

# 2023 HVAC Cold Climate Conference Technical Schedule

## Session Overview

Monday, March 6, 2023

<p>9:30am - 10:30am</p>	<p><b>TS-1: Residential Cold Climate Applications</b> Location: <a href="#">Fairbanks/Keni/Denali</a></p> <p>9:30am - 10:30am <b>Residential Space Heating Opportunities in Cold Climate Regions</b> <a href="#">Aniruddh Roy</a></p> <hr/> <p>10:30am - 11:00am <b>Renovation of Detached Rural Houses with Continuous and Intermittent Heating in Severe Cold Region, China</b> <a href="#">Xinyi Hu</a>, Juha Jokisalo, Risto Kosonen, Matti Lehtonen, Teng Shao</p>	<p><b>TS-2: Decarbonization in Cold Climates</b> Location: <a href="#">Anchorage</a></p> <p>9:30am - 10:30am <b>Pathways To Decarbonize the U.S. Medium-Sized Office Buildings in Cold Climates</b> <a href="#">Yingli Lou</a>, Yizhi Yang, Yunyang Ye, Wangda Zuo</p> <hr/> <p>10:30am - 11:00am <b>Renewables for Decarbonization and Resiliency for Remote and Arctic Communities in Canada: Technical and Logistical Challenges and Review of Prior Installation Projects</b> <a href="#">Carsen Banister</a>, Heather Hayne, Mathieu Pellissier, Nika Martinussen, Mark Vuotari</p>
<p>11:00am - 12:30pm</p>	<p><b>TS-3: Energy Recovery for Remote Communities</b> Location: <a href="#">Fairbanks/Keni/Denali</a></p> <p>11:00am - 11:30am <b>Dual Core Energy Recovery Ventilation System for Northern Housing</b> <a href="#">Boualem Ouazia</a>, Chantal Arsenault, Ganapathy Gnanamurugan, Yunyi Li</p> <hr/> <p>11:30am - 12:00pm <b>Experimental Evaluation of a Residential CO2-based Demand-controlled Dual Core Energy Recovery Ventilation System for Northern Housing</b> <a href="#">Boualem Ouazia</a>, Chantal Arsenault, Sador Brhane, Daniel Lefebvre, Gang Nong, Sandra Mancini, Patrique Tardif</p> <hr/> <p>12:00pm - 12:30pm <b>Renewables for Decarbonization and Resiliency of Remote and Arctic Communities in Canada: Policy and Economics Review</b> <a href="#">Heather Hayne</a>, Carsen Banister, Nika Martinussen</p>	<p><b>TS-4: Optimization of Heat Pumps for Cold Climates</b> Location: <a href="#">Anchorage</a></p> <p>11:00am - 12:00pm <b>Cold Climate Integrated Heat Pump with Energy Storage for Grid-Responsive Control</b> <a href="#">Bo Shen</a>, Kyle Gluesenkamp, Zhenning Li, Jie Cai, Philani Hlanze, Zhimin Gao</p> <hr/> <p>12:00pm - 1:00pm <b>Simulation Based Assessment on Sizing Optimisation for Cold-Climate Variable-Capacity Air-Source Heat Pump</b> <a href="#">Alex Lachance</a>, Justin Tamasauskas</p> <hr/> <p>1:00pm - 1:30pm <b>High-efficiency Packaged Cold Climate Heat Pump RTU Demonstration at a Maine Army Reserve National Guard Facility</b> <a href="#">Ahmad Mahmoud</a>, Matt Clark, Jeremy Babb</p>
<p>1:30pm - 3:00pm</p>	<p><b>TS-5: Smart Building Applications</b> Location: <a href="#">Fairbanks/Keni/Denali</a></p> <p>1:30pm - 2:00pm <b>Modelling Of Heat And Energy Recovery Ventilation Systems In Cold Climates</b> <a href="#">Justin David Berquist</a>, Marianne Touchie, William O'Brien</p> <hr/> <p>2:00pm - 2:30pm <b>Making the Conversion to Smart Building More Accessible</b> <a href="#">Jerome William Bergquist</a>, Matthew Stephen Blount, Lauren Kate French</p> <hr/> <p>2:30pm - 3:30pm <b>Design and Assessment of a Grid-Connected Smart Building System: an Effort to Save Energy and Cost</b> <a href="#">Amirmohammad Behzadi</a>, Sasan Sadrizadeh</p>	<p><b>TS-6: Heat Pump Field Performance</b> Location: <a href="#">Anchorage</a></p> <p>1:30pm - 2:00pm <b>Field Performance of Multi-Head Ductless Heat Pumps in Cold Climates.</b> <a href="#">Ben Schoenbauer</a>, Alex Haynor, Lindsay Genty</p> <hr/> <p>2:00pm - 2:30pm <b>Performance Evaluation of Two-stage Air-Source Heat Pump for Cold Climatic Conditions</b> <a href="#">Siddhartha Gollamudi</a>, Easwaran Krishnan, Hadi Ramin, Gurubalan Annadurai, Carey Simonson</p> <hr/> <p>2:30pm - 3:00pm <b>Testing Demand Response Heat Pump With Backup Heating In Alaska</b> Colin Pennock, <a href="#">Jeremy VanderMeer</a>, Andrew McDonnell</p>
<p>3:30pm - 4:30pm</p>	<p><b>TS-7: Frost Prevention Applications</b> Location: <a href="#">Fairbanks/Keni/Denali</a></p> <p>3:30pm - 4:30pm <b>An Approach to Simplified Corrections of Temperature Efficiency in Plate Heat Recovery Ventilation Due to Frost Prevention</b></p>	<p><b>TS-8: Case Studies of Heat Pumps in the Cold</b> Location: <a href="#">Anchorage</a></p> <p>3:30pm - 4:30pm <b>BC Cold Climate Heat Pump Field Study</b> <a href="#">Christopher Marleau</a></p> <hr/> <p>4:30pm - 5:30pm</p>

Dennis Johansson, Åsa Wahlström, Hans Bagge

4:30pm - 5:00pm

**Analysis Of Frost Prevention For Heat Recovery Ventilation In An Arctic Facility**

Conor Dennehy, Robbin Garber-Slaght, Emily Winfield

**A Case Study on Air-to-Water Heat Pump Systems in Minnesota**

Samantha Hill, Ranal Tudawe, Josh Quinnell

## Tuesday, March 7, 2023

9:30am - 10:30am	<b>TS-10: Equipment Improvement for Cold Climates</b> Location: <b>Anchorage</b>  9:30am - 10:00am <b>Use of a Thermalize Campaign to Increase Community Resiliency in a Cold Climate</b> <u>Vanessa Stevens</u> , Nathan Wiltse, Tom Marsik, Rachel Dodd, Jessica Biddle, Isabella Chittumuri, Dana Truffer-Moudra  10:00am - 10:30am <b>Experimental Study of a Packaged R-290 Cold Climate Heat Pump with External Flow Reversal</b> Changkuan Liang, <u>Abd Alrhman M. Bani Issa</u> , Haotian Liu, Eckhard A. Groll, Davide Ziviani	<b>TS-9: Predicting the Impact of Cold Climates</b> Location: <b>Fairbanks/Keni/Denali</b>  9:30am - 10:30am <b>The Energy Resilienece of Interacting Networks(ERIN) Tool for Resilience Planning in Cold Climates</b> <u>Brianna Morton</u> , Richard Liesen, Michael Case, Madison Wallace, Bjorn Oberg, Alexander Zhivov  10:30am - 11:30am <b>A Data-driven Augmented Predictive TABS Control Strategy for South-facing Offices in Cold Climate Regions</b> <u>Wei Zhang</u> , <u>Wentao Wu</u> , Les Norford, Ali Malkawi
11:00am - 12:30pm	<b>TS-11: Building Operations Monitoring</b> Location: <b>Fairbanks/Keni/Denali</b>  11:00am - 11:30am <b>Results of monitoring indoor air quality (IAQ) in Anchorage, Alaska</b> .Getu Hailu, <u>Dawn Adamson</u> , Chris Carter  11:30am - 12:00pm <b>Evaluation of Overheating Risks in Swedish Conditions</b> <u>Victor Fransson</u> , Dennis Jonahansson, Hans Bagge  12:00pm - 12:30pm <b>Examination Of Water Damages Statistics In The Nordic Countries To Identify And Suggest Preventive Cost-effective And Sustainable Measures During The Maintenance And Operation Phase</b> <u>Christian Mattsson</u> , Birgitta Nordquist, Dennis Johansson, Petter Wallentén, Hans Bagge	<b>TS-12: Utilization of Heat Pumps</b> Location: <b>Anchorage</b>  11:00am - 12:00pm <b>Air Source Heat Pumps in Very Cold Climates</b> Tom Marsik, Vanessa Stevens, <u>Robbin Garber-Slaght</u> , Conor Dennehy, Robby Strunk, Isabella Chittumuri, Tracy Sehmel  12:00pm - 12:30pm <b>The Potential of Thermoelectric Heat Pumps in Cold Climate Buildings</b> <u>Hanlong Wan</u> , Bo Shen, Zhenning Li  12:30pm - 1:00pm <b>Refrigerant Impact on Cold-Climate Heat Pumps</b> <u>Stephen Li</u> , Jon Hacker, Hiroshi Yoh, Rusty Tharp, Joseph Kelly Hearnberger

<p>1:30pm - 3:00pm</p>	<p><b>TS-13: Cold Climate Buildings</b> Location: <a href="#">Fairbanks/Keni/Denali</a></p> <p>1:30pm - 2:30pm <b>Cold Climate Considerations: An evaluation of envelopes for Rapidly Deployable Shelters</b> <a href="#">Chanachai Charoonsophonsak</a>, Dominique J Pride, Nathan A Wiltse, Robbin Garber-Slaght, Dana Truffer-Moudra, Sarah Azmi-Wendler</p> <p>2:30pm - 3:00pm <b>Building Durability in Extreme Cold Climates</b> <a href="#">Robbin Garber-Slaght</a>, Tanushree Charan, Zoe Kaufman, Conor Dennehy</p> <p>3:00pm - 4:00pm <b>A Staged Analysis of Building Code Impacts on Representative Buildings in Alaska.</b> <a href="#">Dominique J Pride</a>, Nathan Adair Wiltse, Chanachai Charoonsophonsak</p>	<p><b>TS-14: Lessons Learned in Cold Climates</b> Location: <a href="#">Anchorage</a></p> <p>1:30pm - 2:00pm <b>Tales From The Trenches - Passive House Ventilation Strategies, Common Construction Issues, And How To Curb Them</b> <a href="#">Michael Schmidt</a>, <a href="#">Luis Aragon</a></p> <p>2:00pm - 3:00pm <b>Thermal Performance Analysis of Helical Steel Thermo-Active Foundations for Cold Climates</b> <a href="#">Prem Agarwala</a>, Shayan Davani, Amirhossein Darbandi, Jordan Gruenes, Alison Hoxie, Aggrey Mwesigye</p> <p>3:00pm - 3:30pm <b>Refrigeration and Air-conditioning using Thermal Storage of Green Secondary Refrigerant (Ice Slurries) - Some Studies on Ice Slurries</b> <a href="#">Rajinder Singh Singh</a></p> <p>3:30pm - 4:00pm <b>High-performance Building Envelopes under Future Cold-climates: Considerations for a Thick-wall Approach under Global Warming Scenarios</b> <a href="#">Alison Conroy</a>, Phalguni Mukhopadhyaya, Guido Wimmers</p>
<p>3:00pm -</p>	<p><b>FOR-2: Forum 2</b> Location: <a href="#">Fairbanks/Keni/Denali</a></p>	

### Wednesday, March 8, 2023

<p>9:30am - 10:30am</p>	<p><b>TS-15: Heat Pumps in Cold Climates</b> Location: <a href="#">Fairbanks/Keni/Denali</a></p> <p>9:30am - 10:30am <b>Electrification of Building Systems in Cold Climates: How Heat Pump Systems Can Be Adapted to ANY Climate.</b> <a href="#">Steven O. Guttman</a></p> <p>10:30am - 11:30am <b>Making the Switch: Sizing Heat Pumps for Heating Instead of Cooling and the Operational Impacts</b> <a href="#">Hiroshi Yoh</a>, Jon Hacker, Stephen Li, Rusty Tharp, Joseph Kelly Hearnberger</p>	<p><b>TS-16: Studies of Cold Climate Issues</b> Location: <a href="#">Anchorage</a></p> <p>9:30am - 10:00am <b>IAQ and Thermal Comfort Measurements Coupled With Survey Results in a Naturally Ventilated Classroom</b> <a href="#">Jurgis Zemitis</a>, Anatolijs Borodinecs, Raimonds Bogdanovics, Marta Zemite</p> <p>10:00am - 11:00am <b>Energy Conservation and Load Reduction Strategies for Arctic Buildings: A Comparative Study</b> <a href="#">Jayati Chhabra</a>, Patrick Pease, Zahra Zolfaghari, Akshay Padwal</p>
<p>11:00am - 12:30pm</p>	<p><b>TS-17: Cold Climate Challenges &amp; Opportunities</b> Location: <a href="#">Fairbanks/Keni/Denali</a></p> <p>11:00am - 11:30am <b>Solarize Fairbanks BRITE: Facilitating Efficient, Resilient Homes In Cold Climates</b> <a href="#">Vanessa Kirsten Stevens</a>, Conor Dennehy, Jamie Hansen, Vanessa Dunlap, Dave Wesolowski, Kerry Nelson</p> <p>11:30am - 12:00pm <b>Unique Challenges and Solutions for Mechanical System Design in Antarctica</b> <a href="#">Mark Edmond Bartram</a></p> <p>12:00pm - 12:30pm <b>Overheating Risk in Apartments During the Exceptionally Hot Summer of 2018 in the Cold Climate of Finland</b> <a href="#">Azin Velashjerdi Farahani</a>, Juha Jokisalo, Natalia Korhonen, Kirsti Jylha, Risto Kosonen</p>	<p><b>TS-18: Thermal Transfer and Storage Applications</b> Location: <a href="#">Anchorage</a></p> <p>11:00am - 11:30am <b>Design of Cold Region Sensible Thermal Storage Experimental Setup for Research and Teaching</b> Getu Hailu, <a href="#">Philip Hayes</a>, Sunwoo Kim</p> <p>11:30am - 12:30pm <b>Utilization of a Short-term Thermal Energy Storage in a District Heated Office Building</b> <a href="#">Yuchen Ju</a>, Juha Jokisalo, Risto Kosonen</p> <p>12:30pm - 1:00pm <b>Title: Mitigating Climate Change Impacts on Critical Infrastructure through Solar Powered Thermosiphon Refrigeration Collars</b> <a href="#">Will Fraser</a>, Bailey Gamble</p>