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Curriculum Vitae

CURRENT POSITION

Research Assistant Professor

Institute of Northern Engineering, College of Engineering and Mines, University of Alaska Fairbanks

FIELD OF ACTIVITY

The main field of my scientific interest and activities relates to formation and degradation of ground ice, impact of periglacial processes on infrastructure and environment. The geography of my field studies in Alaska includes Beaufort Sea coast, Seward Peninsula, Brooks Range, Chugach Mountains, Yukon Flats, Alaska Range, Koyukuk Flats, etc. Studies commonly include drilling, permafrost mapping, and study of properties of frozen soils.

Background. More than 40 years of extensive experience in permafrost investigations, cold region engineering, and environmental studies. Field works in various permafrost regions (Alaska, Canada, Siberia).

Permafrost investigations. Field study of cryostratigraphy and ice content of perennially frozen sediments; study of various types of ground ice. Laboratory investigation of properties of frozen and thawing soils. Permafrost mapping. Study of permafrost of mountain slopes, marine and river terraces, flood plains, thaw lakes basins. Study of ice-rich Quaternary sediments with syngenetic ice wedges. Study of ground-ice distribution in various sections of perennially frozen sediments. Classification of cryostructures of syngenetically and epigenetically frozen sediments of various age, origin, and composition. Study of permafrost-related hazards (thermokarst, thermal erosion, slope processes, frost heave, and thermal cracking). Active-layer thickness monitoring.

Cold region engineering. Permafrost-related hazards and their mitigation. Protection of pipelines and roads against thermokarst, sliding, and erosion. Permafrost-related engineering problems related to placer mining.

Environmental investigations. Assessment of chemical contamination of soils and surface waters. Complex assessment of environmental situation. Environmental mapping. Classification and mapping of lands disturbed by the development of golden placers, evaluation of placer mining influence on contamination of large rivers.

WORK EXPERIENCE

2007-Present Institute of Northern Engineering, College of Engineering & Mines, University of Alaska Fairbanks; Research Assistant Professor.

2005-2007 Institute of Northern Engineering, College of Engineering & Mines, University of Alaska Fairbanks; EPSCoR Post Doctoral Fellow.

2001-2005 Earth Cryosphere Institute Siberian Branch Russian Academy of Sciences, Moscow; Senior Scientist.

1995-2001 Ecolandshaft Inc., Moscow; Senior Expert.

1993-1994 Engineering Geology and Geo-ecology Research Center Russian Academy of Sciences, Moscow; Senior Scientist.

1991-1992 Environmental Consulting Company "ECOLAS", Moscow; Senior Expert.

1985-1991 USSR Research Institute for Hydrogeology and Engineering Geology, Moscow; Scientist.

EDUCATION

1985: M.S. in Geology (Permafrost and Engineering Geology), Moscow State University, Russia, Permafrost Department. Advisor: Professor N.N. Romanovskii.

2004: Ph.D. in Geology (Permafrost and Engineering Geology) Moscow State University, Russia. Advisor: Professor E.S. Melnikov.

2005-2007: Post Doc, Institute of Northern Engineering, College of Engineering and Mines, University of Alaska Fairbanks. Advisor: Professor Y. Shur.

CONTINUING EDUCATION

1988 Complex engineering-geological and hydrogeological methods in the permafrost affected areas. Institute of Continuing Education of the USSR Ministry of Geology, Moscow

1986 Programming in FORTRAN-IV. Training in Scientific-Training Center, Tallinn

1986 Courses on aerial reconnaissance. Training in Civil Aviation Training Center, Moscow

RESEARCH EXPERIENCE

Permafrost research in various Permafrost Regions:

- Alaska (Beaufort Sea coast from Barrow to Canadian border, Chukchi Sea coast, Fox Permafrost Tunnel, Seward Peninsula, Brooks Range, Matanuska Glacier, Muldrow Glacier, Minchumina Lake, Koyukuk Flats, Gakona, Healy, Kennicott Glacier, Yukon Flats, Dalton Highway, Denali Highway, Innoko Lowlands);
 - Canada (Bylot Island, Mackenzie River delta);
 - Northern Yakutia (basins of Omoloy, Yana, Indigirka, Sellenyakh Rivers);
 - Western Siberia (Yamal Peninsula, Yenisey Gulf, Yenisey River);
 - European North of Russia (Pechora River Delta).
- Investigations of cryogenic structure and ice content: field studies of natural exposures (river banks, sea-shore cliffs); walls of quarries; boreholes; pits and mine galleries.
 - Study of perennially frozen Quaternary sediments of various soils (sands, silts, clays) of various origin (alluvial, lacustrine, slope, eolian, marine, littoral):
 - Study of permafrost of mountain slopes, marine and river terraces, flood plains, thaw lakes basins;
 - Development of classification of thaw lakes basins and their cryogenic structure.
 - Study of ice-rich Quaternary sediments with huge syngenetic ice wedges (Yedoma, or Ice Complex);
 - Study of various types of ice wedges;
 - Study of tabular massive ground ice;
 - Study of pingo;
 - Development of morphogenetic classification of cryostructures of syngenetically and epigenetically frozen sediments.

Frozen Ground Engineering:

- Field and laboratory investigation of engineering properties of frozen and thawing soils.
- Long-term monitoring of permafrost related hazards (thermokarst, thermal erosion, slope processes, frost heave, thermal cracking):
 - monitoring of thermokarst and frost heave, and their impacts on roads;
 - monitoring of thermal erosion and thermal denudation rates.
- Permafrost and environmental mapping for engineering purposes.
- Evaluation of sources of chemical contamination of soils and surface waters; assessment of environmental problems.
- Development of engineering and environmental solutions, related to mining; classification and properties of deposits of tailing ponds associated with placer mining; classification and mapping of lands disturbed by mining, development of methods of their recovery.
- Evaluation of placer mining influence on contamination of surface waters of Northern Yakutia (Yana and Omoloy Rivers and their tributaries).
- Development of engineering and environmental solutions, related to road and pipelines construction.

Environmental Engineering in temperate regions:

- Development of engineering and environmental solutions in Moscow region (reconstruction of Moscow Belt Highway, landscape design, water protection, recovery of disturbed lands):
 - methods of road protection against sliding and erosion based on gabion technology, developed by Italian company Officine Maccaferri S.p.A. (retaining walls, reinforcement of embankments, protection of bridges);
 - methods of river flow control and water protection based on gabion technology (bank protection, weir dams, water treatment constructions);
 - methods of slope protection and recovery of disturbed lands based on planting of greenery and on using of biomats, geotextile, hydroseeding.

CURRENT RESEARCH INTERESTS

- Permafrost structure and properties;
- Origin and properties of various types of ground ice;
- Ground-ice content in the upper permafrost;
- Cryostratigraphy;
- Structure and properties of basal ice of glaciers, process of its burial.
- Permafrost-related geological hazards (thermokarst, thermal erosion, frost heave, thermal cracking, slope processes);
- Impact of permafrost ice content and structure on rate of thermal erosion and thermokarst;
- Engineering and environmental problems associated with climate change.

I am a member of the American Geophysical Union (AGU) and the United States Permafrost Association (USPA).

RECENT PROJECTS

- Enhancing the Integrated System for Operations in Polar Seas (ISOPS) (DoD, 2023-2026)
- Collaborative Research: The role of capillaries in the Arctic hydrologic system (NSF, 2023-2026)
- NNA Research: Permafrost Grown: Cultivating convergence between farmers and researchers to foster sustainability for intensifying permafrost-agroecosystems (NSF, 2021-2025)
- AKRO-CRREL Soil and Water Sample Analyses (New CRREL Permafrost tunnel) (DoD, 2020-2021)
- Synthesis of Best Practice for Design and Construction of Roadways and Airports Over Permafrost (AKDOT, 2020)
- NNA TRACK 1: Collaborative Research: A Purpose-Driven Merger of Scientific and Traditional Knowledge of Water Quality in Alaska Native Communities (NSF, 2020-2024)
- NNA TRACK 1: Landscape evolution and adapting to change in Ice-Rich Permafrost Systems (NNA-IRPS) (NSF, 2020-2024)

- The Transition Zone of Upper Permafrost: The Frontline for Permafrost Changes across Climate and Landscape Gradients (NSF, 2019-2022)
- Collaborative Research: Causes and Consequences of Catastrophic Lake Drainage in an Evolving Arctic System (NSF, 2019-2021)
- Collaborative Research: Patterns, Dynamics, and Vulnerability of Arctic Polygonal Ecosystems: From Ice-Wedge Polygon to Pan-Arctic Landscapes (NSF, 2018-2020)
- Environmentally Threatened Community Program Support (Denali Commission, 2017-2018)
- Investigations of the retrogressive thaw slump at PLMP 87 (Alyeska, 2017)
- Improving Design Methodologies and Assessment Tools for Building on Permafrost in a Warming Climate (DoD, 2014-2017)
- Cumulative Effects of Oil Development – planning and designing for sustainability (NSF, 2013-2016)
- Dynamics and Consequences of Increasing Ice-Wedge Degradation (NSF, 2010-2015)
- Permafrost Database Development, Characterization, and Mapping for Northern Alaska (FWS, 2012-2014)
- Collaborative Research: Forty-Thousand Years of Yedoma: an investigation into the spatial heterogeneity and paleo-history of organic-rich permafrost in Alaska (NSF, 2011-2013)
- Preservation of Traditional Ice Cellars in Permafrost (Exxon, 2010-2011)
- Geophysical Methods for Arctic/Subarctic Transportation Planning (AKDOT, 2010-2011)
- Impact of permafrost degradation on carbon and water in boreal ecosystems (NSF, 2007-2011)
- Effect of aggradation and degradation of ground ice on the evolution of permafrost-dominated landscapes under a changing climate (NSF, 2005-2010)
- Geotechnical Investigations for the Dalton Highway Innovation Project as a Case Study of the Ice-Rich Syngenetic Permafrost (AKDOT, 2008-2009)
- Flux and transformation of organic carbon across the eroding coastline of Northern Alaska (NSF, 2005-2009)
- Resilience and vulnerability in a rapidly changing North: the integration of physical, biological and social processes (physical science component) (NSF)

PEER-REVIEWED PUBLICATIONS

1. Stephani, E., Darrow, M., Kokelj, S., **Kanevskiy, M.**, Doré, G., Rudy, A. (2024, in preparation) Developing adaptation strategies for infrastructure affected by thaw slumping in multiple ecoregions. *Landslides*.
2. Rangel, R.C., Parsekian, A.D., Engram, M., Ohara, N., Jones, B.M., **Kanevskiy, M.**, Bergstedt, H., Walter Anthony, K.M. (2023, submitted) Geophysical Investigation of Northern Lake Ice Properties. *Cold Regions Science and Technology*.
3. Jones, B.M., Kanevskiy, M., Shur, Y., Jorgenson, M.T., Gaglioti, B.V., Ward Jones, M.K., Veremeeva, A., Miller, E.A., Jandt, R. (2024, minor revision) Terrain stabilization following widespread tundra fire-induced thaw of ice-rich permafrost in northern Alaska. *Scientific Reports*.
4. Jones, B.M., **Kanevskiy, M.Z.**, Parsekian, A.D., Bergstedt, H., Ward Jones, M.K., Rangel, R.C., Hinkel, K.M., Shur, Y. (2023) Rapid saline permafrost thaw below a shallow thermokarst lake in Arctic Alaska. *Geophysical Research Letters* 50, e2023GL105552. <https://doi.org/10.1029/2023GL105552>
5. Zwieback, S., McClernan, M., **Kanevskiy, M.**, Jorgenson, T., Walker, D.A., Chang, Q., Bergstedt, H., Toniolo, H., Romanovsky, V., Meyer F. (2023) Disparate permafrost terrain changes after a large flood observed from space. *Permafrost and Periglacial Processes* 34: 451-466. <https://doi.org/10.1002/ppp.2208>
6. Stephani, E., Darrow, M., **Kanevskiy, M.**, Wuttig, F., Daanen, R.P., Schwarber, J., Doré, G., Shur, Y., Jorgenson, M.T., Croft P., and Drage J.S. (2023) Hillslope erosional features and permafrost dynamics along infrastructure in the Arctic Foothills, Alaska. *Permafrost and Periglacial Processes* 34 (2): 208-228. <https://doi.org/10.1002/ppp.2188>
7. Bergstedt, H., Jones, B.M., Walker, D.A., Peirce, J.L., Bartsch, A., Pointner, G., **Kanevskiy, M.**, Raynolds, M.K., Buchhorn, M. (2023) The spatial and temporal influence of infrastructure and road dust on seasonal snowmelt, vegetation productivity, and early season surface water cover in the Prudhoe Bay Oilfield. *Arctic Science* 9: 243-259. doi:10.1139/as-2022-0013
8. **Kanevskiy, M.**, French, H., Shur, Y., Bjella, K.L., Bray, M.T., Collins, C.M., Douglas, T.A., and Fortier, D. (2023). Late-Pleistocene Syngenetic Permafrost in the CRREL Permafrost Tunnel, Fox, Alaska. In: *Guide to Permafrost and Quaternary Geology of the Fairbanks Area, Alaska. Guidebook 11*. De Anne S.P. Stevens (ed.). A guidebook prepared for Ninth International Conference on Permafrost, June 29-July 3, 2008, University of Alaska Fairbanks. State of Alaska, Department of Natural Resources, Division of Geological and Geophysical Surveys: 45-65.
9. Karjalainen, O., Aalto, J., **Kanevskiy, M.Z.**, Luoto, M., and Hjort, J. (2022) High-resolution predictions of ground ice content for the circumarctic permafrost region. *Earth System Science Data Discussions*. <https://doi.org/10.5194/essd-2022-144>
10. Jorgenson, T., **Kanevskiy, M.**, Jorgenson, J.C., Liljedahl, A.K., Shur, Y., Epstein, H.E., Kent, K., Griffin, C.G., Daanen, R., Boldenow, M., Orndahl, K., Witharana, C., and Jones, B.M. (2022) Rapid transformation of tundra ecosystems from ice-wedge degradation. *Global and Planetary Change* 216. <https://doi.org/10.1016/j.gloplacha.2022.103921>

11. Jorgenson, T., **Kanevskiy, M.**, Roland, C., Hill, K., Schirokauer, D., Stehn, S., Schroeder, B., Shur, Y. (2022) Repeated Permafrost Formation and Degradation in Boreal Peatland Ecosystems in Relation to Climate Extremes, Fire, Ecological Shifts and a Geomorphic Legacy. *Atmosphere* 13, 1170. <https://doi.org/10.3390/atmos13081170>
12. Ward Jones, M., Schwoerer, T., Gannon, G., Jones, B.M., **Kanevskiy, M.Z.**, Sutton, I., St. Pierre, B., St. Pierre, C., Russell, J., and Russell, D. (2022) Climate-driven expansion of northern agriculture must consider permafrost. *Nature Climate Change* 12: 699–703. <https://doi.org/10.1038/s41558-022-01436-z>
13. Walker, D.A., Raynolds, M.K., **Kanevskiy, M.**, Shur, Y., Romanovsky, V.E., Jones, B.M., Buchhorn, M., Jorgenson, M.T., Šibík, J., Breen, A.L., Kade, A., Watson-Cook, E., Bergstedt, H., Liljedahl, A., Daanen, R., Connor, B., Nicolsky, D., and Peirce, J.L. (2022) Cumulative impacts of a gravel road and climate change in an ice-wedge polygon landscape, Prudhoe Bay, Alaska. *Arctic Science* 8 (4): 1040–1066. <https://doi.org/10.1139/AS-2021-0014>
14. Ohara, N., Jones, B. M., Parsekian, A. D., Hinkel, K. M., Yamatani, K., **Kanevskiy, M.**, Rangel, R. C., Breen, A. L., and Bergstedt, H. (2022). A new Stefan equation to characterize the evolution of thermokarst lake and talik geometry. *The Cryosphere* 16, 1247-1264. <https://doi.org/10.5194/tc-16-1247-2022>
15. **Kanevskiy, M.**, Shur, Y., Bigelow, N.H., Bjella, K.L., Douglas, T.A., Jones, B.M., Jorgenson, M.T., Fortier, D. (2022) Yedoma cryostratigraphy of recently excavated sections of the CRREL Permafrost Tunnel near Fairbanks, Alaska. *Frontiers in Earth Science*. 9:758800. <https://doi.org/10.3389/feart.2021.758800>
16. Shur, Y., Fortier, D., Jorgenson, T., **Kanevskiy, M.**, Schirrmeister, L., Strauss, J., Vasiliev, A., Ward Jones, M. (2022) Yedoma Permafrost Genesis: Over 150 Years of Mystery and Controversy. *Frontiers in Earth Science*. 9:757891. <https://doi.org/10.3389/feart.2021.757891>
17. **Kanevskiy, M.**, Shur, Y., Walker, D.A., Jorgenson, T., Raynolds, M.K., Peirce, J.L., Jones, B.M., Buchhorn, M., Matyshak, G., Bergstedt, H., Breen, A.L., Connor, B., Daanen, R., Liljedahl, A., Romanovsky, V.E., Watson-Cook, E. (2022) The shifting mosaic of ice-wedge degradation and stabilization in response to infrastructure and climate change, Prudhoe Bay Oilfield, Alaska. *Arctic Science* 8 (2): 498–530. <http://dx.doi.org/10.1139/AS-2021-0024>
18. Jones, B.M., Grosse, G., Farquharson, L.M, Roy-Léveillé, P., Veremeeva A., **Kanevskiy, M.Z.**, Gaglioti, B.V., Breen, A.L., Parsekian, A.D., Ulrich, M., and Hinkel, K.M. (2022) Lake and drained lake basin systems in lowland permafrost regions. *Nature Reviews Earth and Environment* 3: 85-98. <https://doi.org/10.1038/s43017-021-00238-9>
19. Strauss, J., Laboor S., Schirrmeister, L., Fedorov, A.N., Fortier, D., Froese, D., Fuchs, M., Günther, F., Grigoriev, M., Harden, J., Hugelius, G., Jongejans, L.L., **Kanevskiy, M.**, Kholodov, A., Kunitsky, V., Kraev, G., Lozhkin, A., Rivkina, E., Shur, Y., Siegert, C., Spektor, V., Streletskaia, I., Ulrich, M., Vartanyan, S., Veremeeva, A., Walter Anthony, K., Wetterich, S., Zimov, N., Grosse, G. (2021) Circum-Arctic Map of the Yedoma Permafrost Domain. *Frontiers in Earth Science* 9:758360. <https://doi.org/10.3389/feart.2021.758360>
20. Bergstedt, H., Jones, B.M., Hinkel, K., Farquharson, L., Gaglioti, B.V., Parsekian, A.D., **Kanevskiy, M.**, Ohara, N., Breen, A.L., Rangel, R.C., Grosse, G., Nitze, I. (2021) Remote

Sensing-Based Statistical Approach for Defining Drained Lake Basins in a Continuous Permafrost Region, North Slope of Alaska. *Remote Sensing* 13, 2539. <https://doi.org/10.3390/rs13132539>

21. Zhang, X., Bianchi, T.S., Hanna, A.J.M., Shields, M.R., Izon, G., Hutchings, J.A., Ping, C.-L., **Kanevskiy, M.**, Naghipour, N., Eglinton, T.I. (2021) Recent warming fuels increased organic carbon export from Arctic permafrost. *AGU Advances* 2, e2021AV000396. <https://doi.org/10.1029/2021AV000396>
22. Shur, Y., Jones, B.M., **Kanevskiy, M.**, Jorgenson, T., Ward Jones, M.K., Fortier, D., Stephani, E., Vasiliev, A. (2021) Fluvio-thermal erosion and thermal denudation in the yedoma region of northern Alaska: revisiting the Itkillik River exposure. *Permafrost and Periglacial Processes* 32: 277-298. doi: 10.1002/ppp.2105
23. Rangel, R.C., Parsekian, A.D., Farquharson, L.M., Jones, B.M., Ohara, N., Creighton, A.L., Gaglioti, B.V., **Kanevskiy, M.**, Breen, A.L., Bergstedt, H., Romanovsky, V.E., and Hinkel, K.M. (2021) Geophysical observations of taliks below drained lake basins on the Arctic Coastal Plain of Alaska. *Journal of Geophysical Research – Solid Earth* 126, e2020JB020889
24. Witharana, C., Bhuiyan, E.M., Liljedahl, A.K., **Kanevskiy, M.**, Jorgenson, T., Jones, B.M., Daanen, R., Epstein, H.E., Griffin, C.G., Kent, K., and Ward Jones, M.K. (2021) An object-based approach for mapping tundra ice-wedge polygon troughs from very high spatial resolution optical satellite imagery. *Remote Sensing* 13, 558. <https://doi.org/10.3390/rs13040558>
25. Bristol, E.M., Connolly, C.T., Lorenson, T.D., Richmond, B.M., Ilgen, A.G., Choens, R.C., Bull, D.L., **Kanevskiy, M.**, Iwahana, G., Jones, B.M., McClelland, J.M. (2021). Geochemistry of coastal permafrost and erosion-driven organic matter fluxes to the Beaufort Sea near Drew Point, Alaska. *Frontiers in Earth Science* 8: 598933. doi:10.3389/feart.2020.598933
26. Wickland, K.P., Jorgenson, M.T., Koch, J.C., **Kanevskiy, M.**, and Striegl, R.G. (2020) Carbon dioxide and methane flux in a dynamic Arctic tundra landscape: Decadal-scale impacts of ice wedge degradation and stabilization. *Geophysical Research Letters* 47, e2020GL089894. <https://doi.org/10.1029/2020GL089894>
27. Witharana, C., Bhuiyan, E.M., Liljedahl, A.K., **Kanevskiy, M.**, Epstein, H.E., Jones, B.M., Daanen, R., Griffin, C.G., Kent, K., and Ward Jones, M.K. (2020) Understanding the synergies of deep learning and data fusion of multispectral and panchromatic high resolution commercial satellite imagery for automated ice-wedge polygon detection. *Journal of Photogrammetry and Remote Sensing* 170: 174-191.
28. Oblogov, G.E., Vasiliev, A.A., Streletskaya, I.D., Zadorozhnaya, N.A., Kuznetsova, A.O., **Kanevskiy, M.Z.**, Semenov, P.B. (2020) Methane content and emission in the Permafrost landscapes of Western Yamal, Russian Arctic. *Geosciences* 10, 412; doi:10.3390/geosciences10100412.
29. Raynolds, M., Jorgenson, J., Jorgenson, T., **Kanevskiy, M.**, Liljedahl, A., Nolan, M., Sturm, M., and Walker, D. (2020) Landscape impacts of 3D-seismic surveys in the Arctic National Wildlife Refuge, Alaska. *Ecological Applications* 30(7): e02143. doi:10.1002/eap.2143

30. Zhang, W., Liljedahl, A.K., **Kanevskiy, M.**, Epstein, H.E., Jones, B.M., Jorgenson, M.T., and Kent, K. (2020) Transferability of deep learning Mask R-CNN model for automated mapping of ice-wedge polygons in high-resolution satellite and UAV images. *Remote Sensing* 12: 1085. doi:10.3390/rs12071085.
31. Stephani, E., Drage, J., Jones, B., Miller, D., **Kanevskiy, M.** (2020) Channel change, talik characteristics, and permafrost dynamics as industrial risk factors on the Colville River Delta, Alaska. *Permafrost and Periglacial Processes* 31(2): 239-254; <https://doi.org/10.1002/ppp.2046>
32. Jones, B.M., Arp, C.D., Grosse, G., Nitze, I., Lara, M.J., Whitman, M.S., Farquharson, L.M., **Kanevskiy, M.**, Parsekian, A.D., Breen, A.L., Ohara, N., Rangel, R.C., and Hinkel, K.M. (2020) Identifying historical and future potential lake drainage events on the western Arctic coastal plain of Alaska. *Permafrost and Periglacial Processes* 31(1): 110-127; <https://doi.org/10.1002/ppp.2038>
33. **Kanevskiy M.**, Connor, B., Schnabel, W., Bjella, K., and Trochim, E. (2019) Determination of Communities At-Risk from Thawing Permafrost. *Proceedings of the 18th International Conference on Cold Regions Engineering and the 8th Canadian Permafrost Conference, Quebec City, Quebec, Canada, August 18–22, 2019*: 588-596.
34. Stephani, E., Jones, B., and **Kanevskiy, M.** (2019) Assessing riverbank erosion and land cover changes in permafrost regions based on a terrain analysis approach, an example from the Colville River Delta, northern Alaska. *Proceedings of the 18th International Conference on Cold Regions Engineering and the 8th Canadian Permafrost Conference, Quebec City, Quebec, Canada, August 18–22, 2019*: 678-686.
35. Coulombe, S., Fortier, D., Lacelle, D., **Kanevskiy, M.**, and Shur, Y. (2019) Origin, burial and preservation of late Pleistocene-age glacier ice in Arctic permafrost (Bylot Island, NU, Canada). *The Cryosphere* 13: 97-111, <https://doi.org/10.5194/tc-13-97-2019>
36. Jones, B.M., Farquharson, L.M., Baughman, C.A., Buzard, R.M., Arp, C.D., Grosse, G., Bull, D.L., Günther, F., Nitze, F., Urban, F., Kasper, J.L., Frederick, J.M., Thomas, M., Jones, C., Mota, A., Dallimore, S., Tweedie, C., Maio, C., Mann, D.H., Richmond, B., Gibbs, A., Xiao, M., Sahs, T., Iwahana, G., **Kanevskiy, M.**, and Romanovsky, V.E. (2018) A decade of remotely sensed observations highlight complex processes linked to coastal permafrost bluff erosion in the Arctic. *Environmental Research Letters* 13, 115001, <https://doi.org/10.1088/1748-9326/aae471>
37. Zhang, W., Witharana, C., Liljedahl, A.K., and **Kanevskiy, M.** (2018) Deep convolutional neural networks for automated characterization of Arctic ice-wedge polygons in very high spatial resolution aerial imagery. *Remote Sensing* 10, 1487. doi:10.3390/rs10091487
38. Koch, J.C., Jorgenson, M.T., Wickland, K.P., **Kanevskiy, M.**, and Striegl, R. (2018) Ice wedge degradation and stabilization impact water budgets and nutrient cycling in Arctic trough ponds. *Journal of Geophysical Research: Biogeosciences* 123: 2604-2616. <https://doi.org/10.1029/2018JG004528>
39. Zhang, X., Bianchi, T.S., Cui, X., Rosenheim, B.E., Ping, C.-L., Hanna, A.J.M., **Kanevskiy, M.**, Schreiner, K.M., Allison, M.A. (2017) Permafrost organic carbon mobilization from the watershed to the Colville River delta: Evidence from ¹⁴C ramped pyrolysis and lignin biomarkers. *Geophysical Research Letters* 44: 11,491–11,500. doi: 10.1002/2017GL075543.

40. **Kanevskiy, M.**, Shur, Y., Jorgenson, T., Brown, D.R.N., Moskalenko, N.G., Brown, J., Walker, D.A., Reynolds, M.K., and Buchhorn, M. (2017) Degradation and stabilization of ice wedges: Implications for assessing risk of thermokarst in northern Alaska. *Geomorphology* 297: 20-42. doi: 10.1016/j.geomorph.2017.09.001
41. Bjella, K., **Kanevskiy, M.**, and Hinkel, K. (2017) The Use of Electrical Resistivity Methods for Ground Ice Characterization for Engineering. 17th International Conference on Cold Regions Engineering. Congress on Technical Advancement 2017: Cold Regions Engineering. Zufelt, J.E. (ed): 59-70. doi:10.1061/9780784481011.006 <https://ascelibrary.org/doi/pdf/10.1061/9780784481011.006>
42. Lapointe Elmrbati, L., Talbot, J., Fortier, D., Fr chet, B., Strauss, J., **Kanevskiy M.**, and Shur, Y. (2017) Middle to late Wisconsinan climate and ecological changes in northern Alaska: Evidences from the Itkillik River Yedoma. *Palaeogeography, Palaeoclimatology, Palaeoecology* 485: 906-916. doi: 10.1016/j.palaeo.2017.08.006
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