. Lon Abbott and Dr. Jim Metcalf
Jamie Glass, 2015-17, UROP and GEOL mentoring program
Coleman Hiett, 2015-17, Honors thesis in collaboration with Dr. Lon Abbott and Dr. Jim Metcalf
- Recipient of ***2019 NSF Graduate Research Fellowship***

Ryan Stoner, 2015-16, UROP and GEOL mentoring program, Honors thesis
- Recipient of ***2018 NSF Graduate Research Fellowship***

David Liefert, 2014-15, Honors thesis
Melissa Lowe, 2014, GEOL mentoring program
Brenda Kessenich, 2012-2014, CU UROP and GEOL mentoring program
Connor Simmons, 2013-2014, CU UROP and CU work-study programs
Matthew Tello, 2012- 2013, CU UROP and GEOL mentoring programs
Keith Bowhan, 2012-2013
Ryan Nell, 2009-2010, CU UROP and GEOL mentoring program
Emily Gregonis (now Wolin), 2008-2009, CU UROP and GEOL mentoring program
Katherine Anarde, 2009, GEOL mentoring program
Marc Serravezza, 2008, GEOL mentoring program
Brian Meyer, 2008, CU Summer undergraduate research experience (SURE) program

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TEACHING

CLASSES TAUGHT AT CU
GEOL 1010, Introduction to Geology. 3 credits. Introductory Earth science class that provides a broad overview of the field of geology to nonmajors. Fall 2007-2009, Spring 2011,13,15.

GEOL 2005, Introduction to Earth Materials. 4 credits. Undergraduate class required of all majors that provides an introduction to the classification, composition, and properties of the materials that compose the Earth, their economic benefits, how these materials are studied, and how they are used to interpret Earth history and processes. First co-developed and taught in spring 2014. I now teach this course every spring. Spring 2014-16, Spring 2018-23. Spring 2025-26.

GEOL 3090, Developing Scientific Writing Skills. 3 credits. Undergraduate course focused on finding, reading, and critically assessing primary scientific papers, placing the findings of others into the broader scientific context, and reviewing and revising newly written material. Fully developed this class. Fall 2011-13, Fall 2018.

GEOL 4500, Critical Thinking. 3 credits. Undergraduate course that introduced students to critical thinking by examining how we resolve the timing of events and rates of processes in Earth science. Fully developed this class. Met the previous Critical Thinking requirement for Arts & Sciences majors at CU-Boulder. Spring 2009.

GEOL 4700/5700, Problems in the Rockies. 3 credits. Interdisciplinary seminar for upper-level undergraduate and graduate students focused on methods and approaches to tectonic problems and their application to the Rocky Mountain region. Co-taught with Prof Peter Molnar. Spring 2008.

GEOL 4960, Writing in Geosciences. 1 credit. Undergraduate writing course that introduced undergraduates to scientific writing. Taught once in Fall 2009. This experience led me to subsequently develop a 3-credit writing course for undergraduates (GEOL 3090).

GEOL 5215, Geochronology. 2 or 3 credits. Graduate course that provides an overview of geochronologic and thermochronologic methods used to constrain tectonic, magmatic, metamorphic, sedimentary, and geomorphic processes. Cutting-edge aspects of these methods and emerging techniques are particularly emphasized. Fully developed this class. Spring 2009,12. Fall 2015, 17, 20, 22, 24, 25.

GEOL 5216, Geochronology Reading Seminar. 1 credit. Graduate course focused on learning key aspects of a selected geochronology topic. This is accomplished by reading, critically evaluating, and discussing peer-reviewed scientific papers that include geochronology data, methods, and interpretations relevant to the chosen topic. Spring 2020-23. Spring 2026.

GEOL 5003, Graduate Writing Seminar. 2 credits. This class is aimed at improving graduate student writing, editing, and reviewing skills, while meeting student writing goals. Includes discussion of materials about effective writing, and peer-editing of text that students are producing for their graduate research endeavors. Fully developed for the first time in GEOL, but class structure modeled on a successful writing course in EBIO. Spring 2018. Fall 2019-22, Fall 2024-25.

SCIENCE EDUCATION ACTIVITIES

Participant, CU Boulder Science Education Initiative (SEI). Involved for 3 different classes in GEOL.

Participant, multi-institutional NSF-funded GARNET Project. Involved for 2 classes in GEOL.

Participant, NAGT (National Association of Geoscience Teachers) Temporal Journal Learning Club. Monthly virtual discussions of readings that explored the cognitive underpinnings of understanding geologic time, 2011.

SERVICE

NATIONAL AND INTERNATIONAL SERVICE

Leadership and Committee Service

2024-2026 Geological Society of America (GSA) Joint Technical Program Committee for the GSA National Meetings, Structural Geology & Tectonics Division Representative.

2022-2025 Lead-PI and co-director of the AGeS^3 (Advancing Geochronology Science, Spaces, & Systems) Initiative. AGeS^3 was funded by an NSF FRES award, continued its partnership with GSA, and made a total of 86 strategic micro-awards of $8-$18k each through a trio of micro-funding programs (AGeS-Grad, AGeS-DiG, AGeS-TRaCE). During AGeS^3, the AGeS lab network grew to 70+ labs and 120+ geochronologists.

2025 American Geophysical Union (AGU) Search Committee for Editor-in-Chief of the journal *Tectonics*

2019-2023 GSA Geochronology Division Leadership. Past Chair, Chair, First Vice Chair, Second Vice Chair.

2018-2022 Lead-PI and co-director of AGeS2 (Awards for Geochronology Student research program). AGeS2 was funded by a multi-programmatic NSF award, included a new partnership with GSA, continued to grow the AGeS lab network, supported 52 graduate student geochronology projects averaging ~$8.2k each, and launched the pilot AGeS-DiG (Diversity in Geochronology) program, which funded 6 projects of ~$14k each to support cohorts of underrepresented minority students in geochronology.

2021 NSF Review Panel member.

2020 NSF Review Panel member.

2019 NASA Review Panel member.

2014-2018 Lead-PI, co-founder, and co-director of AGeS1 (Awards for Geochronology Student research program). AGeS1 was funded by an NSF EarthScope award, established the AGeS lab network, and supported 25 collaborative geochronology projects between graduate students and labs averaging ~$8.2k each.

2015-2018 Member, GSA Student Research Grant Committee.

2017 Member, GSA position statement panel on "Removing Barriers to Career Progression for Women in the Geosciences".

2015-2017 Secretary, GSA Structural Geology and Tectonics Division.

2017 NSF PIRE Site Visit Review Panel member.

2012-2015 NSF EarthScope Steering Committee.

2013-2014 Associate Editor, *Geosphere.*

2012-2014 Colorado Scientific Society, Counselor.

2013 Instructor at CIDER (Cooperative Institute for Dynamic Earth Research) Summer Program at UC Berkeley.

2011-2012 AGU Tectonophysics Program Committee.

2008 NSF Review Panel Member

Meeting, Workshop, Short Course, and Session Organizer

2025 Organizer, 2025 Virtual AGeS Community Symposium, 100 attendees. May 6-7, 2025.

2024 Organizer, 2024 Virtual AGeS Community Symposium, >100 attendees. May 6-7, 2024.

2014-2023 Standing Committee for the International Thermochronology Conferences.

2022 Instructor and organizer, 1.5-day GSA short course "AGeS Geochronology", Boulder, CO, USA.

2022 Co-organizer, 1.5 day workhop for NSF FRES project COOL (Context of Long-term Climate and Tectonics), Boulder, CO, USA.

2019-2021 Organizing Committee, Thermo2021, 17th International Conference on Thermochronology, Santa Fe, NM.

2015 Co-organizer, 2-day NSF CIDER workshop, "Linking dynamic topography with the observational record" in the Dept of Geological Sciences at CU-Boulder.

2014 Instructor and organizer, 2-day GSA short course "EarthScope Institute: Geochronology and the Earth Sciences", Vancouver, Canada.

2013 Organizer, 1.25-day short course, "An introduction to low temperature thermochronology", at the African Earth Observatory Network, Port Elizabeth, South Africa.

2013 Instructor and organizer, 1-day GSA short course at the CU-Boulder TRaIL, "An introduction to the theory and methods of (U-Th)/He thermochronology", Boulder, CO, USA.

2013 Organizing committee, NSF EarthCube Geochronology workshop.

2007, '09, '14 Convener, Technical session at AGU Fall Meetings

2010, 2013 Convener, Technical session at GSA National Meetings

2010, '11, '13 Convener, Technical session at Goldschmidt Conferences

Panelist/Round Table Discussions

2023 Leader of "Power Hour" at the 2023 Gordon Research Conference on Geochronology. The Power Hour is a forum for conversations about barriers to inclusivity.

2018 Panelist, two separate round tables on "Diffusion" and "Reproducibility" at the 16th International Conference on Thermochronology, Quedlinburg, Germany.

2016 Panelist, "'Insights into the Writing & Publishing Process" at the Career Development Workshop for NSF Geoscience Postdoctoral Researchers, NOAA, Boulder, CO.

2014 Panelist, "Developing synergies between disciplines" at the Challenges and Opportunities in Geochronology Workshop, pre-Goldschmidt Meeting.

2014 Panelist, two separate round tables on "Diffusion" and "Databases" at the 14th International Conference on Thermochronology, Chamonix, France.

Referee for Journals, Proposals, and Books

Referee for academic journals (35 different journals, typically 8-12 manuscript reviews/year): *American Journal of Science, Analytical Chemistry, Chemical Geology, Contributions to Mineralogy and Petrology, Earth and Planetary Science Letters, Earth Surface Processes and Landforms, Geochemistry-Geophysics-Geosystems, Geochimica et Cosmochimica Acta, Geochronology, Geologica Carpathica, Geochemical Perspectives Letters, Geological Society of America Bulletin, Geology, Geomorphology, Geophysical Research Letters, Geosphere, Geostandards and Geoanalytical Research, Journal of African Earth Sciences, Journal of the Geological Society, Journal of Geophysical Research-Earth Surface, Journal of Metamorphic Geology, Journal of Geology, Journal of Structural Geology, Lithos, Lithosphere, Mountain Geologist, Nature, Nature Communications, Nature Geoscience, Nature-Scientific Data, New Mexico Geological Society Guidebook, Precambrian Research, Proceedings of the National Academy of Sciences, Science, Science Advances, Scientific Data, Scientific Reports, Tectonics, Tectonophysics, Terra Nova.*

Referee for National Science Foundation proposals (16 different NSF programs): Antarctic Earth Sciences, Arctic Research Opportunities, EarthCube, EarthScope, Frontiers in Earth Science Research, Geoinformatics, Geomorphology, Geophysics, Instrumentation and Facilities, Integrated Earth Systems, Major Research Instrumentation, Marine Geology and Geophysics, Petrology and Geochemistry, Postdoctoral Fellowship, Sedimentary Geology and Paleobiology, Tectonics.

Referee for other programs: American Chemical Society Petroleum Research Fund, Canadian NSERC program, Department of Energy, Dutch Council for Earth and Life Sciences, W.M. Keck Foundation proposals.

Referee for book: “Geochronology and Thermochronology” by Reiners, Carlson, et al.

PUBLIC OUTREACH AND RESEARCH DISSEMINATION TO PUBLIC

2026 Interview with reporter for the *New York Times* for an article about scientific research that has been impacted by termination of NSF grants.

2026 Interview with reporter for *Scientific American* magazine for a feature article on the origin of the Grand Canyon and how thermochronology is used to investigate this landscape.

2026 Consulted for redesigning of a free interactive educational web-based simulation called "Radioactive Dating Game" aimed at secondary and university-level students. This activity is one of the PhET Interactive Simulations developed by the Physics Department of CU-Boulder.

2026 Interview with reporter for *Discover* magazine for an article about the age and origins of the Great Unconformity entitled “1.3 Billion Years Vanished From the Grand Canyon's Rock Record — a Cold Case That Has Puzzled Geologists Since the 1860s”, July 17, 2026

2026 Interview with reporter for *Science* magazine about the age and origins of the Grand Canyon.

2024-26 Lab outreach to North Glenn High School. SNODASE (Students of Northglenn Date Ancient Snowball Earth) is a problem-based learning curriculum in which the geology classes at Northglenn High School directly participate in geologic sample collection, sample preparation, and geochronologic analysis in Flowers’ geochronology lab at the University of Colorado. The students then create posters and present the results and interpretations to CU scientists in a final research symposium. Over 160 high school students have engaged with this program.

2025 Filming and interviews for PBS documentary series "Transparent Earth" by producer and director Sarah Burns about Snowball Earth research.

2025 Interview and discussions with artist Nina Elder (www.ninaelder.com) about serving as a collaborating scientist on an art exhibit focused on absence and unconformities.

2025 Interviewed for children's book by Emily Starr (www.starrmatica.com) entitled *"Nature's Hidden Library"*, provided a review of part of the book for accuracy, and will be a featured scientist in the back matter of the book.

2024 Coauthor on an article in The Conversation with >79,000 reads about research lead by Dr. Liam Courtney-Davies on Snowball Earth and the Neoproterozoic Tavakaiv sandstone injectites in Colorado, November 2024.

2024 Research on the Snowball Earth and Neoproterozoic Tavakaiv sandstone injectites in Colorado lead by postdoc Dr. Liam Courtney-Davies featured in numerous popular science articles, including ArsTechnica, Science Daily, and CU Boulder Today, November 2024.

2024 Thermochronology research on the erosion history of Colorado's High Plains lead by former CU undergraduate student Sabrina Kainz featured in multiple articles, including the Denver Gazette's "Origins of Colorado's Spanish Peaks near Walsenburg Explained" and BNN Newsroom's "Unlocking Colorado's Geological Mysteries: CU Boulder Study Sheds Light on Spanish Peaks" March 4, 2024.

2023 Interviewed for geochronology article on livescience.com "How do we know how old Earth is?", April 15, 2023.

2023 Great Unconformities research featured in GSA Science Communication blog "Is 'The Great Unconformity' a Misnomer?", March 22, 2023.

2022 Work on the Great Unconformities featured in AGU *Eos* article "The Great Unconformity or Great Unconformities?", December 23, 2022.

2022 Feature on new Geochronology exhibit in CU-Boulder Earth Sciences Map Library, October 13, 2022.

2022 Press release about AGeS3 FRES grant to advance geochronology by CU Boulder College of Arts & Sciences Magazine, Sept 22, 2022.

2022 Co-host "Every Rock Has A Story" Youtube video, Episode #68, Grand Canyon, 10 min, October 6, 2022.

2021 Geology Bites podcast on "Deciphering the Thermal History of Rocks", 31 min.

2021 Gneiss Chats podcast interview, "Thermochronology", the Traveling Geologist. 43 min.

2021 Public interest in research on the Great Unconformity in the Grand Canyon. Coverage from various media outlets.

2020 Public interest in research on the Great Unconformity in Colorado. Coverage from CNN and other media outlets.

2018 Science Coach in American Chemical Society, American Association of Chemistry Teachers program. Serve as mentor for high school science teacher Susan Kelly.

2017 Presentation on Geologic Time to first and second graders at Flatirons Elementary School.

2012 Public interest in Grand Canyon research. Coverage from hundreds of media outlets, including the front page of *NY Times*, *Washington Post*, and *LA Times*, as well as reports on *NPR* and *PBS NewsHour*.

2010 Filmed for National Geographic "Naked Science" documentary on the origin and evolution of the Grand Canyon.

2008 Grand Canyon research included in an annual review for the 2009 Britannica Book of the Year in Geology & Geochemistry.

2008 Public interest in Grand Canyon region research. Coverage from Science, Nature, MSNBC, National Geographic.com, Earth Magazine, Science Spin, and other media outlets.

UNIVERSITY SERVICE

2021-22 CU Arts & Sciences Council
2021-22 CU Arts & Sciences Council Planning Committee
2022 CU Arts & Sciences Search Committee for Award Administrator
2020 Reviewer for CU Graduate School Research Grants
2018-19 CU Arts & Sciences Search Committee for Post-Award Administrator
2015-16 CU Arts & Sciences Council
2015-16 CU Arts & Sciences curriculum committee

DEPARTMENT SERVICE

2025-26 Chair, SamPLE prep lab committee
2025-26 Member, Executive committee
2025-26 Member, Salary equity and grievance committee
2025-26 Member, Analytical facilities and space committee
2024 Chair, targeted hire search committee for Earth and Mineral Materials
2024 Member, Primary unit evaluation committee for junior faculty member
2024 Member, SamPLE prep lab committee
2019-23 Member, Analytical facilities and space committee
2019-23 Member, Graduate curriculum committee
2019-23 Member, SamPLE prep lab committee
2020-23 Member, Graduate admissions committee
2018-19 Member, New chair committee
2018-19 Chair, Salary equity and grievance committee
2017-19 Chair, SamPLE prep lab commitee
2017-18 Member, Futures committee
2017-18 Member, Executive committee
2017-18 Member, Salary equity and grievance committee
2015-16 Member, Search committee, Geobiology faculty member
2014-15 Member, Executive committee
2013-15 Member, Graduate curriculum committee
2012-13 Member, new chair committee
2012-13 Member, Salary equity and grievance committee
2012-13 Member, Undergraduate curriculum committee

2010-12 Member, Analytical facilities and space committee
2009 Colloquium organizer
2008-09 Member, Executive committee
2007-08 Member, Graduate curriculum committee

MEMBERSHIPS
American Geophysical Union
Geological Society of America
Mineralogical Society of America