

Draft 2-page Proposal for Arctic Environment Ministers Meeting focus on Climate Change and the Cryosphere

Summary of the main messages

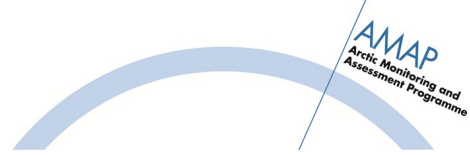
Over the past 50 years the Arctic has warmed at twice the rate of global average due to a number of feedbacks and processes that amplify warming at high latitudes. Projections suggest that reducing greenhouse gas emissions similar to the Paris Agreement would for the Arctic mean by the end of this century the winter temperature would be 5-9°C above 1986-2005 average. The Arctic plays an important role in global climate and weather, sea-level rise and commerce, which means impacts in the Arctic resonate on a global scale.

Main environmental challenges and issues that require common solutions in the Arctic

The Fairbanks Declaration from the 2017 Ministerial Meeting recognized “that activities taking place outside the Arctic region, including activities occurring in Arctic States, are the main contributors to climate change effects and pollution in the Arctic, and underlin[ed] the need for action at all levels”. This is particularly important because “the Arctic is warming at more than twice the rate of the global average, resulting in widespread social, environmental, and economic impacts in the Arctic and worldwide”, and demonstrating “the pressing and increasing need for mitigation and adaptation actions and to strengthen resilience”. The Fairbanks Declaration also noted “the entry into force of the Paris Agreement on climate change and its implementation, and reiterate[ed] the need for global action to reduce both long-lived greenhouse gases and short-lived climate pollutants”.

Accordingly, the Arctic Council restated “the importance of global action to reduce both greenhouse gases and short-lived climate pollutants to mitigate climate change, and call[ed] for the Arctic Council to undertake additional analyses to contribute to the assessment reports of the Intergovernmental Panel on Climate Change and continued collaboration with all levels of governments”. Furthermore, the Arctic Council recognized “that climate change is the most serious threat to Arctic biodiversity” and reiterated “the commitment to safeguarding biodiversity under changing conditions”. In addition, the Arctic Council recognized “the need to increase cooperation in meteorological, oceanographic and terrestrial observations, research and services, and the need for well-maintained and sustained observation networks and continuous monitoring in the Arctic, such as the World Meteorological Organization’s Global Cryosphere Watch Program”.

The Finnish Chairmanship Program for the Arctic Council 2017–2019 states that “[p]utting into practice the commitments of the Paris Climate Agreement will be the most important contribution from Member States in addressing climate change.” One aspect of this under the chairmanship is to follow up scientific assessments of the effects of climate change in the region, including the 2017 reports *Snow, Water, Ice and Permafrost in the Arctic 2017*, the three regional Adaptation Actions in a Changing Climate (AACCA) assessments, and assessments of ocean acidification and resilience. A focus on commitments to the Paris Agreement could also provide an impetus to implement the recommendations of the Arctic Council Expert Group on Black Carbon and Methane, as considered at the Arctic Council Ministerial Meeting in 2017.



The chairmanship program also notes the major challenge for Member States to protect coastal and marine ecosystems given the severe consequences that changing climate conditions may have for biodiversity and ecosystems, and highlights the importance of following up the UN Aichi Biodiversity Targets as one useful measure. In addition, the juxtaposition of the Arctic Environment Ministers Meeting in association with the Arctic Biodiversity Congress will provide timely information on progress in implementing the recommendations of the 2013 Arctic Biodiversity Assessment. A focus on these topics at the Arctic Environment Ministers Meeting (Rovaniemi, 11-12 October 2018) could provide a significant impetus to these efforts. In particular, the Ministerial meeting would present an opportunity for enhancing engagement with non-Arctic Council countries and strengthen linkages with sector ministries that have a key role in addressing climate and biodiversity issues. This topic also fits well with SDG Goal 13 - Take urgent action to combat climate change and its impacts.

Proposed topics for discussion

Given the SWIPA2017 conclusions that the Arctic climate will continue to change over the coming decades with major consequences for ecosystems and society and that substantial and immediate mitigation in greenhouse gas emissions (at least at the level of RCP4.5) should reduce the risk of further future change for most cryospheric components at mid-century, and reduce the likelihood of potential irreversible melt of the Greenland ice sheet and glaciers and the associated impact on sea-level rise, what can the Arctic Council do to promote early and ambitious mitigation efforts to ensure the full implementation of the Paris Agreement?

Adaptation efforts need to begin now, because foreseeable Arctic temperature changes are large (4–5°C for autumn/winter by 2040–2050). In addition to climate change, adaptation planning should take into account economic and societal drivers. How will the Arctic Council promote and assist in the development and implementation of appropriate adaptation measures?

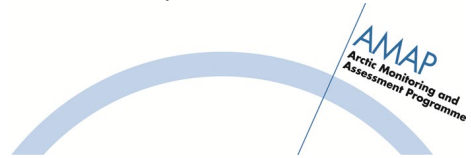
Prudent adaptation and risk management require better quantitative predictions. This means determining which feedbacks involving the Arctic cryosphere are most consequential for rapid Arctic warming as well as having a better understanding of interactions between different parts of the Arctic system. In particular, there is a need to reduce uncertainties in snow-vegetation interactions, reduce uncertainties in snow and ice albedo feedbacks, and develop more detailed representation of vegetation, lakes and rivers enhancing Arctic observing systems and the interpretation of in situ observations, satellite data, and model results. There is also a need to improve coordination between monitoring efforts, process studies, and modeling. How will the Arctic Council, its member states, Permanent Participants and observers work to improve quantitative predictions of Arctic climate change and its consequences?

How could the Arctic Council and its affiliates work together to obtain a better understanding of feedbacks and interactions in the Arctic climate system?

How can Arctic observing systems and the interpretation of data from observing systems be enhanced and better coordinated with process studies and modelling? What is the role of the Arctic Council in this work?

An improved understanding of the impacts of Arctic climate change outside of the Arctic region is needed and this requires better understanding of atmospheric and ocean connections. How can the

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Arctic Council promote or facilitate efforts to understand the impacts of Arctic change outside the region?

What should the Arctic Council do to raise public awareness of the implications of changes in the Arctic cryosphere?

The Arctic Monitoring and Assessment Programme (AMAP)

AMAP is the Arctic Council Working Group responsible for "providing reliable and sufficient information on the status of, and threats to, the Arctic environment, and providing scientific advice on actions to be taken in order to support Arctic governments in their efforts to take remedial and preventive actions relating to contaminants and adverse effects of climate change".

AMAP has produced several assessments of Arctic climate change and its impact (in 1998, 2005, 2011, and 2017), regional assessments of Adaptation Actions for a Changing Arctic, an assessment of ocean acidification (2015), and assessments of black carbon and methane (2015). Updates are currently being prepared for most of these assessments and initial work on the issue of climate change impacts on Arctic ecosystems and feedbacks to the climate is currently being undertaken.