High-latitude Fires, Arctic Climate, Environment, and Health

28 March 2022 from 09:00 - 18:00 (CEST / GMT+2)

Open Meeting - HYBRID

Room: 1.343

Session Abstract:

The increasing occurrence of high-latitude fires associated with climatic extremes has led to significant and urgent social, economic and health challenges for communities in these regions. Hazardous pollution levels, for example, are regularly observed to result from nearby fire emissions in high-latitude communities during spring and summer. However, despite high-latitude regions playing host to large annual fires, and with projections of increasing fire frequency, the contribution from these fires to pollutant health burdens is not well understood. Understanding how changes in fire activity relate to changes in the climate and terrestrial environment, and how these changes impact upon the wellbeing, livelihoods, and culture of high-latitude communities, requires interdisciplinary understanding of the complex interactions between climate systems, ecosystems and society.

The aim of this workshop is to **share current state-of-the-art understanding** on high-latitude fire impacts on climate, ecosystems, air quality and society in the Arctic and high latitudes, and to **explore interdisciplinary linkages,** from PACES, ecosystem science, fire science, health, and social science communities, that could help drive forward new research on this topic.

Through this workshop, we **expect to develop an agenda for new interdisciplinary research topics** under PACES on the theme of fires and their impacts. This will include synergies across short-lived climate forcer influences and Earth system feedbacks (PACES WG1) and societal impacts (PACES WG2), as well as synergies around land-surface and ecosystem research topics. We expect to **publish a position paper outlining the current status of the research area and potential new directions**.

The event will be arranged by a collaborative team involving:

- **PACES** (Air Pollution in the Arctic: Climate, Environment and Societies);
- **ACRoBEAR** (Arctic Community Resilience to Boreal Environmental change: Assessing Risks from fire and disease – University of Leeds);
- **Leverhulme Centre for Wildfires, Environment and Society** (Imperial College London, King's College London, University of Reading and Royal Holloway);
- **Arctic Voices** (University of Leeds)

Agenda

08:00-09:00 **Registration**

09:00-09:15 **Welcome and Introduction - HiFACE Organisers** (Adriana Ford, Steve Arnold, Marianne Tronstad Lund and James Ford)

Theme 1 Measuring and monitoring high-latitude fire and fire impact trends – past and present

(Chair - Marianne Tronstad Lund)

09:15-09:30 **Martin Wooster** (King's College London/Leverhulme Wildfires) *"A New EO method for quantifying high latitude fire emissions"*

09:30-09:45 **Mikhail Sofiev** (Finnish Meteorological Institute) - *"Fire activity for past and future climate: a new high-resolution fire predicting model" (virtual)*

09:45-10:00 **Jesús San-Miguel-Ayanz** (European Commission Joint Research Centre) *"Global Wildfire Information System (GWIS) as support to policies in the Arctic" (virtual)*

10:00-10:15 **Evgeny Kadantsev** (Finnish Meteorological Institute) "*Modelling natural fire ignitions by lightning" (virtual)*

10:15-10:30 *Theme 1 Discussion*

— COFFEE 10:30-11:00—

Theme 2 Drivers of high-latitude fires and fire risk

(Chair- Steve Arnold)

11:00-11:15 **Marianne Tronstad Lund** (CICERO, Oslo, Norway) *"Projected changes in variability of fire weather in boreal regions under different levels of global warming"*

11:15-11-30 **Jessica McCarty** (Miami University, Oxford, Ohio, USA) *"Uncertainties for Predicting Future Arctic Fires" (virtual)*

11:30-11:45 *Theme 2 Discussion*

Theme 3 Climate–vegetation-fire interactions, feedback and responses

(Chair- Steve Arnold)

11:45-12:00 **Jeremy Littell** (United States Geological Survey, Alaska Climate Adaptation Science Center) *"Landscape fire projections for boreal and Arctic Alaska: regional variation in climate-fire futures and implications for adaptation" (virtual)*

12:00-12:15 **Matt Kasoar** (Imperial College London/Leverhulme Wildfires) "*Future high-latitude fire emissions under CMIP6 scenarios, and implications for aerosol radiative forcing"*

12:15-12:30 **Katie Blackford** (Imperial College London/Leverhulme Wildfires) *"Representing peat fires in the Northern High Latitudes in INFERNO"*

12:30-12:45 *Theme 3 Discussion*

12:45-13:00 *General Discussion*

— LUNCH 13:00-14:00 —

Theme 4 Societal vulnerability, health impacts and responses to high latitude fire

(Chair- James Ford)

13:00-13:15 **Ivan Villaverde Canosa** (University of Leeds) *"The human-fire-climate nexus: unpacking community vulnerability and resilience to high-latitude fires"*

13:15-13:30 **James Whitehead** (University of Northern British Columbia) *"Living with Fire: Community Resilience to Wildfire Risk in Northern Canada" (virtual)*

13:30-13:45 **Vito Vitale** (CNR-ISP) *"Addressing wildfires in the Arctic: the Integrated Fire Risk Management (INFRA) Service"*

13:45-14:00 *Theme 4 Discussion*

14:00-18:00 Developing a Position Paper and Interdisciplinary Research Agenda

(Chair- Adriana Ford)

14:00-14:15 Introduction to workshop activities

In this part of the workshop, we will discuss the overarching question - "What are the unique dimensions of high-latitude fire?" and begin mapping out a position paper and research agenda. Discussion items will include risks, impacts, policies, research needs, and methodological approaches and research design. We will use live-sharing documents during this session.

14:15-14:45 1. Climate

14:45-15:15 2. Health

15:15-15:30 *Discussion*

— COFFEE 15:30-16:00—

16:00-16:30 3. Society

17:00-17:30 *What can we learn from high-latitude fires for a global perspective?*

17:30-18:00 Open Discussion on the position paper/agenda

18:00 END

Session Organizer:

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