

6th ESP Europe Conference

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SESSION DESCRIPTION

ID: B7

Ecosystem services in polar, boreal, and alpine regions: advancing knowledge for shared futures

Hosts:

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Abstract:

Cold and polar regions – including the Arctic, Antarctic, sub-Antarctic, boreal, and high-altitude alpine ecosystems – are at the forefront of global environmental change. These landscapes face rapid warming, intensified human pressures, and socio-economic transformations, making them critical indicators of the planet’s ecological health. Ecosystem services provide a vital lens to understand and support both ecological integrity and human wellbeing. However, cold regions remain underrepresented in science, policy, and decision-making, partly due to challenges in capturing seasonal dynamics, ecological shifts, and socio-cultural values.

This session is structured into two complementary sub-sessions:

• Sub-session 1: Nature-Based Solutions in Polar Regions

Focusing on the Arctic, Antarctic, and sub-Antarctic zones, this sub-session explores how nature-based solutions can protect biodiversity, enhance ecosystem resilience, and support human wellbeing. Discussions will address climate change impacts, fragile ecological balances, and strategies for securing the long-term provision of ecosystem services. Contributions highlighting the integration of scientific knowledge, policy initiatives, and global efforts are particularly welcome.

• Sub-session 2: Perspectives on Ecosystem Services in Boreal and Alpine Regions

This sub-session examines boreal and high-altitude alpine ecosystems, where climate change, resource use, and socio-economic transformations directly affect both nature and people. Presentations will showcase innovative approaches to assessing and managing ecosystem services, including advanced monitoring, modelling, and participatory knowledge co-production with Indigenous and local communities. Emphasis will

be placed on pathways to strengthen resilience, equity, and inclusivity, and on lessons these regions offer for broader sustainability transitions.

Together, these sub-sessions provide an integrated perspective on ecosystem services in cold regions, fostering dialogue on bridging ecological processes, societal needs, and policy priorities to advance shared, nature-positive futures.

Goals and objectives of the session:

1. Understand the shared challenges faced by Arctic, boreal, and alpine ecosystems under accelerating environmental and socio-economic changes, and examine their implications for ecosystem services supply and use.
2. Map the state-of-the-art in ecosystem services knowledge across cold regions, highlighting advances in methodologies, interdisciplinary approaches, and emerging innovations to address data and knowledge gaps.
3. Explore pathways for resilience, equity, and inclusivity, identifying how ecosystem services perspectives can contribute to just and sustainable futures in cold regions while informing Europe's broader nature- and people-positive transition.
4. Present recent advances in polar ecosystems research and empirical evidence on ecosystem functions, resilience, and services.
5. Discuss how nature-based solutions can be applied to deliver ecological, social, and economic co-benefits in rapidly changing polar regions.

Planned output / Deliverables:

- Share experiences conducting ecosystem research under challenging polar conditions.
- Explore opportunities to leverage natural processes for ecological, social, and economic co-benefits.
- Identify knowledge gaps and synergies across national and international initiatives.
- Discuss frameworks for integrating ecological, social, and policy dimensions into research to maximize impact.
- Potential joint publication (TBD based on contributions).

Session format:

Standard and short presentations and scientific debate.

Voluntary contributions accepted:

Yes, I allow any abstract to be submitted to my session for review

Related to ESP Working Group:

BWG 7 – Tundras/ BWG 8 – Polar regions & High mountains