

JASON DORTCH, PhD Geology

Kentucky Geologic Survey, University of Kentucky



Research

My research interests lie in landscape evolution; namely how surface process have shaped topography through time. I utilize chronology, field mapping, and remotely sensed imagery (LiDAR) to elucidate surface processes and their landforms. Custom MATLAB scripts are employed to identify both natural and man-made objects. This includes swath analysis, pattern recognition, optimization, river profiling, and neural networks.



Employment

Geologist-V Researcher 2023 - present
Kentucky Geologic Survey, University of Kentucky

Geologist-IV Researcher 2019 - 2023
Kentucky Geologic Survey, University of Kentucky

Postdoctoral Researcher 2018 - 2019
Kentucky Geologic Survey, University of Kentucky

Assistant Professor 2012 - 2017
University of Manchester, UK. Department of Geography

Postdoctoral Researcher 2010 - 2012
Univeristy of Toronto, Canada. Dept. of Earth Sciences

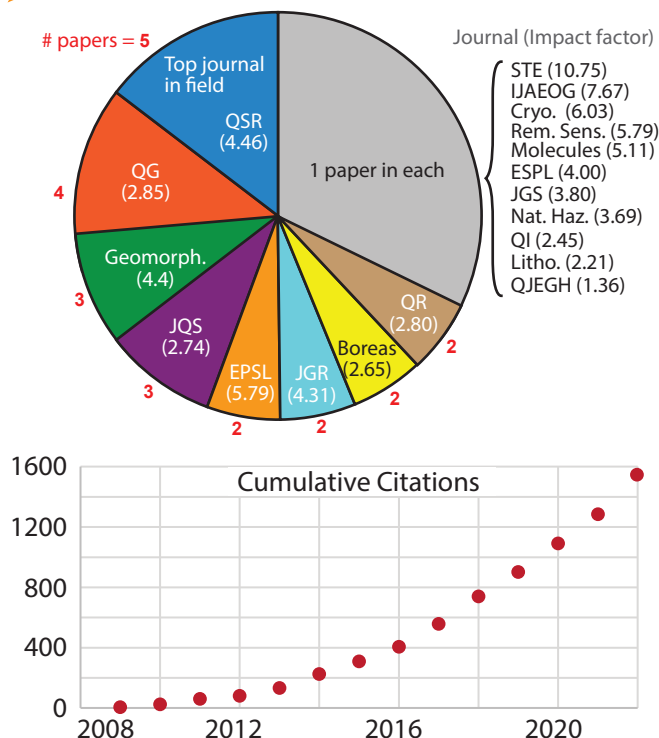
Lecturer 2010 - 2011
University of Cincinnati, OH USA. Intro to Geology 101.

Student Lab Mananger/Tech 2002 - 2010
UCR and UC CRN and Heavy Liquid Labs.

Mechanic 1998 - 2002
Toyota, Moreno Valley, California USA.



Research Distribution

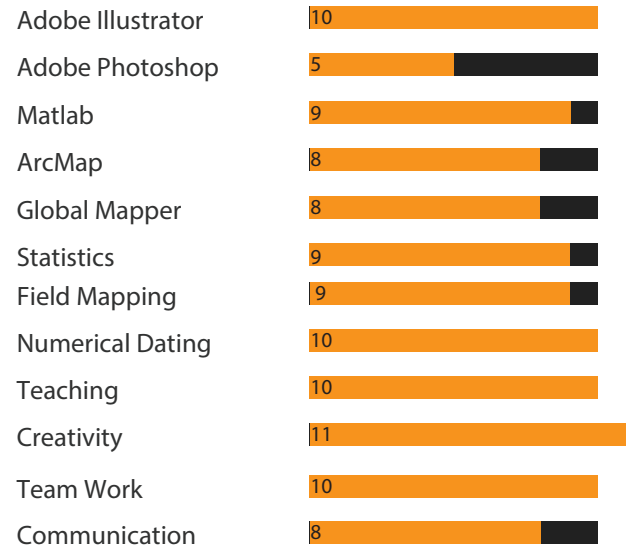


Contact Me

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Google Scholar: bit.ly/jdortch



Professional Skills



Research Impact (by the numbers)

- Peer-reviewed publications = 33; Since 2018 = 15
 - h-index = 20; i10-index = 24
 - Total citations = 1700; Since 2018 = 1131
- Funding: \$1,060,000 awarded as PI or Co-PI since 2018
 - Additional \$746,800 as a Collaborator
- Associate editor for Quaternary research (2020-present)
- International footprint
 - Five papers cited >100 times
 - 12 additional papers cited >30 times
 - Tomkins et al. (2016) Number one most down loaded in QG for >10 weeks; in top 25 for 11 months
 - Owen and Dortch (2014) Number four most downloaded in QSR for >7 weeks
 - Cook et al. (2016) reported by 24 newspapers in English, Spanish, and French. Includes NASA Earth Observatory, EGU News, Washington Post, Independent, and International Business Times.
- Active graduate students = 8; Suscesfully finished = 10
- Conferences
 - Conferences organized = 3
 - Sessions organized = 4
 - Confeence abstracts = 43; Since 2018 = 27
- Invited external seminars = 18; Since 2018 = 7
- KGS annunal meetings, advisory board meetings, internal seiminars, and publicatiосn since 2019 = 16

EMPLOYMENT DETAILS

2023-present: Geologist-V, Kentucky Geological Survey, University of Kentucky, USA.

Research includes mass movements, fluvial incision, catastrophic flooding, automated landform mapping, landscape evolution, and geochronology. Lidar and MATLAB are utilized to enable terrane modelling at various scales and for machine learning. Significant effort is invested into mentoring and supervising staff development. Full time.

2019-2023: Geologist-IV, Kentucky Geological Survey, University of Kentucky, USA.

Research includes landslides, rockfall, river incision, terrace formation, landscape evolution, and geochronology. Lidar is utilized to understand geomorphic systems, sediment transport and deposition, terrane modelling at various scales, and for machine learning. Full time.

2018-2019: Postdoctoral researcher, Kentucky Geological Survey, University of Kentucky, USA.

Undertook research using LiDAR to understand geomorphic systems, sediment transport and deposition, and hazard location in Kentucky. Full time

2012-2017: Assistant Professor, University of Manchester, United Kingdom.

Designed and implemented extensive research programmes focused on the geomorphology of different regions (Himalaya, Bolivian Andes, Pyrenees, Scottish Highlands) and the interaction with hazard potential (mass movements, debris flows, large floods), tectonics (uplift rates), and climate (timing and extent of past glaciation). This work also involved supervising PhD and master's Students, all of which have completed successfully. Other duties included applying for grants, supervising a master's degree program, teaching 3-4 courses (undergraduate and master's) a year, and participating on committees, staff meetings, and geomorphology field courses. Full time.

2010-2012: Postdoctoral researcher, University of Toronto, Canada.

Undertook research on the evolution of the Puna Plateau, Argentina. This involved mapping the geomorphology, understanding the relationship between geomorphic systems, and developing a geochronology program to quantify the age of geomorphic landforms. Full time.

2010-2010: Lecturer, University of Cincinnati, USA.

Taught one semester of Geology 101 which primarily focused on geomorphology, hazards, and tectonics. Part time, 1-month at 25 hrs/week.

2007-2010: Student Lab Technician, University of Cincinnati, USA.

Prepared samples for cosmogenic radionuclide (CRN) and optically stimulated luminescence (OSL) dating for external researchers (USGS) and other academic institutions. Part time 20 hrs/week.

2005-2007: Student Lab Manager, University of Cincinnati, USA.

Built and managed the CRN and heavy liquids laboratories at the University of Cincinnati. Undertook fieldwork to assist researchers in collecting samples in their proper geomorphology context. Laboratory duties included developing lab procedures, training visiting academics and students, and processing samples for institutions such as the USGS on a paid basis. All samples processed were for geomorphology research programs. Part-time 20 hrs/week.

2002-2005: Student Lab Technician, University of California Riverside, USA.

Prepared samples for CRN dating, including crushing and sieving of samples, processing through heavy liquids, and leaching in sonicators. Built equipment and set up a clean chemistry laboratory for anion and cation exchange. Part time 20 hrs/week.

1998-2002: mechanic, Toyota of Moreno Valley, USA

Diagnosed problems with vehicles (noises, handling issues, and acute or catastrophic problems). Performed repair and replace procedures for engines and transmissions, rebuilt engines, and undertook all routine maintenance services (brakes, fluids, tires, etc.). Full time.

EDUCATION

2007-2010: UNIVERSITY OF CINCINNATI, OHIO, USA.

Ph.D. in Geology, University of Cincinnati, Ohio.

Title: "Differential landscape evolution across an asymmetric, semi-arid high mountain range: the Ladakh Range, NW Himalaya."

Advisors: Professors Lewis Andrew Owen and Craig Dietsch

Accolades:

- 2010 University of Cincinnati nominee for the CGS / University Microfilms International (UMI) Distinguished Dissertation Award in Mathematics, Physical Sciences and Engineering.
- 2010 McMicken College of Arts and Sciences Outstanding Doctoral Student Award.
- 2009-2010 Alumni Graduate Fellowship Fund: given to the most outstanding final-year graduate student with high research productivity.
- 2007 Sunderman Teaching Award: Awarded to a teaching assistant who excels in instruction and provides innovative lessons for students

2004-2007: UNIVERSITY OF CINCINNATI, OHIO, USA.

M.Sc. in Geology, University of Cincinnati, Ohio.

Title: "Defining the timing of glaciation in the central Alaska Range."

Advisor: Professor Lewis Andrew Owen

2004: UNIVERSITY OF IDAHO, MOSCOW, USA.

Expedition: Juneau Ice Field Research Program, University of Idaho, Moscow.

2001-2005: UNIVERSITY OF CALIFORNIA, RIVERSIDE, USA.

B.Sc. in Geology, University of California, Riverside.

RESEARCH BIDS

[15] 2022 \$49,786 NSF RAPID, (FAIN): 2242120. Geomorphologically and sedimentologically contextualized flood deposit sampling and mapping to inform public health assessments of toxic hazards: Rapid response insights from the catastrophic July 2022 floods in eastern Kentucky. PI – **Dortch, J.M.** Co-PI's: Thigpen, R., Haneberg, W.C.

[14] 2022 EPSCoR Track-1 Idea Paper (Successful at UK level). If Track-1 is successful will go to NSF for 20M over five years. Climate Change Hazards in Appalachia: Towards Resilience and Geoscience Equity in Kentucky (CHARGE). PI – Woolery, E., CO-PI's **Dortch, J.M.**, is one of many across several Kentucky institutions.

[13] 2022 \$426,388 - FEMA Hazard Mitigation Grant Program (HMGP) Project 4540-0013-P: Multi-Jurisdictional Hazard Mitigation Planning-Related Activity for Landslides for the Kentucky River Area Development District. Co-PI's: Crawford, M.M., **Dortch, J.M.**, Wang, Z., Carpenter, S.N.

[12] 2022 (Unfunded) \$80,000 - NSF RAPID, was approved by NSF but pulled due to Yellowstone National Park unwillingness to issue drone permit. Detailed surveys of the June 16, 2022 Yellowstone flood impacts: A benchmark constraint for evaluating how landscapes will respond to rapid global climate change. Co-PI's: Thigpen, R., **Dortch, J.M.**, Lawrence, J.E.

[11] 2022 (Unfunded) \$50,000 - Sustainability Challenge Grants. Calibrating Paleo-Flood Records in Kentucky: Using Geological Archives, Historical Climate Data, and Citizen Science to Address a Major Environmental Hazard in the Commonwealth. PI – McGlue, M., CO-PI's (alphabetical): Cagle, L., **Dortch, J.M.**, Haneberg, W.C., Massey, M.A., Tobin, B., Woolery, E., Yeager, K.

[10] 2021 \$449,188 - New surficial geological mapping and NCGMP GeMS compilation projects for Kentucky. US Geological Survey 3200004391. PI – Andrews, W.M. Co-PI's: Massey, M.A., **Dortch, J.M.**

[9] 2020 \$134,000 - Transforming Past into Present: A Registration Approach to Using Old and New Topographic Information to Improve the Fidelity and Value of Legacy Geologic Maps. Submitted to USGS. PI – Haneberg, W.C., CO-PI's **Dortch, J.M.**, Zhu, Y.

[8] 2018 \$400,408 - FEMA Hazard Mitigation Grant Program (HMGP) Project PDMC-PL-04-KY-2017-002: Multi-Jurisdictional Hazard Mitigation Plan for Landslides for the Big Sandy ADD. PI – Crawford, M.M., Collaborator – **Dortch, J.M.**

[7] 2018 (Unfunded) \$28,319 - VPR Igniting Research Collaboration. Assessing environmental impacts of abandoned oil and gas wells. Co-PI's Parris, T.M., Pennell, K.G., **Dortch, J.M.**

[16] 2016 \$19,250 - Cryosphere Research At Manchester (CRAM) Marie Curie Innovative Training Networks bid. Co-PI's Edwards, L., **Dortch, J.M.**

[5] 2015 \$39,000 - Developing the Cryosphere at Manchester Research Group (CRAM). Submitted to University of Manchester Research Institute. Co-PI's Edwards, L., Mitchell, N., **Dortch, J.M.**, Van Dongen, B., Husse, M., Bardgett, R.

[4] 2014 \$7,900 - Past, present, and future changes in Bolivian Andes glaciers and glacial lake outburst flood hazards. School of Environment and Development Research Stimulation fund. Co-PI's Edwards, L., **Dortch, J.M.**

[3] 2013 \$7,800 - Magnitude and spatial pattern of British Ice Sheet erosion. School of Environment and Development Research Stimulation fund. PI – **Dortch, J.M.**

[2] 2012 \$346,378 - Transient landscapes, temporally variable erosion rates, and the impacts of glaciation and climate change on landscape morphodynamics. National Science Foundation. Co-PI's Spotilla, J., Owen, L.A., Caffee, M.W., and Shuster, D., Collaborator – **Dortch, J.M.**

[1] 2009 \$19,500 - Past, present, and future glaciations of Nanda Devi, in the monsoon-dominated Garhwal Himalaya, northern India. National Geographic Society. Co-PI's Owen, L.A., **Dortch, J.M.**, Dietsch, C., Sharma, M.C., Fuchs, M.

PEER-REVIEWED JOURNALS

A. PUBLICATIONS

[34] Swallom, M.L., Goldsby, R.C., Thigpen, J.R., Johnson, S.E., **Dortch, J.M.**, Brown, S.J., Woolery, E.W. (Submitted). Ongoing Basin and Range extension beneath the Yellowstone hotspot track: Linking modern fault slip between the Teton and Gallatin Ranges, Wyoming, USA. TBD

[33] Zhu, Y., **Dortch, J.M.**, Haneberg, W.C. (2022). Non-affine georectification to improve the topographic fidelity of legacy geologic maps. *International Journal of Applied Earth Observations and Geoinformation*: 115, 103127. <https://doi.org/10.1016/j.jag.2022.103127>

[32] Crawford, M.M., **Dortch, J.M.**, Koch, H.J., Zhu, Y., Haneberg, W.C., Wang, Z., Bryson, L.S. (2022). Landslide risk assessment in Eastern Kentucky, USA: Developing a regional scale, limited resource approach. *Remote Sensing*: 14, 6246. <https://doi.org/10.3390/rs14246246>

[31] Johnson, S.E., Swallom, M.L., Thigpen, R., McGlue, M., **Dortch, J.M.**, Gallen, S., Woolery, E., Yeager, K.M. (2022). The influence of glacial topography on fluvial efficiency in the Teton Range, Wyoming (USA). *Earth and Planetary Science Letters*, 592, 117643. <https://doi.org/10.1016/j.epsl.2022.117643>

[30] **Dortch, J.M.**, Tomkins, M.D., Saha, S., Murari, M.K., Schoenbohm, L.M., Curl, D. (2022). A tool for the ages: The Probabilistic Cosmogenic Age Analysis Tool (P-CAAT). *Quaternary Geochronology*, 71, 101323. <https://doi.org/10.1016/j.quageo.2022.101323>

[29] Spencer, B. M., Thigpen, J. R., Gallen, S. F., **Dortch, J. M.**, Hodges, K. V., Law, R. D., & Mako, C. A. (2021). An evaluation of erosional-geodynamic thresholds for rapid orogenic denudation. *Journal of Geophysical Research: Solid Earth*, 126, e2021JB022353. <https://doi.org/10.1029/2021JB022353>

- [28] Harmon, R.S., Khashchevskaya, D., Morency, M., Owen, L.A., Jennings, M., Knott, J.R., **Dortch, J.M.** (2021). Analysis of Rock Varnish from the Mojave Desert by Handheld Laser-Induced Breakdown Spectroscopy. *Molecules*, 26, 5200. <https://doi.org/10.3390/molecules26175200>
- [27] Tomkins, M.D., **Dortch, J.M.**, Hughes, P.D., Huck, J.J., Pallàs, R., Rodés, Á., Allard, J.L., Stimson, A.G., Bourlès, D., Rinterknecht, V., Jomelli, V., Rodríguez-Rodríguez, L., Copons, R., Barr, I.D., Darvill, C.M., Bishop, T. (2021). Moraine crest or slope: an analysis of the effects of boulder position on cosmogenic exposure age. *Earth and Planetary Science Letters*, 570, 117092. <https://doi.org/10.1016/j.epsl.2021.117092>
- [26] Zhu, Y., **Dortch, J.M.**, Massey, M.A., Haneberg, W.C., Curl, D. (2021). An Intelligent Swath Tool to Characterize Complex Topographic Features: Theory and Application in the Teton Range, Licking River, and Olympus Mons. *Journal of Geomorphology*, 387, 107778. <https://doi.org/10.1016/j.geomorph.2021.107778>
- [25] Crawford, M.M., **Dortch, J.M.**, Koch, H.J., Killen, A.A., Zhu, J., Zhu, Y., Bryson, L.S., Haneberg, W.C. (2021). Using landslide-inventory mapping for a combined bagged-trees and logistic-regression approach to determining landslide susceptibility in eastern Kentucky, United States. *The Quarterly Journal of Engineering Geology and Hydrogeology*, 54, qjehg2020-177. <https://doi.org/10.1144/qjehg2020-177>
- [24] Matthews, J.A., Winkler, S., Wilson, P., Tomkins, M.D., **Dortch, J.M.**, Mourné, R.W., Hill, J.L., Owen, G., Vater, A.E., (2018). Small rock-slope failures conditioned by Holocene permafrost degradation: a new approach and conceptual model based on Schmidt-hammer exposure-age dating, Jotunheimen, southern Norway. *Boreas*, 47, 1144-1169. <https://doi.org/10.1111/bor.12336>
- [23] Kougkoulos, I.; Cook, S.J., Edwards, L.A., Clarke, L.J., Symeonakis, E., **Dortch, J.M.**, Nesbitt, K., (2018b). Modelling glacial lake outburst flood impacts in the Bolivian Andes. *Natural Hazards*. <https://doi.org/10.1007/s11069-018-3486-6>
- [22] Kougkoulos, I., Cook, S.J., Jomelli, V., Clarke, L., Symeonakis, E., **Dortch, J.M.**, Edwards, L.A., Merad, M., (2018a). Use of multi-criteria decision analysis to identify potentially dangerous glacial lakes. *Science of the Total Environment*, 621, 1453-1466. <https://doi.org/10.1016/j.scitotenv.2017.10.083>
- [21] Tomkins, M.D., **Dortch, J.M.**, Hughes, P.D., Huck, J.J., Tonkin, T.N., Barr, I.D. (2018c). Timing of glacial retreat in the Wicklow Mountains, Ireland, conditioned by glacier size and topography *Journal of Quaternary Science*, 36, 611-623. <https://doi.org/10.1002/jqs.3040>
- [20] Tomkins, M.D., **Dortch, J.M.**, Hughes, P.D., Huck, J.J., Stimson, A.G., Delmas, M., Calvet, M., Pallàs, R. (2018b). Rapid age assessment of glacial landforms in the Pyrenees using Schmidt hammer exposure dating (SHED). *Quaternary Research*, 90, 26-37. <https://doi.org/10.1017/qua.2018.12>
- [19] Tomkins, M.D., Huck, J.J., **Dortch, J.M.**, Hughes, P.D., Kirbride, M.P., Barr, I.D. (2018a). Schmidt Hammer exposure dating (SHED): Calibration procedures, new exposure age data and an online calculator. *Quaternary Geochronology*, 44, 55-62. <https://doi.org/10.1016/j.quageo.2017.12.003>
- [18] Fame, M.L., Spotila, J.A., Owen, L.A., **Dortch, J.M.**, Shuster, D.L. (2018b). Spatially heterogeneous post-Caledonian burial and exhumation across the Scottish Highlands. *Lithosphere*, 10, 406-425. <https://doi.org/10.1130/L678.1>
- [17] Fame, M.L., Owen, L.A., Spotila, J.A., **Dortch, J.M.**, Caffee, M.W. (2018a). Tracking paraglacial sediment with cosmogenic ^{10}Be using an example from the northwest Scottish Highlands. *Quaternary Science Reviews*, 182, 20-36. <https://doi.org/10.1016/j.quascirev.2017.12.017>
- [16] Barr, I., Roberson, S., Flood, R., & **Dortch, J.** (2017). Younger Dryas glaciers and climate in the Mourne Mountains, Northern Ireland. *Journal of Quaternary Science*, 32, 104-115. <https://doi.org/10.1002/jqs.2927>

[15] Cook, S.J., Kougkoulos, I., Edwards, L.A., **Dortch, J.M.**, Hoffmann, D. (2016). Glacier change and glacial lake outburst flood risk in the Bolivian Andes. *The Cryosphere* 10, 2399–2413. <https://doi.org/10.5194/tc-10-2399-2016>

[14] **Dortch, J.M.**, Tomkins, M.D., Hughes, P.D. (2016). Schmidt hammer exposure dating (SHED): Calibration boulder of Tomkins et al. (2016). *Quaternary Geochronology*, 35, 67-68. <https://doi.org/10.1016/j.quageo.2016.06.001>

[13] Tomkins, M.D., **Dortch, J.M.**, Hughes, P.D. (2016). Schmidt Hammer exposure dating (SHED): Establishment and implications for the retreat of the last British Ice Sheet. *Quaternary Geochronology*, 33, 46-60. <https://doi.org/10.1016/j.quageo.2016.02.002>

[12] Dietsch, C., **Dortch, J.M.**, Reynhout, S., Owen, L.A., Caffee, M.W. (2015). Very slow erosion and topographic evolution of the southern Ladakh Range, Northern India. *Earth Surface Processes and Landforms*, <https://doi.org/10.1002/esp.3640>.

[11] Owen, L.A., **Dortch, J.M.** (2014b; **Invited**). Nature and timing of Quaternary glaciation in the Himalayan–Tibetan orogeny. *Quaternary Science Reviews*, 88, 188-208. <https://doi.org/10.1016/j.quascirev.2013.11.016>

[10] Murari, M.K., Owen, L.A., **Dortch, J.M.**, Caffee, M.W Dietsch, C., Fuchs, M., Haneberg, W.C., Sharma, M.C., small, A. (2014a). Timing and climatic drivers for glaciation across monsoon-influenced regions of the Himalaya–Tibetan orogeny. *Quaternary Science Reviews*, 88, 14-54. <https://doi.org/10.1016/j.quascirev.2014.01.013>.

[9] **Dortch, J.M.**, Owen, L.A., Caffee, M.W. (2013). Timing and climatic drivers for glaciation across semi-arid western Himalayan–Tibetan orogeny. *Quaternary Science Reviews*, 78, 188-208. <https://doi.org/10.1016/j.quascirev.2013.07.025>

[8] **Dortch, J.M.**, Owen, L.A., Caffee, M.W., Schoenbohm, L. (2011c). Asymmetrical erosion and morphological development of the central Ladakh Range, northern India. *Journal of Geomorphology*, 135, 167-180. <https://doi.org/10.1016/j.geomorph.2011.08.014>

[7] **Dortch, J.M.**, Owen, L.A., Dietsch, C., Caffee, M.W., Bovard, K. (2011b). Episodic fluvial incision of rivers and rock uplift in the Himalaya and Transhimalaya. *Geological Society of London*, 168, 783-804. <https://doi.org/10.1144/0016-76492009-158>.

[6] **Dortch, J.M.**, Owen, L.A., Caffee, M.W., Kamp, U. (2011a) Catastrophic partial drainage of Pangong Tso, Ladakh, northern India. *Journal of Geomorphology*, 125, 109-121. <https://doi.org/10.1016/j.geomorph.2010.08.017>

[5] **Dortch, J.M.**, Owen, L.A., Caffee, M.W., LI, D., Lowell, T.V. (2010b). Beryllium-10 surface exposure dating of glacial successions in the Central Alaska Range. *Journal of Quaternary Science*, 25, 1259-1269. <https://doi.org/10.1002/jqs.1406>.

[4] Blisniuk, K., Rockwell, T., Owen, L.A., Oskin, M., Lippincott, C., Caffee, M.C., **Dortch, J.M.** (2010). Late Quaternary slip rate gradient defined using high-resolution topography and ¹⁰Be dating of offset landforms on the southern San Jacinto Fault zone, California. *Journal of Geophysical Research*, 115, <https://doi.org/10.1029/2009JB006346>

[3] **Dortch, J.M.**, Owen, L.A., Caffee, M.W. (2010a). Quaternary glaciation in the Nubra and Shyok valley confluence, northernmost Ladakh, India. *Quaternary Research*, 74, 132–144. <https://doi.org/10.1016/j.yqres.2010.04.013>

[2] **Dortch, J.M.**, Owen, L.A., Caffee, M.W. (2009b). Late Quaternary glaciation and ELA variations of the McKinley River region, central Alaska Range. *Boreas*, 39, 233-246. <https://doi.org/10.1111/j.1502-3885.2009.00121>

[1] **Dortch, J.M.**, Owen, L.A., Haneberg, W.C., Caffee, M.W., Dietsch, C., Kamp, U. (2009a). Nature and timing of large landslides in the Himalaya and Transhimalaya of northern India. *Quaternary Science Reviews*, 28, 1037-1054. <https://doi.org/10.1016/j.quascirev.2008.05.002>

B. EDITORSHIPS

[2] Associate Editor at the Journal of Quaternary Research from 2020 to Present.

[1] Yi, C., **Dortch, J.M.**, Zhou, L., Owen, L.A. (eds.) (2011). Quaternary landscape evolution and paleoenvironmental change: Himalaya-Karakoram-Tibet. *Quaternary International*, 236, 1-166. ISSN: 1040-6182.

C. REVIEWER

Quaternary Science Reviews, Nature geoscience, Geology, Journal of Geomorphology, Quaternary International, Journal of Asian Earth science, Journal of Quaternary Science, Geomorphology, Quaternary Research, Boreas, Journal of the Geological Society, Earth and Planetary Science Letters, Earth Surface Processes and Landforms,

- Awarded Geological Society of America Exceptional Reviewer (2010)

KGS Publications

[11] Crawford, M.M., Wang, Z., Carpenter, N.S., Schmidt, J., Koch, H.J., **Dortch, J.M.** (2022). Reconnaissance of Landslides and Debris Flows Associated with the July 2022 Flooding in Eastern Kentucky. Kentucky Geological Survey, Report of Investigations, Ser. 13 [submitted].

[10] **Dortch, J.M.**, Tomkins, M.D., Saha, S., Murari, M.K., Schoenbohm, L.M., Curl, D. (2022). A tool for the ages: The Probabilistic Cosmogenic Age Analysis Tool (P-CAAT). *Kentucky Geological Survey Website*, <https://kgs.uky.edu/anorthite/pcaat/>

[9] Crawford, M.M., Curl, D., Arpin, S., and guest **Dortch, J.M.** (9/29/2022). "Diving into geologic time" No. 3, in *Big Blue Rock Pod*, Kentucky geological Survey. <https://kgsnews.podbean.com/e/glaciers-in-northern-kentucky/>

[8] Crawford, M.M., Curl, D., Arpin, S., and guest **Dortch, J.M.** (2/25/2022). "Glaciers in Kentucky? Tell me more..." No. 3, in *Big Blue Rock Pod*, Kentucky geological Survey. <https://kgsnews.podbean.com/e/glaciers-in-northern-kentucky/>

[7] Crawford, M.M., Koch, H.J., **Dortch, J.M.**, and Haneberg, W.C. (2022). Landslide Susceptibility Map of Floyd County, Kentucky. *Kentucky Geological Survey Report of Investigations*. 62. <https://doi.org/10.13023/kgs.ri45.13>

[6] Crawford, M. M., Koch, H. J., **Dortch, J. M.**, and Haneberg, W. C. (2022). Landslide Susceptibility Map of Johnson County, Kentucky. *Kentucky Geological Survey Report of Investigations*. 63. <https://doi.org/10.13023/kgs.ri46.13>

[5] Crawford, M.M., Koch, H.J., **Dortch, J.M.**, Haneberg, W.C. Killen, A.A. (2022). Landslide Susceptibility Map of Magoffin County, Kentucky. *Kentucky Geological Survey Report of Investigations*. 61. <https://doi.org/10.13023/kgs.ri48.13>

[4] Crawford, M.M., Koch, H.J., **Dortch, J M.**, and Haneberg, W.C. (2022). Susceptibility Map of Martin County, Kentucky. *Kentucky Geological Survey Report of Investigations*. 65. <https://doi.org/10.13023/kgs.ri47.13>

[3] Crawford, M.M., Koch, H.J., **Dortch, J M.**, and Haneberg, W.C. (2022). Landslide Susceptibility Map of Pike County, Kentucky. *Kentucky Geological Survey Report of Investigations*. 64. <https://doi.org/10.13023/kgs.ri49.13>

[2] **Dortch, J.M.**, Crawford, M., Haneberg, W., Zhu, J. (2019). How KGS uses LiDAR? KGS Fact Sheet, 2019.

[1] **Dortch, J.M.**, Haneberg, W., Crawford, M., Zhu, J., (2019). What is LiDAR? KGS Fact Sheet, 2019.

CONFERENCES ORGANIZED

[3] Co-organizer of the Geological Society of America joint south-eastern and north-central Meeting in Cincinnati (2022).

[2] Co-organizer of the British Society for Geomorphology (BSG) at the University of Manchester (2014).

[1] Co-organizer of the International Union for Quaternary Research (INQUA) Himalayan Field Trip (2007).

SESSIONS ORGANIZED

[4] Co-organizer of the Geological Society of America joint south-eastern and north-central Meeting, Session 12-T24. **Dortch, J.M.**, Ward, D., Jungers, M. landscape evolution in mid-continental settings. (2022).

[3] Co-organizer of the Geological Society of America National Meeting, Session 49940. Strummer, D., **Dortch, J.M.**, Barth, N.C. Bedrock landslide deposits and processes: insights from the geologic record to today. (2020)

[2] Co-organizer of the Geological Society of America National Meeting, Session 155: Lewis, Q.W., Sheehan, C.E., Valenza, J.M., Masey, M., **Dortch, J.M.** High-Resolution Datasets for Fluvial and Hillslope Processes and Landforms: Frontiers of Remotely Sensed Data. (2018)

[1] Co-chair for “Quaternary landscape evolution and paleoenvironmental change” session. The 24th Himalaya-Karakoram-Tibet Workshop, Beijing. (2009)

INVITED INTERNATIONAL CONFERENCE PRESENTATIONS

[4] **Dortch, J.M.**, Hughes, P., Schoenbohm, L.M., Owen, L.A., Murari, M.K., Caffee, M.W. (2013). Patterns of glaciation and topographic hypsometry across semi-arid western Himalayan-Tibetan orogeny. American Geophysical Union, Fall Meeting.

[3] **Dortch, J.M.**, Owen, L.A., Caffee, M.W., (2009). Timing and extent of Quaternary glaciation in the Nubra and Shyok valleys, northernmost Ladakh, India. 24th Himalayan, Karakorum, Tibet Workshop and, The 5th International Symposium on Tibetan Plateau Joint Conference.

[2] **Dortch, J.M.** (2009). Nature and timing of large landslides in the Himalaya and Transhimalaya of northern India. Association of Environmental and Engineering Geologist, Tahoe, Ca. Conference.

[1] **Dortch, J.M.** (2006). Terrestrial Cosmogenic Nuclide Surface Exposure Dating of Moraines and Terraces in the Nenana Valley, Northern Slopes of the Alaskan Range: A Model for Dating Dynamic Surfaces for Neotectonic Studies. American Geophysical union, Chapman Conference - Active Tectonics and Seismic Potential of Alaska.

NATIONAL & INTERNATIONAL CONFERENCE PROCEEDINGS

[47] **Dortch, J.M.**, Swallom, M.L., Thigpen, J.R., Haneberg, W.C. (2023). Quantifying the effects of anthropogenesis on flood severity using the July 2022 catastrophic flood event in Letcher County, KY as a type example. AGU Fall Meeting 2022, held in San Francisco, Abstract ID# 1353643.

[46] Koch, H.J., **Dortch, J.M.**, Crawford, M.M. (2023). Investigating landslide susceptibility model variation from distributed or subset inventory data, eastern Kentucky, USA. Geological Society of America Abstracts with Programs. Vol. 55, No. 6, Abstract 55-5.

[45] Swallom, M.L., Koch, H.J., **Dortch, J.M.**, Crawford, M.M. (2023). Evaluating Root Strength Index as an indicator of landslide-prone slopes in eastern Kentucky. Geological Society of America Abstracts with Programs. Vol. 55, No. 6, Abstract 55-6.

[44] Parada, C., Tobin, B., **Dortch, J.M.** (2023). Sedimentological analysis of Wells Cave sediments and their implications for flood histories in the Cumberland Plateau. Geological Society of America Abstracts with Programs. Vol. 55, No. 6, Abstract 177-3.

[43] Saha, S., Haneberg, W.C., **Dortch, J.M.**, Crawford, M.M., Curl, D., Koch, H.J. (2022). An Interactive Statewide Spatial Hazard Analysis, Detection, and Environmental Change Tool (SHADE-C). AGU Fall Meeting 2022, held in Denver, Abstract ID# 1156621.

[42] Crawford, M., **Dortch, J.M.**, Koch, H., Haneberg, W.M. (2022). Advancing landslide susceptibility and risk mapping through FEMA hazard mitigation projects in Eastern Kentucky. Geological Society of America Annual Meeting, Abstract ID# 380672.

[41] Khashchevskaya, D., **Dortch, J.M.**, Bottoms, A., Owen, L.A., Crawford, M. (2022). Rate of cliff retreat and block fall using paired Schmidt hammer methods and TCN dating in Rough River basin, Kentucky. Geological Society of America Annual Meeting, Abstract ID# 379947.

[40] Goldsby, R., Swallom, M., Thigpen, R., Johnson, S., **Dortch, J.M.**, Brown, S., Woolery, E.W., McGlue, M., Yeager, K. (2022). Linking Teton and east Gallatin Fault motion across the Yellowstone hotspot track, Wyoming, USA: Implications for ongoing extension beneath Yellowstone and the northern continuation of the active Teton Fault. Geological Society of America Annual Meeting, Abstract ID# 381527.

[39] Martin, S., **Dortch, J.M.** (2022). Distribution, formation, and classification of natural rock openings in Kentucky. Geological Society of America Abstracts with Programs. Vol. 54, No. 4., Abstract 33-4.

[38] Koch, H., **Dortch, J.M.**, Haneberg, W.M. (2022). Developing geomorphic landform maps of central Kentucky using Lidar based terrain interpretation. Geological Society of America Abstracts with Programs. Vol. 54, No. 4, Abstract 12-7.

[37] Hammond, M., Haneberg, W.C., **Dortch, J.M.** (2022). Geomorphic quantification of colluvial deposits in the interior low plateaus using Lidar derived maps. Geological Society of America Abstracts with Programs. Vol. 54, No. 4, Abstract 12-1.

[36] Johnson, S.E., Swallom, M.L., Thigpen, R., McGlue, M., Woolery, E., **Dortch, J.M.**, Gallen, S., Yeager, K.M. (2022). Post-Glacial fluvial inefficiency. Geological Society of America Annual Meeting, Online Fall Meeting 2020, Paper No. 16-8.

[35] Khashchevskaya, D., Morency, M., Owen, L.A., Harmon, R.S., Knott, J.R., **Dortch, J.M.** (2021). Analysis of Rock Varnish from East-Central California by Handheld Laser-Induced Breakdown Spectroscopy. AGU Fall Meeting 2021, held in New Orleans, LA, 13-17 December 2021, ID. EP55A-1090.

- [34] Crawford, M., **Dortch, J.M.**, Koch, H., Zhu, Y., Haneberg, W. (2021). Landslide susceptibility and risk mapping in the Big Sandy Area Development District, Eastern Kentucky. Geological Society of America Annual Meeting, Online Fall Meeting 2020, Paper No. 207-10.
- [33] Hughes, P., Glasser, N., Fink, D., **Dortch, J.**, Fülöp, R., Wilcken, K., and Fujioka, T. (2021). The timing of deglaciation from mountain summits to cirques in Wales: ^{10}Be and ^{26}Al exposure dates from Cadair Idris, EGU General Assembly 2021, EGU21-10398.
- [32] **Dortch, J.M.**, Massey, M.A., Zhu, Y. (2020). New topographic insights from advanced swath analysis approaches using the Teton Range as a guinea pig. Geological Society of America Annual Meeting, Online Fall Meeting 2020, Paper No.144-10.
- [31] Tomkins, M., **Dortch, J.M.**, hughes, P.D., Huck, J.J., Allard, J.L. (2020). Paraglacial drivers of Late Pleistocene rockfall in the high mountains of the Pyrenees. Geological Society of America Annual Meeting, Online Fall Meeting 2020, Paper No. 17-14.
- [30] Massey, M.A., **Dortch, J.M.**, Zhu, Y. (2020). Exploitation of digital elevation models to correlate regional terrace generations for accurate geologic mapping: an example for the Licking River, Kentucky. Geological Society of America South-eastern and north-eastern Joint Section Meeting 2020, Paper No. 49-10.
- [29] Crawford, M.M., Koch, H.J., **Dortch, J.M.**, Killen, A.A., Haneberg, W.C. (2020). Landslide susceptibility mapping and risk assessment, Eastern Kentucky. Geological Society of America Annual Meeting, Online Fall Meeting 2020, Paper No. 194-7.
- [28] Massey, M.A., Zhu, Y., **Dortch, J.M.** (2020). Correlation of terrace tread surfaces using PyOSP: an example from the Licking River, Kentucky. Geological Society of America Annual Meeting, Online Fall Meeting 2020, Paper No. 230-5.
- [27] Spencer, B.M., Thigpen, J.R., Gallen, S., **Dortch, J.M.**, Law, R.D., (2020). Rapid orogenic collapse—efficient erosion, or something more? American Geophysical Union, Fall Meeting 2020, abstract # T051-02.
- [26] Spencer, B.M., Thigpen, J.R., Law, R.D., Hodges, K.V., **Dortch, J.M.**, Mako, C.A. (2020). Thermal evolution and tectonic implications of the collapse of the Scandian orogenic retrowedge, northern Scotland. Geological Society of America Annual Meeting, Online Fall Meeting 2020, Paper No. 71-11.
- [25] **Dortch, J.M.**, Saha, S., Tomkins, M., Murari, M.K., Schenbohm, L.M., Curl, D., (2019). Probability based interpretation of terrestrial cosmogenic radionuclide ages: P-CAAT, a tool for the ages. American Geophysical Union, Fall Meeting 2019, abstract # EP31D-2325
- [24] **Dortch, J.M.**, Tomkins, M., Hughes, P., Huck, J., Pallàs, R., Rodés, Á., Allard, J., Stimson, A., Bourlès, D., Rinterknecht, V. R., Rodríguez-Rodríguez, L., Jomelli, V., Copons, R., Barr, I., Darvill, C. (2019). Moraine crest or slope: an analysis of the effects of boulder position on cosmogenic exposure age. American Geophysical Union, Fall Meeting 2019, abstract # EP31D-2329
- [23] Massey, M.A., Hammond, M., **Dortch, J.M.**, (2019). Exploitation of digital elevation datasets and geoprocessing to produce accurate geologic basemaps. American Geophysical Union, Fall Meeting 2019, abstract # EP53F-2190
- [22] Owen, L.A., Saha, S., **Dortch, J.M.**, (2019). Timing and extent of Quaternary glaciation in the Himalayan-Tibetan Plateau. American Geophysical Union, Fall Meeting 2019, abstract # GC41B-03
- [21] Crawford, M.M., Koch, H.J., **Dortch, J.M.**, Haneberg, W.C., (2019). Comparison of landslide hazard assessments for eastern Kentucky. American Geophysical Union, Fall Meeting 2019, abstract # NH43B-07

- [20] Crawford, M.M., Koch, H.J., **Dortch, J.M.**, Killen, A.A., (2019), Preliminary Landslide Mapping and Hazard Assessment Results for Magoffin County, Kentucky. Geological Society of America Abstracts with Programs, Vol. 51, No. 5.
- [19] Massey, M.A., **Dortch, J.M.**, (2018). Correlation of fluvial terraces and stratigraphy using digital elevation data, river long profiles, and histogram analysis: an example from the Licking River in Northern Kentucky. Geological Society of America Abstracts with Programs, 50, ISSN 0016-7592, [https://doi: 10.1130/abs/2018AM-319520](https://doi.org/10.1130/abs/2018AM-319520)
- [18] Kougkoulos, I., Cook, S.J., Clarke, L., Symeonakis, E., Edwards, L.A., **Dortch, J.M.**, (2018). Volumetric changes of glaciers in the Bolivian Andes between 1986 and 2017. European Geophysical Union, 20th EGU General Assembly, Vienna, Austria.
- [17] Kougkoulos, I., Clarke, L., Cook, S.J., **Dortch, J.M.**, Edwards, L.A., Jomelli, V., Merad, M., Symeonakis, E., (2018). Glacial lake outburst flood risk in the Bolivian Andes. European Geophysical Union, 20th EGU General Assembly, Vienna, Austria.
- [16] Saha, S., Owen, L.A., Orr, E., Caffee, M.W., **Dortch, J.M.**, Sharma, M.C., (2017). Timing and nature of Holocene glacier advances across the Himalayan-Tibetan orogeny. American Geophysical Union, Fall Meeting 2017, abstract #C23D-03
- [15] Kougkoulos, I., Cook, S.J., Edwards, L.A., **Dortch, J.M.**, Hoffmann, D., (2017). Glacier change and glacial lake outburst flood risk in the Bolivian Andes. European Geophysical Union, 19th EGU General Assembly, Vienna, Austria.
- [15] Fame, M., Spotila, J.A., Owen, L.A., **Dortch, J.M.**, (2014). Testing glacially induced landscape transience; Gel Shiel and the Mamore Range, NW Scotland. Geological Society of America, Vancouver, British Columbia.
- [14] Dietsch, C., **Dortch, J.M.**, Adams, B., Reynhout, S., (2014). Changes in tectonics and climate across the Himalayan-Tibetan Orogen, Northern India reflected in contemporaneous fast and slow exhumation (can we find this contrast in New England?). Geological Society of America, Northeastern Section 49th annual meeting.
- [13] Tripathy, A., Bohon, W., Fox, M., van Soest, M., **Dortch, J.M.**, Hodges, K., (2013). 3-D thermo-kinematic modeling of bedrock and detrital zircon (U-Th)/He datasets using Pecube: elucidating the exhumation history of the Ladakh batholith. American Geophysical Union, San Francisco.
- [12] **Dortch, J.M.**, Hughes, P., Schoenbohm, L.M., Owen, L.A., Murari, M.K., Caffee, M.W. (2013). Patterns of glaciation and topographic hypsometry across semi-arid western Himalayan-Tibetan orogeny. American Geophysical Union, San Francisco.
- [11] **Dortch, J.M.**, Owen, L.A., Caffee, M.W. (2013). Timing and climatic drivers for glaciation across semi-arid western Himalayan-Tibetan orogen. European Geosciences Union, Vienna.
- [10] **Dortch, J.M.**, Owen, L.A., Schoenbohm, L.M., Caffee, M.W. (2011). Catchment-wide erosion rates, glaciation, and topography of the central Ladakh Range, India. [Abstract]. In Larson, K.P., et al., eds., proceedings for the 26th Himalaya-Karakoram-Tibet Workshop, Canmore, Alberta, Canada.
- [9] **Dortch, J.M.**, Schoenbohm, L.M., Owen, L.A., Caffee, M.W. (2010). Asymmetrical erosion and morphological development of the Ladakh Range, northern India [Abstract]. American Geophysical Union, Fall Meeting.
- [8] Owen, L.A., Caffee, M.W., Davis, N., **Dortch, J.**, Finkel, R.C., Hedrick, K., Robinson, A.C., Schoenbohm, L., Seong, Y.B., 2010, Title, in Leech, M.L., et al., eds., online proceedings for the 25th Himalaya-Karakoram-Tibet Workshop, San Francisco, California, U.S.A.: U.S. Geological Survey, Open-File Report 10-XXX, pagination varies, <http://pubs.usgs.gov/openfile/of10-XXX/vine.html>.

[7] Dortch, J.M., Owen, L.A., Caffee, M.W., Dietsch, C. & Ruppert, K. (2009). Episodic fluvial incision of rivers and surface uplift in the Himalaya and Transhimalaya [Abstract]. Geological Society of America Abstracts with Programs, 41, 33.

[6] Dortch, J.M., Owen, L.A., Caffee, M.W., Dietsch, C. & Kamp, U. (2009). Landscape evolution and morphology of the Tangtse River Valley controlled by catastrophic partial drainage of Pangong Tso. [Abstract]. Geological society of America Abstracts with Programs, 41, 624.

[5] Dortch, J.M., Owen, L.A., Caffee, M.W. (2009). Timing and extent of Quaternary glaciation in the Nubra and Shyok valleys, northernmost Ladakh, India [Abstract]. The 5th International Symposium on Tibetan Plateau and the 24th Himalaya- Karakoram-Tibet Workshop.

[4] Dortch, J.M., Owen, L.A., Haneberg, W.C., Caffee, M.W., Dietsch, C., Kamp, U. (2009). Nature and timing of large landslides in the Himalaya and Transhimalaya of northern India [Abstract]. Association of Environmental and Engineering Geologist, 52nd annual meeting, 52, 68.

[Awarded Lemke Scholarship Fund for outstanding abstract]

[3] Owen, L.A., Seong, Y.B., Laxton, S., **Dortch, J.M.,** Finkel, B., Caffee, M.W., Yi, C. (2007). Holocene and latest Pleistocene alpine glacier fluctuations in the high mountains of East Asia [Abstract]. Abstract for presentation at Quaternary International XVII INQUA Congress, 167-168, 213.

[2] Dortch, J.M., Owen, L.A., Caffee, M.W. (2006). Terrestrial cosmogenic nuclide surface exposure dating of moraines and terraces in the Nenana Valley, northern slopes of the Alaskan Range: a model for dating dynamic surfaces for neotectonic studies [Abstract]. AGU Chapman Conference: Active Tectonics and Seismic Potential of Alaska.

[1] Dortch, J.M., Owen, L.A., Caffee, M.W. (2006). Timing and extent of glaciation in the Nenana River valley, Alaska; testing the synchronicity of glaciation in Alaska [Abstract]. Cordillera Section Geological society of America Abstracts with Programs, 38, 77.

INVITED SEMINARS

[18] Dortch, J.M., Swallom, M.L. (2022). Landscape and Climate. Kentucky resiliency working group: Kentucky Transportation Cabinet (KYTC), Federal Highway Administration (FHWA) and the Kentucky Geological Survey (KGS), online 2022.

[17] Dortch, J.M. (2022). How not to do a post-graduate career. Career seminar EES 295, Earth and Environmental Sciences, University of Kentucky, 2021.

[16] Erhardt, A.M., (alphabetical) Bottoms, A. E., **Dortch, J.M.,** Edelen, M., Lo, E., O'Farrell, K. A., Powell, N., Reis, A.J., Shirkey, F., Spencer, B. M. (2021). Unlearning Racism in the Geosciences, Rast-Holbrook Lecture Series, Earth and Environmental Sciences, UK, 2021.

[15] Dortch, J.M. (2021). How not to do a post-graduate career. Career day seminar, University of Cincinnati, Department of Geology, 2019.

[14] Dortch, J.M., Andrews, W.M., (2019). Objectively quantify physiography with surface roughness. Kentucky Association of Mapping Professionals (KAMP) Annual Meeting, 2019.

[13] Parris, M., Dortch, J.M., Sparks, T., Nuttall, B. (2018). Recognition and assessment of abandoned oil and gas well risks – Daniel Boone National Forest. Unites States Forest Service Annual Meeting, 2018.

[12] Dortch, J.M., Owen, L.A., Caffee, M.W., Schoenbohm, L.M., Reynhout, S.A. (2018). University of Kentucky, Earth and Environmental Sciences. Tilting of the Ladakh Range: erosion, topography & Morphology

[11] Dortch, J.M., Owen, L.A., Caffee, M.W., Schoenbohm, L.M., Reynhout, S.A. (2017). Jawaharlal Nehru University, New Delhi, India. Tilting of the Ladakh Range: erosion, topography & Morphology

[10] **Dortch, J.M.**, Owen, L.A., Caffee, M.W., Schoenbohm, L.M., Reynhout, S.A. (2015). Ambedkar University, New Delhi, India. Tilting of the Ladakh Range: erosion, topography & Morphology

[9] **Dortch, J.M.**, Owen, L.A., Caffee, M.W., Schoenbohm, L.M., Reynhout, S.A. (2015). The University of Rajasthan, New Delhi, India. Tilting of the Ladakh Range: erosion, topography & Morphology

[8] **Dortch, J.M.**, Owen, L.A., Caffee, M.W., Schoenbohm, L.M., Reynhout, S.A. (2015). The University of Delhi, New Delhi, India. Tilting of the Ladakh Range: erosion, topography & Morphology

[7] **Dortch, J.M.**, Hughes, P., Schoenbohm, L.M., Murari, M.K., (2014). University of Edinburgh, School of Geosciences. Yay, we successfully determined the age of a glacial landform! Now what!?!

[6] **Dortch, J.M.**, Hughes, P., Schoenbohm, L.M., Owen, L.A., Murari, M.K., Caffee, M.W. (2014). Aberystwyth University, Department of Geography and Earth sciences. Yay, we successfully determined the age of a glacial landform! Now what!?!

[5] **Dortch, J.M.**, Owen, L.A., Caffee, M.W., Schoenbohm, L.M., Reynhout, S.A. (2012). Plymouth University, Earth sciences. Tilting of the Ladakh Range: erosion, topography & Morphology

[4] **Dortch, J.M.**, Owen, L.A., Caffee, M.W., Schoenbohm, L.M., Reynhout, S.A. (2012). University of Manchester, School of Environment and Development. Tilting of the Ladakh Range: erosion, topography & Morphology

[3] **Dortch, J.M.**, Owen, L.A., Caffee, M.W., Schoenbohm, L.M., Reynhout, S.A. (2012). University of Manchester, Earth Sciences. Tilting of the Ladakh Range: erosion, topography & Morphology

[2] **Dortch, J.M.**, Owen, L.A., Caffee, M.W., Schoenbohm, L.M., Reynhout, S.A. (2012). University of Toronto, Mississauga, Department of Chemical and Physical sciences. Tilting of the Ladakh Range: erosion, topography & Morphology

[1] **Dortch, J.M.**, Owen, L.A., Brease, P. (2007). Defining the timing of glaciation in the McKinley Valley. Outreach talk given to the scientist and non-technical staff at Denali National Park, AK.

KGS SEMINARS

[16] **Dortch, J.M.**, Thigpen, R., Haneberg, W.C. (2022). Flooding in eastern Kentucky: KGS workflow and future plans. KGS Advisory Board Meeting.

[15] Crawford, M.M., Wang, Z., Carpenter, N.S., Schmidt, J., Koch, H.J., **Dortch, J.M.** (2022). Reconnaissance of Landslides and Debris Flows Associated with the July 2022 Flooding in Eastern Kentucky. KGS Advisory Board Meeting.

[14] Koch, H.J., **Dortch, J.M.** Haneberg, W.C. (2022). Geomorphic landform mapping: Pilot study in central Kentucky. KGS Advisory Board Meeting.

[13] Saha, S., Haneberg, W.C., **Dortch, J.M.**, Crawford, M.M., Curl, D., Koch, H.J. (2022). An Interactive Statewide Spatial Hazard Analysis, Detection, and Environmental Change Tool (SHADE-C). KGS Advisory Board Meeting.

[12] **Dortch, J.M.** (alphabetical) Adams, E.L., Arpin, S.M., Bottoms, A. E., Curl, D., Ellis, K.E., Hickman, J.B., Lukoczki, G., Nobel-Varney, R.B., Phillips, G.L., Pulliam, C.L., Wolfe, A.L. (September 16th, 2022). Who are WEEE and other topics? KGS Seminar 2022.

[11] **Dortch, J.M.**, Swallom, M.L., (2022). Landscape and Climate. KGS Annual Meeting, Presentation.

[10] Crawford, M.M., Koch, H.J., **Dortch, J.M.**, Killen, A.A., Haneberg, W.C. (2022). Landslides in Kentucky: Tools and methods to further hazard assessment. KGS Annual Meeting, poster.

[9] Koch, H.J., Dortch, J.M., Haneberg, W.C. (2022). Geomorphic landform mapping with Lidar: Inferences on landscape evolution. KGS Annual Meeting, poster.

[8] **Dortch, J.M.** (alphabetical) Adams, E.L., Arpin, S.M., Bottoms, A. E., Curl, D., Hickman, J.B., Lukoczki, G., Phillips, G.L., Pulliam, C.L., Wolfe, A.L. (2022). Workplace environment and employee equality. KGS Advisory Board Meeting, 2022.

[7] **Dortch, J.M.**, Saha, S., Tomkins, M., Murari, M.K., Schenbohm, L.M., Curl, D., (2022). Probability based interpretation of terrestrial cosmogenic radionuclide ages: P-CAAT, a tool for the ages. KGS Annual Meeting, poster.

[6] Erhardt, A.M., (alphabetical) Adams, E.L., Arpin, S.M., Bottoms, A. E., Curl, D., **Dortch, J.M.**, Hickman, J.B., Lukoczki, G., Phillips, G.L., Pulliam, C.L., Wolfe, A.L. (2021). Discussion of KGS responses to URGE presentation, KGS Seminar 2021.

[5] Erhardt, A.M., (alphabetical) Bottoms, A. E., **Dortch, J.M.**, Edelen, M., Lo, E., O'Farrell, K. A., Powell, N., Reis, A.J., Shirkey, F., Spencer, B. M. (2021). Unlearning Racism in the Geosciences, KGS Seminar 2021.

[4] Erhardt, A.M., (alphabetical) Adams, E.L., Arpin, S.M., Bottoms, A. E., Curl, D., **Dortch, J.M.**, Hickman, J.B., Pulliam, C.L. (2020). Picture a Scientist Film and Survey results Discussion, KGS Seminar 2020.

[3] **Dortch, J.M.**, Koch, H., Johnson, S., Hammond, M. (2021). LASSTiff, what is it and why do I need it? KGS Seminar 2021.

[2] **Dortch, J.M.** Principal components analysis of geomorphic attributes: redefining dimensionality for clarity. KGS Annual Meeting, 2019.

[1] **Dortch, J.M.** (2018). Lidar: Promising Challenges. KGS Advisory Board Meeting, 2018.

KGS citizenship and professional development

[8] Chair of a Kentucky resiliency working group with the Kentucky Transportation Cabinet (KYTC) and Federal Highway Administration (FHWA).

[7] Currently undertaking University of Kentucky leadership training (2022-2023).

[6] Chair of Workplace Environment and Employee Equality committee (2021-2022). Led discussion on racial equality, KGS policy, arranged workshop from VP of DEI, held discussions with KGS director, and gathered staff opinions to inform KGS leadership.

[6] Member of KGS Workplace Environment and Employee Equality committee (2020-2021). Participated in discussion and survey design, future workshop planning, codifying committee roles, identification of future discussion topics.

[5] Member of the Unlearning racism in the geosciences (URGE) program. National Science Foundation, (2021). Workshop participant and led one module one demographic statistics at the University of Kentucky and Kentucky Geological Survey.

[4] University of Kentucky Supervisor training (2020-2021).

[3] Audience Adaptation for Effective Communication workshop (2021) from the Public Communications Initiative in the Greenspun College of Urban Affairs at the University of Nevada Las Vegas.

[2] Technical writing workshop (2020) from Dr. Rachael Lussos of Graham Associates.

[1] Organized MATLAB training workshop for KGS (2018)

STUDENT SUPERVISION

- Erin Wilburn (**current**) University of Kentucky, committee member. Development and machine learning correlation of landslide inventories in the Kentucky River Agricultural Development Area (working title).
- Daria Khashchevskaya (**current**) North Carolina State University, committee member.
- Stephanie Vicroy (**current**) University of Kentucky, committee member. Integrated Near-Surface Geophysical Investigation of the Wolf Island Fault, New Madrid Seismic Zone, USA.
- Chelsea Parada (**current**) University of Kentucky, co-advisor. Quantifying catchment erosion and sediment transport through Kentucky Karst systems (working title).
- Sarah Arpin (**current**) University of Kentucky, committee member. Quantifying Karst formation and developmental controls in Alpine environments, Silvertip Mountain, Montana (USA).
- Hudson Koch (**current**) University of Kentucky, Main Supervisor. Full coverage remote mapping of natural hazards by way of geomorphic landforms in selected areas of eastern Kentucky, United States (working title).
- Meredith Swallow (**current**) University of Kentucky, committee member. Finding fault swarms in hotspot tracks, where does stress strain in warm rocks? (working title).
- Cooper Cearley (2019-2021) University of Kentucky, committee member. Integrated geophysical investigation of near-surface faults – Sassafras Ridge, New Madrid Seismic Zone, USA.
- Autumn Helfric (2018-2020) University of Kentucky, committee member. Utilising apatite (U-Th)/He analysis, landscape and kinematic modelling to examine the relative efficacy of climatic and tectonic forcing in an active tectonic system: Teton Range, WY.
- Matt Tomkins (2016-2019) University of Manchester, Main Supervisor. Landscape evolution and glaciation along the Eastern Atlantic margin.
- Ioannis Kougkoulos (2016-2019) Manchester Metropolitan University, committee member. Evaluating Glacial Lake Outburst Flood risk in the Bolivian Andes.
- Dot McCarthy (2014-2015) University of Manchester, Main Supervisor. Detecting the pattern of ice sheet erosion across Scotland.
- Kathleen Nesbit (2013-2014) University of Manchester, Main Supervisor. Landscape evolution in the Nanda Devi region, northern India: Linking climate, tectonics, and erosion.
- Marina Tanzia (2013-2014) MS, University of Manchester, Main Supervisor. Delineating Himalayan glaciers in MATLAB to quantify equilibrium-line altitudes.
- Mikael Martins (2010-2012) MSc, University of Toronto, co-advisor. Landscape evolution of the NQTL Range, Indian Himalaya.
- Drew Rotherham (2010-2012) MSc, University of Toronto, co-advisor. Landscape evolution of the Andes.
- Emiko Kent (2009-2011) MSc, University of Cincinnati, co-advisor.

TEACHING

First year undergraduate

- EPOCH – GEOG 10401 Environmental Process and Change, 2012-2013
- Tutorials (12 sessions x 9-hour, x 8 students), 2012-2017
- Academic Advisor (8 students), 2012-2017
- Field course contributor. 5 days in September; ~30 students, 2012-2017

Second year undergraduate

- Glaciers - GEOG 20352, 20 credits; ~45 students, 2012-2017
- Crete field course– GEOG 20072, 20 credits; ~30 students, 2013-2014
- Iceland field course – GEOG 20072, 20 credits; ~25 students, 2014-2016
- Academic Advisor, 8 students, 2012-2017
- Rock Forming Processes – ERS203H5; ~35 students, (Uni. Toronto) 2011-2012

Third year undergraduate

- Understanding the Himalayan Landscapes GEOG, ~20 students, 2015-2017
- Dissertation supervisions GEOG 20771, 8 students, 2012-2017

- Academic Advisor, 8 students, 2012-2017

MSc in Environmental Monitoring and Modelling Reconstruction

- Environmental Modelling and Monitoring Concepts GEOG 70581, 15 credits; ~25 students, 2012-2015
- Generic Research Skills GEOG 60041, 15 credits, ~10 students, 2013-2014
- Dissertation Support GEOG 60662, 15 credits, (2014-2017)
- Academic Advisor (5-10 students), 2012-2017

PhD student optional skills course

- Software tools for PhD students (no credits; ~10 students), 2012-2014

ADMINISTRATIVE SERVICE

EMMR Master's Degree program Director, 2013-2016

- Environmental monitoring, Modelling, and Reconstruction program director responsibilities include: PGT handbook, introduction week, personal tutor, teaching on two modules, determining core modules, helping students with mitigating circumstances, finding and liaising with an external examiner, assigning dissertation markers, checking for gaps in training across the whole programme, liaising with industry consultants for talks and quality control, and representing Geography PGT on the School Teaching and Learning committee.

Director of Geography Taught post graduate program, Fall 2014 & 2015

- Responsibilities include: Serving as the exams officer, chairing exam boards, updating the student experience action plan (SEAP), managing program and module staff, ensuring distinction and quality of all three MSc. Degree programs.

School Web Committee, 2012-2014

- Helped facilitate the rollover of the old SED site to the new geography SEED site after the merger with the School of Education. Led redevelopment of our Geography home page and the development of cross-cutting research themes.

School Teaching and Learning Committee, Fall 2014 & 2015

- Helped for policy around best practice on Blackboard, calibrating marking across the school, rules for dealing with borderline cases, and guidelines for dealing with academic malpractice cases. These issues are important, and the results of the committee have led to school guidance being disseminated to staff.