Gilby Jepson

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Personal Statement

My research is focused on the relationship between tectonics, structure and the Earth's crust. To do this, I focus on three lines of research: 1) Structure and tectonics, or how the topography changes as a result of plate interactions, 2) how the chemistry of minerals and rocks changes in response to geological processes, and 3) the interaction between mountains and the global climate. Through mentoring and research, my work seeks to improve our understanding of lithospheric dynamics and the earth's surface evolution by applying coupled high- and low-temperature isotope geochemistry to orogenic systems; as well as provide a basis to a range of Earth sciences applications such as mineral exploration, past and modern climate, even the spread of society.

Academic Appointments

Assistant professor, School of Geosciences **2023-present**
The University of Oklahoma
Postdoctoral research associate, Department of Geosciences **2019-2022**
The University of Arizona

Education History

PhD, Geosciences, University of Adelaide **2015-2018**

Honours, Geosciences, University of Adelaide **2014**

B.Sc., Geosciences, University of Adelaide **2011-2013**

Proposals

FUNDED

5. **Jepson, G.**, George, S. W. M., *Quantifying climatically-enhanced weathering and erosion over the Paleocene-Eocene Thermal Maximum*, National Sciences Foundation (NSF) P4CLIMATE: **$219,167 (1/11/2024)**.

4. George, S. W. M., **Jepson, G.**, Mackaman-Lofland, C, *Linking fold-thrust belt activity to foreland basin response in the Canadian Cordillera*, NSF Tectonics: **$499,709 (26/01/2024)**.

3. Soreghan, M., **Jepson, G.,** George, S. W. M., *Constraining exhumation and erosion along Lake Tanganyika to assess landscape evolution in rifts*, NSF Tectonics: **$554,535, (01/01/2025)**.

2. Soreghan, G. S., **Jepson, G.**, Liu, X., Lupia, R. A., Yunker, M., Ramezani, J., Hinnov, L. A., Yang, W., Pfeifer, L., Rasbury, E. T., Zambito, J. J., and McAdams, N. E., *Earth-System Responses to the Penultimate Icehouse-Greenhouse Transition*, **NSF Frontier Research in Earth Sciences**: **$2,306,793 (08/01/2023)**.

1. **Jepson, G.**, *Trace element control on apatite fission-track annealing and its impact on basin paleotemperature estimation*, American Chemical Society - Petroleum Research Fund: **$110,000 (09/01/2024)**.

PENDING

2. **Jepson, G.**, Carrapa, B., Collaborative Research: *Monazite fission-track as a novel low-temperature thermochronometer for resolving tectonic and surface processes* **NSF Tectonics**: $275,076, 20/09/2023, Submitted to NSF.

1. Lang, K., **Jepson, G.**, Collaborative Research: *Innovative Resources: Developing a free and open-source platform for digital fission-track analysis* **NSF Geoinformatics**, $266,108, 01/12/2023, Submitted to NSF.

Publications

42. Yang, H., Yang, F., **Jepson, G.**, Bagas, L., Tu, J., Li, H., and Qian, Z. **(2024)**. Magmatic and hydrothermal evolution of the superlarge Dashui goldfield in the West Qinling Orogen, China. *Ore Geology Reviews* https://doi.org/10.1016/j.oregeorev.2024.106095.

41. Liu, F., Yang, F., Zheng, D., Ding, H., Li, C., and **Jepson, G. (2024)**. Apatite (U-Th)/He Thermochronological Constraints on the Landscape Evolution Linked to the Normal Faulting in Taishan Mountain, Eastern China. *Lithosphere* https://doi.org/10.2113/2023/lithosphere_2023_279.

40. Yang, F., Wen, Y., **Jepson, G.**, Santosh, M., Wu, L., Shen, X., and Ali, H. **(2024)**. Prolonged exhumation and preservation of the Yuku molybdenum ore field, East Qinling, China: Constraints from medium-to low-temperature thermochronology. *Ore Geology Reviews*

https://doi.org/10.1016/j.oregeorev.2024.105973.

39. Chapman, J. B., Scoggin, S. H., **Jepson, G.**, Ricketts, J. W., Schaen, A. J., and Trzinski, A. E. **(2024)**. OligoceneMiocene exhumation of the Pinaleño metamorphic core complex, southeastern Arizona: Support for magmatism and plate margin reorganization as controls on regional exhumation trends. *Tectonics* https://doi.org/10.1029/2023TC008032.

38. Howlett, C. J., **Jepson, G.**, Carrapa, B., DeCelles, P. G., and Constenius, K. N. **(2023)** Late Cretaceous exhumation of the Little Belt Mountains and regional development of the Helena salient, west-central Montana, USA. *GSA Bulletin* https://doi.org/10.1130/B37081.1.

37. Barla, A., Triantafyllou, A., Ducea, M. N., **Jepson, G.**, McClelland, W., Giesler, D., Gehrels, G.E. and Fellah, C. **(2023)**. A systematic evaluation of titanite reference materials for optimizing trace element and UPb analysis by LA-ICP-MS. *Chemical Geology*, 636, 121635 https://doi.org/10.1016/j.chemgeo.2023.121635.

36. Kapp, P., **Jepson, G.**, Carrapa, B., Schaen, A. J., He, J. J., and Wang, J. W. **(2023)**. Laramide bulldozing of lithosphere beneath the Arizona transition zone, southwestern United States. *Geology*, 51(10), 952-956 https://doi.org/10.1130/G51194.1.

35. Caylor, E., Carrapa, B., **Jepson, G.**, Sherpa, T. Z., and DeCelles, P. G. **(2023)**. The rise and fall of Laramide topography and the sediment evacuation from Wyoming. *Geophysical Research Letters*, 50(14), e2023GL103218 https://doi.org/10.1029/2023GL103218.

34. Yang, F., Xue, F., **Jepson, G.**, and Zhang, L. **(2023)**. (Paleo-) Pacific plate subduction tectonics and related magmatism and mineralization. *Frontiers in Earth Science*, 11, 1248758 https://doi.org/10.3389/feart.2023.1248758.

33. Davis, G. H., Orent, E. B., Clinkscales, C., Ferroni, F. R., Gehrels, G. E., George, S. W., Guns, K.A., Hanagan, C.E., Hughes, A., Iriondo, A. **Jepson, G.**, Kelty, C., Krantz, R. W., Levenstein, B. M., Lingrey, S. H., Miggins, D. P., Moore, T., Portnoy, S. E., Reeher, L., J., and Wang, J. W. **(2023)**. Structural Analysis and Chronologic Constraints on Progressive Deformation within the Rincon Mountains, Arizona: Implications for Development of Metamorphic Core Complexes (Vol. 222). *Geological Society of America* https://doi.org/10.1130/2023.1222(01).

32. Amadori, C., Maino, M, Marini, M., Casini, L., Carrapa, B., **Jepson, G.**, Hayes, R. G., Nicola, C., Reguzzi, S., and Di Giulio, A. **(2023)**. The role of mantle upwelling on the thermal history of the Tertiary-Piedmont Basin at the Alps-Apennines tectonic boundary. *Basin Research*, 35, 12281257 https://doi.org/10.1111/bre.12752.

31. Glorie, S., Nixon, A., **Jepson, G.**, Gillespie, J., Warren, C., Meeuws, F., Simpson, A. and Xiao, W. **(2023)** Meso-Cenozoic tectonic history of the Altai: New insights from apatite U-Pb and fission track thermochronology for the Fuyun area (Xinjiang, China), *Tectonics*, 42, e2022TC007692 https://doi.org/10.1029/2022TC007692.

30. Richter, F., Pearson, J., Vilkas, M., Heermance, R. V., Garzione, C. N., Cecil, M. R., Jepson, G., Moe, A.„ Xu, J., Liu, L., and Chen, J. **(2022)**. Growth of the southern Tian Shan-Pamir and its impact on central Asian climate. *GSA Bulletin*.

29. Triantafyllou, A., Ducea, M. N., **Jepson, G.**, Hernández-Montenegro, J. D., Bisch, A., and Ganne, J. **(2022)**. Europium anomalies in detrital zircons record major transitions in Earth geodynamics at 2.5 Ga and 0.9 Ga. *Geology*.

28. Davis, G. H., Reeher, L. J., **Jepson, G.**, Carrapa, B., Decelles, P. G., and Chaudoir, K. M. **(2022)**. Structure and thermochronology of basement/cover relations along the Defiance uplift (AZ and NM), and implications regarding Laramide tectonic evolution of the Colorado Plateau. *American Journal of Science*, 322(9), 1047-1087.

27. Yang, F., Mao, J., Ren, W., Qian, Z., Li, C., and **Jepson, G**. **(2022)**. Temporal evolution and origin of the Yumugou Mo-W deposit, East Qinling, China: Evidence from molybdenite Re-Os age and U-Pb dating and geochemistry of titanite. *Ore Geology Reviews*, 105172.

26. Li, L., Najman, Y., DupontNivet, G., Parra, M., Roperch, P., Kaya, M., Meijer, N., O'Sullivan, P., **Jepson, G.**, and Aminov, J. **(2022)**. MesozoicCenozoic multistage tectonic evolution of the Pamir: detrital fissiontrack constraints from the Tajik Basin. *Basin Research*.

25. Su, W., He, Z., Zhong, L., Glorie, S., Zhong, K., **Jepson, G.**, and De Grave, J. **(2022)**. Late Oligocene-Miocene morpho-tectonic evolution of the central Gangdese batholith constrained by low-temperature thermochronology. *Tectonophysics*, 840, 229559.

24. Carrapa, B., DeCelles, P. G., Ducea, M. N., **Jepson, G.**, Osakwe, A., Balgord, E., Stevens-Goddard, A., and Giambiagi, L., **(2022)**, Estimates of paleo crustal thickness at Cerro Aconcagua (Southern Central Andes) from detrital proxy-records: insights into models of continental arc evolution, *Earth and Planetary Science Letters*

23. **Jepson, G.**, B. Carrapa, George, S. W. M., Reeher, L. J., Kapp, P. A., Davis, G. H., Thomson, S. N., Amidori, C., Clinkscales, C., Jones, S., Gleadow, A. J. W., and Kohn, B. P, **(2022)**, Where did the Arizona-plano go? Middle to lower crustal processes required, *Journal of Geophysical Research: Solid Earth*

22. He, Z., Wang, B., Glorie, S., Su, W., Ni, X., **Jepson, G.**, Liu, J., Zhong, L., Gillespie, J., and De Grave, J., **(2022)**, Mesozoic building of the Eastern Tianshan and East Junggar (NW China) revealed by low-temperature thermochronology, *Gondwana Research*, https://doi.org/10.1016/j.gr.2021.11.013

21. Yang, F., **Jepson, G.** Liu, C., Qian, Z., Zhang, X., Zhang, Y., and Glorie, S., **(2021)**, Uplift-exhumation and preservation of the Yumugou Mo-W deposit, East Qinling, China: Insights from multiple apatite low-temperature thermochronology, *Ore Geology Reviews*

20. **Jepson, G.**, B. Carrapa, J. Gillespie, R. Feng, P. G. DeCelles, P. A. Kapp, C. Tabor, J. Zhu, **(2021)**, Climate as the great equalizer of continental-scale erosion, *Geophysical Research Letters*, https://doi.org/10.1029/2021GL095008

19. **Jepson, G.**, Glorie, S., Khudoley, A. K., Malyshev, S. V., Gillespie, J., Glasmacher, U. A., Carrapa, B., Soloviev, A. V., and Collins, A. S., **(2021)**, The Mesozoic exhumation history of the Karatau-Talas range, western Tian Shan, Kazakhstan-Kyrgyzstan, *Tectonophysics*, https://doi.org/10.1016/j.tecto.2021.228977

18. Gillespie, J., Glorie, S., **Jepson, G.**, Zhimulev, F. I., Gurevich, D., Daniík, M., and Collins, A. S., **(2021)**, Inherited structure as a control on late Paleozoic and Mesozoic exhumation of the Tarbagatai Mountains, southeastern Kazakhstan, *Journal of the Geological Society*, https://doi.org/10.1144/jgs2020-121

17. **Jepson, G.**, Carrapa, B., George, S. W. M., Triantafyllou, A., Egan, S. M., Constenius, K. N., Gehrels, G. E., and Ducea, M. N., **(2021)**, *Chemical Geology*, Resolving mid- to upper-crustal exhumation through apatite thermochronology and petrochronology, **565**, 120071, https://doi.org/10.1016/j.chemgeo.2021.120071

16. Gottardi, R., McAleer, R., Casale, G., Borel, M., Iriondo, A., **Jepson, G.**, **(2020)**, Exhumation of the Coyote Mountains metamorphic core complex (AZ): implications for orogenic collapse of the southern North American Cordillera, *Tectonics*, **29**(8), e2019TC006050, https://doi.org/10.1029/2019TC006050

15. Yang, F., Santosh, M., Glorie, S., **Jepson, G.**, Xue, F., Kim, S. W., **(2020)**, Meso-Cenozoic multiple exhumation in the Shandong Peninsula, eastern North China Craton: Implications for lithospheric destruction, *Lithos*, **370-371**, 105597, https://doi.org/10.1016/j.lithos.2020.105597

14. Armistead, S. E., Collins, A. S., Redaa, A., **Jepson, G.**, Gillespie, J., Gilbert, S., Blades, M. L., Foden, J. D., and Razakamanana, T., **(2020)**, Structural evolution and medium-temperature thermochronology of central Madagascar: implications for Gondwana amalgamation, *Journal of the Geological Society*, **177**(4), 784-798, https://doi.org/10.1144/jgs2019-132

13. Van Daele, J., Dewaele, S., Melcher, F., Onuk, P., Spikings, R., Glorie, S., **Jepson, G.**, Muchez, P., **(2020)**, Geochronology of metamorphism, deformation and fluid circulation: a

comparison between Rb-Sr and Ar-Ar phyllosilicate and U-Pb apatite systematics in the Karagwe-Ankole Belt (Central Africa), *Gondwana Research*, **83**, 279-297, https://doi.org/10.1016/j.gr.2020.02.008

12. Zhimulev, F. I., Gillespie, J., Glorie, S., **Jepson, G.**, Vetrova, E. V., De Grave, J., **(2019)**, Tectonic history of the Kolyvan-Tomsk folded zone (KTFZ), Russia: insight from zircon U/Pb geochronology and Nd isotopes, *Geological Journal*, **55**(3), 1913-1930, https://doi.org/10.1002/gj.3679

11. Glorie, S., Otasevic, A., Gillespie, J., **Jepson, G.**, Daniík, M., Zhimulev, F. I., Gurevich,D., Zhang, Z., Song, D., Xiao, W., **(2019)**, Thermo-tectonic history of the Junggar Alatau within the Central Asian Orogenic Belt (SE Kazakhstan, NW China): insights from integrated apatite U/Pb, fission track and (U-Th)/He thermochronology, *Geoscience Frontiers*, **10**(6), 2153-2166, https://doi.org/10.1016/j.gsf.2019.05.005

10. Gillespie, J., Glorie, S., **Jepson, G.**, Xiao, W., Collins, A. S., **(2020)**, Late Paleozoic exhumation of the West Junggar Mountains, NW China, *Journal of Geophysical Research: Solid Earth*, **125**(1), e2019JB018013, https://doi.org/10.1029/2019JB018013

9. Alessio, B. L., S. Glorie, A. S. Collins, F. Jourdan, **G. Jepson**, A. Nixon, P. R. Siegfried, C. Clark, **(2019)**, The thermo-tectonic evolution of the southern Congo Craton margin as determined from apatite and muscovite thermochronology, *Tectonophysics*, **766**, 398-415, https://doi.org/10.1016/j.tecto.2019.06.004

8. **Jepson, G.**, King, R. C., Holford, S., Bailey, A. H. E., Hand, M., **(2019)**, In-situ stress and natural fractures in the Carnarvon Basin, Northwest Shelf, Australia, *Exploration Geophysics*, **50**(5), 514-531, https://doi.org/10.1080/08123985.2019.1634540

7. Glorie, S., **Jepson, G.**, Konopelko, D., Mirkamalov, R., Meeuws, F., Gilbert, S., Gillespie, J., Collins, A. S., Xiao, W., Dewaele, S., De Grave, J., **(2019)**, Thermochronological and geochemical footprints of post-orogenic fluid alteration recorded in apatite: Implications for mineralisation in the Uzbek Tian Shan, *Gondwana Research*, **71**, 1-15, https://doi.org/10.1016/j.gr.2019.01.011

6. **Jepson, G.**, Glorie, S., Konopelko, D., Mirkamalov, R., Mamadjanov, Y., Gillespie, J., Daniík, M., and Collins, A., **(2018c)**, The low-temperature thermo-tectonic evolution of the western Tian Shan, Uzbekistan, *Gondwana Research*, **64**, 122-136, https://doi.org/10.1016/j.gr.2018.08.003

5. **Jepson, G.**, Glorie, S., Konopelko, D., Mirkamalov, R., Mamadjanov, Y., Gillespie, J., Daniík, M., and Collins, A., **(2018b)**, Low-temperature thermochronology of the Chatkal-Kurama ter-

rane (Uzbekistan-Tajikistan): insights into the Meso-Cenozoic thermal history of the western Tian Shan, *Tectonics*, **37**(10), 3954-3969, https://doi.org/10.1029/2017TC004878

4. **Jepson, G.**, S. Glorie, D. Konopelko, J. Gillespie, M. Daniík, E. J. Noreen, Y. Mamadjanov, and A. Collins, **(2018a)**, Thermochronological insights into the structural contact between the Tian Shan and Pamirs, Tajikistan, *Terra Nova*, **30**(2), 95-104, https://doi.org/10.1111/ter.12313

3. Gillespie, J., Glorie, S., **Jepson, G.**, Zhang, Z. Y., Xiao, W., Daniík, M., and Collins, A. S., **(2017)**, Differential Exhumation and Crustal Tilting in the Easternmost Tianshan (Xinjiang, China), Revealed by Low-Temperature Thermochronology, *Tectonics*, **36**(10), 2142-2158, https://doi.org/10.1002/2017TC004574

2. Song, D., Glorie, S., Xiao, W., Collins, A. S., Gillespie, J., **Jepson, G.**, and Li, Y., **(2017)**, Tectono-thermal evolution of the southwestern Alxa Tectonic Belt, NW China: Constrained by apatite U-Pb and fission track thermochronology, *Tectonophysics*, **722**, 577-594, https://doi.org/10.1016/j.tecto.2017.11.029

1. Glorie, S., Alexandrov, I. A., Nixon, A., **Jepson, G.**, Gillespie, J., and Jahn, B.-M., **(2017)**, Thermal and exhumation history of Sakhalin Island (Russia) constrained by apatite U-Pb and fission track thermochronology, *Journal of Asian Earth Sciences*, **143**, 326-342, https://doi.org/10.1016/j.jseaes.2017.05.011

Gilby Jepson Google Scholar profile

Work in progress/review

3. **Jepson, G.**, Carrapa, B., Afonso, W., Reeher, L. J., DeCelles, P. G., Howlett, C. J., Caylor, E. A., Sherpa, T. Z. L., Wang, J. W., and Constenius, K. N., **Major Revisions**, Regional exhumation of the Laramide, *GSA Bulletin*.

2. Carrapa, B., **Jepson, G.**, DeCelles, P. G., George, S. W. M., Ducea, M., Campbell, C., Dawson nee Canavan, R., **Major Revisions**, Crustal bobbing in response to lithospheric foundering recorded by detrital proxy records from the Central Andean Plateau, *Geology*.

1. Zuza, A., **Jepson, G.**, and Cao, W., **Major Revisions**, Reevaluating metamorphic core complexes in the North American Cordillera: Paleogene buoyant doming captured by Miocene detachment faulting, *Earth Science Reviews*.

Scientific Communication

1. Jepson, G., Collins, A. S., Gillespie, J., **2018**, How Eurasias Tianshan mountains set a stage that changed the world, The Conversation

REVIEWER FOR THE FOLLOWING JOURNALS

Geology
Geophysical Research Letters
Earth and Planetary Science Letters
Journal of Geophysical Research: Solid Earth
Journal of Geophysical Research: Earth Surface
Scientific Reports
Tectonics
Geochemistry, Geophysics, Geosystems
Communications Earth & Environment
Geological Society of America Bulletin
Earth Science Reviews
International Geology Review
Journal of the Geological Society of London
Geomorphology
Gondwana Research
Geoscience Frontiers
Geological Magazine
Evolving Earth
Canadian Minerologist
MDPI Geosciences
MDPI Minerals

Geological Field Work

Tianshan range [20 weeks] 2015, 2016, 2017
This fieldwork was related to understanding the Mesozoic-Cenozoic exhumation of the Tianshan range in Uzbekistan, Kyrgyzstan, Kazakhstan, and China. The focus was on detailed structural relationships and collecting samples for geo- and thermochronological analysis.

Southern Arizona, Laramide structures and metamorphic core complexes [10 weeks] 2019, 2020, 2021
Extensive fieldwork across southern Arizona, focusing on the relationship between the Laramide crustal thickening and subsequent extension via detachment faults associated with metamorphic core complexes. The field work focused on detailed structural and stratigraphic relationships, with targeted thermochronological sampling to constrain timing and rates of exhumation.

Wyoming and Montana, Sevier and Laramide provinces [5 weeks] 2020
Detailed structural and sedimentological fieldwork in the Sevier fold and thrust belt (Wyoming) and basement-cored uplifts (Monatana). The goal of this field work is test hypotheses associated to the onset of basement-cored uplifts in the western US.

Western Argentina [5 weeks] 2021-2022

Measured sections for detailed wind directions in eolianite sedimentary rocks during the Mid-Miocene Climatic Optimum. Measured section for tectonic sedimentology. Collected samples for geochronological and geochemical analysis.

British Colombia, Canada [4 weeks] 2022
Conducted helicopter fieldwork in western British Colombia. Collected paleoflow directions and samples for detrital zircon geochronology.
Alberta, Canada [1 week] 2023
Conducted structural fieldwork and theromchronological sampling in Jasper National Park, Alberta.
Nepalese Himalaya, Nepal [4 weeks] 2024
Conducted structural fieldwork, detailed measured sections, and theromchronological sampling in the Nepalese Himalaya, river catchments, and associated foreland basin.

Invited talks

Goldschmidt Conference, Chicago, IL, *Monazite ssion-track thermochronology as a possible proxy for low-magnitude erosion* 08/2024

University of Huston, TX, USA, Departmental Seminar, *Regional Exhumation of the Laramide* 02/2024

The 18th International Conference on Thermochronology, *An empirical calibration of the monazite fission-track partial annealing zone from the Siwalik Group, Nepalese Himalaya* 09/2023

Georgia Tech, Atlanta, GA, USA, Geophysics Seminar, *The Relationship among Climate, Tectonics, and Erosion* 02/2023

China University of Geosciences, Beijing, Introductory Course on Geology/Geo- and Thermochronology 11/2022

University of Arizona, Department of Geosciences, Colloqium 02/2022

China Earthquake Administration, Institute of Geology, Introductory Course on Geology/Geo- and Thermochronology 10/2021

University of Lyon-1, Departmental seminar 03/2021

IGCP 648 Virtual Seminar Series 05/2020

Ghent University, Departmental seminar 08/2018

Laboratory experience

Started in 2023, I run the Structure and Tectonics at University of Oklahoma (OU) Thermochronology Laboratory, or STOUT Lab (https://outhermochronology.weebly.com/). The laboratory is currently functioning and produces the below analyses:

Fission-track thermochronology 2015 - present
Developed and maintained both the Laser Ablation-Inductively Coupled Plasma-Mass Spectrometry and External Detector Method laboratories for apatite, monazite, titanite, and zircon fission-track analysis.

Uranium-Lead geo-thermochronology 2015 - present
Established and maintained apatite, titanite, monazite, and zircon U-Pb analysis via Laser Ablation-Inductively Coupled Plasma-Mass Spectrometry.

Accessory mineral geochemistry 2019 - present
Established and maintained apatite, titanite, monazite, and zircon trace and rare earth element analysis via Laser Ablation-Inductively Coupled Plasma-Mass Spectrometry. With a focus on comparing accessory mineral geochemical signatures to whole rock and U-Pb dates.

Academic conferences

EGU24; Vienna, Austria, 2024, Presentation: *Monazite ssion-track thermochronology as a possible proxy for low-magnitude erosion*.

18th International Conference on Thermochronology; Riva del Garda, Italy, 2023, Presentation: *An empirical calibration of the monazite fission-track partial annealing zone from the Siwalik Group, Nepalese Himalaya*.

Geological Society of America, Cordillera Section Meeting; Reno, Nevada, USA, 2023, Presentation: *Tracking Laramide exhumation as a proxy for upper crustal response to subduction processes.*

Geological Society of America; Denver, Colorado, USA, 2022, Presentation: *The Paleocene-Eocene Thermal Maximum enhanced erosion of Laramide ranges.*

Geological Society of America; Denver, Colorado, USA, 2022, Co-convener for GSA2022 session T1 - Advances and Applications of Thermochronology in Tectonic, Magmatic, Basin, and Geomorphic Studies.

Geological Society of America; Denver, Colorado, USA, 2022, Co-convener for GSA2022 session T39 - New Insights into the Evolution and Geodynamics of Metamorphic Core Complexes in North America and Around the World.

Geological Society of America; Portland, Oregon, USA, 2021, Presentation: *Where did the Arizona-plano go? Middle to lower crustal processes required.*

Geological Society of America; Portland, Oregon, USA, 2021, Guest convener for GSA2021 session T2 - Cenozoic Tectonism, Magmatism, Sedimentation, and Landscape Evolution in the Intermountain West.

17th International Conference on Thermochronology, Santa Fe, NM, USA, Oral Presentation: *Monazite fission-track dating of the Catalina Metamorphic Core Complex, AZ, USA*.

17th International Conference on Thermochronology, Santa Fe, NM, USA, Session convener: *Fission-track: Theory, Nuts & Bolts, and Best New Practices*.

European Geosciences Union; Online, 2021, Oral presentation: *Climate as the great equalizer of continental-scale erosion* (doi:https://doi.org/10.5194/egusphere-egu21-13718).

Geological Society of America; Online, 2020, Oral presentation: *Resolving mid- to upper-crustal exhumation through apatite petrochronology*

American Geophysical Union; San Francisco, California, USA 2019, Poster presentation: *Linking emplacement to exhumation: A Thermochronology and Geochemistry Approach*

Geological Society of America; Phoenix, Arizona, USA 2019, Poster presentation: *Thermochronological and geochemical insights on the transition between the Metamorphic Core Complex and the North American Cordillera, Southern Arizona*

Himalaya-Karakorum-Tibet (HKT) Workshop; Montana, USA 2019, Oral presentation: *The Low-Temperature Thermo-Tectonic Evolution of the Eurasian Margin*

Thermochronology and Noble Gas Geochronology and Geochemistry Organisation; Victoria (TANG3O), Australia 2018, Poster presentation: *The Mesozoic Thermo-Tectonic Evolution of the Western Tian Shan (Kazakhstan, Uzbekistan, Tajikistan)*

Thermo2018; Quedlinburg, Germany 2018, Poster presentation: *The Mesozoic Thermo-Tectonic Evolution of the Western Tian Shan (Kazakhstan, Uzbekistan, Tajikistan)*

Geological Society of Australia; Earth Sciences Student Symposium, South Australia 2017, Oral presentation: *Deciphering Central Asian Mountain Building; a Thermochronology Approach*

Specialist Group in Tectonics and Structural Geology 2017, Oral presentation: *The Meso-Cenozoic tectonic evolution of the western Tian Shan, Uzbekistan and Tajikistan.*

Goldschmidt 2017, Oral Presentation: *Formation and reactivation of the Pamir-Tian Shan suture: insights from apatite triple dating.*

Australian Earth Sciences Convention 2016, Oral Presentation: *A Thermochronological Transect Through the western Tian Shan (Uzbekistan and Tajikistan).*
Specialist Group in Tectonics and Structural Geology 2015, Poster presentation: *Exhumation history of the Western Tian Shan (Uzbekistan and Tajikistan): Preliminary thermochronological results*

Australian Earth Sciences Convention 2014, Poster presentation: *In-situ stress and natural fractures in the Carnarvon Basin, Northwest Shelf, Australia*

Mentoring

University of Oklahoma

2024 - present: Natalie Tanski - Postdoctoral Researcher (supervisor, project development, data collection and analysis, presentation)
2024 - present: Ryan Haag - Msc (supervisor, project development, data collection and analysis, presentation)
2024 - present: Gabriel Beltran Valero - Msc (supervisor, project development, data collection and analysis, presentation)
2023 - present: Sofia Barth - Msc (supervisor, project development, data collection and analysis, presentation)
2023 - present: Boyd - Msc (supervisor, project development, data collection and analysis, presentation)
2023 - present: Alex Cerdero Rincon - Msc (graduate committee, project development and data collection)
2023 - present: Brock Dumont - Msc (graduate committee, project development and data collection)
2023 - present: Elisha Miller - Msc (graduate committee, project development and data collection)
2023 - present: Jamie Bowie - Msc (graduate committee, project development and data collection)

University of Arizona

2020 - 2022: Jack Konguthaithip - Undergraduate (supervisor, project development and data collection)
2020 - 2022: Sakinah Muhammad - Msc (field work, data collection and analysis)
2020 - 2022: Jordan Wang - Msc (field work, data collection and analysis)
2020 - 2022: Caden Howlett - PhD (field work, data collection and analysis)
2019 - 2022: Shana Egan - Undergraduate (supervisor, project development, data collection and analysis, presentation)
2019 - 2022: Tshering Lama-Sherpa - Msc (data analysis)
2019 - 2022: Emilia Caylor - PhD (data collection and analysis)

UNIVERSITY OF ADELAIDE

- 2018: Fan Yang - PhD (data collection and analysis)
- 2018: Alex Simpson - PhD (data collection and analysis)
- 2018: Sheree Armistead - Hons (data collection and analysis)
- 2017: Dongfang Song - Postdoctoral Researcher (data collection and analysis)
- 2017: Angus Nixon - Hons (data collection and analysis)
- 2016: Nicholas Fernie - Hons (data collection and analysis)

Teaching

TEACHING: UNIVERSITY OF OKLAHOMA

- Volcanoes & Earthquakes - GEOL-1003-001 (2023, 2024):
  A intro geology course for non-majors. Involves introducing ~120 students to a range of geological processes through the society focused lens of volcanic erruptions and earthquakes.
- Orogenic Systems - GEOL-5970-004 (2023):
  Graduate class of 11 students focusing on the growth and decay of orogenic systems across geologic time from a range of perspectives (e.g., sedimentological, structural, petrological)
- Field Geoscience - GEOL-4136 (2023, 2024):
  Taught 3 weeks of Field Geoscience. This class teaches senior year undergraduate students field-based sedimentology, structure, and mapping.
- Geochronology and Thermochronology as Applied to Basin Systems - OU Student Expo shortcourse (2023):
  Led a day-long short course on geochronology and thermochronology and how they are applied to reconstruct basin paleotemperature evolution.

CO-TEACHING: UNIVERSITY OF ARIZONA

- Orogenic Systems - graduate (2020):
  In the graduate course Orogenic Systems, led by Pete DeCelles, I taught the course on geochronological and thermochronological applications to orogenic systems.

- Historical Geology - GEOS255 (2021):
  Co-taught Historical Geology with Dr. Carrapa. This class describes the scientific method, principles of Earth History, evolution and history of continents, plate tectonics and its effect on climate change, the origin and evolution of life and the stratigraphy of N America.

UNDERGRADUATE TEACHING ASSISTANT: UNIVERSITY OF ADELAIDE

- Field Geoscience III (2018):
  Assisted third-year geosciences students over the course of a four week structural and metamorphic mapping course.
- Earths Interior I (2015-2017):
  Assisted first-year geoscience students in labs relating to introductory geological processes.
- Petroleum Geoscience I (2016-2017):
  Assisted first-year geoscience students on a weekend field trip, investigating introductory structural and sedimentological processes with an emphasis on petroleum systems.
- Tectonics III (2016-2018):
  Assisted third-year geosciences students investigating detailed structural and tectonic concepts.

Hobbies and Interests

I am a passionate football player and have played for amateur and professional clubs in both Adelaide, Tucson, and Norman. I also have a love of outdoor activities such as hiking, rock-climbing, and camping. In addition, I volunteer my time with a local charity (South Australians Supporting Women and Children in Assam), aiding in both fund-raising and logistic management, as well as geoscience outreach activities with local hiking groups and schools (Tucson and Norman).

Referees

Professor Barbara Carrapa
Professor at the University of Arizona, Department of Geosciences.
Phone: +1 520 891 6559
Email: bcarrapa@arizona.edu
Professor Carrapa was my postdoctoral research adviser at the University of Arizona.

Professor Alan Collins
Professor at the University of Adelaide, Department of Earth Sciences.
Phone: +61 408 916 965
Email: alan.collins@adelaide.edu.au
Professor Collins was a principal adviser of my PhD project.

Professor Paul Kapp
Professor at the University of Arizona, Department of Geosciences.

Phone: +1 520 440 3246
Email: pkapp@arizona.edu
Professor Kapp has been a close mentor and collaborator while working at the University of Arizona.