

J. Ryan Thigpen

CURRICULUM VITAE

University of Kentucky
Department of Earth and Environmental Sciences
101 Slone Bldg, Lexington KY 40506-0053
ryan.thigpen@uky.edu

EDUCATION

Ph.D. Geosciences 2009 – Virginia Tech

M.S. Earth and Planetary Sciences 2005 – University of Tennessee, Knoxville

B.S. Geology 2002 – University of Tennessee, Knoxville

PROFESSIONAL EXPERIENCE

Associate Professor – University of Kentucky, June 2021 to Present

Assistant Professor – University of Kentucky, August 2015 to June 2021

Structural Geologist and Geomechanical Projects Lead - BP America, Aug. 2010 to June 2015

Visiting Assistant Professor - College of William and Mary, Aug. 2009 to Aug. 2010

1. RESEARCH (updated April 26, 2022)

REFEREED PUBLICATIONS (26 published, 11 first author, 4 in review or revision, 9 in prep, *indicates JRT student advisee)

(IN REVIEW) THIGPEN, J.R., MOECHER, D.P., STOWELL, H.H., MERSCHAT, A.J., BOLLEN, E., *POWELL, N.E., *SPENCER, B.M., MAKO, C.A. & KYLANDER-CLARK, A. in prep. Defining the timing and extent of Paleozoic metamorphism in the southern Appalachian Blue Ridge terranes: *submitted to Tectonics*.

(IN REVIEW) *SWANGER, W., THIGPEN, J.R., *GOLDSBY, R.C., *PREECE, M., *POWELL, N.E. & *SPENCER, B.M. in review. Understanding near-salt deformation gradients in the Paradox basin, Utah: Implications for predicting subseismic strain in salt tectonic systems. *submitted to Journal of Structural Geology*.

(IN REVISION) ASHLEY, K.T., KELLY, E.D., ETZEL, T.M., THIGPEN, J.R., LAW, R.D. & BODNAR, R.J. in revision. A multi-site comparison between quartz-in-garnet barometry and thermodynamic garnet fractionation modeling: *submitted to Contributions to Mineralogy and Petrology*.

(IN REVIEW) *JOHNSON, S., *SWALLOM, M., THIGPEN, J.R., MCGLUE, M.M., DORTCH, J., GALLEN, S.F., WOOLERY, E.W. & YEAGER, K. in prep. The influence of glacial topography on fluvial efficiency in the Teton Range, Wyoming (USA): *submitted to Earth and Planetary Science Letters*.

(26) RASBOLD, G.G., PINHEIRO, U., DOMINGOS-LUZ, L., DILWORTH, J., THIGPEN, J.R., PESSENDA, L.C.R. & MCGLUE, M.M. 2022. First evidence of an extant freshwater sponge fauna in Jackson Lake, Grand Teton National Park, Wyoming (USA): *Inland Waters*, doi.org/10.1080/20442041.2022.2035190.

(25) *SPENCER, B.M., THIGPEN, J.R., GALLEN, S.F., DORTCH, J., HODGES, K.V., LAW, R.D. & MAKO, C.A. 2021. An Evaluation of Erosional-Geodynamic Thresholds for Rapid Orogenic Denudation: *JGR-Solid Earth*, doi.org/10.1029/2021JB022353.

(24) THIGPEN, J.R., ASHLEY, K.T., MAKO, C.M, LAW, R.D. & SPENCER, B.M. 2021. Interplay between crustal-scale thrusting, high metamorphic heating rates, and the development of inverted thermal-metamorphic gradients: Numerical models and examples from the Caledonides of northern Scotland: *Tectonics*, doi.org/10.1029/2021TC006716.

- (23) THIGPEN, J.R., BROWN, S.J., *HELFRICH, A.L., *HOAR, R.M. MCGLUE, M.M., WOOLERY, E.W., GEUNTHNER, W.R., *SWALLOM, M., *DIXON, S., AND GALLEN, S.F. 2021. Removal of the northern paleo-Teton Range along the Yellowstone hotspot track: *Lithosphere*, doi.org/10.2113/2021/1052819.
- (22) LAW, R.D., THIGPEN, J.R., MAZZA, S., MAKO, C., KRABBENDAM, M., ASHLEY, K.T., STRACHAN, R.A. & DAVIS, E.F. 2021. Tectonic transport directions, Shear Senses and Deformation Temperatures indicated by Quartz c-axis Fabrics and Microstructures in a NW-SE transect across the Moine and Sgurr Beag Thrust Sheets of northern Scotland: *Geosciences*, v. 11(10), 411, doi.org/10.3390/geosciences11100411.
- (21) GRAZIANI, R., LARSON, K.P., LAW, R.D., VANIER, M-A., THIGPEN, J.R. 2021. A refined approach for quantitative kinematic vorticity number estimation using microstructures: *Journal of Structural Geology*, doi.org/10.1016/j.jsg.2021.104459.
- (20) STOWELL, H., BOLLEN, E., MCKAY, M., THIGPEN, J.R. DICKSON, H.F., MADDEN, J.R., FIECHTNER, C. & IONESCU, A. 2021. Tectonism and metamorphism along a southern Appalachian transect across the Blue Ridge and Piedmont, USA: *Geological Society of America Field Guide 61*, doi.org/10.1130/FLD061.
- (19) MAKO, C.M., LAW, R.D., CADDICK, M., KYLANDER-CLARK, A., THIGPEN, J.R., ASHLEY, K.T., MAZZA, S.E. & COTTLE, J. 2021. Growth and fluid-assisted alteration of accessory phases before, during and after Rodinia breakup: U-Pb geochronology from the Moine Supergroup rocks of northern Scotland: *Precambrian Research*, v. 355, doi:10.1016/j.precamres.2020.106089.
- (18) *SPENCER, B., THIGPEN, J.R., McDONALD, C.S., HODGES, K.V., MAKO, C.A., LAW, R.D. & ASHLEY, K.T. 2020. Rapid cooling during late-stage orogenesis and implications for the collapse of the Scandian retrowedge, northern Scotland: *Journal of the Geological Society, London*, doi:10.1130/abs/2019AM-337882.
- (17) ZOTTO, S.C., MOECHER, D.P., NIEMI, N.A., THIGPEN, J.R. & SAMSON, S.D. 2020. Persistence of Grenville dominance in Laurentian detrital zircon age systematics explained by sedimentary recycling: Evidence from detrital zircon double-dating and detrital monazite textures and geochronology: *Geology*, v. 48, p. 792-797, doi.org/10.1130/G47530.1.
- (16) MAKO, C.M., LAW, R.D., CADDICK, M., THIGPEN, J.R., ASHLEY, K.T., COTTLE, J. & KYLANDER-CLARK, A. 2019. Thermal evolution of the Scandian hinterland, Naver Nappe, northern Scotland: *Journal of the Geological Society, London*, v. 176, p. 669-688, doi:10.1144/jgs2018-224.
- (15) THIGPEN, J.R., ROBERTS, D., SNOW, Z.K., WALKER, C.D. & BERE, A. 2019. Integrating kinematic restorations and forward finite element simulations to constrain the evolution of salt diapirism and overburden deformation in evaporite basins: *Journal of Structural Geology*, v. 118, p. 68-86, doi:10.1016/j.jsg.2018.10.003.
- (14) GALLEN, S.F. & THIGPEN, J.R. 2018. Lithologic controls on focused erosion and intraplate earthquakes in the eastern Tennessee seismic zone: *Geophysical Research Letters*, v. 45, doi:10.1029/2018GL079157.
- (13) MERSCHAT, A.J., HATCHER, R.D. JR., THIGPEN, J.R. & MCCLELLAN, E.A. 2018. Blue Ridge-Inner Piedmont geotransverse from the Great Smoky fault to the Inner Piedmont: Upper crust to upper-lower crust, terranes, large faults, and sutures: *Geological Society of America Field Guide 50*, p. 141-209, doi:10.1130/2018.0050(09).
- (12) BROWN, S.J., THIGPEN, J.R., SPOTILA, J.A., KRUGH, W., TRANEL, L. & ORME, D. 2017. Onset timing and slip history of the Teton fault: A multidisciplinary evaluation: *Tectonics*, doi:10.1002/2016TC004462.
- (11) THIGPEN, J.R. & HATCHER, R.D., Jr. 2017. The Paleozoic tectonic evolution of the western Blue Ridge, southern Appalachians: A critical review of longstanding conflicts in a polydeformed system. In: Law, R.D., Thigpen, J.R., Merschat, A.J. & Stowell, H. (eds) *Linkages and feedbacks in orogenic systems: Geological Society of America Memoir 213*, doi:10.1130/2017.1213(04).
- (10) THIGPEN, J.R., ASHLEY, K.T. & LAW, R.D. 2017. Evaluating kinematic displacement rate effects on transient thermal processes in thrust belts using coupled thermomechanical finite-element models. In: Law, R.D., Thigpen,

J.R., Merschat, A.J. & Stowell, H. (eds) *Linkages and feedbacks in orogenic systems: Geological Society of America Memoir 213*, doi:10.1130/2017.1213(01).

(9) THIGPEN, J.R., LAW, R.D., MERSCHAT, A.J. & STOWELL, H. 2017. Linkages and feedbacks in orogenic systems: an introduction. *In: Law, R.D., Thigpen, J.R., Merschat, A.J. & Stowell, H.H. (eds) Linkages and Feedbacks in Orogenic Systems: Geological Society of America Memoir 213*, doi:10.1130/2017.1213(00).

(8) ASHLEY, K.T., LAW, R.D. & **THIGPEN, J.R.** 2017. Garnet morphology distribution in the northern part of the Moine Supergroup, Scottish Caledonides: *Journal of Metamorphic Geology*, doi:10.1111/jmg.12221.

(7) THIGPEN, J.R., HATCHER, R.D., Jr., KAH, L.C., REPETSKI, J.E. & FULLAGAR, P.D. 2016. Reevaluating the age and tectonic evolution of the Walden Creek Group, western Blue Ridge, southern Appalachians, USA: An interdisciplinary approach to understanding the kinematics and structure of the western Blue Ridge foothills: *American Journal of Science* **316**, p. 279-308, doi.org/10.2475/03.2016.03.

(6) ASHLEY, K.T., **THIGPEN, J.R.** & LAW, R.D. 2015. Prograde evolution of the Scottish Caledonides and tectonic implications: *Lithos* **224-225**, p. 160-178.

(5) THIGPEN, J.R., LAW, R.D., LOEHN, C.L., STRACHAN, R., TRACY, R.J., LLOYD, G.E., ROTH, B.L., & BROWN, S.J. 2013. Thermal structure and tectonic evolution of the Scandian orogenic wedge, Scottish Caledonides: Integrating geothermometry, deformation temperatures, and conceptual thermal-kinematic models. *Journal of Metamorphic Geology* **31**, p. 813-842.

(4) THIGPEN, J.R., LAW, R.D., LLOYD, G.E., BROWN, S.J. & COOK, B. 2010. Deformation temperatures, vorticity of flow, and strain symmetry in the Loch Eriboll region, NW Scotland: Implications for the kinematic and structural evolution of the northernmost Moine thrust zone. *In: Law, R.D., Butler, R.W.H., Holdsworth, R., Krabbendam, M. & Strachan, R. (eds) Continental Tectonics and Mountain Building – The Legacy of Peach and Horne: Geological Society Special Publications* **335**, p. 623-662, London.

(3) THIGPEN, J.R. LAW, R.D., LLOYD, G.E., & BROWN, S.J. 2010. Deformation temperatures, vorticity of flow, and strain in the Moine thrust zone: Reassessing the tectonic evolution of the Scandian foreland-hinterland transition zone. *Journal of Structural Geology* **32**, p. 920-940.

(2) LAW, R.D., MAINPRICE, D.H., CASEY, M., LLOYD, G.E., KNIPE, R.J., COOK, B. & **THIGPEN, J.R.** 2010. Moine thrust zone mylonites at the Stack of Glencoul I – microstructures, strain and influence of recrystallization on quartz crystal fabric development. *In: Law, R.D., Butler, R.W.H., Holdsworth, R., Krabbendam, M. & Strachan, R. (eds) Continental Tectonics and Mountain Building – The Legacy of Peach and Horne: Geological Society Special Publications* **335**, p. 543-577, London.

(1) THIGPEN, J.R. & HATCHER, R.D., Jr. 2009. Digital geologic map of the southern Appalachian Blue Ridge and adjacent Valley and Ridge in southeast Tennessee, southwest North Carolina, and northern Georgia. *Geological Society of America Maps and Charts Series*, **MCH097F**.

MANUSCRIPTS IN PREPARATION

(IN PREP) MAKO, C.M., CADDICK, M., LAW, R.D. & **THIGPEN, J.R.** 2021. Monazite-xenotime thermometry: *to be submitted to TBD*.

(IN PREP) *POWELL, N.E., *SPENCER, B.M., **THIGPEN, J.R.**, MOECHER, D.P., MAKO, C.A., STOWELL, H.H., MERSCHAT, A.J. & KYLANDER-CLARK, A. in prep. Separating the “footprints” of Taconic, Neoacadian and Alleghanian metamorphism in the southern Appalachians: *to be submitted to Journal of Metamorphic Geology*.

(IN PREP) LAW, R.D., STRACHAN, R., & **THIGPEN, J.R.** in prep. Geology of Scotland: Silurian-Devonian plate collisions and closure of the Iapetus Ocean: *to be submitted to the Geological Society Special Publications*.

(IN PREP) *SPENCER, B.M., **THIGPEN, J.R.**, MERSCHAT, A.J., MOECHER, D.P., STOWELL, H.H., McDONALD, C.S.,

HODGES, K.V. & *POWELL N.E. in prep. $^{40}\text{Ar}/^{39}\text{Ar}$ thermochronology of the Blue Ridge and Inner Piedmont, southern Appalachians: Implications for the timing of high-temperature deformation, metamorphism, and the crustal “escape” flow hypothesis: *to be submitted to Tectonics*.

(IN PREP) *GOLDSBY, R.C., *SWANGER, W., **THIGPEN, J.R.**, *POWELL, N.E., *PREECE, M. & *SPENCER, B.M. in prep. A critical-state genesis for deformation banding in the Paradox basin, USA: Implications for understanding stress and strain paths and the evolution of the Salt and Moab Valley diapirs: *to be submitted to Journal of Structural Geology*.

(IN PREP) *HELFRICH, A.L., **THIGPEN, J.R.**, BUFORD-PARKS, V.M. & MCQUARRIE, N. in prep. Flexural-kinematic and thermal-kinematic modeling of crustal-scale extensional faulting: Implications for the evolution of the Teton fault and uplift of the Teton Range. *to be submitted to Tectonics*.

(IN PREP) DILWORTH, J., STONE, J.S., YEAGER, K., MCGLUE, M.M. & **THIGPEN, J.R.** in prep. Fossil diatoms reveal environmental and anthropogenic history of Jackson Lake (Wyoming), 1650-2019 CE: *to be submitted to Hydrobiologia*.

(IN PREP) MCGLUE, M.M., DILWORTH, J.R., JOHNSON, H.L., YEAGER, K.M., **THIGPEN, J.R.**, WOOLERY, E.W., BROWN, S.J., CEARLEY, C., CLARK, G., DIXON, T.S., GOLDSBY, R.C., HELFRICH, A., HODELKA, B.N., JOHNSON, S.E., LO, E.L., LUZ, L.D., POWELL, N., RASBOLD, G.G., SWANGER, W. & WHITEHEAD, S. in prep. Effects of dam emplacement and water level change on recent sedimentation in Jackson Lake, Grand Teton National Park (Wyoming, USA): *to be submitted to GSA Bulletin*.

(IN PREP) MCGLUE, M.M., **THIGPEN, J.R.**, WOOLERY, E.W., BROWN, S.J. & YEAGER, K.M. in prep. Collapse of the paleo-Snake River delta shapes the stratigraphy of Jackson Lake (Grand Teton National Park): *to be submitted to Geophysical Research Letters*.

BOOKS

LAW, R.D., **THIGPEN, J.R.**, MERSCHAT, A.J. & STOWELL, H. 2017. Linkages and feedbacks in orogenic systems: *Geological Society of America Memoir 213*, doi:10.1130/2017.1213.

OTHER PUBLICATIONS – FIELD GUIDES

THIGPEN, J.R., MERSCHAT, A.J. & BROWN, S.J. 2014. *Linkages and feedbacks in orogenic systems: A Geological Society of America Penrose Conference honoring the career of Robert D. Hatcher, Jr, Conference Field Guide and Technical Program*: Geological Society of America, Boulder.

THIGPEN, J.R., MERSCHAT, A.J. & HATCHER, R.D., JR. 2014. Taking the lid off an ancient orogenic system: Fundamental orogenic processes and their associated linkages in the polydeformed southern Appalachians, USA, in **Thigpen, J.R.**, Merschat, A.J. & Brown, S.J. (eds) *Linkages and feedbacks in orogenic systems: A Geological Society of America Penrose Conference honoring the career of Robert D. Hatcher, Jr, Conference Field Guide and Technical Program*: Geological Society of America, Boulder.

STRACHAN, R. & **THIGPEN, J.R.** 2007. *Field Excursion Guide for the Peach and Horne Centennial Meeting on Continental Tectonics and Mountain Building*: Geological Society, London.

LAW, R.D., **THIGPEN, J.R.** & COOK, B. 2007. Mylonites associated with the Moine thrust at the Stack of Glencoul: Field Excursion C. In: Strachan, R. & **Thigpen, J.R.** (eds) *Field Excursion Guide for the Peach and Horne Centennial Meeting on Continental Tectonics and Mountain Building*. Geological Society, London.

LAW, R.D. & **THIGPEN, R.** 2006. *Summer Field Meeting in the Northwest of Scotland*. Excursion for Dipartimento di Scienze della Terra, University of Pissa, Italy.

HATCHER, R.D., JR., MERSCHAT, A.J. & **THIGPEN, J.R.** 2005. Blue Ridge Primer. In: Hatcher, R.D., Jr. & Merschat, A.J. (eds) *Blue Ridge Geology Geotraverse East of the Great Smoky Mountains National Park, Western*

North Carolina. North Carolina Geological Survey, Carolina Geological Society Annual Field Trip Guidebook, 1-24.

RESEARCH GRANTS, FUNDING, AND PROPOSALS

Funded grants total ~\$1.01 million; all funding obtained as either sole- or lead-PI.

Funded

National Cooperative Geologic Mapping Program – EDMAP Component (sole-PI)

Research Proposal (funded amount \$34,929; August 2022 to August 2023)

Documenting collapse of the northern paleo-Teton Range and northern extension of the modern Teton fault between Grand Teton and Yellowstone National Parks, WY

National Science Foundation Tectonics Program EAR 1932808 (lead-PI)

Research Proposal (funded amount \$580,146; Feb. 1, 2020 to Jan. 31, 2023)

Cataclysmic erasure of mountain topography and major unrealized seismic hazards in the northern Basin and Range

American Chemical Society Petroleum Research Fund (sole-PI)

Doctoral New Investigator Proposal (funded amount \$110,000; Sep. 1, 2019 to August 31, 2021)

Integrating restorations, microstructural analyses, and forward finite element modeling to understand deformation in contractional salt systems

National Science Foundation Tectonics Program EAR 1802730 (sole-PI)

Research Proposal (funded amount \$270,882; July 15, 2018 to June 30, 2021)

Fundamental controls on mid-crustal 'escape' flow in orogenic systems

University of Wyoming-National Park Service Research Fund (lead-PI)

Small Grants Program Proposal (funded amount \$5,000; May 1, 2018 to May 1, 2019)

Tectonics from topography: Constraining the spatial and temporal response of the landscape to variations in tectonic forcing, Teton fault, Wyoming

To Be Resubmitted

National Science Foundation EAR Tectonics Program

Research proposal (requested amount \$332,250; **ranked competitive for funding**, to be resubmitted in 2021)

Testing the influence of thrust faulting on the thermal evolution of collisional systems

National Science Foundation EAR Tectonics Program (lead-PI)

Research proposal (requested amount \$653,657)

Collaborative Research: Orogenic collapse: Developing insight through studies of the Scandian orogenic wedge, NW Scotland

SELECTED AWARDS AND HONORS

Circle of Distinction for Technical Excellence – British Petroleum (2014)

Wallace D. Lowry Graduate Fellowship – Virginia Tech (2009)

Bryon Nelson Cooper Memorial Graduate Fellowship – Virginia Tech (2008)

Highest Graduate GPA Award - UTK Earth and Planetary Sciences (2004)

George D. Swingle Fellowship for Outstanding Field Research - UTK Earth and Planetary Sciences (2004)

Outstanding Student Presentation - UTK Earth and Planetary Sciences (2004)

Don Jones Field Camp Scholarship - UTK Earth and Planetary Sciences (2002)

FIELDWORK

- Moab, Utah (3 weeks)	2020
- Grand Teton National Park/Bridger Teton National Forest (2 weeks)	2019
- Grand Teton National Park/Bridger Teton National Forest (2 weeks)	2018

- Northwest Scotland (2 weeks)	2018
- Corsica, France (1 week)	2018
- Nepal Himalaya – Langtang and Annapurna (6 weeks)	2017
- Grand Teton National Park/Bridger Teton National Forest (2 weeks)	2017
- Northwest Scotland (2 weeks)	2016
- Grand Teton National Park/Bridger Teton National Forest (2 weeks)	2016
- Eastern Mexico (2 weeks)	2013
- South Texas Eagleford (2 weeks)	2013
- Northwest Scotland (1 month)	2009
- Grand Teton National Park/Bridger Teton National Forest (2 months)	2008
- Virginia and North Carolina Blue Ridge/Piedmont (1 months) ¹	2007
- Northwest Scotland (3 months) ²	2007
- Northwest Scotland (3 months) ²	2006
- Blue Ridge basement complex, NE Tennessee (1 month)	2005
- Citico/Joyce Kilmer-Slickrock Wilderness Area (5 months) ³	2004
- Citico/Joyce Kilmer-Slickrock Wilderness Area (8 months) ³	2003
- Mt. Vernon, TN (2 months) ⁴	2002

¹Undergraduate advising, ²Ph.D. Project, ³M.S. Project, ⁴Senior thesis project

2. TEACHING AND ADVISING

COURSES

Title	University/Industry	Term
Seminar: Advanced Tectonics	UK EES	Spring 2020
Seminar: Numerical Modeling of Landscapes	UK EES	Fall 2020
Seminar: Plastic Deformation in Sedimentary Basins	UK EES	Fall 2019
Seminar: Quantitative Metamorphic Modeling	UK EES	Fall 2019
Seminar: Collisional Orogenesis	UK EES	Fall 2017
Geochronology/Thermochronology (EES 645)	UK EES	Spring 2017
Imperial Barrel Award Team Advisor (EES 730)	UK EES	Spring 2017
Petroleum Geology (EES 511)	UK EES	Fall 2016 to present
Fundamentals of Geology II (EES 235)	UK EES	Spring 2016 to present
Structural Geology (EES 420)	UK EES	Spring 2016 to present
Basin Analysis (EES 652)	UK EES	Fall 2015 to present
Subsurface Integrated Fundamentals, CO-UT	BP	2013-2014
Understanding Reservoir Deformation, CA-NV-UT*	BP	2012
21C Structural Geology**	BP	2011-2015
Earth Structure and Dynamics (GEOL 323)	William and Mary	2010
Advanced Structure and Tectonics Seminar (GEOL 425)	William and Mary	2009
Earths Environmental Systems (GEOL 110)	William and Mary	2009-2010
Structural Geology (TA, GEOS 3404)	Virginia Tech	Spring-Fall 07 & Fall 05
Resources Geology (TA, GEOS 1124)	Virginia Tech	Spring 06
Earth Life and Time (TA, GEOLOGY 102)	UT Knoxville	Spring 05
Dynamic Earth (TA, GEOLOGY 101)	UT Knoxville	Fall 03/Fall 04

*Co-lead instructor and course developer, **Lead instructor

STUDENT RESEARCH ADVISING

GRADUATE ADVISEES

(11) Callia Cortese (M.S. anticipated 2023, UK) – Closing the seismic “gap” in the modern Teton fault earthquake record

(10) Meredith Swallom (Ph.D. anticipated 2025, UK) – Cataclysmic erasure of mountain topography and major unrealized seismic hazards in the north Basin and Range

- (9) Ryan Goldsby (Ph.D. anticipated 2024, UK)** – Cataclysmic erasure of mountain topography and major unrealized seismic hazards in the north Basin and Range
- (8) Sarah Johnson (Ph.D. anticipated 2022, UK) co-advised** – Quantifying post-glacial sediment budget and denudation rates in the Teton Range, Wyoming
- (7) Brandon Spencer (Ph.D. 2022, UK)** – Syn- to post-orogenic evolution of collisional mountain systems: Investigating the potential for crustal flow using thermochronology and numerical models
- (6) Stephanie Sparks (M.S. 2022, UK)** – Influence of bedrock erodibility on orogen evolution in collisional systems and implications for geodynamic models
- (5) William Swanger (M.S. 2022, UK)** – Deformation of wall rocks and overburden sequences proximal to salt diapirs in Salt Valley, Utah: Implications for predicting subseismic damage in salt tectonic systems
- (4) Nick Powell (M.S. 2021, UK)** – Timing of regional metamorphism in the Inner Piedmont and Blue Ridge of North Carolina: Evidence from monazite U-Pb geochronology
- (3) Autumn Helfrich (M.S. 2020, UK)** – Testing interpretations of the displacement magnitude of the Teton fault and uplift of the Teton Range, Wyoming with integrated flexural kinematic and thermal modeling
- (2) Meredith Swallow (M.S. 2019, UK)** – Landscape response due to tectonic forcing across a range of temporal scales, Teton Range, Wyoming
- (1) Rachel Hoar (M.S. 2019, UK)** – Refining the onset timing and slip history along the northern part of the Teton fault

UNDERGRADUATE ADVISEES

- (12) Alexandra Arimes (B.S. anticipated 2022, UK)** – TBD
- (11) Elisha Miller (B.S. anticipated 2022, UK)** – TBD
- (10) Madison Preece (B.S. anticipated 2022, UK)** – TBD
- (9) Gillian Clark (B.S. anticipated 2021, UK)** – Refining the timing of Teton fault motion and uplift of the Teton Range using low-T thermochronology
- (8) Spencer Dixon (B.S. 2020, UK)** – Utilizing apatite (U-Th)/He analyses and inverse thermal history modeling to constrain the uplift history of the south-central part of the Teton fault
- (7) Amber Dunn (B.S. 2019, UK)** – Refining the timing of Teton fault motion and uplift of the Teton Range using low-T thermochronology
- (6) Ryan Parks (B.S. 2018, UK)** – Refining the timing of Teton fault motion and uplift of the Teton Range using low-T thermochronology
- (5) Andrew Laskowski (B.S. 2010, W&M)** – 3D restoration of the Sugar Hollow Iapetan rift basin using strain and vorticity analysis, Blue Ridge, VA
- (4) Alexandra Snell (B.S. 2010, W&M) co-advised** – Constraining the deformational geometry of the Yavapai-Mazatzal orogeny using 3D strain analysis in the Proterozoic Vallecito conglomerate, southwestern Colorado
- (3) Meaghan McNeil (B.S. 2009, VT)** - Kinematic evolution of the Brevard fault zone near Rosman, NC
- (2) Justin G. Ohlshlager (B.S. 2008, VT)** - Kinematic evolution of the Brevard fault zone near Rosman, NC
- (1) Paul M. Betka (B.S. 2006, VT) co-advised** - Structural evolution of the Sauratown Mountain quartzites

3. SERVICE

UNIVERSITY AND DEPARTMENTAL SERVICE

- Committee Member**, EES Curriculum Committee (2017-2020)
- Committee Member**, Kentucky Geological Survey Geospatial Methods Hiring Committee (2019)
- Coordinator**, EES Rast-Holbrook Departmental Seminar (2018-2019)
- Committee Member**, Kentucky Geological Survey Geospatial Methods Hiring Committee (2017)
- Committee Member**, EES Personnel and Budget Committee (2016-2017)
- Chair**, Sedimentary Geology and Paleontology Working Group (2015-2016)
- Co-Director**, EES Petroleum Geology Program (2015-present)

PROFESSIONAL SERVICE

- Lead convener**, Geological Society of America Penrose Conference - Linkages and feedbacks in orogenic systems:

a conference honoring the career of Robert D. Hatcher Jr (March 30-April 4, 2014)
Chair, GSA Membership and Fellowship Committee (2013)
Industry member-at-large, GSA Membership and Fellowship Committee (2011-2014)

MANUSCRIPT REVIEWING

Marine and Petroleum Geology, Geological Society of America Bulletin; Geological Society of America Special Publications; GSA Geosphere; GSA Geology; Journal of Structural Geology; Journal of the Geological Society, London; Geological Society, London, Special Publications, AGU Tectonics, Basin Research

GRANT PROPOSAL REVIEWING

NSF Tectonics (3 proposals), NSF Marine Geology and Geophysics (1 proposal)

INVITED PRESENTATIONS

Invited Seminar, Illinois State University, Department of Geography, Geology, and the Environment (Fall 2021)
“Did the northern paleo-Teton Range collapse along the Yellowstone hotspot track?”

Invited Seminar, Ohio University, Department of Geological Sciences (Spring 2020)
“Cataclysmic collapse of mountain topography along the Yellowstone hotspot track”

Invited Seminar, University of Kentucky, Kentucky Geological Survey (Spring 2020)
“Understanding interactions between deformation and salt tectonics in relatively young structural systems: a major challenge for deepwater exploration along the passive Atlantic margins”

Invited Seminars (two presentations), Geologists of Jackson Hole Society, Jackson, WY (Summer 2019)
“Was the northern half of the Teton Range cataclysmically ‘erased’ by the Yellowstone hotspot?”

“Capturing the tempo of landscape response across a range of temporal scales and variable rates of tectonic forcing”

Invited Seminar, University of Kentucky, Department of Earth and Environmental Sciences (Fall 2018)
“Extending and erasing the Teton fault”

Invited Seminar, University of Pittsburgh, Department of Geology and Environmental Sciences (Fall 2018)
“Extending and erasing the Teton fault”

Invited Seminar, University of Alabama, Department of Geological Sciences (Fall 2018)
“Extending and erasing the Teton fault”

Invited Seminar, Columbia University, Lamont-Doherty Earth Observatory (Spring 2018)
“Modeling deformation in relatively young structural systems: examples from a passive margin salt basin”

Invited Instructor, Virginia Tech, Department of Geoscience (Spring 2018)
“An overview of southern Appalachian deformation and metamorphism”

Invited Seminar, Tribhuvan University, Kathmandu, Nepal (Spring 2017)
“Influence of thrust-related advection and mass transfer on metamorphic heating (and cooling) rates in orogens”

Invited Conference Presentation, GSA Annual Meeting, Denver, Colorado (Fall 2016)
“Influence of thrust-related advection and mass transfer on metamorphic heating (and cooling) rates in orogens”

Invited Seminar, University of Kentucky, Kentucky Geological Survey (Fall 2016)
“Testing fundamental mountain building processes in the land where geology was invented”

Invited Seminar, Appalachian State, Department of Geological and Environmental Sciences (Fall 2015)
“Faults, shear zones, and the transient thermal evolution of extensional and collisional systems”

CONFERENCE PRESENTATIONS (*23 first author presentations, 19 total JRT student presentations denoted by *)

(83) JOHNSON, H., MCGLUE, M.M., THIGPEN, J.R., WOOLERY, E.W., YEAGER, K., BROWN, S.J., AND DILWORTH, J. 2022. Recent paleolimnological history of Jackson Lake: Grand Teton National Park: *Geological Society of America Abstracts with Programs*, v. 54, doi:10.1130/abs/2022NC-375324.

(82) DILWORTH, J., CORTESE, C., MCGLUE, M.M., THIGPEN, J.R., WOOLERY, E.W., YEAGER, K. & BROWN, S.B. 2022. Preliminary high-resolution seismic stratigraphic and sediment core investigation of Jackson Lake (Wyoming): *Geological Society of America Abstracts with Programs*, v. 54, doi: 10.1130/abs/2022NC-375614.

(81) *PREECE, M., *GOLDSBY, R.C., THIGPEN, J.R. & *SWANGER, W. 2022. Quantifying stress conditions of deformation band formation in the Paradox Basin, Utah: Implications for reservoir quality predictions: *Geological Society of America Abstracts with Programs*, v. 54, doi:10.1130/abs/2022CD-374132.

(80) *MILLER, E., *GOLDSBY, R.C., THIGPEN, J.R., *SWALLOM, M.L., *CLARK, G., *PREECE, M. & GUENTHNER, W. 2022. A low temperature thermochronologic investigation of the northernmost Teton Range, WY: Testing the paleo-Teton collapse hypothesis: *Geological Society of America Abstracts with Programs*, v. 54, doi:10.1130/abs/2022CD-373971.

(79) *SPENCER, B.M., POWELL, N.E., THIGPEN, J.R., MOECHER, D.P., STOWELL, H.H. & MERSCHAT, A.J. 2021. Defining the metamorphic timing, extent, and conditions in the southern Appalachian Blue Ridge and Inner Piedmont – insights from monazite and xenotime geochemistry and geochronology: *Geological Society of America Abstracts with Programs*, v. 53, doi:10.1130/abs/2021AM-371378.

(78) *CLARK, G., *SPENCER, B., THIGPEN, J.R., MERSCHAT, A.J., CASALE, G. & LEVINE, J. 2021. Understanding gradients in the differential stress driving flow: Implications for the crustal escape flow model in the southern Appalachian Inner Piedmont: *Geological Society of America Abstracts with Programs*, v. 53, doi:10.1130/abs/2021AM-371086.

(77) *GOLDSBY, R.C., *SWANGER, W., THIGPEN, J.R. & *POWELL, N.E. 2021. Quantifying stress conditions of deformation band formation adjacent to salt structures, southern Utah, USA: *Geological Society of America Abstracts with Programs*, v. 53, doi:10.1130/abs/2021AM-371342.

(76) MCGLUE, M.M., DILWORTH, J., JOHNSON, H., YEAGER, K., THIGPEN, J.R., WOOLERY, E.W., BROWN, S.J., CEARLEY, C.S., *CLARK, G., *DIXON, T.S., *GOLDSBY, R., *HELFRICH, A.L., HODELKA, B.N., *JOHNSON, S., DOMINGOS LUZ, L., POWELL, N.E., RASBOLD, G.G., *SWANGER, W. & WHITEHEAD, S.J. 2021. Sublacustrine geomorphology and deepwater chemostratigraphy reveal effects of dam installation at Jackson Lake (Wyoming, USA): *Geological Society of America Abstracts with Programs*, v. 53, doi:10.1130/abs/2021AM-365379.

(75) *JOHNSON, S., *SWALLOM, M., THIGPEN, J.R., MCGLUE, M.M., WOOLERY, E.W., DORTCH, J., GALLEN, S., & YEAGER, K. 2021. Post-glacial fluvial inefficiency: *Geological Society of America Abstracts with Programs*, v. 53, doi:10.1130/abs/2021AM-371378.

(74) DILWORTH, J., STONE, J., MCGLUE, M.M., YEAGER, K. & THIGPEN, J.R.. 2021. Diatom paleoecology reveals anthropogenically driven changes at Jackson Lake (Wyoming): *Geological Society of America Abstracts with Programs*, v. 53, doi:10.1130/abs/2021AM-366236.

(73) *SPENCER, B.M., THIGPEN, J.R., MERSCHAT, A.J., POWELL, N., K. & McDONALD, C. 2021. Deciphering the “footprint” of the Neoacadian metamorphic event in the southern Appalachians: Insights from $^{40}\text{Ar}/^{39}\text{Ar}$ geochronology in the eastern Blue Ridge and Inner Piedmont of North Carolina: *Geological Society of America Abstracts with Programs, Southeastern Section Meeting*.

- (72) *JOHNSON, H., MCGLUE, M., THIGPEN, J.R., WOOLERY, E.W., YEAGER, K. & BROWN, S.B. 2021. High-resolution CHIRP seismic reflection profiling of Jackson Lake (Grand Teton National Park, Wyoming): *Geological Society of America Abstracts with Programs, Southeastern Section Meeting*.
- (71) *SPENCER, B.M., THIGPEN, J.R., GALLEN, S.F., DORTCH, J.S. & LAW, R.D. 2020. Rapid orogenic collapse: efficient erosion, or something more?: *American Geophysical Union Abstracts with Programs*, T051-02.
- (70) THIGPEN, J.R., ASHLEY, K.T., MAKO, C.A., LAW, R.D. & SPENCER, B.M. 2020. Numerical investigations of rapid heating in thrust belts and implications for metamorphism in the Scandian orogenic wedge, NW Scotland: *Geological Society of America Abstracts with Programs*.
- (69) *DIXON, T.S., THIGPEN, J.R., *DUNN, A.L., BROWN, S.J. & GUENTHNER, W.R. 2020. Utilizing apatite (U-Th)/He analyses and inverse thermal history modeling to constrain the uplift history of the south-central part of the Teton fault: *Geological Society of America Abstracts with Programs*.
- (68) *POWELL, N.E., THIGPEN, J.R., STOWELL, H.H., MOEGER, D.P. & MERSCHAT, A.J. 2020. Testing the applicability of the channel flow model in the southern Appalachian Inner Piedmont using integrated isochemical pseudosection modeling and geochronology: *Geological Society of America Abstracts with Programs*.
- (67) *JOHNSON, S.E., *SWALLOM, M.L., THIGPEN, J.R., MCGLUE, M.M. & WOOLERY, E.W. 2020. A comparison of post-glacial sediment volumes from source to sink in Moran and Snowshoe Canyons, Teton Range, Wyoming: *Geological Society of America Abstracts with Programs*.
- (66) *HELFRICH, A.L., BUFORD-PARKS, V.M., THIGPEN, J.R., & MCQUARRIE, N. 2020. Testing interpretations of the displacement magnitude of the Teton fault and uplift of the Teton Range, WY with integrated flexural-kinematic and thermal modeling: *Geological Society of America Abstracts with Programs*.
- (65) GRAZIANI, R., LARSON, K.P. & THIGPEN, J.R. 2020. An new approach for kinematic vorticity quantification using quartz crystallographic preferred orientations and c' shear bands: *Geological Society of America Abstracts with Programs*.
- (64) *SPENCER, B.M., THIGPEN, J.R., LAW, R.D., HODGES, K.V., GALLEN, S.F., DORTCH, J.M. & MAKO, C.A. 2020. Thermal evolution of the Scandian orogenic retroedge, northern Scotland: Tectonic implications of rapid collapse: *Geological Society of America Abstracts with Programs*.
- (63) *SWANGER, B.M., THIGPEN, J.R., HELFRICH, A.L. & SPENCER, B.M. 2020. Quantifying strain accommodation and deformation of wall rocks and overburden sequences proximal to salt diapirs in Salt Valley, Utah: *Geological Society of America Abstracts with Programs*.
- (62) THIGPEN, J.R., BROWN, S.J., MCGLUE, M., WOOLERY, E., HOAR, R., GUENTHNER, W.R., GALLEN, S.F. & SWALLOM, M. 2019. Cataclysmic collapse of mountain topography along the Yellowstone hotspot track: *Geological Society of America Abstracts with Programs*, **51**, doi:10.1130/abs/2019AM-340575.
- (61) XIAO, S., TANG, Q., THIGPEN, J.R. & KLATT, E. 2019. Macroalgal fossils from the Proterozoic Sandsuck Formation of the Walden Creek Group, southeastern Tennessee: *Geological Society of America Abstracts with Programs*, **51**, doi:10.1130/abs/2019AM-335050.
- (60) MCGLUE, M., THIGPEN, J.R., WOOLERY, E. & BROWN, S.J. 2019. A first look at new CHIRP seismic reflection profiles from Jackson Lake (Grand Teton National Park): *Geological Society of America Abstracts with Programs*, **51**, doi:10.1130/abs/2019AM-332463.
- (59) *SPENCER, B.M., THIGPEN, J.R., McDONALD, C.S., HODGES, K.V., MAKO, C.A., LAW, R.D. & ASHLEY, K.T. 2019. Rapid rates of orogenic collapse in the Scottish Caledonides: *Geological Society of America Abstracts with Programs*, **51**, doi:10.1130/abs/2019AM-337882.

- (58) *HELFRICH, A.L., *SWALLOM, M., *JOHNSON, S., **THIGPEN, J.R.**, MCGLUE, M., WOOLERY, E., BROWN, S.J. & MCQUARRIE, N. 2019. Utilizing apatite (U-Th)/He analyses, landscape and kinematic modeling to examine the relative efficacy of climatic and tectonic forcing in an active tectonic system: Teton Range, WY: *Geological Society of America Abstracts with Programs*, **51**, doi:10.1130/abs/2019AM-338520.
- (57) MAKO, C., LAW, R.D., CADDICK, M., **THIGPEN, J.R.**, ASHLEY, K.T., COTTLE, J. & KYLANDER-CLARK, A. 2019. Contrasting records of monazite fluid alteration in northern Scotland: *Geological Society of America Abstracts with Programs*, **51**, doi:10.1130/abs/2019AM-333309.
- (56) **THIGPEN, J.R.**, SWALLOM, M., MCGLUE, M., BROWN, S.J., WOOLERY, E., HOAR, R. & GALLEN, S.F. 2018. Was the northern extent of the Teton fault 'erased' by the Yellowstone hotspot? Defining the active northern extent of this system. *American Geophysical Union Abstracts with Programs*, **T33A-07**.
- (55) *GUDMUNSON, E., WILSON, J., HARRIS, F., DENHAM, C., WOOLERY, E., MCGLUE, M.M., **THIGPEN, J.R.**, & BROWN, S.J. 2019. Combining CHIRP seismic reflection and LiDAR data to understand the structural architecture and slip partitioning of the northern Teton fault near Jackson Lake, Wyoming: *Geological Society of America Abstracts with Programs*.
- (54) STREIB, L., SPENCER, B.M., SWALLOM, M.L., LO, E., MCGLUE, M.M., **THIGPEN, J.R.**, WOOLERY, E.W., & BROWN, S.J. 2019. Understanding sediment accumulation and distribution in Jackson Lake, Wyoming using CHIRP seismic surveying: *Geological Society of America Abstracts with Programs*.
- (53) BRANNON, M.A., MCGLUE, M.M., **THIGPEN, J.R.**, & WOOLERY, E.W. 2019. Understanding sediment accumulation and distribution in Jackson Lake, Wyoming using CHIRP seismic surveying: *Geological Society of America Abstracts with Programs*.
- (52) *JOHNSON, S., **THIGPEN, J.R.**, MCGLUE, M.M. & WOOLERY, E.W. 2019. Preliminary quantification of sediment storage in Moran and Avalanche canyons in Grand Teton National Park, Wyoming, USA: *Geological Society of America Abstracts with Programs*.
- (51) MAKO, C., LAW, R.D., CADDICK, M., **THIGPEN, J.R.**, ASHLEY, K.T., COTTLE, J. & KYLANDER-CLARK, A. 2018. Mechanisms of heating in a hinterland nappe with tectonic implications, northern Scotland. *American Geophysical Union Abstracts with Programs*, **V23B-01**.
- (50) **THIGPEN, J.R.**, ROBERTS, D.T., WALKER, C.D., BERE, A & BETKA, P. 2018. No Mohr! Modeling deformation and diapirism in relatively young salt tectonic systems using critical state theory: *Geological Society of America Abstracts with Programs*, **50**, doi:10.1130/abs/2018AM-324190.
- (49) *SWALLOM, M.L., **THIGPEN, J.R.**, HOAR, R.M., BROWN, S.J., MCGLUE, M.M., WOOLERY, E.W. & GUENTHER, W.R. 2018. Constraining spatial and temporal landscape response rates to Teton fault activity through apatite helium thermochronology and limnogeology: *Geological Society of America Abstracts with Programs*, **50**, doi:10.1130/abs/2018AM-322631.
- (48) GALLEN, S.F. & **THIGPEN, J.R.** 2018. An erosional mechanism to explain the origin and ongoing activity of the intraplate eastern Tennessee seismic zone: *Geological Society of America Abstracts with Programs*, **50**, doi:10.1130/abs/2018AM-319013.
- (47) BETKA, P., ORYAN, B., **THIGPEN, J.R.**, GRALL, C., BUCK, W.R. & STECKLER, M. 2018. Combining kinematic and numerical modeling to understand the progression from detachment folding to fault-cored folding: A case study from the Indo-Burman fold-thrust belt: *Geological Society of America Abstracts with Programs*, **50**, doi:10.1130/abs/2018AM-324131.
- (46) **THIGPEN, J.R.**, HATCHER, R.D. & MERSCHAT, A.J. 2018. Transitioning from channel to 'escape' flow in large hot collisional systems: Combining studies from the Himalayan and southern Appalachian (Neocadian) orogenic systems: *Geological Society of America Abstracts with Programs*, **50**, doi:10.1130/abs/2018SE-312557.

- (45) *PARKS, R.D., HOAR, R.M., THIGPEN, J.R., GUENTHER, W.R., BROWN, S.J. & SWALLOM, M. 2018. Refining the timing of Teton fault motion and uplift of the Teton Range using low-T thermochronology: *Geological Society of America Abstracts with Programs*, **50**, doi:10.1130/abs/2018SE-313196.
- (44) THIGPEN, J.R., ASHLEY, K.T., LAW, R.D. & MAKO, C.A. 2017. Thrust slip rates as a control on the presence and spatial distribution of high metamorphic heating rates in collisional systems: The “hot iron” model revisited. *American Geophysical Union Abstracts with Programs*, **V51E-0418**.
- (43) GALLEN, S.F. & THIGPEN, J.R. 2017. From erosion to earthquakes: A geomorphic model for intraplate seismicity in post-orogenic settings. *American Geophysical Union Abstracts with Programs*, **T14A-08**.
- (42) *SPARKS, S.A. & THIGPEN, J.R. 2017. Linkages between critical wedges and crustal channel using 2-D coupled thermomechanical finite element models: Implications for Himalayan orogenic evolution. *American Geophysical Union Abstracts with Programs*, **T43E-04**.
- (41) THIGPEN, J.R., ASHLEY, K.T. & LAW, R.D. 2017. Modeling feedbacks between transient thermal evolution, rheological behavior, and strain localization in collisional thrust belts. *Geological Society of America Abstracts with Programs*, **49**, doi:10.1130/abs/2017AM-304469.
- (40) *HOAR, R.M., THIGPEN, J.R., BROWN, S.J. & PARKS, R.D. 2017. Low-T thermochronologic constraints for the onset timing and slip history of the southernmost part of the Teton fault, Wyoming. *Geological Society of America Abstracts with Programs*, **49**, doi:10.1130/abs/2017AM-302755.
- (39) *SPARKS, S.A. & THIGPEN, J.R. 2017. Examining transient thermal-rheological interaction during collisional orogenesis using numerical modeling: Implications for channel flow and critical wedge models. *Geological Society of America Abstracts with Programs*, **49**, doi:10.1130/abs/2017AM-296896.
- (38) MAKO, C.A., LAW, R.D., MAZZA, S., ASHLEY, K.T., THIGPEN, J.R., COTTLE, J. & KYLANDER-CLARK, A. 2017. Monazite and titanite constraints on the Precambrian metamorphic evolution of the NW Highlands terrane, Scotland. *Geological Society of America Abstracts with Programs*, **49**, doi:10.1130/abs/2017AM-299525.
- (37) LAW, R.D., MAZZA, S., THIGPEN, J.R., MAKO, C., ASHLEY, K.T. & KRABBENDAM, M. 2017. Shear senses and deformation temperatures indicated by quartz c-axis fabrics and microstructures in a NW-SE transect across the Moine and Sgurr Beag thrust sheets of northern Scotland. *Deformation, Rheology, and Tectonics Meeting, Inverness Scotland*.
- (36) *SPARKS, S.A., THIGPEN, J.R., & LEE, J. 2017. Evaluating gneiss dome thermal evolution using 2-D coupled thermomechanical finite-element modeling. *Geological Society of America Abstracts with Programs*, **49**, doi:10.1130/abs/2017SE-290026.
- (35) BROWN, S.B., THIGPEN, J.R. & HOAR, R.M. 2017. Teton fault evolution part 1: Onset timing and slip history. *Geological Society of America Abstracts with Programs*, **49**, doi:10.1130/abs/2017SE-291654.
- (34) *HOAR, R.M., BROWN, S.B. & THIGPEN, J.R. 2017. Teton fault evolution part 2: Fault growth models and length-displacement scaling relationships. *Geological Society of America Abstracts with Programs*, **49**, doi:10.1130/abs/2017SE-291406.
- (33) THIGPEN, J.R., ASHLEY, K.T., LAW, R.D. & MAKO, C.A. 2016. Influence of thrust-related advection and mass transfer on heating rates in orogens. *Geological Society of America Abstracts with Programs*, **48**, doi:10.1130/abs/2016AM-286904.
- (32) MAKO, C.A., LAW, R.D., COTTLE, J.M., THIGPEN, J.R., & ASHLEY, K.T. 2016. Monazite-xenotime thermometry constraints on the metamorphic evolution of the Scandian nappe stack, NW Highlands terrane, Scotland. *Geological Society of America Abstracts with Programs*, **48**, doi:10.1130/abs/2016AM-284730.

- (31)** MAKO, C.A., LAW, R.D., THIGPEN, J.R., ASHLEY, K.T., JERCINOVIC, M.J. & WILLIAMS, M.L. 2016. Timing of garnet growth and breakdown using monazite geochronology in the Scandian (Taconic) orogenic wedge, NW Scotland. *Geological Society of America Abstracts with Programs*, **48**, doi:10.1130/abs/2016NE-272468.
- (30)** THIGPEN, J.R., ASHLEY, K.T. & LAW, R.D. 2015. Understanding kinematic displacement rate effects on transient thermal processes: A comparison of analytical (Ti-diffusion) and numerical (finite-element) solutions to footwall heating in thrust belts. *Geological Society of America Abstracts with Programs*.
- (29)** LAW, R.D., ASHLEY, K.T. & THIGPEN, J.R. 2014. Caledonian evolution of the Moine Supergroup: Prograde garnet growth and context for quartz fabric-based deformation thermometry. *European Geophysical Union Geophysical Research Abstracts*, **16**.
- (28)** ASHLEY, K.T., THIGPEN, J.R., LAW, R.D. & CADDICK, M.J. 2014. Decompressional garnet growth during prograde metamorphism: Implications for tectonic reconstructions in NW Scotland. *Linkages and Feedbacks in Orogenic Systems, Geological Society of America Penrose Conference*.
- (27)** ASHLEY, K.T., THIGPEN, J.R., LAW, R.D. & CADDICK, M.J. 2013. Decompressional garnet growth during prograde metamorphism in Caledonian thrust sheets, NW Scotland. *Geological Society of America Abstracts with Programs*, **45**, 742.
- (26)** THIGPEN, J.R., LAW, R.D., ROTH, B.L., STRACHAN, R., LLOYD, G.E., & BROWN, S.J. 2010. Examination of vorticity at different crustal levels: a case study from the Moine thrust zone, NW Scottish Caledonides. *Geological Society of America Abstracts with Programs*, **42**, 149.
- (25)** *LASKOWKI, A., THIGPEN, J.R., & BAILEY, C.M., JR. 2010. 3D restoration of the Neoproterozoic Sugar Hollow rift basin using strain and vorticity analysis, Blue Ridge, central Virginia. *Geological Society of America Abstracts with Programs*, **42**, 150.
- (24)** ROTH, B.L., LAW, R.D., THIGPEN, J.R. & BROWN, S.J. 2010. Integrated strain, petrofabric and vorticity analysis of Moine thrust footwall mylonites in the northern part of the Assynt window, NW Scotland. *Geological Society of America Abstracts with Programs*, **42**, 149.
- (23)** THIGPEN, J.R., LAW, R.D., TRACY, R.J., STRACHAN, R., LLOYD, G.E., LOEHN, C. & BROWN, S.J. 2009. Understanding the preservation of an inverted metamorphic progression, Scottish Caledonides: Integrating quantitative structural, kinematic, and metamorphic data. *Geological Society of America Abstracts with Programs*, **41**, 691.
- (22)** BROWN, S.J., SPOTILA, J.A., TRANEL, L.M., KRUGH, W.C., CARRAPA, B. & THIGPEN, J.R. 2009. Combining apatite (U-Th)/He and fission-track dating: Implications for differential uplift of the Teton Range and initiation of the Teton fault, Wyoming. *Geological Society of America Abstracts with Programs*, **41**, 54.
- (21)** THIGPEN, J.R., LAW, R.D., LLOYD, G.E. & BUTLER, R.W.H. 2008. Kinematic coupling between hinterland and foreland deformation in the northern Moine thrust zone, NW Scotland. *Geological Society of America Abstracts with Programs*, **40**, 513.
- (20)** THIGPEN, J.R. 2008. Field relationships and geochronological data: Implications for 3-D model results of Neoproterozoic deposition and the Paleozoic structural evolution of the western Blue Ridge, southern Appalachians. *Geological Society of America Abstracts with Programs*, **40**, 19.
- (19)** LAW, R.D., THIGPEN, J.R., COOK, B. & SEARLE, M.P. 2008. Kinematic coupling between hinterland and foreland deformation in convergent orogens. *Geological Society of America Abstracts with Programs*, **40**, 513.
- (18)** PRINCE, P.S., THIGPEN, J.R., HENIKA, W.S., OHLSCHLAGER, J.G., McNEIL, M. & LAW, R.D. 2008. Characterization of 3-D vorticity and strain symmetry in the southern Appalachian Inner Piedmont: an exhumed orogenic hinterland. *Geological Society of America Abstracts with Programs*, **40**, 65.

- (17) HENIKA, W.S., THIGPEN, J.R., PRINCE, P.S., MCNEIL, M., OHLSCHLAGER, J.G., LOEHN, C.W. & LAW, R.D. 2008. Vorticity, strain symmetry, and monazite geochronology of the Bowens Creek fault zone, northeastern Inner Piedmont, southern Appalachians, Virginia. *Geological Society of America Abstracts with Programs*, **40**, 18.
- (16) BROWN, S.J., SPOTILA, J.A., THIGPEN, J.R. & TRANEL, L.M. 2008. Refining the temporal and spatial evolution of the Teton Range, Wyoming, from integrated apatite (U-Th)/He and structural analyses. *Geological Society of America Abstracts with Programs*, **40**, 148.
- (15) *OHLSCHLAGER, J.G., MCNEIL, M., THIGPEN, J.R., PRINCE, P.S., HENIKA, W.S. & LAW, R.D. 2008. Microstructural and kinematic investigations of the Brevard fault zone near Rosman, NC: Implications for material movement oblique to orogenic strike. *Geological Society of America Abstracts with Programs*, **40**, 10.
- (14) THIGPEN, J.R., LAW, R.D. & Brown, S.J. 2007. 3-D strain symmetry and vorticity of flow along the Moine thrust, NW Scotland: Implications for thrust sheet evolution at mid-crustal levels. *Geological Society of America Abstracts with Programs*, **39**, 94.
- (13) THIGPEN, J.R. & LAW, R.D. 2007. Vorticity of flow along the Moine thrust zone from Whiten Head to northern Assynt, NW Scotland. *Geological Society of America Abstracts with Programs*, **39**, 236.
- (12) THIGPEN, J.R. & LAW, R.D. 2007. Influence of strain symmetry and vorticity of flow on thrust sheet evolution at mid-crustal levels: An example from the Moine thrust, NW Scotland. In: Butler, R., Holdsworth, R.E., Krabbendam, M. & Law, R. (eds) *Peach and Horne Centennial Meeting on Continental Tectonics and Mountain Building*, May 12th-May 20th, Ullapool, Scotland.
- (11) THIGPEN, J.R. & LAW, R.D. 2007. New digital geologic map of the Moine thrust zone from Loch Eriboll to Knockan Crag. In: Butler, R., Holdsworth, R.E., Krabbendam, M. & Law, R. (eds) *Peach and Horne Centennial Meeting on Continental Tectonics and Mountain Building*, May 12th-May 20th, Ullapool, Scotland.
- (10) THIGPEN, J.R. 2006. 3-D Depositional and structural evolution of the western Blue Ridge: Implications for pre-orogenic basement and cover geometry controlling major Paleozoic faulting. *Geological Society of America Abstracts with Programs*, **38**, 415.
- (9) THIGPEN, J.R. & HATCHER, R.D., Jr. 2006. Detailed geologic mapping southwest of GSMNP, western Blue Ridge: Implications for the stratigraphy and structure of the Ocoee Supergroup. *Geological Society of America Abstracts with Programs*, **38**, 66.
- (8) THIGPEN, J.R., HATCHER, R.D., Jr., & Settles, D.J. 2006. Digital geologic map of the southern Appalachian Blue Ridge and adjacent Valley and Ridge in southeast Tennessee, southwest North Carolina, and northern Georgia. *Geological Society of America Abstracts with Programs*, **38**, 78.
- (7) REPETSKI, J.E., HATCHER, R.D., JR., SOUTHWORTH, C.S., & THIGPEN, J.R. 2006. Conodonts from the Walden Creek Group, southeastern Tennessee. *Geological Society of America Abstracts with Programs*, **38**, 66.
- (6) STAHR, D.W., THIGPEN, J.R., & HATCHER, R.D., JR. 2005. Polydeformed Proterozoic basement in the Blue Ridge thrust complex of northeast Tennessee-northwest North Carolina; Part II, Insights gained from micro-and mesostructural analysis of a Grenvillian shear zone. *Geological Society of America Abstracts with Programs*, **37**, 36.
- (5) THIGPEN, J.R. & HATCHER, R.D., Jr. 2004. New digital geologic map of the western Blue Ridge, SE Tennessee, SW North Carolina, northern Georgia: a tool for regional analysis of the Ocoee basin. *Geological Society of America Abstracts with Programs*, **36**, 503.
- (4) THIGPEN, J.R. & HATCHER, R.D., Jr. 2004. Stratigraphic (age and position) and structural problems in the Ocoee basin. *Geological Society of America Abstracts with Programs*, **36**, 91.
- (3) HATCHER, R.D., Jr., MERSCHAT, A.J., GATEWOOD, M.P. & THIGPEN, J.R. 2004. The Appalachian Inner Piedmont: An Exhumed Orogenic Channel. In: Searle, M.P., Law, R.D. & Godin, L. (convenors) Programme and

abstracts for conference on: *Channel Flow, Ductile Extrusion and Exhumation of Lower-mid crust in Continental Collision zones, 6th-7th December 2004*, Geological Society, London.

(2) WHISNER, J.B., HATCHER, R.D., JR., MERSCHAT, A.J., BULTMAN, J.G., EVENICK, J.C., GATEWOOD, M.P., STAHR, D.W., **THIGPEN, J.R.**, WHITMER, E.N. & WILSON, C.G. 2004. 3D reconstruction of Alleghanian structure of the Appalachian foreland fold-thrust belt, NW Georgia to SW Virginia around the Tennessee salient. *Geological Society of America Abstracts with Programs*, **36**, 139.

(1) **THIGPEN, J.R.** & HATCHER, R.D., Jr. 2003. Structural and stratigraphic analysis of part of a Middle Ordovician syncline near Mt. Vernon, Tennessee. *Geological Society of America Abstracts with Programs*, **35**, 24.