

Scott Zolkos
Woods Hole Research Center
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EDUCATION

- Ph.D. Biological Sciences/Ecology, University of Alberta** 2014-2019
Thesis: Fluvial inorganic carbon cycling across divergently evolving permafrost landscapes (Yukon and Northwest Territories, Canada)
Supervisor: Dr. Suzanne Tank
Activities: research, Arctic fieldwork (summers 2014-2017), teaching, coursework, leadership positions in University and international scientific groups, and youth mentoring.
- B.A. Environmental Science/Geology, Middlebury College** 2007-2011
Thesis: Geochemical and petrographic analysis of volcanic ejecta from the 1790 explosive eruptions of Kīlauea, Hawai'i.
Supervisors: Dr. Ray Coish (Middlebury), Dr. Donald A. Swanson (USGS Hawaiian Volcano Obs.)

PROFESSIONAL EXPERIENCE

- Woods Hole Research Center** (Falmouth, MA)
Postdoctoral Researcher – Arctic. Supervisor: Dr. Sue Natali Nov 2019–present
Research Assistant. Supervisors: Dr. Scott Goetz, Dr. R. Max Holmes Nov 2011–June 2014
- Scripps Institution of Oceanography** (R/V New Horizon) Oct–Nov 2011
Intern, California Cooperative Oceanic Fisheries Investigations
- Buzzards Bay Coalition** (New Bedford, MA) May–Sept 2011
Assistant Coordinator, Water Quality Monitoring Program
- National Oceanic and Atmospheric Administration** (R/V Nancy Foster) Mar–Apr 2011
Intern, Center for Coastal Monitoring and Assessment, Biogeography Branch
- Vermont Geological Survey** (Craftsbury, VT) July–Aug 2010
Research Intern
- United States Geological Survey** (Pahoa, HI) Jan–Feb 2010
Intern, Hawaiian Volcano Observatory

RESEARCH INTERESTS

Global ecology and climate change; biogeochemistry; carbon and contaminant cycles; permafrost; land-freshwater-ocean linkages; climate and land use change; ecological conservation and management; Geographic Information Systems and remote sensing.

PUBLICATIONS AND REPORTS

- Zolkos, S.**, Tank, S.E. Striegl, R.G., Kokelj, S.V., Shakil, S. Divergent landscape evolution shapes fluvial chemistry and carbon balance in the western Canadian Arctic (*in preparation*).
- Zolkos, S.**, Tank, S.E. Thermokarst effects on fluvial inorganic carbon cycling and export across watershed scales (Peel Plateau, Canada) (*in preparation*).

- Zolkos, S.**, Krabbenhoft, D.P., Suslova, A., Tank, S.E., McClelland, J.W., Spencer, R.G.M., Shiklomanov, A., Zhulidov, A.V., Gurtovaya, T., Zimov, N., Zimov, S., Mutter, E.A., Kutny, L., Amos, E., Holmes, R.M. Mercury export from Arctic great rivers (*under revision for resubmission*).
- Zolkos, S.**, Tank, S.E., Estop-Aragonés, C., Olefeldt, D. Experimental evidence for the role of mineral weathering within permafrost carbon-climate feedbacks (*under revision for resubmission*).
- E. Wologo, S. Shakil, **S. Zolkos**, S. Textor, S. Ewing, J. Klassen, R.G.M. Spencer, S.E. Tank, M.A. Baker, J.A. O'Donnell, K.P. Wickland, S.S.W. Foks, J.P. Zarnetske, J. Lee-Cullin, F. Liu, Y. Yang, P. Kortelainen, J. Kolehmainen, J.F. Dean, J.E. Vonk, R.M. Holmes, G. Pinay, M.M. Powell, J. Howe, R. Frei, B.W. Abbott. No evidence of dissolved organic matter priming in permafrost river networks: a circumpolar assessment (*under revision for resubmission*).
- Zolkos, S.**, Tank, S.E., Striegl, R.G., Kokelj, S.V. (2019). Thermokarst effects on carbon dioxide and methane fluxes in streams on the Peel Plateau (NWT, Canada). *Journal of Geophysical Research-Biogeosciences* 124(7), 1781-1798.
- St. Pierre*, K.A., **Zolkos***, S., Shakil*, S., Tank, S., St. Louis, V.L., Kokelj, S.V. (2018). Unprecedented increases in total and methyl mercury concentrations downstream of permafrost thaw slumps in the western Canadian Arctic. *Environmental Science & Technology* 52(24), 14099-14109. *Co-lead
- Zolkos, S.**, Tank, S.E., Kokelj, S.V. (2018). Mineral weathering and the permafrost carbon-climate feedback. *Geophysical Research Letters*, 45(18), 9623-9632.
- Jantz, P., Monahan, W.B., Hansen, A.J., Rogers, B.M., **Zolkos, S.G.**, Cormier, T., Goetz, S. (2016). Modeling Potential Impacts of Climate Change on Vegetation for National Parks in the Eastern United States. In A.J. Hansen, W. Monahan, D.M. Theobald, & M.S.T. Olliff (Eds.), *Climate Change in Wildlands: Pioneering Approaches to Science and Management in the Rocky Mountains and Appalachians* (Ch. 8). Washington, D.C.: Island Press.
- Zolkos, S.G.**, Jantz, P., Goetz, S.J., Iverson, L., McKenney, D., & Cormier, T. (2015). Projected tree species redistribution under climate change: Implications for ecosystem vulnerability across protected areas in the eastern United States. *Ecosystems*, 18(2), 202-220.
- Coish, R., Kim, J., Twelker, E., **Zolkos, S.**, & Walsh, G. (2015). Geochemistry and origin of metamorphosed mafic rocks from the Lower Paleozoic Moretown and Cram Hill Formations of North-Central Vermont: Delamination magmatism in the western New England Appalachians. *American Journal of Science*, 315(9), 809-845.
- Goetz, S.J., Sun, M., **Zolkos, S.G.**, Hansen, A.H., & Dubayah, R.O. (2014). The relative importance of climate and vegetation properties on patterns of North American breeding bird species diversity. *Environmental Research Letters*, 9(3), 1-18.
- Jantz, P., **Zolkos, S.**, Cormier, T., Goetz, S., & Monahan, W. (2013). Tree species and ecological system responses to climate change: meta-analysis & new modeling. *Landscape Climate Change Vulnerability Project: Collaborator/Partner Update*. (not peer-reviewed)
- Zolkos, S.G.**, Goetz, S.J., & Dubayah, R. (2013). A meta-analysis of terrestrial aboveground biomass estimation using lidar remote sensing. *Remote Sensing of Environment*, 128, 289-298.
- Swanson, D., **Zolkos, S.**, & Haravitch, B. (2012). Ballistic blocks around Kīlauea Caldera: Their vent locations and number of eruptions in the late 18th century. *Journal of Volcanology and Geothermal Research*, 231-232, 1-11.

Kim, J., Gale, M., McMillan, M., **Zolkos, S.**, Springston, G. (2010) Bedrock Geologic Map of the Town of Craftsbury, Vermont. *Vermont Geological Survey Open File Report VG10-4*.

OTHER SCIENTIFIC LEADERSHIP

International Arctic Science Committee

T-MOSAiC Executive Committee and Steering Group Member (2018-present)

Fellow, Terrestrial Working Group (2016-2018)

- Co-designing and implementing T-MOSAiC ([link](#)), an international, collaborative research program investigating the effects of Arctic climate change.

Association of Polar Early Career Scientists

Ex-Officio (2017-2019), Council Chair (2015-2016), Council Member (2014-2017)

- Promoted career development, education, and outreach for young polar scientists.
- Created the Arctic Snapshots program ([link](#)) to connect early-career researchers across the north.

University of Alberta Circumpolar Students' Association

Co-President (2015-2017), Executive Committee (2014-2017)

- Co-managed student group on northern research; led grant applications, awarded \$2,400.
- Organized interdisciplinary University conference on northern earth, biological, and social science.

TEACHING AND MENTORING

Freshwater Ecology (BIOL 364): 4 x teaching assistant (T.A.) (University of Alberta, F2015-2018)

Landscape Ecology (BIOL 471/571): 1 x T.A. (U. Alberta, W2016)

Intro. to Biological Diversity (BIOL 108): 5 x T.A. (U. Alberta, F2014, W2015, W2017-2019)

University of Alberta U. School Mentoring (2015-2016): Inspired socially and economically vulnerable youth to pursue healthy lifestyles and a university education, and taught the benefits of teamwork.

PUBLIC ENGAGEMENT

Arctic rhythms: stories of Northern culture, science, and change. *Presentation to Gosnold, MA town community* (planned for summer 2020).

Mercury Rising: The Implications of a Warming Arctic for a Toxin of Global Concern. *Invited Talk at Grant MacEwan University Department of Physical Sciences (Edmonton, Canada)*. February 12, 2019.

Mercury from thawing permafrost ending up in Arctic waterways, study finds. *Interview with Canadian Broadcasting Corporation (CBC)*. December 14, 2018. ([link](#))

Permafrost thaw: more CO₂ than previously thought? *Interview with CBC, Radio Canada International*. September 20, 2018. ([link](#))

Lake Abraham: an ethereal landscape of frozen bubbles. *Interview with British Broadcasting Corporation (BBC)*. February 19, 2018. ([link](#))

AWARDS AND FELLOWSHIPS

2019 University of Alberta Faculty of Science Doctoral Dissertation Award

2018 University of Alberta Graduate Student Teaching Assistant Award

2016 International Arctic Science Committee (IASC) Fellow (2-year term)

2015 Aurora Research Institute Research Fellowship

2011 Middlebury College- B.A. Cum Laude, Departmental High Honors

RESEARCH FUNDING (TOTAL TO-DATE: ~\$64K)

Funding granted competitively following a review process, except where indicated ()*

University of Alberta Community Reporting Award (2019)	\$2,500
University of Alberta Ashley and Janet Cameron Travel Award (3x, 2016, 2018, 2019)	\$2,750
University of Alberta Green & Gold Leadership and Professional Development Grant	\$1,441
*University of Alberta Graduate Students' Association Academic Travel Award (2016, 2018)	\$1,000
University of Alberta Northern Research Award (3x, 2015–2017)	\$17,669
Arctic Institute of North America Grant-in-Aid Scholarship (3x, 2015–2017)	\$3,000
University of Alberta Graduate Student Travel Award (2017)	\$2,000
Colleges and Institutes Canada CleanTech Internship Program (co-applicant) (2016)	\$12,000
Environment Canada Science Youth Horizons (co-applicant) (2015)	\$12,000
Aurora Research Institute Research Fellowship (2015)	\$3,000
*University of Alberta Graduate Students' Association Professional Development Award (2014)	\$500
*University of Alberta Department of Biological Sciences Travel Support (2014)	\$300
*Middlebury College Palen Fund for Academic Conference Travel (2010)	\$800
Middlebury College John M. White '52 Memorial Fund (2010)	\$5,000

PROFESSIONAL AFFILIATIONS AND REVIEW

Membership: American Geophysical Union (2009-present), Geological Society of America (2009-present), Association of Polar Early Career Scientists (2012-present), Permafrost Young Researchers Network (2015-present), International Arctic Science Committee (2016-present), Association for the Sciences of Limnology and Oceanography (2017-present)

Reviewer: *Environmental Science & Technology; Global Ecology and Biogeography; Water Resources Research; Journal of Geophysical Research- Biogeosciences; Remote Sensing of Environment; Estuarine, Coastal and Shelf Science; IPCC Special Report on the Ocean and Cryosphere in a Changing Climate*