

Andrew L. Leier Curriculum Vitae

School of the Earth, Ocean and Environment
University of South Carolina
701 Sumter St., EWS 617
Columbia, SC 29208 USA

PERSONAL INFORMATION

Born: August 7th, 1974; Columbus, Ohio, USA
Married, no children
U.S. Citizen
Office: EWS 212
Telephone: (803) 777-9941 (office)
email: aleier@geol.sc.edu

EMPLOYMENT

2013- Associate Professor, School of the Earth, Ocean and Environment, University of South Carolina, Columbia, SC, USA
2008-2013 Assistant Professor, Department of Geoscience, University of Calgary, Calgary, AB, Canada (Tenured May, 2013)

EDUCATION

2006-2007 Hess Postdoctoral Fellow, Department of Geosciences, Princeton University
2005 Ph.D. in Geology, Department of Geosciences, The University of Arizona
Thesis: Jurassic-Cretaceous deposits of the central Lhasa Terrane, Tibet: implications for the tectonic evolution of southern Asia prior to the Indo-Asian collision.
2000 M.S. in Geology, Department of Geology and Geophysics, The University of Wyoming
Thesis: Sedimentology and Stratigraphy of the Bacon Ridge Sandstone, Teton County, Wyoming.
1996 B.S. in Geology, minor in Mathematics, Bucknell University, Lewisburg, PA
Thesis: Incised-Valley-Fills in the Sherman Creek Member of the Catskill Formation (Upper Devonian), central Pennsylvania.

RESEARCH GRANTS

Pending

2017 \$510,480, Co-PI with 1 other, NSF, Collaborative Research: Eocene topography, volcanism, and basin formation: Collapse of the Southern Canadian Cordilleran hinterland
2017 \$292,320, Co-PI with 1 other, NSF, Reconstructing the Bell River: Cenozoic transcontinental sediment dispersal from the Cordillera to the Labrador Sea
2017 \$16,408, PI, ConocoPhillips, Fluvial sandstone variability in ancient distributive fluvial systems

Funded

2017 \$11,000, PI, USC Aspire Grant, Cenozoic transcontinental rivers in northern North America
2016 \$110,000, PI, ACS, PRF, New Directions, SfM-UAV characterization of fluvial outcrops
2012 \$15,000, PI, Nexen Inc., Provenance of Lower Cretaceous sandstones, Western Canada
2012 \$508,793, Collaborator with 2 others, Canada Foundation for Innovation, Thermochronology Lab
2011 \$350,000, Co-PI with 1 other, Devon Energy, Fluvial stratigraphy of the Manatokan Field
2011 \$45,000, PI, Nexen Inc., Detrital zircon provenance of the McMurray Formation
2010 \$220,000, Co-PI with 4 others, NSERC - Collaborative and Development Grant
2010 \$80,000, Co-PI with 4 others, Total E&P Research Grant
2009 \$100,000, Co-PI with 3 others, ConocoPhillips Research Grant
2008 \$125,000, PI, NSERC Discovery Grant, Large intermontane basins in fold-thrust belts

PUBLICATIONS

Submitted to peer-reviewed journals (⁺graduate student)

27. ⁺Chesley, J.T. and **Leier, A.L.**, in review, Sandstone body variability in ancient distributive fluvial system deposits, Salt Wash Member of the Morrison Formation, Utah, USA: *Journal of Sedimentary Research*.
26. ⁺Saeid, E., Bakioglu, K.B., Kellogg, J., **Leier, A.**, Martinez, J.A., and Guerrero, E., 2017, in press, Garzón Massif basement tectonics: structural control on evolution of petroleum systems in Upper Magdalena and Putumayo basins, Colombia: *Journal of Marine and Petroleum Geology*.
25. ⁺Chesley, J.T., **Leier, A.L.**, White, S., and Torres, R., 2017, Using unmanned aerial vehicles and structure-from-motion photogrammetry to characterize sedimentary outcrops: an example from the Morrison Formation, Utah, USA: *Sedimentary Geology*, v. 354, p. 1-8.
24. Bershaw, J., Saylor, J.E., Garzzone, C.N., **Leier, A.**, and Sundell, K., 2016, Stable Isotope Variations (d18O and dD) in Modern Waters Across the Andean Plateau: *Geochimica et Cosmochimica Acta*, v.194, p. 310-324.
23. ⁺Benyon, C., **Leier, A.L.**, Leckie, D.A., Hubbard, S.M., and Gehrels, G.E., 2016, Sandstone provenance and insights into the paleogeography of the McMurray Formation from detrital zircon geochronology, Athabasca Oil Sands, Canada: *American Association of Petroleum Geologists Bulletin*, v. 100, p. 269-287.
22. ⁺Quartero, E.M., **Leier, A.L.**, Bentley, L.M., and Glombick, P., 2015, Basin-scale stratigraphic architecture and potential Paleocene distributive fluvial systems of the Cordilleran Foreland Basin, Alberta, Canada: *Sedimentary Geology*, v. 316, p. 26-38.
21. ⁺Tullius, D. N., **Leier, A.L.**, Galloway, J.M., Embry, A.F., and Pedersen, P.K., 2014, Sedimentology and Stratigraphy of the Lower Cretaceous Isachsen Formation: Ellef Ringnes Island, Sverdrup Basin, Canadian Arctic Archipelago: *Journal of Marine and Petroleum Geology*, v. 57, p. 135-151.
20. ⁺Quartero, E.M., Bechtel, D., **Leier, A.L.**, and Bentley, L.R., 2014, Gamma-ray normalization of shallow well-log data with applications to the Paleocene Paskapoo Formation, Alberta: *Canadian Journal of Earth Sciences*, v. 51, p. 327-340.
19. ⁺Benyon, C., **Leier, A.**, Leckie, D.A., Webb, A., Hubbard, S.M., Gehrels, G., 2014, Provenance of the Cretaceous Athabasca Oil Sands, Canada: Implications for continental-scale sediment transport: *Journal of Sedimentary Research*, v. 84, p. 136-143.
18. **Leier, A.L.**, McQuarrie, N., Garzzone, C., and Eiler, J., 2013, Stable isotope evidence for multiple pulses of rapid surface uplift in the Central Andes, Bolivia: *Earth and Planetary Science Letters*, v. 371-372, p. 49-58.
17. ⁺Anfinson, O.A., **Leier, A.L.**, Guest, B., Stockli, D., Dewing, K., and Embry, A.F., 2013, Thermal history of the northern Laurentian margin: apatite and zircon (U-Th)/He thermochronology of the Paleozoic Franklinian Basin, Canadian Arctic Islands: *Canadian Journal of Earth Sciences*, v. 50, p. 761-768.
16. ⁺Raines, M.K., Hubbard, S.M., ⁺Kukulski, R.B., **Leier, A.L.**, and Gehrels, G.E., 2013, Sediment dispersal in an evolving foreland: Detrital zircon geochronology from Upper Jurassic and lowermost Cretaceous strata, Alberta Basin, Canada: *Geological Society of America Bulletin*, v. 125, p. 741-755.
15. ⁺Anfinson, O.A., **Leier, A.L.**, Gaschnig, R., Embry, A.F., and Dewing, K., 2012, U-Pb and Hf isotopic data from Franklinian Basin strata: insights into the nature of Crockerland and the timing of orogeny, Canadian Arctic Islands: *Canadian Journal of Earth Sciences*, v. 49, p. 1316-1328.
14. ⁺Miles, B., Kukulski, R.B., Raines, M.K., Zonneveld, J-P., **Leier, A.L.**, and Hubbard, S.M., 2012, A stratigraphic framework for Late Jurassic-Early Cretaceous Gas-bearing strata (Monteith Formation) in the subsurface of northwest Alberta: *Bulletin of Canadian Petroleum Geoscientists*, v. 60, p. 3-36. (2013 CSPG Medal of Merit Award – best publication of Canadian petroleum geology)
13. ⁺Anfinson, O., **Leier, A.L.**, Dewing, K., and Embry, A., 2012, Detrital zircon geochronology and provenance of the Franklinian Basin, Canadian Arctic Islands: *Geological Society of America Bulletin*, v.124, p.415-430.
12. **Leier, A.L.**, and Gehrels, G.E., 2011, Continental scale detrital zircon provenance signatures in Lower Cretaceous strata, western North America: *Geology*, v. 39, p.399-402.
11. **Leier, A.L.**, McQuarrie, N., Horton, B.K., and Gehrels, G.E., 2010, Upper Oligocene conglomerates of the Altiplano, Central Andes: the record of deposition and deformation along the margin of a hinterland basin: *Journal of Sedimentary Research*, v. 80, p.750-762.
10. **Leier, A.L.**, and Steidtmann, J.R., 2009, The Bacon Ridge Sandstone of northwestern Wyoming and its place within the larger-scale Late Cretaceous depositional history of the region: *The Mountain Geologist*, v. 46, p. 51-70.

9. **Leier, A.L.**, Quade, J., DeCelles, P., Kapp, P., 2009, Stable isotopic results from paleosol carbonate in south Asia: paleoenvironmental reconstructions and selective alteration: *Earth and Planetary Science Letters*, v. 279, p.242-254.
8. Pelletier, J.D., **Leier, A.L.**, and Steidtmann, J.R., 2009, Wind-driven reorganization of coarse clasts on the surface of Mars: *Geology*, v. 37, p.55-58.
7. Lease, R.O., McQuarrie, N., Oskin, M., and **Leier, A.**, 2009, Quantifying dextral shear on the Bristol-Granite Mountains Fault Zone: successful geologic prediction from kinematic compatibility of the Eastern California Shear Zone: *Journal of Geology*, v. 117, p.37-53.
6. Fildani, A., Shultz, M.R., Graham, S.A., and **Leier, A.**, 2008, Punta Barrosa Formation at Marina's cliff, southern Chile: a deepwater amalgamated sheet system, in Nilsen, T., Shew R., Steffens G., and Studlick, J., eds., Deep-water outcrops of the world atlas: American Association of Petroleum Geologists Studies in Geology 56.
5. **Leier, A.L.**, DeCelles, P.G., Kapp, P., and Gehrels, G.E., 2007, Lower Cretaceous strata in the Lhasa terrane, Tibet, with implications for understanding the early tectonic history of the Tibetan plateau: *Journal of Sedimentary Research*, v. 77, p. 809-825.
4. **Leier, A.L.**, Kapp, P., Gehrels, G.E., and DeCelles, P.G., 2007, Detrital zircon geochronology of Carboniferous-Cretaceous strata in the Lhasa terrane, southern Tibet: *Basin Research*, v.19, p. 361-378.
3. Kapp, P., DeCelles, P.G., **Leier, A.L.**, Fabijanic, J.M., He, S., Pullen, A., and Gehrels, G.E., 2007, The Gangdese retro-arc thrust belt revealed: *GSA Today*, v.17, p. 4-9.
2. **Leier, A.L.**, DeCelles, P.G., Kapp, P., and Ding, L., 2007, The Takena Formation of the Lhasa terrane, Southern Tibet: the record of a retro-arc foreland basin: *Geological Society of America Bulletin*, v.119, p.31-48.
1. **Leier, A.L.**, DeCelles, P.G., and Pelletier, J.D., 2005, Mountains, Monsoons and Megafans: *Geology*, v.33, p. 289-292.

Presentations with published abstracts ([†]graduate student, *undergraduate student)

81. [†]Foster-Baril, Z., Cassel, E.J., **Leier, A.**, Archibald, S.B., 2017, Eocene basin records of volcanism, topography, and tectonics in the North American Cordilleran hinterland, southern British Columbia: Geological Society of America Abstracts with Programs, GSA Annual Meeting, Seattle, WA.
80. [†]Rubino, E., **Leier, A.**, Archibald, S.B., Cassel, E.J., [†]Foster-Baril, Z., Barbeau, D.L., [†]Sexton, J., 2017, Detrital zircon U-Pb provenance of Eocene sediments in southern British Columbia and northern Washington: Record of a collapsing orogen: Geological Society of America Meeting Abstracts with Program, GSA Annual Meeting, Seattle, WA.
79. [†]Rubino, E., **Leier, A.**, Archibald, S.B., Cassel, E.J., 2017, Detrital zircon Hf characterization of Eocene sediments deposited in the southern Canadian Cordilleran hinterland: Geological Society of America Meeting Abstracts with Program, GSA Annual Meeting, Seattle, WA.
78. **Leier, A.L.**, Leckie, D.A., Currie, L., [†]Rubino, E., Barbeau, D.L., *Drayton, D. *Henrick, J., 2017, Post-orogenic gravel transport and the detrital zircon provenance of Cenozoic fluvial conglomerates on the Canadian Plains: Geological Society of America Meeting Abstracts with Program, GSA Annual Meeting, Seattle, WA.
77. **Leier, A.L.**, [†]Heinze, C., Barbeau, D.L., 2017, Hafnium isotope systematics of Grenville detrital zircons in the Appalachian foreland basin: Geological Society of America Abstracts with Programs, GSA Annual Meeting, Seattle, WA.
76. Leckie, D.A., and **Leier, A.**, 2017, Cenozoic fluvial drainage patterns of southern Canada and northern United States – the detrital zircon record: Geological Society of America Meeting – Rocky Mountain Section, Calgary.
75. [†]Rubino, E., **Leier, A.**, Archibald, S.B., Cassel, E.J., 2016, Using detrital zircon data to reconstruct the Eocene paleogeography of the southern Canadian Cordillera hinterland: AGU Fall Meeting, T51D-2972.
74. *Ames, C., **Leier, A.**, Leckie, D.A., 2016, The detrital zircon record of Cenozoic fluvial systems in the Great Plains of the northern United States and Southern Canada: Geological Society of America Meeting Abstracts with Programs v. 48, 7, GSA Meeting, Denver, CO, doi: 10.1130/abs/2016AM283575.
73. [†]Rubino, E., **Leier, A.**, Archibald, S.B., Cassel, E.J., 2016, Sedimentary and detrital zircon data from Eocene strata exposed in the hinterland of the southern Canadian Cordillera: implications for basin evolution in a collapsing orogen: Geological Society of America Meeting Abstracts with Programs v. 48, 7, GSA Meeting, Denver, CO, doi: 10.1130/abs/2016AM284307.
72. [†]Chesley, J., **Leier, A.**, 2016, Investigating vertical and lateral variability of fluvial deposits: an example from the Salt Wash DFS in east-central Utah: Geological Society of America Meeting Abstracts with Programs v. 48, 7, GSA Meeting, Denver, CO, doi: 10.1130/abs/2016AM286865.

71. ⁺Foster-Baril, Z., Cassel, E.J., **Leier, A.**, Archibald, S.B., 2016, Eocene basin evolution in the North American Cordilleran hinterland, southern British Columbia: Geological Society of America Meeting Abstracts with Programs v. 48, 7, GSA Meeting, Denver, CO, doi: 10.1130/abs/2016AM287153.
70. ⁺Chesley, J., ⁺Heinze, C., and **Leier, A.**, 2016, Unraveling fluvial complexity using unmanned aerial vehicles and structure-from-motion photogrammetry: an example from the Salt Wash Member of the Morrison Formation, East-Central Utah: AAPG Annual Conference and Exhibition, Calgary.
69. **Leier, A.**, Leckie, D.A., 2016, The impact of post-orogenic erosion and sediment transport on the detrital zircon provenance of incipient foreland basins: AAPG Annual Conference and Exhibition, Calgary.
68. **Leier, A.**, Leckie, D.A., *Ames, C., ⁺Chesley, J., 2016, Detrital zircon data from Paleogene-Neogene fluvial conglomerates on the Canadian Plains: Geological Society of America Abstracts with Programs, v.48, 6, Rocky Mountain GSA Meeting, Moscow, ID. doi: 10.1130/abs/2016RM-276040
67. Leckie, D.A., **Leier, A.**, 2016, The geologic setting for new detrital zircon data of Paleogene-Neogene conglomerates on the Canadian Plains: Geological Society of America Abstracts with Programs, v.48, 6, Rocky Mountain GSA Meeting, Moscow, ID. doi: 10.1130/abs/2016RM-275945
66. ⁺Foster-Baril, Z., Cassel, E.J., **Leier, A.**, and Archibald, S.B., 2016, Reconstructing Eocene topography and volcanism in the North American Cordilleran hinterland, southern British Columbia, Geological Society of America Abstracts with Programs, v.48, 6, Rocky Mountain GSA Meeting, Moscow, ID. doi: 10.1130/abs/2016RM-276246
65. *Ames, C., **Leier, A.**, Leckie, D.A., ⁺Chesley, J., ⁺Heinze, C., ⁺Rubino, E., and Barbeau, D.L., 2016, The Canadian High Plains and the Northern Rockies: a detrital zircon provenance study: Geological Society of America Abstracts with Programs, v.48, 3, Southeastern GSA Meeting, Columbia, SC. doi: 10.1130/abs/2016SE-273625
64. ⁺Rubino, E., **Leier, A.**, Archibald, S.B., Cassel, E.J., 2016, Detrital zircon provenance of Eocene strata in the Cordillera of Southern British Columbia and northern Washington: preliminary results: Geological Society of America Abstracts with Programs, v.48, 3, Southeastern GSA Meeting, Columbia, SC. doi: 10.1130/abs/2016SE-273896
63. ⁺Chesley, J., and **Leier, A.**, 2016, Investigating medial-to-distal DFS deposits using structure-from-motion photogrammetry: an example from the Salt Wash Member of the Morrison Formation, East-Central Utah: Geological Society of America Abstracts with Programs, v.48, 3, Southeastern GSA Meeting, Columbia, SC. doi: 10.1130/abs/2016SE-273080
62. Moore, C.R., LeCompte, M.A., West, A., Feathers, J.K., Lane, C.S., **Leier, A.L.**, and Daniel, I.R., 2015, Evaluation of Magnetic Microspherules and Elemental Data from Pre-Younger Dryas to Recent Age Deposits at Squires Ridge (31ED365), Tar River, North Carolina: Southeastern Archeological Conference, Nashville, TN, v. 58, p. 67.
61. *Ames, C., **Leier, A.**, Leckie, D.A., ⁺Heinze, C., ⁺Chesley, J., ⁺Rubino, E., and Barbeau, D.L., 2015, Detrital zircon provenance of Paleogene-Neogene fluvial conglomerates and the Cenozoic evolution of the Northern Rockies and southern Canadian Plains: Geological Society of America, Annual Meeting, Baltimore, MD.
60. ⁺Chesley, J., and **Leier, A.**, 2015, Refining fluvial models using unmanned aerial vehicles and Structure-from-Motion photogrammetry: the Salt Wash DFS of the Morrison Formation, east-central Utah: Geological Society of America, Annual Meeting, Baltimore, MD.
59. **Leier, A.**, ⁺Chesley, J., and White, S., 2015, Capturing and characterizing sedimentary outcrops in 3-D: a workflow utilizing UAVs and Structure-from-Motion photogrammetry: Geological Society of America, Annual Meeting, Baltimore, MD.
58. ⁺Smoak, E., White, S., Wilson, A., and **Leier, A.**, 2015, Depositional environments during sea-level rise based on paleochannel fill offshore Charleston, SC: Geological Society of America, Annual Meeting, Baltimore, MD.
57. ⁺Chesley, J.T., ⁺Heinze, D., *Bone, H., **Leier, A.**, White, S., 2015, Reconstructing the Three-Dimensional Fluvial Architecture of the Salt Wash Member of the Morrison Formation, Utah, Using Structure-From-Motion Photogrammetry and Terrestrial Laser Scanning: AAPG Annual Conference and Exhibition, Denver.
56. Bershaw, J., Saylor, J.E., Garzzone, C.N., **Leier, A.**, 2014, The Isotopic Evolution of Modern Water ($\delta^{18}O$ and δD) Across the Andean Plateau Controlled by Easterly-Derived Precipitation Modified by Surface Water Recycling: AGU Fall Meeting, San Francisco.
55. ⁺Quarero, E.M., Bentley, L.R., and **Leier, A.L.**, 2014, Basin-scale stratigraphic architecture and Paleocene distributary fluvial systems of the Cordilleran Foreland Basin, Alberta, Canada: GSA Annual Meeting, Vancouver.

54. ⁺Benyon, C., **Leier, A.**, Hubbard, S.M., and Leckie, D.A., 2014, Fluvial channels and paleo-tributary junctions in the Lower Cretaceous McMurray Formation, Alberta, as defined from detrital zircon signatures and subsurface mapping: GSA Annual Meeting, Vancouver.
53. ⁺Quarero, E.M., Bentley, L.R., and **Leier, A.L.**, 2014, Basin-scale stratigraphic architecture and Paleocene distributary fluvial systems of the Cordilleran Foreland Basin, Alberta, Canada: Canadian Society of Petroleum Geologists Annual Meeting, Calgary.
52. ⁺Benyon, C., **Leier, A.**, Leckie, D., Webb, A., Hubbard, S., 2014, Appalachia to Athabasca: reconstructing the Early Cretaceous continental paleodrainage system associated with the oil sands of the McMurray Formation, Alberta, Canada: AAPG Annual Conference and Exhibition, Houston.
51. Bentley, L.R., ⁺Quarero, E., **Leier, A.**, and Bechtel, D., 2013, Regional-scale Hydrostratigraphic Analysis of the Paskapoo Aquifer Using Normalized Gamma-ray Logs: AGU Annual Fall Meeting, San Francisco, H130-04, control ID 1794326.
50. ⁺Benyon, C., **Leier, A.**, Leckie, D.A., Webb, A., and Hubbard, S.M., 2013, Athabasca Oil Sands, Alberta, Canada: Whence the sand?: Geological Society of America Abstracts with Programs. Vol. 45, No. 7, p.604
49. Poudoux, H., ⁺Coderre, A.B., Pedersen, P.K., and **Leier, A.**, 2013, Sedimentology and stratigraphy of the Cretaceous Upper Mannville reservoirs of east-central Alberta, Canada: application of detailed core and well log analysis in reservoir development: International Association of Sedimentologists Meeting, Manchester.
48. ⁺Benyon, C., **Leier, A.**, Leckie, D.A., Webb, A., Hubbard, S., and Gehrels, G.E., 2013, Provenance of the Athabasca Oil Sands, Alberta, Canada: Reconstructing an Ancient Source-to-Sink System: AAPG Annual Conference, Pittsburgh.
47. ⁺Coderre, A.B., Poudoux, H., Pedersen, P., **Leier, A.**, 2013, High-Resolution Reservoir Characterization of Incised Valley Fills of the Lower Cretaceous Grand Rapids Formation, Upper Mannville Group, East Central Alberta, Canada: AAPG Annual Conference, Pittsburgh.
46. ⁺Quarero, E.M., Bechtel, D., **Leier, A.**, Bentley, L., 2013, Gamma Ray Normalization and Fluvial Characterization: The Paleocene Paskapoo Formation, Alberta: CSPG Annual Meeting, Calgary.
45. ⁺Benyon, C., **Leier, A.**, Leckie, D.A., Webb, A., Hubbard, S., and Gehrels, G.E., 2013, Detrital Zircon Provenance of the McMurray Formation, Alberta, Canada: CSPG Annual Meeting, Calgary.
44. Beauchamp, B., Baranova, D., ⁺Chau, Y.P., Cuthbertson, J., Godek, G., Grasby, S.E., Guest, B., Henderson, C.M., Hill, M.F., Kabanov, P., ⁺Labrie, A., **Leier, A.**, and 4 others, 2013, SUNBEAM sheds light on the Carboniferous-Permian stratigraphy, sedimentation, tectonism and volcanism of the Sverdrup Basin, Arctic Canada (Ellesmere Island, Nunavut): CSPG Annual Meeting, Calgary.
43. ⁺Benyon, C., **Leier, A.L.**, Leckie, D.A., Webb, A., ⁺Anfinson, O., Hubbard, S.M., *Heikkinen, C., Gehrels, G.E., 2012, Sediment Provenance of the Lower Cretaceous McMurray Formation, Alberta, Canada: Insights from Detrital Zircon Geochronology: GSA Abstracts with program, v. 44.
42. ⁺Zambrano, L., ⁺Coderre, A., Douraghi, J., Pedersen, P., and **Leier, A.**, 2012, Upper Grand Rapids Formation in the Cold Lake Field area: CSPG Annual Meeting, Calgary.
41. ⁺Tullius, D., Galloway, J., Sanei, H., **Leier, A.**, Pedersen, P., 2012, Cretaceous Possibilities: Sedimentology and Reservoir Potential of the Early Cretaceous Isachsen Formation of the Sverdrup Basin, Ellef Ringnes Island, Arctic Canada: CSPG Annual Meeting, Calgary.
40. ⁺McCartney, T.M., and **Leier, A.L.**, 2012, Tectonic Setting of the Lower Fernie Formation: Insights from Subsidence Analysis: CSPG Annual Meeting, Calgary.
39. ⁺Chau, Y., Leier, A., Guest, B., Beauchamp, B., and ⁺Morris, N., 2011, Detrital thermochronology and sedimentology of the Sabine Bay and Assistance formations, Ellesmere Island: insights into the source of the Melvilian Disturbance event: AGU Fall Meeting.
38. **Leier, A.L.**, McQuarrie, N., Garzzone, C., and Eiler, J.E., 2011, Deformation, deposition, and surface uplift in the hinterland of the Central Andes, Bolivia: AGU Fall Meeting
37. ⁺Anfinson, O., and **Leier, A.**, 2011, New insights into Arctic tectonics: U/Pb, (U-Th)/He, and Hf isotopic data from the Franklinian Basin, Canadian Arctic Islands: GSA Abstracts with program, v. 43.
36. McQuarrie, N., and **Leier, A.**, 2011, Tracking the competition between both mantle and crustal geodynamics and surface processes in creating the uniform landscape of the Andean Plateau: GSA International Conference, Abstracts with program.
35. McCartney, T., and **Leier, A.**, 2011, Tectonic Subsidence Variations in the Jurassic of West-central Alberta: CSPG Annual Meeting, Calgary.

34. ⁺Tullius, D., ⁺Anfinson, O., **Leier, A.L.**, Pedersen, P., Guest, B., 2011, Outcrop stratigraphy and sedimentology of the Lower Cretaceous Issachsen Formation of the Sverdrup Basin, Ellef Ringnes Island, Arctic Canada: CSPG Annual Meeting, Calgary.
33. ⁺Anfinson, O.A., **Leier, A.L.**, 2011, U-Pb geochronology and U-Th/He thermochronology applied to the clastic strata of the Franklinian Basin, Canadian Arctic Islands: CSPG Annual Meeting, Calgary.
32. ⁺McCartney, T., and **Leier, A.**, 2010, Lower Jurassic foreland basin in western Canada: GSA Abstracts with program, v. 42.
31. ⁺McQuarrie, N., **Leier, A.**, and Long, S., 2010, Exhumation, subsidence, sedimentation, and evacuation: linking surface processes to mantle geodynamics in the Andean Plateau: GSA Abstracts with program, v. 42.
30. ⁺McCartney, T., and **Leier, A.**, 2010, A methodology for studying subsidence variations within a basin: GSA Abstracts with program, v. 42.
29. ⁺Anfinson, O., and **Leier, A.**, 2010, Detrital Zircon Analysis Applied to the Neoproterozoic-Devonian Franklinian Basin, Canadian Arctic Islands: AAPG International Convention, Calgary.
28. **Leier, A.L.**, ^{*}Frosini, C.L., and Gehrels, G.E., 2010, Detrital zircon provenance of Lower Cretaceous conglomerate beds in western Canada and the United States: CSPG Annual Meeting, Calgary.
27. ⁺McCartney, T., **Leier, A.**, Asgar-Deen, ⁺Raines, M.K., 2010, A new interpretation of Early Jurassic basin history in western Canada: CSPG Annual Meeting, Calgary.
26. ⁺Anfinson, O., **Leier, A.**, 2010, Detrital Zircon Geochronology and Provenance Analysis Applied to the Franklinian Basin, Canadian Arctic Islands: CSPG Annual Meeting, Calgary.
25. ⁺Raines, M.K., ⁺Kukulski, R.B., Hubbard, S.M., ⁺Miles, B.D., and **Leier, A.**, 2010, Jurassic-Lower Cretaceous foreland initiation in the Northern Alberta Basin: sediment distribution and provenance of the Minnes and Nikanassin Groups: CSPG Annual Meeting, Calgary.
24. ⁺Rose, R., Hubbard, S.M., ⁺Kukulski, R.B., ⁺Miles, B.D., ⁺Raines, M.K., **Leier, A.**, ^{*}Rose, H., ^{*}Dixon, T., ^{*}Frosini, C., Noad, J., Faridan, M.M., 2010, Correlating the subsurface Nikanassin Group to an outcrop near Grande Cache, Alberta: CSPG Annual Meeting, Calgary.
23. ^{*}Dixon, I.T.E., **Leier, A.L.**, ⁺McCartney, T., McQuarrie, N., and Long, S.P., 2009, Exploring the relationship between upper crustal deformation, sedimentation, and surface uplift in the Altiplano of the Central Andes, Bolivia: GSA Abstracts with Program, v.41.
22. **Leier, A.L.**, ^{*}Frosini, C., and Gehrels, G.E., 2009, Detrital zircon provenance of Lower Cretaceous conglomerate beds deposited in the Western Interior Foreland Basin, Montana, USA, and Alberta, Canada: GSA Abstracts with Program, v.41.
21. **Leier, A.L.**, McQuarrie, N., and Garzzone, C., 2009, Episodic uplift in fold-thrust belts with implications for understanding anomalous conglomerate units in foreland basins: CSPG Annual Meeting, Calgary
20. ^{*}Browning, M. and **Leier, A.L.**, 2009, Stratigraphy and Characterization of the Lower Cretaceous Cummings Formation, Lloydminster, Alberta: CSPG Annual Meeting, Calgary
19. **Leier, A.L.**, 2009, Reconstructing the paleo-elevation of the Central Andes: CSPG Reservoir, v. 36, p. 15.
18. Volkmer, J.E., Kapp, P., DeCelles, P., Guynn, J., and **Leier, A.**, 2008, Cretaceous-Tertiary geology of Central Tibet and implications for plateau formation: a synthesis: GSA Abstracts with Program, v.40.
17. **Leier, A.L.**, McQuarrie, N., and Cecil-Cockwell, D.T., 2008, Thrust faulting, exhumation and formation-scale fluvial architecture within the hinterland of the Central Andean fold-thrust belt: CSPG Annual Meeting, Calgary.
16. **Leier, A.L.**, 2008, Using the sedimentary record to reconstruct the rise of the Tibetan Plateau: CSPG Reservoir, v.35, 3, p.19.
15. **Leier, A.L.**, Johnston, S., and McQuarrie, N., 2007, Using oxygen isotope values of modern and ancient carbonate to reconstruct the paleoelevation history of the Inter-Andean Valley, Ecuador: GSA Abstracts with Program, v.39.
14. **Leier, A.L.**, Long, S., and McQuarrie, N., 2006, Oligo-Miocene deposition along the eastern margin of the Altiplano plateau, Salla, Bolivia, EOS Trans. AGU, 87 (52), Fall Meeting Suppl. Abstract .
13. Long, S., **Leier, A.L.**, and McQuarrie, N., 2006, New Constraints on the spatial and temporal evolution of the central Andean Huarina backthrust belt south of La Paz, Bolivia, GSA, Abstracts with Programs.
12. **Leier, A.L.**, Quade, J., DeCelles, P.G., and Kapp, P., 2006, Diagenetically altered oxygen isotope values of nonmarine carbonate in the Lhasa terrane with implications for paleoelevation studies of Tibet: GSA, Abstracts with Programs.

11. **Leier, A.L.**, Eisenberg, D.A., Kapp, P., and DeCelles, P.G., 2004, Evidence of Cretaceous foreland basins systems in the Lhasa Terrane and implications for the tectonic evolution of southern Tibet, Eos Trans. AGU 85 (47) Fall Meet. Suppl., Abstract T53A-467.
10. **Leier, A.L.**, 2004, Mountains, monsoons and fluvial megafans, GSA, Abstracts with Programs., v.36, no5, p.373.
9. DeCelles, P.G., Kapp, P., **Leier, A.**, Quade, J., and Fan, M., 2004, Cretaceous-Tertiary basin evolution of the Lhasa terrane of southern Tibet: Responses to terrane collision, arc-trench tectonics, and progressive underthrusting of Greater India, GSA Abstracts with Programs, v. 36, no. 5, p.50.
8. Kapp, P., DeCelles, P.G., **Leier, A.**, He, S., and Ding, L., 2004, The Gangdese retroarc fold-thrust belt revealed, GSA Abstracts with Programs, v. 36, no. 5, p.49.
7. **Leier, A.**, 2003, An Early Cretaceous-Paleocene Fluvial Megafan in the Western Interior Foreland Basin, Northwestern Wyoming, GSA Abstracts with Programs, v.35, no.6, p.412.
6. He, S., **Leier, A.**, and Kapp, P., 2003, Upper Crustal deformation in Southern Tibet before and during the Indo-Asian Collision, GSA Abstracts with Programs, v., 35, no.6, p.30.
5. **Leier, A.L.**, He, S., Kapp, P., and Ding, L., 2002, Jurassic-Cretaceous deposits of the central Lhasa terrane: implications for the tectonic evolution of southern Asia prior to the Indo-Asian collision, GSA Abstracts with Programs, v., 34, no.6, p.412.
4. **Leier, A.**, 2002, Intracratonic peripheral bulge depozones and their importance in understanding the lithospheric rheology and evolution of intracratonic basins: an example from the Michigan Basin, EOS Trans. AGU, 83 (47), Fall Meet. Suppl., Abstract T61A-1221.
3. **Leier, A.** and Steidtmann, J.R., 2000, Sedimentology and stratigraphy of a Late Cretaceous shoreline system deposited proximally to the Sevier Thrust Belt: the Bacon Ridge Sandstone, Teton County, Wyoming: GSA Abstracts with Programs, v.32, no.7, p. A308.
2. **Leier, A.** and Steidtmann, J.R., 2000, The aggradation of shoreline sandstones in a region of high subsidence and high sediment-supply, AAPG Annual Convention, Official Program, p. A85.
1. **Leier, A.** and Cotter, E., 1996, Marine influence and Incised-Valley-Fills in the fluvial Sherman Creek Member of the Catskill Formation, central Pennsylvania: GSA Northeastern Section Abstracts with Programs, v. 28, no.3, p.76.

Publication Awards

2013 Medal of Merit Award – Canadian Society of Petroleum Geologists - “best paper published during the previous year on a subject related to the petroleum geology of Canada.”

Publication Statistics (as of 08/2017)

Total citations: Web of Science 549; Scopus 698; Google Scholar 903.

h-Index: Web of Science 11; Scopus 12; Google Scholar 13.

Reviewer for Articles

Geology, Geological Society of America Bulletin, Geomorphology, Journal of Marine and Petroleum Geology, Earth and Planetary Science Letters, Tectonics of Sedimentary Basins – Chapter, Basin Research, Sedimentary Geology, Canadian Journal of Earth Sciences, GSA Special Publication, Tectonics, Lithosphere, Geospheres, Cretaceous Research, Coastal Shelf Research, Journal of Geophysical Research – Solid Earth

Earth and Planetary Science Letters Award for outstanding reviewership, 2015

Reviewer for Proposals

NSF, NSERC, ACS PRF

TEACHING EXPERIENCE

- 2013-2017 Introductory Geology for majors (undergrad; redesigned course; required course for majors)
- Sedimentology and Stratigraphy (undergrad; required course for majors)
- Field Course: USC/UGA Field School (undergrad; 2-4 weeks; required course for majors)
- Basin Analysis (new course; graduate)
- Regional Tectonics (redesigned course; graduate)
- Individual Studies/Thesis Preparation (graduate)

Overall student evaluation as instructor 2013-2017: 4.7/5

2008-2013 Introductory Geology, non-majors
Advanced Sedimentology/Stratigraphy (redesigned course)
Basin Analysis (new course)
Subsurface Methods
Field Course: Advanced Geological Field Methods
Field Course (5 weeks), Geology of Utah, Wyoming & Nevada (new course)
Graduate Seminar: New Concepts in Cordilleran Geology (new course)
Graduate Seminar: Applied Basin Studies (new course)
Graduate Seminar: Geology and Geophysics of Western Canada

TEACHING AWARDS

2016 Nomination – Distinguished Undergraduate Mentor Award, University of South Carolina
2010 Nomination – Student Union’s Teaching Excellence Award, University of Calgary

STUDENT SUPERVISION

Total 1 Ph.D., 5 M.S., 5 Undergraduate, 1 Post-doc
Current 2 M.S. Students, 2 Undergraduate students
2017 1 M.S. Graduated (now at Shell)
2016 1 Undergraduate supervisor (now at University of Iowa)
2015 1 Undergraduate supervisor (with environmental company)
2014 3 M.Sc. students graduated (all 3 in industry)
2013 1 Postdoc (in industry, France)
2012 1 M.Sc. student graduated (Ph.D. student at Syracuse University)
2012 1 Ph.D. Student graduated (currently tenure-track at Sonoma State Univ., CA)
2009 Undergraduate supervisor
2008 Undergraduate supervisor
2008 Undergraduate supervisor

PROFESSIONAL SERVICES AND ACTIVITIES

2017 Geological Society of America, Research Grant Committee (nominated 2017)
2016 AAPG Meeting, Poster Judge
2016 Coordinator of Undergraduate Presentation Judging, 2016 Southeastern GSA Meeting
2016 GSA Southeastern Meeting, Chair, Oral and Poster Session
2015 AAPG Meeting, abstract reviewer, Foreland Basin session
2014 GSA Annual Meeting, Co-Chair, Oral and Poster Session
2013 CSPG Annual Meeting, Co-Chair, Poster Session: Calgary, Alberta
2013 Geological Society of America – campus representative, University of Calgary
2012 Geological Society of America – campus representative, University of Calgary
2012 Canadian Society of Petroleum Geologists – Gusow Conference – Steering committee
2010 Leading developer of CABS (Centre for Applied Basin Studies), Univ. of Calgary
2009 GSA Annual Meeting, Session Co-Chair, Oral and Poster Session: Portland, Oregon
2009 Committee, SEPM, Future Direction of Special Publications, (Society for Sedimentary Geologists)
2005 GSA Annual Meeting, Session Co-Chair, Oral and Poster session: Salt Lake City, Utah
1996 Vice-President, Bucknell University Geological Society

EDUCATIONAL SERVICES AND ACTIVITIES (University & Department level)

2017 M.S. & Ph.D. Committee member (n=12), SEOE
2017 Faculty Advisor, Geology Club, USC
2017 School of the Earth, Ocean and Environment (SEOE), GSA Recruiting Coordinator
2017 School of the Earth, Ocean and Environment (SEOE), Graduate Committee
2016 School of the Earth, Ocean and Environment (SEOE), Graduate Committee
2016 M.S. & Ph.D. Committee member (n=8), SEOE, USC
2016 Faculty Advisor, Geology Club, USC

2016 School of the Earth, Ocean and Environment (SEOE), Library Liaison
 2016 School of the Earth, Ocean and Environment (SEOE), GSA Recruiting Coordinator
 2015 Faculty Advisor, Geology Club, USC
 2015 Earth and Ocean Sciences Department, Library Liaison
 2015 Earth and Ocean Sciences Department, GSA Recruiting Coordinator
 2015 M.S. & Ph.D. Committee member (n=4), Earth and Ocean Sciences, USC
 2015 Earth and Ocean Sciences Department, Graduate Committee
 2015 Earth and Ocean Sciences Department, Graduate Seminar Series Coordinator
 2014 Faculty Advisor, Geology Club, USC
 2014 Earth and Ocean Sciences Department, Peer-Review Committee
 2014 M.Sc. Committee member (n=3), Dept. of Geoscience Univ. of Calgary
 2014 Earth and Ocean Sciences Department, Graduate Committee
 2014 M.S. & Ph.D. Committee member (n=1), Earth and Ocean Sciences, USC
 2013 M.S. & Ph.D. Committee member (n=1), Earth and Ocean Sciences, USC
 2013 Faculty Advisor, Geology Club, USC
 2013 Department committee, Field School redesign
 2013 Department committee member, Undergraduate Awards
 2013 Department committee member, Research
 2013 College of Science, Undergraduate Research Awards committee
 2012 Ph.D. Committee member (n=1), Dept. of Geoscience
 2012 M.Sc. Committee member (n=4), Dept. of Geoscience
 2012 Department committee member, Redevelopment of Intro. Geoscience classes
 2011 M.Sc. Committee member (n=5), Dept. of Geoscience
 2010 Department subcommittee, Undergraduate Awards
 2010 Department committee member, Department Alumni
 2010 Department committee member, Geoscience outreach
 2010 M.Sc. Committee member (n=1), Dept. of Engineering
 2010 M.Sc. Committee member (n=2), Dept. of Geoscience
 2009 M.Sc. Committee member (n=1), Dept. of Geography
 2009 M.Sc. Committee member (n=2), Dept. of Geoscience
 2009 Sedimentary Flume construction for educational (academic and public) purposes
 2009 Proposal for infrastructure renovations, Univ. of Calgary
 2009 Department committee member, Wet-lab transfer, Earth Science
 2008 M.Sc. Committee member (n=1), Dept. of Geography
 2008 Department committee member, Infrastructure and Gallagher Library

Invited Talks

2016 West Virginia University, Dept. of Geology and Geography, January
 2014 Georgia Southern University, Dept. of Geology and Geography, November
 2013 Northern Illinois University, Dept. of Geology and Environmental Geosciences, February
 2013 Boston College, Dept. of Earth and Environmental Sciences, January
 2012 University of Iowa, Dept. of Earth and Environmental Sciences, February
 2012 University of Kentucky, Dept. of Earth and Environmental Sciences, March
 2011 Nexen Inc., Exploration Research Division, May
 2011 Virginia Tech, Dept. of Geosciences, March
 2007 Bucknell University, Dept. of Geology and Environmental Geosciences, April
 2007 University of Calgary, Dept. of Geoscience, February
 2007 University of Massachusetts, Amherst, Dept. of Geosciences, February
 2006 UCLA, Earth, Planetary, and Space Sciences, April
 2006 University of Alabama, Dept. of Geological Sciences, February
 2006 San Diego State University, Dept. of Geological Sciences, January
 2005 Princeton University, Dept. of Geosciences, May

Multimedia/Public Presentations

- 2011 Radio Interview – CBC Calgary, Eyeopener
- 2011 Press coverage of study (Calgary Herald, Vancouver Sun Times, Ottawa Citizen)
- 2009 Radio Interview – CBC Calgary, Wildrose
- 2009 Press coverage of study (MSNBC, Der Spiegel, Arizona Times)
- 2009 Canadian Broadcasting Company (CBC), national, Quarks and Quirks Radio Program Interview
- 2007 A role in the video documentary, “Continental Deformation: Creating the Basin and Range,” Earth Science Bulletin, produced by the American Museum of Natural History, New York, New York.

Unpublished Presentations/Studies

- 2014 Kellogg, J.N., Saeid, E., Leier, A., Topoyaco Block Technical Report, 2014, A project to generate a stratigraphic and structural framework for Topoyaco Block, Columbia: Determine possible reasons for oil biodegradation and its relation to oil generation and migration versus trap synchronization: Pacific Rubiales Energy.
- 2013 Benyon, C., and Leier, A., Detrital zircon provenance and chronofacies within the McMurray Formation, Alberta, Nexen Inc., Calgary, AB.
- 2012 Coderre, A., Pouderoux, H., Pedersen, P., and Leier, A., 2012, Reservoir characterization of the Manatoken Field, PTRC (Petroleum Technology Research Centre) Meeting, Calgary, AB.
- 2003 Stratigraphy and structure of the Mavacola Field, offshore Angola: a suite of deepwater turbidite channel complexes, ExxonMobil Production Company, Houston, TX
- 2003 Depositional history and basin evolution of the Mars-Ursa minibasin and the relationship between basin behavior, turbidite architecture and the charging of reservoir sands, BP Deepwater Development, Houston, TX
- 2001 Processes and depositional elements of deepwater turbidite slope systems, offshore Brunei: a uniformitarian approach using modern slope deposits and shallow seismic data, ConocoPhillips, Deepwater Exploration and Production, Bartlesville, OK
- 1998 Pressure data, compartmentalization and the use of databases for assessing deepwater reservoirs, Union Pacific Resources Co., Deepwater Exploration, Ft. Worth, TX

NON-ACADEMIC PROFESSIONAL EXPERIENCE

- 2003 Summer Research Geologist, ExxonMobil Production Company, Houston, TX.; Project: West African deepwater deposits, offshore Angola
- 2003 Spring Research Geologist, Gulf of Mexico Deepwater Division, BP, Houston, TX; Project: Basin evolution and depositional history of the Mars-Ursa minibasin, Gulf of Mexico
- 2001 Summer Research Geologist, Clastic Sediments Research Division, ConocoPhillips, Bartlesville, OK; Projects: (a) Modern deepwater turbidite systems offshore Brunei, (b) Fluvial architecture of the Morrison Formation
- 2001 Field Assistant, Stanford University Project on Deepwater Sedimentation, Patagonia, Chile: The Punta Barrosa Formation within and near the Torres del Paine National Park
- 1999 Summer Field Geologist, Schlumberger, Southern Utah; Project: Fluvial reservoir architecture of the Salt Wash Member of the Morrison Formation
- 1998 Research Geologist Intern, Gulf of Mexico Division, Union Pacific Resources Co., Ft. Worth, TX; Project: Deepwater Gulf of Mexico reservoir database

PROFESSIONAL AFFILIATIONS

AAPG, AGU, GSA, SEPM, CSPG, IAS, GAC

EDUCATION COURSES

- 2013 Basic Tools for Shale Exploration (AAPG)
- 2007 Early Career Geoscience Workshop (NSF-NAGT-SERC)

RELEVANT SKILLS

Geologic: Experience with field collection of large stratigraphic datasets. Proficient with sedimentary petrographic techniques. Experience with laboratory techniques including determinations of oxygen, carbon and rhenium-osmium isotopes, and dating detrital zircons. Experience with 2-D and 3-D seismic interpretation including use of Landmark and GeoQuest software bundles. Experience with well-log analysis. Experience with ArcGIS software. Participant in ExxonMobil Sequence Stratigraphy Short Course, ExxonMobil Sequence Stratigraphy Field Course; ExxonMobil Lacustrine Stratigraphy Field Course. Experience with 2-D and 3-D move, balanced cross-section construction and map pattern analysis (stratigraphic separation and branch-line diagrams). Experience with flexural and isostatic modeling. Experience with Accumap and Geoscout.

Other: Moderately proficient in Spanish, 1 Semester of Mandarin Chinese.

Health: First-aid training and Wilderness remote responder training.

RECORD AS GRADUATE STUDENT

Awards as Student

2005	Galileo Award for student achievement, College of Science, The University of Arizona
2004	Outstanding Teaching Assistant (2003-2004), Department of Geosciences, The University of Arizona
2003	Outstanding Proposal, GSA Student Research Grants
2000	Wesley Pierce Graduate Scholarship, The University of Arizona
1999	Charles Hill Geoscience Fellowship, The University of Wyoming

Research Grants

Ph.D.

2003	U.S. Dept. of Defense, David L. Boren Fellowship, \$9,425
2003	Geological Society of America Student Research Grant, (Outstanding Proposal), \$2,500
2003	American Association of Petroleum Geologists Meyerhoff Grant, \$1,840
2003	Contributed to the writing of NSF proposal EAR 0309844 to Drs. Kapp and DeCelles to fund dissertation research in southern Tibet, \$247,000
2002	Geological Society of America Student Research Grant, \$2,400
2002	Geostructure Partnership Grant, The University of Arizona, \$6,500
2002	ChevronTexaco Summer Research Grant, The University of Arizona, \$1,000
2001	Arizona Geological Society Courtright Scholarship, \$1,000

M.S.

1999	Wyoming Geological Society J.D. Love Research Grant, \$750
1998	Alberta Energy Co. (Canada) Rocky Mountain Field Research Grant, \$1,500

Teaching Assistant Experience

2001-2005	Graduate Teaching Assistant: The University of Arizona Introduction to Natural Science (2004) Sedimentology and Stratigraphy (2001-2003) Oceanography (2002, 2005)
1997-2000	Graduate Teaching Assistant: The University of Wyoming. Environmental Geology (2000) Physical Geology (1997-1999) Sedimentology and Stratigraphy (1997)
1995-1996	Undergraduate Teaching Assistant: Bucknell University. Historical Geology