SUSAN M. NATALI
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PROFILE

Dr. Susan Natali has been studying the consequences of climate change for more than two decades, with a focus on the local to global consequences of thawing permafrost. As the lead of the Permafrost Pathways initiative, Natali and her team have greatly expanded greenhouse gas monitoring across the Arctic-boreal region, refined estimates of current Arctic carbon dioxide and methane budgets, and they are integrating permafrost thaw and wildfire into pan-Arctic models to better assess future emissions. Natali also works with Indigenous communities, resource managers and policymakers at all levels to inform just and effective adaptation and climate mitigation strategies for limiting harm from Arctic warming. She has published more than 120 peer-reviewed studies, briefed federal lawmakers, contributed to international science reports, and presented at several UN climate change conferences.

EDUCATION

1991	B.S. in Biology, Villanova University
2008	Ph.D. in Ecology and Evolution, Stony Brook University

PROFESSIONAL APPOINTMENTS

2021-present	Senior Scientist, Woodwell Climate Research Center
2019-2023	Arctic Program Director, Woodwell Climate Research Center
2015-2021	Associate Scientist, Woodwell Climate Research Center
2012-2015	Assistant Scientist, Woodwell Climate Research Center
2010-2012	National Science Foundation (NSF) Polar Postdoctoral Fellow
2008-2010	Postdoctoral Associate, University of Florida

SELECT APPOINTMENTS AND INVITATIONS OF DISTINCTION

Dec 2024	Selected Member of the Intergovernmental Panel on Climate Change Scoping Committee for the Seventh Assessment Report (AR7)
2023-present	Appointed Member to the U.S. Advisory Council for Climate Adaptation Science
2024-present	Invited Member to the ICARP IV Research Priority Team: Observing, Reconstructing, and Predicting Future Climate Dynamics and Ecosystem Responses
Sept 2022	Testified before the U.S. House Committee on Science, Space, and Technology
Nov 2022	Testified before the House Foreign Affairs Subcommittee on Europe, Energy, the Environment, and Cyber

SELECT INTERNATIONAL CLIMATE EXPERTISE AND ENGAGEMENT

United Nations Framework Convention on Climate Change (UNFCCC) Conference (COP25, COP26, COP27, COP 28) onsite expert and led Permafrost Day in the Cryosphere Pavilion in Madrid, 2019; Edinburgh, 2021; Sharm el-Sheikh, 2022; Dubai, 2023

UNFCCC Conference (COP27) Side Event panelist, *Intertwined Fates: How the Arctic, Amazon, and Africa are connected and shape our climate future,* Sharm el-Sheikh, 2022

UNFCCC Climate Change Conference (COP21) Side Event panelist, *Thresholds and Closing Windows: Risks of Irreversible Cryosphere Climate Change*, Paris, 2015

UNFCCC Subsidiary Body for Scientific and Technological Advice Conference (SB42) Side Event panelist, *Cryosphere as a Lens for Paris: Science-based Urgency and Ambition,* Bonn, 2015

AWARDS AND GRANTS

Natali was a Principal Investigator (PI) on 24 grants over the past 10 years, serving as lead PI on 10 grants over the past five years (US$48.6M in past five years). Most notably, she was awarded US$41 million through TED Audacious for Permafrost Pathways. A full list of awarded grants is below.

PUBLICATIONS

125. Wang M, S Smith, JE Box, S Gerland, K Isaksen, W Meier, L Mudryk, **SM Natali**, VE Romanovsky, M Sigmond, Q Shu (2025, In press), Cryosphere, Arctic Monitoring and Assessment Programme, *Arctic Climate Change Update 2024.*
124. Yang, Y, H Rodenhizer, BM Rogers…**SM Natali** (2025) A collaborative and scalable geospatial data set for Arctic retrogressive thaw slumps with data standards. *Scientific Data* 12, 18. https://doi.org/10.1038/s41597-025-04372-7
123. Lu, C, KJ van Groenigen, MAK Gillespie…**SM Natali** et al. (2025), Diminishing warming effects on plant phenology over time. *New Phytologist*, 245: 523-533. https://doi.org/10.1111/nph.20019
122. Virkkala AM, BM Rogers, JD Watts…**SM Natali** (2025) Wildfires offset the increasing but spatially heterogeneous Arctic-boreal CO_2 uptake. Nature Climate Change Wildfires offset the increasing but spatially heterogeneous Arctic–boreal CO_2 uptake. *Nature Climate Change,* **15**, 188–195. https://doi.org/10.1038/s41558-024-02234-5
121. Watts, J. D., Potter, S., Rogers, B. M., Virkkala, A.-M., Fiske, G., Arndt, K. A., et al. (2025). Regional hotspots of change in northern high latitudes informed by observations from space. *Geophysical Research Letters*, 52, e2023GL108081. https://doi.org/10.1029/2023GL108081
120. **Natali SM**, Rogers BM, Schuur EAG, Romanovsky V, Alcock H, Arndt K, Euskirchen ES, Falvo G, Fiske G, Hould-Gosselin G, Hung J, Kholodov A, Potter S, Sonnentag O, Virkkala A-M (2024) Arctic terrestrial carbon cycling. *Arctic Report Card, 2024.* TA Moon, ML Druckenmiller, RL Thoman, Eds, *DOI: 10.25923/0gpp-mn10*
119. Zolkos S, Geyman BM, S Potter, M Moubarak, BM Rogers, N Baillargeon, S Dey, SM Ludwig, S Melton, E Navarro-Pérez, A McElvein, PH Balcom, **SM Natali**, S Sistla, EM Sunderland (2024) Substantial mercury releases and local deposition from permafrost peatland wildfires in Southwestern Alaska. *Environmental Science & Technology,* 58 (46), 20654-20664, DOI 10.1021/acs.est.4c08765
118. Liu Z, BM Rogers, G Keppel-Aleks…**SM Natali** et al. (2024) Seasonal CO_2 amplitude in northern high latitudes. Nat Rev Earth Environ 5, 802–817 (2024). https://doi.org/10.1038/s43017-024-00600-7
117. Hung JK, KA Arndt, P Murphy, M Montemayor, H Rodenhizer, S Ludwig, BM Rogers, **SM Natali** (2024) Slow post-fire carbon balance recovery despite increased net uptake rates in Alaskan tundra. *Environmental Research Letters*, 19, (12) doi:10.1088/1748-9326/ad8764
116. Hugelius C, J Ramage, E Burke…**SM Natali** et al. (2024) Permafrost region greenhouse gas budgets suggest a weak CO_2 sink and CH_4 and N_2O sources, but magnitudes differ between top-down and bottom-up methods. *Global Biogeochemical Cycles*, 38, e2023GB007969. https://doi.org/10.1029/2023GB007969
115. Pallandt M, M Jung, K Arndt, **SM Natali**, BM Rogers, A-M Virkkala, M Göckede (2024) High-latitude eddy covariance temporal network design and optimization. *Journal of Geophysical Research: Biogeosciences*, 129, e2024JG008406. https://doi.org/10.1029/2024JG008406
114. Clelland AA, GJ Marshall, R Baxter, S Potter, AC Talucci, JM Rady, H Genet, BM Rogers, **Natali SM** (2024) Annual and Seasonal Patterns of Burned Area Products in Arctic-Boreal North America and Russia for 2001–2020. *Remote Sensing*, 16(17):3306. https://doi.org/10.3390/rs16173306
113. Zhu X, D Chen, M Kogure…**SM Natali** et al. (2024) A synthesized field survey database of vegetation and active-layer properties for the Alaskan tundra (1972–2020), *Earth System Science Data*, 16, 3687–3703, https://doi.org/10.5194/essd-16-3687-2024, 2024.
112. Lu C, KJ van Groenigen, MAK Gillespie…SM Natali, et al. (2024), Diminishing warming effects on plant phenology over time. *New Phytologist*, https://doi.org/10.1111/nph.20019
111. See, CR, A-M Virkkala, **SM Natali**, et al. (2024) Decadal increases in carbon uptake offset by respiratory losses across northern permafrost ecosystems. *Nature Climate Change,* 14, 853–862. https://doi.org/10.1038/s41558-024-02057-4
110. Briones V, EE Jafarov, H Genet, BM Rogers…**SM Natali** (2024) Exploring the interplay between soil thermal and hydrological changes and their impact on carbon fluxes in permafrost ecosystems. *Environ. Res. Lett.*, 19 074003

109. Alexander, HD, AK Paulson, MM Loranty, MC Mack, **SM Natali**, H Pena, S. Davydov, V Spektor, N Zimov (2024) Linking post-fire tree density to carbon storage in high-latitude Cajander larch (*Larix cajanderi*) forests of far Northeastern Siberia. *Ecosystems*, 27, 655–672 https://doi.org/10.1007/s10021-024-00913-0
108. Ramage J, Kuhn M, Virkkala AM, Voigt C, Marushchak ME, Bastos A, Biasi C, Canadell JG, Ciais P, López-Blanco E, **Natali SM**, Olefeldt D, Potter S, Poulter B, Rogers BM, Schuur EAG, Treat C, Turetsky MR, Watts J, Hugelius G (2024) The net GHG balance and budget of the permafrost region (2000–2020) from ecosystem flux upscaling. *Global Biogeochemical Cycles,* 18(4) https://doi.org/10.1029/2023GB007953
107. Berner LT, Orndahl KM, Rose M … **Natali SM**, Virkkala AM, Goetz SJ (2024) The Arctic plant aboveground biomass synthesis dataset. *Scientific Data,* 11 https://doi.org/10.1038/s41597-024-03139-w
106. Loranty MM, Alexander HD, Davydov SP, Kholodov AL, Kropp H, Mack MC, **Natali SM**, Zimov NS (2024) Winter soil temperature varies with canopy cover in Siberian larch forests. *Environmental Research Letters,* 19(5). https://doi.org/10.1088/1748-9326/ad3bcf
105. Ludwig SM, Schiferl L, Hung J, **Natali SM**, Commane R (2024) Resolving heterogeneous fluxes from tundra halves the growing season carbon budget. *Biogeosciences*, 21(5). https://doi.org/10.5194/bg-21-1301-2024
104. Schädel C, Rogers BM, Lawrence DM, Koven CD, Brovkin V, Burke EJ, Genet H, Huntzinger DN, Jafarov E, McGuire AD, Riley WJ, **Natali SM** (2024) Earth system models must include permafrost carbon processes. *Nature Climate Change*, 14, 114–116 https://doi.org/10.1038/s41558-023-01909-9
103. Ying Q, Poulter B, Watts JD, Arndt KA, Virkkala AM, Bruhwiler L, Oh Y, Rogers BM, **Natali SM**… Zhen Zhang (2024) WetCH4: A Machine Learning-based Upscaling of Methane Fluxes of Northern Wetlands during 2016–2022 *Earth System Science Data Discussions*, 1-45
102. Treat CC, Virkkala AM…**Natali SM**, Youmi Oh, Sarah Shakil, Oliver Sonnentag, Ruth K Varner, Scott Zolkos, Edward AG Schuur, Gustaf Hugelius (2024) Permafrost carbon: Progress on understanding stocks and fluxes across northern terrestrial ecosystems. *Journal of Geophysical Research: Biogeosciences*, 129 (3), e2023JG007638
101. Arndt KA, Hashemi J, **Natali SM**, Schiferl LD, Virkkala AM (2023) Recent advances and challenges in monitoring and modeling non-growing season carbon dioxide fluxes from the Arctic Boreal zone. *Current Climate Change Reports*, doi:10.1007/s40641-023-00190-4
100. Bendavid NS, Alexander HD, Davydov SP, Kropp H, Mack MC, **Natali SM**, Spawn-Lee SA, Zimov NS, Loranty MM (2023) Shrubs compensate for tree leaf area variation and influence vegetation indices in post-fire Siberian larch forests. *JGR Biogeosciences*. doi:10.1029/2022JG007107
99. Ludwig SM, **Natali SM**, Schade JD, Powell M, Fiske G, Schiferl L, Commane R (2023) Scaling waterbody carbon dioxide and methane fluxes in the arctic using an integrated terrestrial-aquatic approach. *Environmental Research Letters*, 18 064019, doi: 10.1088/1748-9326/acd467
98. Moubarak M, Sistla S, Potter S, **Natali SM**, Rogers BM (2023) Carbon emissions and radiative forcings from tundra wildfires in the Yukon–Kuskokwim River Delta, Alaska. *Biogeosciences*, 20(8):1537-57
97. Mullen AL, Watts JD, Rogers BM, Carroll ML, Elder CD, Noomah J, Williams Z, Caraballo-Vega JA, Bredder A, Rickenbaugh E, Levenson E, Cooley SW, Hung JKY, Fiske G, Potter S, Yang Y, Miller CE, **Natali SM**, Douglas TA, Kyzivat ED (2023) Using high-resolution satellite imagery and deep learning to track dynamic seasonality in small water bodies. *Geophysical Research Letters*, 50(7):e2022GL102327
96. Stimmler P, Goeckede M, Elberling B, **Natali SM**, Kuhry P, Perron N, Lacroix F, Hugelius G, Sonnentag O, Strauss J, Minions C. (2023) Pan-Arctic soil element bioavailability estimations. *Earth System Science Data*, 15(3):1059-75
95. Ripple WJ, Wolf C, Lenton TM, Gregg JW, **Natali SM**, Duffy PB, Rockström J, Schellnhuber HJ (2023) Many risky feedback loops amplify the need for climate action. *One Earth*, 6(2):86-91
94. Yang Y, Rogers BM, Fiske G, Watts J, Potter S, Windholz T, Mullen A, Nitze I, **Natali SM** (2023) Mapping retrogressive thaw slumps using deep neural networks. *Remote Sensing of Environment*, 288:113495

93. Liu Z, Kimball JS, Ballantyne AP, Parazoo NC, Wang WJ, Bastos A, Madani N, **Natali SM**, Watts JD, Rogers BM, Ciais P, Yu K, Virkkala AM, Chevallier F, Peters W, Patra PK, ChandraN (2022) Respiratory loss during late-growing season determines the net carbon dioxide sink in northern permafrost regions. *Nature Communications,* 13, 5626. https://doi.org/10.1038/s41467-022-33293-x
92. Schuur EAG, Abbott BW, Commane R, Ernakovich J, Euskirchen E, Hugelius G, Grosse G, Jones M, Koven C, Leshyk V, Lawrence D, Loranty MM, Mauritz M, Olefeldt D, **Natali SM**, Rodenhizer H, Salmon V, Schädel C, Strauss J, Treat C, Turetsky M (2022) Permafrost and Climate Change: Carbon Cycle Feedbacks from the Warming Arctic. *Annual Review of Environment and Resources*, 47:1, 343-371
91. Stimmler P, Göckede M, **Natali SM**, Sonnentag O, Gilfedder BS, Perron N, Schaller J (2022) The importance of calcium and amorphous silica for arctic soil CO_2 production. *Frontiers in Environmental Science*, https://doi.org/10.3389/fenvs.2022.1019610
90. Baillargeon N, Pold G, **Natali SM**, Sistla SA (2022) Lowland tundra plant stoichiometry is somewhat resilient decades following fire despite substantial and sustained shifts in community structure. *Arctic, Antarctic, and Alpine Research*, 54:1, 525-536, doi: 10.1080/15230430.2022.2121246
89. **Natali SM**, Bronen R, Cochran P, Holdren JP, Rogers BR, Treharne R (2022) Incorporating permafrost into climate mitigation and adaptation policy. *Environmental Research Letters,* 17 091001, 10.1088/1748-9326/ac8c5a
88. Zolkos S, MacDonald E, Hung JKY, Schade JD, Ludwig S, Mann PJ, Treharne R, **Natali SM** (2022) Physiographic controls and wildfire effects on aquatic biogeochemistry in tundra of the Yukon-Kuskokwim Delta, Alaska. *Journal of Geophysical Research: Biogeosciences*, 127, e2022JG006891. https://doi.org/10.1029/2022JG006891
87. Hewitt, RE, Alexander HD, Izbicki B, Loranty MM, **Natali SM**, Walker XJ, and Mack MC (2022) Increasing Tree Density Accelerates Stand-Level Nitrogen Cycling at the Taiga–Tundra Ecotone in Northeastern Siberia. *Ecosphere*, 13(7): e4175. https://doi.org/10.1002/ecs2.4175
86. Treharne R, Rogers BM, Gasser T, MacDonald E, **Natali SM** (2022) Identifying barriers to Estimating Carbon Release from Interacting Feedbacks in a Warming Arctic. *Frontiers in Climate*, https://doi.org/10.3389/fclim.2021.716464
85. Curasi SR, Fetcher N, Hewitt RE, Lafleur PM, Loranty MM, Mack MC, May JL, Myers-Smith IH, **Natali SM**, Oberbauer S (2022) Range shifts in a foundation sedge potentially induce large Arctic ecosystem carbon losses and gains. *Environmental Research Letters,* 17 045024
84. Ludwig SM, **Natali SM**, Mann PJ, Schade JD, Holmes RM, Powell M, Fiske G, Commane R (2022) Using machine learning to predict inland aquatic CO2 and CH4 concentrations and the effects of wildfires in the Yukon-Kuskokwim Delta, Alaska. *Global Biogeochemical Cycles*, 36, e2021GB007146. https://doi.org/10.1029/2021GB007146
83. Abbott BW, Brown M, Carey JC, Ernakovich J, Frederick JM, Guo L, Hugelius G, Lee RM, Loranty MM, Macdonald R, Mann PJ, **Natali SM**, Olefeldt D, Pearson P, Rec A, Robards M, Salmon VG, Sayedi Sayedeh S, Schädel C, Schuur EAG, Shakil S, Shogren AJ, Strauss J, Tank SE, Thornton BF, Treharne R, Turetsky M, Voigt C, Wright N, Yang Y, Zarnetske JP, Zhang Q, Zolkos S (2022) We Must Stop Fossil Fuel Emissions to Protect Permafrost Ecosystems. *Frontiers in Environmental Science*, 10.3389/fenvs.2022.889428
82. Wolken G, Liljedahl A, Brubaker M, Coe JA, Fiske G, Hvidtfeldt Christiansen H, Jones BM, Jacquemart M, Lovholt F, Kaab A, **Natali SM**, Rudy ACA, Streletskiy D (2021) Glacier and permafrost hazards. *Arctic Report Card, 2024.* TA Moon, ML Druckenmiller, RL Thoman, Eds, doi: 10.25923/v40r-0956
81. Garrett A, Carter-Johnson FD, **Natali SM**, Schade JD, Holmes RM (2021) A Model Interdisciplinary Collaboration to Engage and Mentor Underrepresented Minority Students in Lived Arctic and Climate Science Research Experiences. *Scholarship and Practice of Undergraduate Research,* 5(1), 16-26. doi:10.18833/spur/5/1/4
80. McCulloch LA, Kropp H, Kholodov A, Cardelús CL, **Natali SM**, Loranty MM (2021) Variation in Fine Root Characteristics and Nutrient Dynamics Across Alaskan Ecosystems. *Ecosystems*, 24(6), 1332–1347. doi:10.1007/s10021-020-00583-8

79. Taylor, MA, Celis G, Ledman JD, Mauritz M, **Natali SM**, Pegoraro E, Schaedel C, Schuur EAG (2021) Experimental soil warming and permafrost thaw increase CH4 emissions in an upland tundra ecosystem. *JGR Biogeosciences*, 126, e2021JG006376. doi:10.1029/2021JG006376
78. Virkkala A-M, **Natali SM**, Rogers BM, Watts JD, Savage K, Connon SJ, Mauritz M, Schuur EAG, Peter D, Minions C, Nojeim J, et. al. (2021) The ABCflux database: Arctic-Boreal CO2 flux observations and ancillary information aggregated to monthly time steps across terrestrial ecosystems. *Earth System Science Data*, doi:10.5194/essd-2021-233
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76. Watts J, **Natali SM**, Minions C, et al. Soil respiration strongly offsets carbon uptake in Alaska and Northwest Canada. *Environmental Research Letters*, doi:10.1088/1748-9326/ac1222
75. **Natali SM**, Holdren JP, Rogers BM, Treharne R, Duffy PB, Pomerance R, MacDonald E (2021) Permafrost carbon feedbacks threaten global climate goals. *Proceedings of the National Academy of Sciences*, 118 (21) e2100163118, doi: 10.1073/pnas.2100163118
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73. Virkkala AM, Aalto J, Rogers BM, Tagesson T, Treat CC, **Natali SM**, Watts JD, Potter S, Lehtonen A, Mauritz M, Schuur EAG, Kochendorfer J, Zona D, Oechel W, Kobayashi H, Humphreys E, Goeckede M, Iwata H, Lafleur PM, Euskirchen ES, Bokhorst S, Marushchak M, Martikainen PJ, Elberling B, Voigt C, Biasi C, Sonnentag O, Parmentier FJW, Ueyama M, Celis G, St. Loius VL, Emmerton CA, Peichl M, Chi J, Järveoja J, Nilsson MB, Oberbauer SF, Torn MS, Park SJ, Dolman H, Mammarella I, Chae N, Poyatos R, López-Blanco E, Christensen TR, Kwon MJ, Sachs T, Holl D, Luoto M (2021) Statistical upscaling of ecosystem CO_2 fluxes across the terrestrial tundra and boreal domain: regional patterns and uncertainties. *Global Change Biology,* https://doi.org/10.1111/gcb.15659
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71. Paulson AK, Peña H, Alexander HD, Davydov SP, Loranty MM, Mack MC, **Natali SM** (2021) Understory plant diversity and composition across a postfire tree density gradient in a Siberian Arctic boreal forest. *Canadian Journal of Forest Research*, 51(5): 720-731, doi:10.1139/cjfr-2020-0483
70. Olefeldt D, Hovemyr M, Kuhn MA, Bastviken D, Bohn TJ, Connolly J, Crill P, Euskirchen ES, Finkelstein SA, Genet H, Grosse G, Harris LI, Heffernan L, Helbig M, Hugelius G, Hutchins R, Juutinen S, Lara MJ, Malhotra A, Manies K, McGuire AD, **Natali SM**, O'Donnell JA, Parmentier FJW, Räsänen A, Schädel C, Sonnentag O, Strack M, Tank S, Treat C, Varner RK, Virtanen T, Warren RW, Watts JD (2021) The Boreal-Arctic Wetland and Lake Dataset (BAWLD). *Earth System Science Data*, 1-40, DOI:10.5194/essd-13-5127-2021
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68. Bengtsson F, Rydin H, Baltzer JL, Bragazza L, Bu ZJ, Caporn SJM, Dorrepaal E, Flatberg KI, Galanina O, Gałka M, Ganeva A, Goia I, Goncharova N, Hájek M, Haraguchi A, Harris LI, Humphreys E, Jiroušek M, Kajukało K, Karofeld E, Koronatova NG, Kosykh NP, Laine AM, Lamentowicz M, Lapshina E, Limpens J, Linkosalmi M, Ma J, Mauritz M, Mitchell EAD, Munir

TM, **Natali SM**, Natcheva R, Payne RJ, Philippov DA, Rice SK, Robinson S, Robroek BJM, Rochefort L, Singer D, Stenøien HK, Tuittila ES, Vellak K, Waddington JM, Granath G (2020) Environmental drivers of Sphagnum growth in peatlands across the Holarctic region. *Journal of Ecology*, 00: 1– 15, doi: 10.1111/1365-2745.13499

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64. Frost GV, Loehman R, Saperstein LB, Macander MJ, Nelson PR, Paradis DP, **Natali SM** (2020) Multi-decadal patterns of vegetation succession after tundra fire on the Yukon-Kuskokwim Delta, Alaska. *Environmental Research Letters,* 15: 025003
63. Kropp H, Loranty M, **Natali SM** et al. (2021) Shallow soils are warmer under trees and tall shrubs across Arctic and Boreal ecosystems. *Environmental Research Letters,* 16 015001
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61. Rodenhizer H, Ledman J, Mauritz M, **Natali SM**, Pegoraro E, Plaza, C, et al. (2020). Carbon thaw rate doubles when accounting for subsidence in a permafrost warming experiment. *Journal of Geophysical Research: Biogeosciences*, 125, e2019JG005528, doi: 10.1029/2019JG005528
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58. Kropp H, Loranty MM, **Natali SM**, et al. (2019) Tree density influences ecohydrological drivers of plant–water relations in a larch boreal forest Siberia. *Ecohydrology*, e2132, doi:10.1002/eco.2132
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3. **Natali SM**, Sañudo-Wilhelmy SA, Norby R, Zhang H, Finzi A, Lerdau MT (2008) Increased mercury in forest soils under elevated carbon dioxide. *Oecologia*, 158: 343-354
2. Mackie J, **Natali SM**, Levinton JS, Sañudo-Wilhelmy SA (2007) Declining metal levels at Foundry Cove, NY: Response to localized dredging of contaminated sediments. *Environmental Pollution*, 149: 141-148
1. Fang W, Taub DR, Fox GA, Landis RM, **Natali SM**, Gurevitch J (2006) Sources of variation in growth, form and survival in dwarf and normal-stature pitch pines (*Pinus rigida*, Pinaceae), in long-term transplant experiments. *American Journal of Botany*, 93: 1125-1133

DATASETS AND CONTRIBUTED PAPERS

Lead or contributing author on >90 openly available datasets archived at the Environmental Data Initiative, Arctic Data Center, and ORNL DAAC

Lead or contributing author on >185 presentations at national and international science conferences

SECONDARY PUBLICATIONS AND MEDIA (SELECT)

Ackermann M, C Amann, B Cook, **SM Natali**, et al. (2024) Pan-arctic methane: Current monitoring capabilities, approaches for improvement, and implications for global mitigation targets. Woodrow Wilson International Center for Scholars

Contributing Author and Scientific Editor for International Cryosphere Climate Initiative (ICCI) reports: *State of the Cryosphere,* 2024, *State of the Cryosphere,* 2023; *State of the Cryosphere*, 2022; *State of the Cryosphere*, 2021; *Cryosphere 1.5° Where Urgency and Ambition Meet*, 2019; *Thresholds and Closing Windows: Risks of Irreversible Cryosphere Climate Change*

Natali SM, Rogers B (2021) Op-Ed: The major emitter that's missing from climate negotiations. *The Hill*

TED talk, *How ancient carbon threatens everyone on the planet* (2022), > 1.7M views

Contributor to award winning book, *The Big Thaw* (2019)

Interviewed and quoted in 100s of media outlets including *NPR Living on Earth, NY Times, National Geographic, CBS This Morning, Washington Post, Agence France-Press* and in several documentaries including, *Earth Emergency* (PBS, 2021), *Arctic Sinkholes* (NOVA, 2022), *Permafrost Now* (2018)

PROFESSIONAL SERVICE, MENTORING, AND LEADERSHIP (SELECT)

Permafrost Carbon Network, Steering Committee Member 2019-current, Working Group Lead/Member since 2012

Program Director and Faculty for the Polaris Project (2012-2023), an undergraduate research program that has trained >100 undergraduate students in Arctic research

NASA Arctic Boreal Vulnerability Experiment, Carbon Dynamics Working Group Lead (2016-2018)

International Arctic Systems for Observing the Atmosphere (IASOA), Atmosphere-Surface Exchanges Steering Committee (2016-2017)

AGU Biogeosciences Section, Outstanding Student Presentation Award Coordinator (2013-2018)

Associate Editor for Biogeosciences Special Issue, Changing Permafrost in the Arctic and its Global Effects in the 21st Century

Guest Editor for Environmental Research Letters, Resiliency and Vulnerability of Arctic and Boreal Ecosystems to Environmental Change: Advances and Outcomes of ABoVE (2017-2020)

FELLOWSHIPS AND NOTABLE RECOGNITIONS

AGU Biogeosciences, Sulzman Award for Excellence in Education and Mentoring, 2021

NSF, Polar Programs Postdoctoral Research Fellowship, 2010-2012

NSF, Graduate Research Fellowship, 2004-2008

Association for Women in Science, Ruth Satter Predoctoral Award, 2006

GRANTS

Abrupt thaw in permafrost uplands, Tito's Vodka, 2025-2027, $198K (Woodwell lead PI)

Drivers and biogeochemical implications of saltwater intrusion along Arctic coastlines, NSF ANS, 2024-2027, $344K

Pathways to Transforming Arctic Science Programs, NSF, 2024-2025, $99K

Integrating novel greenhouse gas sensor technology with mechanistic modeling to improve projections of Arctic soil responses to climate change and fire, 2021-2026, NSF SiTS, $187K (Woodwell lead PI)

Integrating Permafrost into Our Global Solution to Climate Change, The Audacious Project, 2022-2028, $41M (lead PI)

Mapping abrupt permafrost thaw in the Arctic, Heising Simons Foundation, 2021-2023, $249K (lead PI)

Mitigating the Global Threat from Thawing Permafrost: The Arctic Carbon Monitoring and Prediction System, Quadrature Climate Foundation, 2021-2024, $3M (lead PI)

Building an international network of ground observations for the Arctic Carbon Monitoring and Prediction System, Woodwell Fund for Climate Solutions, 2020-2022, $98K (lead PI)

Accounting for permafrost carbon feedbacks in global climate policy, One Earth Foundation, 2020-2021, $75K (lead PI)

Arctic Carbon Monitoring and Prediction System, Gordon & Betty Moore Foundation, 2019-2023, $2.4M (Lead PI)

The Polaris Project: Catalyzing change in the Arctic research community, NSF IUSE, 2019-2023, $1.4M (lead PI)

Developing a mechanistic understanding of decomposition of organic matter in frozen soil, NSF DEB, OPUS, 2019-2021, $171K (lead PI)

Mapping Methane Craters in the Arctic, Heising Simons Foundation, 2019-2021, $148K (Lead PI)

Integrating science and Indigenous knowledge to support threatened Arctic communities, Woodwell Fund for Climate Solutions, 2019-2021, $134K (Lead PI)

Establishing an Arctic Climate Change and Carbon Observatory, Woodwell Fund for Climate Solutions, $180K, 2018-2020 (Lead PI)

Towards a northern pyrogenic carbon budget, Woodwell Fund for Climate Solutions, 2019-2020, $49K,

Understanding the causes and implications of enhanced seasonal CO_2 exchange in boreal and arctic ecosystems, NASA ABoVE, 2017-2020, $1.4M

Polaris Project: Catalyzing demographic change in the Arctic research community through an immersive and sustained undergraduate research experience, NSF DUE, 2016-2019, $1.5M

Winter respiration in the Arctic: Constraining current and future estimates of CO_2 emissions during the

non-growing season, NASA ABoVE, 2015-2019, $886K (Lead PI)

Mapping Hotspots for Methane Craters in the Siberian Arctic, NASA Novel Research, 2018-2019, $42K (Lead PI)

Vegetation and ecosystem impacts on permafrost vulnerability, NSF Office of Polar Programs, 2015-2018, $560K to Woodwell ($1.3M total, Lead PI)

Fire regime influences on carbon dynamics of Siberian boreal forests. NSF Office of Polar Programs, 2013-2018, $370K to Woodwell ($800K total, H. Alexander, Lead PI)

The impact of fire on active layer thickness, NASA Rapid, 2016-2017, $20K (K. Schaefer, Lead PI)

The carbon balance of Arctic River Deltas: Tundra fire as an agent of system change, NSF Rapid, 2015-2016, $220K

Russian Visiting Scholars Program, Trust for Mutual Understanding, 2014-2016, $12K

Developing a pan-arctic ecosystem respiration model, MBL-UChicago Collaboration Award, 2014-2015, $25K, (E. Rastetter, Lead PI)

Effects of warming and drying on ecosystem carbon balance in Alaskan tundra. NSF Office of Polar Programs, 2012-2015, $600K (Lead PI)

Vegetation permafrost dynamics in the context of changing climate. National Geographic Society, 2012-2014, $21K (Lead PI)