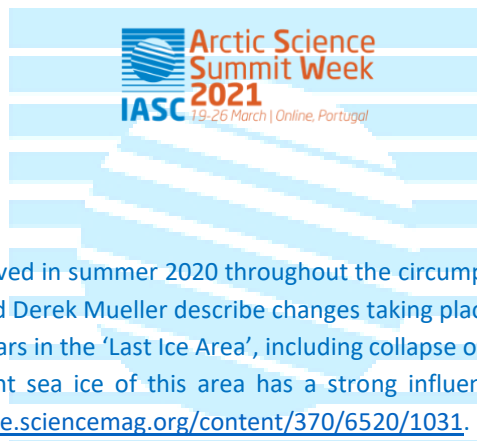




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## ASSW 2021 moved to fully online format

Given the ongoing COVID-19 situation in Europe, North America and elsewhere, the ASSW2021 Local Organizing Committee (LOC) decided to move all the meeting to online format. The LOC are working towards an excellent online ASSW2021, which will also allow for wider access across the world. We expect that it will be a very good opportunity to discuss Arctic science, engineering, education, as well as Indigenous and local community issues. Hence, we are looking forward to meeting you all online soon and to organize a very fruitful ASSW2021. For more information, visit [www.assw2021.pt](http://www.assw2021.pt)



## T-MOSAiC in Science

Extreme events were observed in summer 2020 throughout the circumpolar Arctic. In this T MOSAIC article, Warwick Vincent and Derek Mueller describe changes taking place along the northern coast of Canada over the last few years in the 'Last Ice Area', including collapse of the Ward Hunt Ice Shelf (see photo). The thick, persistent sea ice of this area has a strong influence on the coastal terrestrial environment: <https://science.sciencemag.org/content/370/6520/1031>.



Break-up of the Ward Hunt Shelf in August 2011, in the Last Ice Area. CEN/Université Laval

## Ivan Alekseev is the new IASC TWG Fellow

Ivan Alekseev, T-MOSAIC EXCOM and Steering Committee Member, is the new fellow of the Terrestrial Working Group of IASC. Ivan expertise is on permafrost soils, organic matter and environmental contamination. Congratulations to Ivan and to the other new appointed IASC fellows.



## SPECIAL ISSUES

### Special T-MOSAiC Issue of Arctic Science

The T-MOSAiC special issue of “Arctic Science” is open for submissions until March 2022. Please visit the T-MOSAiC website for updated information or contact the secretariat: <https://www.t-mosaic.com/>



### Special T-MOSAiC Issue on Arctic Terrestrial Pollution

The Environmental Pollution Journal (IF: 6.792) submissions will start at December 1<sup>st</sup> at the journal website. This special issue publication aims to provide original research on Arctic Terrestrial Pollution (including Coastal Areas).

This special issue will be edit by João Canário (University of Lisbon, Portugal), Katrin Vorkamp (Aarhus University, Denmark), Mark Mallory (University of Acadia, Canada) and Scott Zolkos (Woods Hole Research Center, USA).



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## PARTNERS

### Centre for Northern Studies Annual Meeting 2021

The year 2021 marks the 60th anniversary of the Centre for Northern Studies, (CEN) Canada.

The CEN symposium will be held on February 11 and 12, 2021. It will take place either completely virtual or in a hybrid formula with face-to-face activities (small viewing groups) in several member universities of the CEN network in Quebec City, Rimouski, Chicoutimi, Sherbrooke, Montreal and Trois-Rivières.

For more information consult the CEN website at <https://event.fourwaves.com/colloquecen2021/pages>



### APECS

T-MOSAiC-APECS vlogs initiative is extended to 2020-2021 term. This initiative is developed and driven by Early Career Researchers, as part of the IASC T-MOSAiC project and APECS. The project is aimed to bring the public



on a journey to the Arctic, to foster a deeper appreciation for northern environments and science. To achieve this, the T-MOSAiC video blogs (Vlogs) Project will coordinate a series of vlogs, recorded by Arctic researchers of all scientific backgrounds and career levels, that explores their fieldwork environment, and their science and its relevance.

This year we welcome "onboard" some new members from APECS. Ivan Alekseev is co-leading the project. Should you have any questions/suggestions on involvement in the project or want to submit your materials, please do not hesitate to contact the Project leaders via [vlogs@apecs.is](mailto:vlogs@apecs.is).



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## ACTION GROUP ACTIVITIES

### Arctic Trace Gas AG

Torben Christensen and Sally MacIntyre, AD Chairs, organized a trace gas action group session at AGU 2020 that merged posterwalk Zoom session together with a related session as you'll see below.

This session received slides for 13 short (2-3 min) introductions in our merged posterwalk session of B018 (Gas Fluxes from and into Inland and Coastal Waters: Integrating Hydrodynamics and Biogeochemistry) and B075 (T-MOSAIC session: Arctic Trace Gas and Carbon Biogeochemistry: Connecting Landscapes and Quantifying Fluxes using Novel Approaches)

Some the talks presented at this session included:

- Contrasting Patterns of CO<sub>2</sub> Flux from Ponds, Rivers and Lakes of the Arctic Coastal Tundra. Lizette Gonzalez et al.
- Thermokarst Ponds Drive Landscape-Level Carbon Greenhouse Gas Fluxes in a Dynamic Ice-rich Arctic Ecosystem Over Decadal Time Scales. Kim Wickland et al.
- CO<sub>2</sub> Emissions from a small Arctic Pond. R. Schwefel et al.
- Riverine Inorganic Carbon Subsidy Drives CO<sub>2</sub> Evasion and Metabolic Processes in Arctic Alaskan Lagoon. Alina Spera and Vanessa Lougheed.



- Estimating the Influence of Hydrological Connectivity on Carbon Dynamics Across Arctic-Boreal Lakes. Fenix Garcia-Tigreros et al.
- Multidecadal landscape studies of methane fluxes in a high arctic valley. Johan Scheller et al.
- Multi-year data-model evaluation reveals the importance of nutrient availability over climate in arctic ecosystem C dynamics. Efrén López-Blanco et al.
- Methane Fluxes in High Arctic Valley: Eddy Covariance Versus Automatic Chambers. Mikhail Mastepanov et al.
- Inundation, mixing and vegetation influences carbon dioxide concentrations in Amazon floodplains. João Henrique F. Amaral et al.
- Stream greenhouse gas dynamics in a tropical landscape. Allison Herreid.
- Turbulence and Gas Transfer Velocities Under Light Winds in a Small Boreal Lake. Sally MacIntyre.
- Extreme floods increase riverine CO<sub>2</sub> outgassing - A case study on the unprecedented 2019 Mississippi River flood. Xu, YJ et al.
- Winter limnology: how do hydrodynamics shape ecosystems under ice? Joachim Jansen et al.



## Arctic Infrastructure AG

The Arctic Infrastructure Action Group [2] is organizing several sessions and meetings at upcoming science conferences and launching a new monthly science talk series.

- **Arctic Science Summit Week (20-26 March, online)**

1) Open Community Meeting on Sunday, 21 March (5:30–18:30 GMT):

"RATIC meets T-MOSAIC: Sharing Best Practices in Research on Infrastructures in the Arctic." As with previous Rapid Arctic Transitions due to Infrastructure and Climate (RATIC) workshops, the goal is to provide a forum for scientists to share knowledge across disciplines on topics related to Arctic infrastructure and climate change. This open meeting will include nine invited presentations from physical and social science researchers and engineers working on infrastructure-related topics across the Arctic. More information: [www.geobotany.uaf.edu/ratic](http://www.geobotany.uaf.edu/ratic)



2) [Science session: "Northern Roads and Railways: Social and Environmental Effects of Transport Infrastructure" \(Session ID 19 in Living in the Arctic\).](#)

As the Circumpolar North comes into increasing global focus, new transportation projects are being imagined and built across the Arctic and Subarctic. Land-based transport and its related infrastructure cause tremendous changes in socio-ecological systems, including new forms of mobility and connectivity that affect the circulation of people, goods, resources and information. Transport infrastructure also affects the natural environment by altering landscape and ecological processes and expanding the human footprint into remote, formerly pristine ecosystems. Rapid climate change is bringing new challenges for construction and maintenance of transport systems, requiring new adaptive solutions. (Convenors: Olga Povoroznyuk, Warwick Vincent, Fabrice Calmels)

- **ICASS X (15-19 June 2021, Archangelsk, Russia, and online)**

1) **Science session: "The Promise of Arctic Infrastructural Development: Connectivity, Mobility, Prosperity"** (Convenors: Peter Schweitzer, Olga Povoroznyuk, Gertrude Saxinger, Sigrid Wentzel, Gertraud Illmeier, Alexis Sancho Reinoso)

2) **Science session: "Informal Infrastructures in Remote Communities of the Arctic and Beyond"** (Convenors: Vera Kuklina, Olga Povoroznyuk).

- **RATIC Science Talks: 21 January (18-19:30 GMT) - New monthly speaker series**

The T-MOSAIc Arctic Infrastructure Action Group is starting a monthly online speaker series. The next presentations are on Thursday, 18 February (18:00-19:30 GMT). February speakers will be social anthropologist Dr. Olga Povoroznyuk (University of Vienna) and Dr. Helena Bergstedt, postdoc in remote sensing (University of Alaska Fairbanks). To join, please RSVP to [jlpeirce@alaska.edu](mailto:jlpeirce@alaska.edu) to receive the call link and find out about future topics.



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## ARTICLES RELEVANT TO T-MOSAIC THEMES

- The Arctic: Current Issues and Challenges. 2020. (Editors: O.S. Pokrovsky, S.N. Kirpotin, A.I. Maljv). New York. Nova Science Publishers. 411 p. ISBN: 978-1-53617-306-2
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- Alekseev, I., and E. Abakumov. Organic carbon and microbiome in tundra and forest–tundra permafrost soils, southern Yamal, Russia. *Polar Research* 2021, 40, 5283.  
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<https://doi.org/10.3390/w12061817>
- Vincent, W.F., and Mueller, D., 2020. Witnessing ice habitat collapse in the Arctic. *Science*, 370(6520), 1021-1032.  
<https://doi.org/10.1126/science.abe4491>

- Wickland, K.P., M. T. Jorgenson J. C. Koch M. Kanevskiy, and R. G. Striegl, 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(22). e2020GL089894  
<https://doi.org/10.1029/2020GL089894>
- de Witt, M., Stefánsson, H., Valfells, Á., Larsen, J.N. \_Energy resources and electricity generation in Arctic areas. *Renewable Energy*, 169, May 2021.  
<https://doi.org/10.1016/j.renene.2021.01.025>
- Zolkos, S., Fiske, G., Windholz, T., Duran, G., Yang, Z., Olenchenko, V., Faguet, A., and Natali, S.M., 2021. Detecting and mapping gas emission craters on the Yamal and Gydan Peninsulas, Western Siberia. *Geosciences*, 1(21), 1-23.  
<https://doi.org/10.3390/geosciences11010021> .

