

## **Polar ecotoxicology: hot issues in cold climates**

Nico van den Brink, Katrine Borga

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Assessment of risks of environmental contaminants in Polar Regions has gained increased interest in recent years. In the Arctic region, a potential increase of human activities like oil and gas exploitation and shipping related to the fact that larger areas will become free of ice over summer as a consequence of climate change, may result in increased risks of environmental release of contaminants. In the Antarctic, new contaminants are emerging, transported by related to long-range atmospheric transport. In addition the Polar Regions are may act as early warning of how climate change affects the distribution, uptake and effects of contaminants, as the environmental response to climate change will occur here fastest and with highest amplitude. A major factor affecting the environmental fate and hazards of contaminants in Polar Regions is the extreme seasonality of environmental conditions due to the high latitude, and the ecosystem adaptation to these conditions. The biological cycles are driven by sea ice dynamics and as such impact both the fate of contaminants as well as their potential effects. In this way Polar Regions differ from temperate and tropical regions, hampering the extrapolation of concepts and results between regions and studies. For instance, the adaptation of Polar organisms to seasonal food availability results in build up of energy reserves (lipids) over summer which may make them more vulnerable to chemical exposure and contaminants may be remobilised from lipid stores during specific time windows of enhanced stress. Hence, ecological constraints of Polar ecosystems and organismal adaptation to high seasonality may limit the resilience of organisms towards chemicals stress. On order to substantiate the need for Polar-specific risk assessment procedures and threshold levels, effects of different Polar specific factors on the vulnerability of local species to chemicals stress need to be quantified. In this session we solicit for papers that assess environmental hazard en fate of contaminants with specific focus on factors that modulate Polar specific impacts. This may include exposure and accumulation studies as well as effect assessments for both Polar regions. The aim of the session is to increase the knowledge of such factors, in order to increase the relevance of site specific ERA for Polar regions, but also to assess the potential risks of emerging chemicals to Polar environments even before their marketing.