

Scott Zolkos
Falmouth, MA 02540, USA
sgzolkos@gmail.com • 508-299-9084

EDUCATION

Ph.D. Biological Sciences/Ecology , University of Alberta, Canada	2014-2019
B.A. Environmental Science/Geology , Middlebury College, Vermont, USA	2007-2011

PROFESSIONAL EXPERIENCE

Woodwell Climate Research Center (Falmouth, MA)	
Research Scientist II	Jan 2025–present
Research Scientist I	Feb 2023–Jan 2025
Harvard University (Cambridge, MA) & Woodwell Climate Research Center (Falmouth, MA)	June 2020–Jan 2023
National Science Foundation – Earth Sciences Postdoctoral Fellow	
Woods Hole Research Center (<i>now Woodwell Climate</i> ; Falmouth, MA)	
Postdoctoral Researcher – Arctic	Nov 2019–May 2020
Research Assistant I	Nov 2011–June 2014

RESEARCH INTERESTS AND EXPERTISE

Climate change, biogeochemistry (carbon, nutrients, mercury), Arctic science, ecology, hydrology, permafrost, remote sensing and Geographic Information Systems.

SELECTED PUBLICATIONS

Zolkos, S., Balcom, P.H., Geyman, B.M., Natali, S.M., Rogers, B.M., Sunderland, E.M. Patterns and drivers of summertime mercury levels in permafrost peatland lakes affected by recent and historical wildfire, southwestern Alaska. (*in preparation*).

Vonk, J., Fritz, M., Speetjens, N., Babin, M., Bartsch, A., Basso, L.S., Bröder, L., Göckede, M., Gustafsson, Ö., Hugelius, G., Irrgang, A., Juhls, B., Kuhn, M., Lantuit, H., Manizza, M., Martens, J., O'Regan, M., Suslova, A., Tank, S., Terhaar, J., **Zolkos, S.** (2025). The Land-Ocean Arctic Carbon Cycle. *Nature Reviews Earth & Environment*.

Zolkos, S., Geyman, B.M., Potter, S., Moubarak, M., Rogers, B.M., Baillargeon, N., Dey, S., Ludwig, S.M., Melton, S., Navarro-Pérez, E., McElvein, A., Balcom, P.H., Natali, S.M., Sistla, S., Sunderland, E.M. (2024). [Substantial mercury releases and local deposition from permafrost peatland wildfires in southwestern Alaska](#). *Environmental Science & Technology*.

Dastoor, A., Angot, H., Bieser, J., Brocza, F., Edwards, B., Feinberg, A., Feng, X., Geyman, B., Gournia, C., He, Y., Hedgecock, I. M., Ilyin, I., Keating, T., Kirk, J., Lin, C.-J., Lehnerr, I., Mason, R., McLagan, D., Muntean, M., Rafaj, P., Roy, E.M., Ryjkov, A., Selin, N.E., De Simone, F., Soerensen, A.L., Steenhuisen, F., Travnikov, O., Wang, S., Wang, X., Wilson, S., Wu, R., Wu, Q., Zhang, Y., Zhou, J., Zhu, W., **Zolkos, S.** (2024). [The Multi-Compartment Hg Modeling and Analysis Project \(MCHgMAP\): Mercury modeling to support international environmental policy](#). *Geoscientific Model Development Discussions*, 1-171.

Treat, C.C., Virkkala, M., Burke, E., Bruhwiler, L., Chatterjee, A., Fisher, J.B., Hashemi, J., Parmentier, J.W., Rogers, B.M., Westermann, S., Watts, J.D., Blanc, E., Fuchs, M., Kruse, S., Malhotra, A., Miner, K., Strauss, J., Armstrong, A., Epstein, H.E., Gay, B., Goeckede, M., Kalhori, A., Kou, D., Miller, C.E., Natali, S.M., Oh, Y., Shakil, S., Sonnentag, O., Varner, R.K., **Zolkos, S.**, Schuur, E.A.G., Hugelius, G. (2024). [Permafrost carbon: Progress on understanding stocks and fluxes across northern terrestrial ecosystems](#). *Journal of Geophysical Research: Biogeosciences*, 129(3), e2023JG007638 (invited review)

Thomas, M., Monhonval, A., Hirst, C., Bröder, L., **Zolkos, S.**, Vonk, J.E., Tank, S.E., Keskitalo, K.H., Shakil, S., Kokelj, S.V. and van der Sluijs, J. (2023). [Evidence for preservation of organic carbon interacting with iron in material displaced from retrogressive thaw slumps: Case study in Peel Plateau, western Canadian Arctic](#). *Geoderma*, 433, 116443.

Saros, J., J., Arp, C., Bouchard, F., Comte, J., Couture, R-M., Dean, J.F., MacIntyre, S., McGowan, S., Rautio, M., Prater, C., Drake, T.W., Folhas, D., Hazuková, V., Kivilä, H., Pilla, R.M., Lafrenière, M., Tank, S., Walvoord, M., Wickland, K., Antoniadis, D., Ayala-Borda, P., Canário, J., Klanten, Y., Lamoureux, S., Laurion, I., Vonk, J., **Zolkos, S.**, Vincent, W.F. (2023) [Sentinel responses of Arctic freshwater systems to climate: linkages, evidence, and a roadmap for future research](#). *Arctic Science*, 9(2), 356-392.

Zolkos, S., Tank, S.E., Kokelj, S.V., Striegl, R.G., Shakil, S., Sonnentag, O., Voigt, C., Billesbach, D., Cook, D., Humphreys, E.R., Ikawa, H., Iwata, H., Lafleur, P.M., Marsh, P., Quinton, W.L., Schuur, E.A.G., Sullivan, R., Ueyama, M., Zona, D. [Permafrost landscape history shapes regional patterns in fluvial chemistry, ecosystem carbon balance, and potential trajectories of change](#). *Global Biogeochemical Cycles*, e2022GB007403.

Zolkos, S., Schade, J.D., Ludwig, S., Mann, P.J., Natali, S.M., Treharne, R., MacDonald, E.N. [Physiographic Controls and Wildfire Effects on Aquatic Biogeochemistry in Tundra of the Yukon-Kuskokwim Delta, Alaska](#). (2022). *Journal of Geophysical Research: Biogeosciences*, 127(8), e2022JG006891.

Zolkos, S., Zhulidov, A., Gurtovaya, T. Yu., Gordeev, V.V., Berdnikov, S., Pavlova, N., Kalko, E.A., Kuklina, Y.A., Zhulidov, D.A., Kosmenko, L.S., Shiklomanov, S., Suslova, A., Geyman, B.M., Thackray, C.P., Sunderland, E.M., Tank, S.E., McClelland, J., Spencer, R.G.M., Krabbenhoft, D.P., Robarts, R., Holmes, R.M. [Multi-decadal declines in particulate mercury and sediment export from Russian rivers in the pan-Arctic basin](#). (2022). *Proceedings of the National Academy of Sciences of the United States of America* 119(14), e2119857119.

Kokelj, S.V., Kokoszka, J., van der Sluijs, J., Rudy, A.C.A., Tunnicliffe, J., Shakil, S., Tank, S.E., **Zolkos, S.** (2021). [Thaw-driven mass-wasting couples slopes with downstream systems, and effects propagate through Arctic drainage networks](#). *The Cryosphere* 5(7), 3059–3081.

Shakil, S., Tank, S.E., Kokelj, S.V., Vonk, J.E., **Zolkos, S.** (2020). [Particulate dominance of organic carbon mobilization from thaw slumps on the Peel Plateau, NT: Quantification and implications for stream systems and permafrost carbon release](#). *Environmental Research Letters* 15(11), 114019.

Zolkos, S., Tank, S.E., Striegl, R.G., Kokelj, S.V., Kokoszka, J., Estop-Aragonés, C., Olefeldt, D. (2020). [Thermokarst amplifies fluvial inorganic carbon cycling and export across watershed scales on the Peel Plateau, Canada](#). *Biogeosciences* 17(20), 5163–5182.

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. (2020). [Mercury export from Arctic great rivers](#). *Environmental Science & Technology* 54(7), 4140-4148.

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.s

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.

Zolkos S., Tank, S.E., Kokelj, S.V. (2018). [Mineral weathering and the permafrost carbon-climate feedback](#). *Geophysical Research Letters*, 45(18), 9623-9632.

RESEARCH PROPOSALS AND FUNDING AS PI

U.S. National Science Foundation – Arctic Observing Network (2025-2028) <i>Collaborative Research: The Arctic Great Rivers Observatory</i>	\$345,087
Buzzards Bay Coalition – Baywatchers Water Quality Monitoring Program (2024-2030) <i>Nutrient Analyses for Ecological Monitoring in the Buzzards Bay Watershed</i>	\$1,099,384
Woodwell Climate Research Center – Fund for Climate Solutions (2024-2026) <i>Arctic Wildfire Pollutants: Towards Improving Emissions Estimates and Developing Tribally-Led Monitoring</i>	\$124,092
National Fish & Wildlife Foundation – Alaska Fish & Wildlife Fund (2024-2025) <i>Developing Community-Based Water and Environmental Monitoring in the Yukon-Kuskokwim Delta; co-developed & led with Orutsararmiut Native Council (Bethel, AK)</i>	\$93,000
Woodwell Climate Research Center – Fund for Climate Solutions (2023-2025) <i>Tracking Global Contaminants in Ecosystems on the Frontline of Permafrost Thaw</i>	\$120,024
U.S. National Science Foundation – Earth Sciences Postdoctoral Fellowship (2020-2023) <i>Short- and Long-Term Effects of Wildfire and Permafrost Thaw on Mercury Cycling and Bioavailability Across a Major Northern River Delta Landscape</i>	\$260,762

REVIEW SERVICE

Grant proposals: NSF Earth Sciences, NSF Arctic Natural Sciences, NSF Arctic System Science, NSF Office of Polar Programs, NSF Arctic Observing Network, NASA Carbon Monitoring System, U.S. Army Research Office (DEVCOM)

Publications: *Nature*, *Nature Water*, *Nature Geoscience*, *Nature Communications Earth & Environment*, *Science Advances*, *Proceedings of the National Academy of Sciences*, *Global Biogeochemical Cycles*, *Environmental Research Letters*, *Geophysical Research Letters*, *Journal of Geophysical Research – Biogeosciences*