

Kristina L. Butler

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EDUCATION

2021 **Ph.D. Geological Sciences**, The Jackson School of Geosciences, UT-Austin

National Science Foundation Graduate Research Fellow (2018-2021)

Thesis Mesozoic-Cenozoic foreland basin evolution in Northern Patagonia, Argentina (~42-46°S): integrating sedimentation, magmatism, and subduction dynamics

Advisor Brian K. Horton

2017 **B.S. Geological Sciences (Honors)**, University of Alaska Anchorage

2017 **Wasatch-Uinta Field Program**, University of Minnesota Duluth (field camp)

RESEARCH INTERESTS

Initiation and evolution of orogens and their sedimentary basins

Drivers and consequences of high topography

Paleoclimate archives of lacustrine depositional systems

Metrics for accessing diversity, equity and inclusion in the Geosciences

TEACHING

2020 **GEO660B Field Camp Assistant Instructor** (3 weeks)

2019 **GEO660A Field Camp Teaching Assistant** (3 weeks)

2017 **GEO440K Field Methods Teaching Assistant** (Spring semester)

UNDERGRADUATE THESIS DESIGN & MENTORSHIP

2020-present Leigh Mercer (female)

thesis: Pliocene-Pleistocene lacustrine-alluvial sedimentology of a Li-brine reservoir, Clayton Valley basin, Nevada

2018-present Anthony Edgington (LGBTQ+)

thesis: Stratigraphic architecture, age and provenance of the Late Cretaceous Cerro Barcino Formation, Patagonia Argentina

awarded research grants: AAPG L. Austin, GSA travel, UT-Austin undergraduate research

best poster awards: Edgington et al., 2019, 2020 (see **Abstracts** below)

SERVICE

2019-2021 **Society for Sedimentary Geology (SEPM) Student Councilor**

adhoc committees: search Digital Marketing executive, search SEPM Foundation

president, special interest Diversity, Equity and Inclusion at SEPM; AAPG ICE

Buenos Aires SEPM student outreach event (resulting in >100 student memberships)

2020 **GSA Annual Meeting session chair:** (virtual meeting)
Using Paired Single-Mineral Geochronology and Geochemistry to Address Tectonic Problems from the Mid-Crust to Earth's Surface

2020 **Deford Lecture Series Committee (Jackson School of Geosciences, UT-Austin)**

2019 **Department of Geosciences Sedimentology Faculty Search Committee (UT-Austin)**

2017 **Alaska Volcano Observatory-USGS, Volunteer (4 months)**

2014 **Alaska Volcano Observatory-USGS, Volunteer (1 year)**

OTHER RELEVANT EXPERIENCE

2018 **ConocoPhillips (Lower48 Permian Basin Development), Graduate Geology Summer Intern**

2017 **ExxonMobil/SEG, Student Education Program (2 days)**

2016 **Albemarle Corporation, Undergraduate Researcher (University of Alaska Anchorage, 1 year)**

2016 **Devon Canada Corporation, Undergraduate Geology Summer Intern**

2015 **Devon Canada Corporation, Undergraduate Geology Summer Intern**

PEER-REVIEWED PUBLICATIONS

*student mentee

+diversity, equity, inclusion research

[9] **Butler, K.L.**, Horton, B.K., Echarren, A., Folguera, A., Fuentes, F., 2020, Cretaceous-Cenozoic growth of the Patagonian broken foreland basin, Argentina: Chronostratigraphic framework and provenance variations during transitions in Andean subduction dynamics: *Journal of South American Earth Sciences*, v. 97
<https://doi.org/10.1016/j.jsames.2019.102242>

[8] Navarrete, C., Gianni, G., Massaferro, G., **Butler, K.L.**, 2020, The fate of the Farallon slab beneath Patagonia and its links to Cenozoic intraplate magmatism, marine transgressions and topographic uplift: *Earth Science Reviews*, v. 210
<https://doi.org/10.1016/j.earscirev.2020.103379>

[7] Navarrete, C., Hurley, M., **Butler, K.L.**, Liendo, I., Litvak, V., Folguera, A., *in press*, Jurassic volcanism of the Chon Aike silicic LIP in the northeastern Deseado Massif, Patagonia, Argentina: *Journal of South American Earth Sciences*
<https://doi.org/10.1016/j.jsames.2020.102886>

[6] Gianni G.M., Likerman, J., Echaurren, A., Navarrete, C., **Butler, K.L.**, Folguera, A., *in press*, Antepaís fragmentado Patagónico: Control estructural previo, mecanismos de deformación y sedimentación sintectónica. In: Giacosa et al. (Eds.), Relatorio y recursos naturales de la Provincia de Chubut. Congreso Geológico Argentino 2021, Puerto Madryn, Chubut.

[5] +Fernandes, A. M., Abeyta, A., Mahon, R. C., Martindale, R., Bergmann, K. D., Jackson, C. A., Present, T., Reano, D., Sawnsen, T., **Butler, K.L.**, Brisson, S., Mohrig, D., Johnson, C., 2020, “Enriching Lives within Sedimentary Geology”: Evaluating SEPM’s Role in Diversity, Equity, and Inclusion. <https://doi.org/10.31223/osf.io/y7v9e> [PDF]

[4] Gonzalez, M., Clavel, F., Christiansen, R., Gianni, G.M., Klinger, F.L., Martinez, P., **Butler, K.L.**, Suriano, J., Mardonez, D., and Diaz, M., 2020, The Inglesia basin in the southern Central Andes: A record of backarc extension before wedgetop deposition in a foreland basin: Tectonophysics, v., 792 <https://doi.org/10.1016/j.tecto.2020.228590>

[3] Navarrete, C., **Butler, K.L.**, Hurley, M., and Márquez, M., 2020, An early Jurassic graben caldera of Chon Aike silicic LIP at the southernmost massif of the world: The Deseado caldera, Patagonia, Argentina: Journal of South American Earth Sciences, v. 101 <https://doi.org/10.1016/j.jsames.2020.102626>

[2] Folguera, A., Fernández Paz, L., Iannelli, S., Navarrete, C., Echaurren, A., Gianni, G., **Butler, K.L.**, Horton, B.K., Litvak, V., Encinas, A., Orts, D., 2020, The origin of the San Jorge Gulf Basin in the context of the Mesozoic-Cenozoic evolution of Patagonia: Journal of South American Earth Sciences, v. 97 <https://doi.org/10.1016/j.jsames.2019.102422>

[1] Gianni, G.M., Navarrete, C., Echaurren, A., Díaz, M., **Butler, K.L.**, Horton, B.K., Encinas, A., Folguera, A., 2020, Northward propagation of Andean genesis: Insights from Early Cretaceous synorogenic deposits in the Aysén-Río Mayo basin: Gondwana Research, v. 77, p. 238-259 <https://doi.org/10.1016/j.gr.2019.07.014>

In Prep

+**Butler, K.L.**, Perez, N., Telis, N., *in prep* (for Nature Geoscience Comment), What of the quality, vitality and diversity of Geoscience? 15 years of the NSF GRFP awards go to a few top schools

Butler, K.L., Horton, B.K., Echaurren, A., Navarrete, C., Gianni, G., Folguera, A., *in prep* (for Basin Research), Stratigraphic framework, subsidence history, and sediment routing during foreland partitioning of the Cretaceous Patagonian broken foreland, Argentina (~42-46°S)

Butler, K.L., Horton, B.K., Flaig, P., *in prep* (for Sedimentology), Marine inundation during flat-slab subduction: stratigraphic architecture of the Late Cretaceous-Paleogene Paso del Sapo-Lefipán marginal marine system, Patagonia, Argentina

Edgington, A.H.*, **Butler, K.L.**, Horton, B., *in prep* (for Journal of South American Earth Sciences), Age and provenance of the Cerro Barcino Formation, Chubut Province, Argentina: Journal of South American Earth Sciences

Coffey, D.M., Munk, L.A., Ibarra, D.E., **Butler, K.L.**, Boutt, D.F., *in prep* (for Geochemistry, Geophysics, Geosystems), Lithologic sources and release mechanisms of lithium in arid watersheds: Implications for the genesis of lithium enriched brines

RESEARCH GRANTS

in review, National Science Foundation EAR-Tectonics postdoctoral fellowship \$174,000
not funded, highly favorable reviews, National Science Foundation/GSA AGeS2 \$10,000

Awarded Graduate Student Research Grants & Fellowships

2021

National Science Foundation Graduate Research Fellowship (2018-2021) \$138,000

Provost Supplement Fellowship University of Texas Austin (2017-2021) \$18,000

Deans Prestigious Fellowship Supplement (2018-2021) \$1000

2020

Geological Society of America (GSA) Graduate Student Research Grant \$1250

2019

International Association of Sedimentologists (IAS) Postgraduate Grant €1000

American Association of Petroleum Geologists (AAPG) R.C.H Mem. Grant \$3000

The Society for Sedimentary Geology (SEPM) Student Research Grant \$1200

Jackson School of Geosciences (UT-Austin) Analytical Fund Award \$600

Jackson School of Geosciences (UT-Austin) External Research Grant \$3000

2018

Roscoe G. Jackson II Award \$2500

AAPG Grants-in-Aid General Fund \$2500

The Society for Sedimentary Geology (SEPM) Student Research Grant \$2000

American Institute of Professional Geologists (AIPG) W.J. Siok Graduate Scholarship
\$1000

SEPM Student Travel Grant \$300

GSA South-Central Section Travel Grant \$100

Jackson School of Geosciences (UT-Austin) External Research Grant \$3000

McBride of Folkenstein Endowment Award (UT-Austin) \$4000

Awarded Undergraduate Student Research Grants & Scholarships

2017

AIPG National Undergraduate Scholarship \$1000

Geophysical Society of Alaska Scholarship \$1000

National Association of Geoscience Teachers (NAGT) Field Camp Scholarship \$750

University of Alaska Anchorage (UAA) Honors Scholarship for High Achieving
Students \$600

2016

Albemarle Corporation Full 1 Year (24-credit) Tuition Scholarship \$8376

Women in Mining Scholarship \$1000

Cook Inlet Regional Citizen's Advisory Council Scholarship \$2500

AIPG National Undergraduate Scholarship \$1000

Geophysical Society of Alaska Scholarship \$1000

Alaska Geological Society Scholarship \$1000

UAA Academic Merit Scholarship \$1000

UAA Honors Scholarship for High Achieving Students \$600

2015

Office of Undergraduate Research & Scholarship Grant \$2000

JMP Engineering Scholarship \$2000 CAD

2014

UAA Geology Department Student Involvement Tuition Scholarship \$675

ABSTRACTS

***student mentee**

Butler, K.L., Horton, B.K., Flaig, P.P., 2021, Late Cretaceous-Paleogene Patagonian broken foreland: an end-member example of broken foreland settings: International Sedimentary Geoscience Congress, Flagstaff, Arizona. (*rescheduled from April 2020 due to COVID-19*)

Butler, K.L., Horton, B.K., Echarren, A., Folguera, A., Fuentes, F., 2019, Cretaceous-Cenozoic growth of the Patagonian broken foreland basin, Argentina:

Chronostratigraphic framework and provenance variations during transitions in Andean subduction dynamics: GSA Annual Meeting, Phoenix, Arizona

Edgington, A.H.*, **Butler, K.L.**, Horton, B.K., 2019, Stratigraphic architecture and provenance of the Cerro Barcino Formation, Southern Argentina: Implications for a transitioning tectonic regime: GSA Annual Meeting, Phoenix, Arizona

Horton, B.K., Jackson, L.J., Capaldi, T.N., **Butler, K.L.**, George, S.W.M., Gutierrez, E.G., Mackaman-Lofland, C., 2019, Tracking sediments from source to sink in the Andean orogenic belt and foreland basin system: AAPG Annual Convention, Abstracts with Programs

Horton, B.K., Capaldi, T.N., **Butler, K.L.**, Mackaman-Lofland, C., George, S.W.M., Jackson, L.J., 2019, Broken foreland basins and the influence of flat slab subduction, crustal inheritance, climate, and erosion: European Geophysical Union General Assembly

Butler, K.L., Horton, B.K., Echuaren, A., and Folguera A, 2019, Provenance variations during transitions in subduction dynamics, a case study from the North Patagonian Broken Foreland Basin, Argentina: insights from detrital zircon U-Pb and Lu-Hf geochronology: JSG Research Symposium Abstract, Austin, TX

Butler, K.L., and Horton, B.K., 2018, Partitioning of the Andean retroarc foreland basin during Cretaceous-Paleogene flat-slab subduction in northern Patagonia, Argentina: Stratigraphic architecture, provenance, and sediment routing: GSA 2018 Annual Meeting

Butler, K.L., 2018, Sediment routing and 3D stratigraphic architecture of the Paso del Sapo Formation, Chubut Province, Argentina: JSG Research Symposium Abstract, Austin, TX

Butler, K.L., and Aschoff, J.L., 2016, Facies and stratigraphic architecture of the Fox Hills Sandstone: Insight into Depositional Processes During Long-transit Shoreline Regression: AAPG Annual Meeting Abstract, Calgary, Alberta Canada

Butler, K.L., and Aschoff, J.L., 2016, Heterogeneity and geometry of the Fox Hills Sandstone: implications for geologic modeling of mixed-energy delta systems: University of Alaska Anchorage Undergraduate Research and Discovery Symposium, Anchorage, AK

Butler, K.L., and Busk A., 2016, Deep-water Facies Successions of the Canning Formation, North Slope Alaska: University of Alaska Anchorage Core Workshop, Anchorage, AK

Butler, K.L., and Busk A., 2015, Shallow Water Facies Successions of the Lisburne Group, North Slope Alaska: University of Alaska Anchorage Core Workshop, Anchorage, AK

FIELD EXPERIENCE

2020 Jackson School of Geosciences Field Camp - 3 weeks, assistant instructor

2019-2020 Tectonic evolution of Patagonia, Argentina - 6 weeks, dissertation research

2019 Jackson School of Geosciences Field Camp - 3 weeks, teaching assistant

2019 Li-brine reservoirs of Clayton Valley, Nevada - 7 days, research collaboration

2018-2019 Tectonic evolution of Patagonia, Argentina – 8 weeks, dissertation research

2019 Atlas Mountains Inversion Tectonics, Morocco - 10 days, student participant

2018 Carpathian tectonics and foreland basins, Romania - 10 days, student participant

2018 Cretaceous Western Interior Seaway, Wyoming - 2 days, student participant

2018 Cordilleran fold-thrust belt and foreland basin, Utah - 2 days, student participant

2018 Carbonate High-Frequency Cycles, Texas - 2 days, teaching assistant

2018 Geologic Mapping at Mason Mountain, Texas - 2 days, teaching assistant

2017-2018 Tectonic evolution of Patagonia, Argentina - 6 weeks, dissertation research

2017 Geology of Utah and Wyoming - 6 weeks, field camp student participant

2017 Li-brine reservoirs of Clayton Valley, Nevada - 5 days, research collaboration

2017 Tectonic evolution of the Sevier-Laramide orogeny - 7 days, student participant

2016 Stratigraphy of the Wishbone Hill Fm, Alaska - 2 days, student participant

2016 Stratigraphy of the Fox Hills Ss, Wyoming - 10 days, research collaboration

2016 Li-brine reservoirs of Clayton Valley, Nevada - 5 days, research collaboration

2016 Li-brine reservoirs of the Salar de Atacama, Chile - 7 days, research collaboration

2015 Stratigraphy of the Fox Hills Ss, Wyoming - 10 days, research collaboration