



air Pollution in the Arctic:  
Climate Environment and Societies

**2<sup>nd</sup> PACES Science Workshop**  
**27-29 June 2017**  
**Coast Victoria Hotel, Victoria, Canada.**

**27 June 2017**

**8.00: Local registration, coffee, breakfast**

9.00: Local logistics – K. von Salzen

**9.10: PACES overview**, workshop purpose, Implementation Plan (co-chairs)

**9.30: Session 1 – Long-range Transport (chairs H. Tanimoto, A. Stohl)**

*Invited presentations (20 mins):*

**Jim Overland:** The Immediacy of Arctic Change (*to be given remotely*)

**Kohei Ikeda:** Long-range transport of black carbon to the Arctic with tagged tracer simulations

**Chuck Brock:** Introducing IMPAACT: Investigating Pollutant Transport from Asia to the Arctic and North America

**10.30: Coffee**

**11.00 Andreas Herber:** Airborne campaigns with AWI aircraft Polar 5 and Polar 6 in 2020 during MOSAiC

*Scientific presentations (15 mins):*

**11.20 Jack Dibb:** Quantifying black carbon deposition over the Greenland ice sheet from forest fires in Canada

**11.35 Russell Schnell:** Historic measurements of Arctic air pollution (Arctic Haze) from Barrow Observatory and the Arctic Gas and Aerosol Program (AGASP)

**11.50 Steve Arnold:** Investigating drivers of variability in model high-latitude trace gas distributions

**12.05 Discussion**

**12.30: Lunch**

**13.30: Session 2 – Feedbacks between Anthropogenic Pollution and Natural Cycles (chairs S. Sharma, K. Pratt)**

*Science talks (15 mins):*

- 13.30 Wanmin Gong:** Long-range transport of natural and anthropogenic pollutants to the Arctic in summer-time
- 13.45 Jingqui Mao:** Decadal trend of Arctic biogenic volatile organic emissions
- 14.00 Andreas Stohl:** Local versus remote sources of mineral dust in the Arctic - an emerging issue?

*Invited talks (20 mins):*

- 14.15 Tuukka Petaja:** Pan Eurasian Experiment (PEEX) (*to be given remotely, invited*)
- 14.35 Jon Abbatt:** NETCARE: Observations of New Particle Formation and Growth in the Arctic Summertime
- 14.55 Discussion:** new PACES activities, potential joint efforts with CATCH, PEEX, NETCARE, etc.

**15.30: Tea**

**16.00: Session 3 – Arctic Air Pollution: Local processes and Societal Interactions (chairs J. Schmale, S. Starkweather)**

*Invited talks (20 mins):*

- 16.00 Heikki Lihavainen:** Arctic particulate and gaseous air pollution sources in Tiksi, Russia
- 16.20 Nazar Kholod:** Russia's Black Carbon Emissions: The Arctic and beyond
- 16.40 Stanley Edwin:** An informative review: Alaska's eastern Interior Tribes stepping up to fill an existing atmospheric data gap

*Science talks (15 mins):*

- 17.00 Susan Anenberg:** Air pollution health impact assessment: Previous work and considerations for Arctic-specific analyses (*to be given remotely*)
- 17.15 Kerri Pratt:** Prudhoe Bay oilfield influences on atmospheric particles on the North Slope of Alaska
- 17.30 Leah Bower:** Community-Based Black Carbon and Public Health Assessment Project Summary
- 17.45 PACES WG2 discussion** (moderated by Julia Schmale)

**18.15: Close Day 1**

**Evening: free**

**18:30-19:30 PACES SC meeting**

**28 June 2017**

**8.00: Coffee, breakfast**

**9.00: Session 4: Towards improved predictive capability (chairs M. Lund/L. Marelle, J. Browse)**

*Invited talks (20 mins each):*

**9.00 Alexander Baklanov:** YOPP, GAW perspectives

**9.20 Jo Browse:** Model uncertainties

*Science talks (15 mins each)*

**9.40 Linlu Mei:** Arctic air pollution seen from space

**9.55 Meri Ruppel:** Long-term (1850-2010) trends of black carbon deposition in the European Arctic

**10.10 Louis Marelle:** Comparing the effect of remote emissions and emerging local sources of Arctic pollution on Arctic aerosols and ozone and their impacts

**10.25 Discussion:** PACES modelling plans linked to WG1, WG2, new emerging activities → strategy in PACES Implementation Plan, links to other initiatives (AMAP, HTAP etc).

**11.00: Coffee**

**Session 5: Posters**

**12.30: Lunch**

**13.30: Session 6 – IMPAACT (chairs C. Brock, D. Jaffe)**

*Talks (15 mins):*

**13.30 Chuck Brock:** Description of motivation, goals, and methods for the IMPAACT study

**13.45 Dan Jaffe:** Proposed network of Pacific Rim BC observations for the IMPAACT Experiment

**14.00 Yugo Kanaya:** Ship-borne measurements of pollutant transport and deposition in the North Pacific 2020-2022

**14.15 Knut von Salzen:** Pollutant transport from Asia to the Arctic - model sensitivities (scavenging, climate impacts etc)

**14.30 Steve Arnold/Kathy Law :** Lessons from past campaigns (ICARTT, POLARCAT, YAK, ...)

**15.00: Tea**

**15.30 IMPAACT discussion/breakout sessions**

**17.00 Wrap-up:** Rapporteurs + plenary discussion

**17.30: Close Day 2**

**20.15: PACES workshop dinner, Milestones Restaurant (participants to pay)**

**29 June 2017**

**8.00: Coffee, breakfast**

**9.00: Session 7 – Arctic Air Pollution and Climate (chairs M. Sand, S. Arnold)**

**9.00 Luca Pozzoli** (*20 mins, invited, to be given remotely*): Links between winter sea-ice retreat, mid-latitude atmospheric circulation, and long range transport of black carbon in the Arctic

**9.20 Joshua Fu**: Uncertainty estimates and update of Russian black carbon emissions

**9.35 Yutaka Kondo**: Characterizing the deposition of black carbon by snowfall at Ny-Ålesund, Spitsbergen

**9.50 Quentin Coopman** (*20 mins, invited*): Impacts of long-range aerosol transport on phase transitions in Arctic clouds

**10.10 Tanja Dallafior**: Regional aerosol emissions and temperature response: Local and remote climate impacts of regional aerosol forcing

**10.25 Discussion**

**10.45: Coffee**

**11.15: Session 8: PACES future plans (K. Law, S. Arnold, C. Brock)**

**Discussion:**

Current foci and potential new activities (WGs)

Review Science Goals, PACES Implementation Plan

Links with related programs (AMAP, HTAP, WMO/YOPP, MOSAIC, PEEX, CATCH)

Future Plans/Meetings

**12.25: Closing remarks (co-chairs)**

**12.30: Lunch (participants self organize) & Close PACES workshop**

**14.00-16.00: PACES and AMAP EG SLCFs – joint session (open)**

Introduction AMAP EG chairs & PACES co-chairs

*Presentations (15 mins + discussion):*

**Trish Quinn**: Key results from the AMAP 2015 BC and Ozone report

*Key results from the AMAP 2015 Methane report (TBC)*

**Kaarle Kupiainen**: Arctic Council and black carbon emission reductions

**Mark Flanner**: Broad outline of future AMAP SLCF Expert Group (topics, future assessments, timelines, ...)

**Kathy Law, Steve Arnold, Chuck Brock**: Potential PACES-AMAP links

**16.00: Close Day 3**

**19.00 AMAP EG group dinner**

**30 June 2017**

**8.00: Coffee, breakfast**

**8.30-17.00: AMAP SLCF Expert Group Meeting (closed)**

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### **List of PACES Poster Presentations**

Bognar	Kristof	Bromine release in the high Arctic: what is the impact of Arctic haze?
Bozem	Heiko	Empirical Trace Gas Gradients in the Arctic and Polar Dome Location
Browse	Jo	Quantifying the Impact of Icelandic Dust Storms on High-Latitude aerosol
Christensen	Jesper H.	New updated emission inventories for ships in the Arctic based on satellite sampled AIS data
Christensen	Jesper H.	Measurement and modelling activities at Villum Research Station, Station Nord, since 1990 to present
Huang	Kan	Role of gas flaring from Russia's oil and gas production in triggering high black carbon episodes over the Arctic
Kanaya	Yugo	First-year observations of atmospheric black carbon mass concentrations and CO mixing ratios at Poker Flat, central Alaska since April 2016
Laing	James	Assessing the Contribution of Black Carbon in Aged Biomass Burning Plumes and Asian Long-Range Transport Events at the Mt. Bachelor Observatory
Lutsch	Erik	Observing the long-range transport of wildfire pollution to the Arctic using ground-based FTIR measurements at PEARL
Pratt	Kerri	Coordinating interdisciplinary and international research through CATCH (The Cryosphere and ATmospheric Chemistry)
Sand	Maria	Aerosols at the Poles: An AeroCom Phase II multi-model evaluation
Schacht	Jacob	An aerosol-climate model evaluation study in the framework of the (AC) <sup>3</sup> project
Sharma	Sangeeta	An Evaluation of three methods for measuring black carbon at Alert, Canada
Takigawa	Masayuki	Estimation of the Siberian fire in September 2016 on BC concentration in the Bering Sea using a regional chemical transport model
TANIMOTO	HIROSHI	Export of black carbon and carbon monoxide from Asia: How far can they go?