

Temperature rise is now ‘locked-in’ for the coming decades in the Arctic

- Even if existing Paris Agreement commitments are met, winter temperatures over the Arctic Ocean will increase 3-5°C by mid-century compared to 1986-2005 levels.
- Thawing permafrost could wake ‘sleeping giant’ of more greenhouse gases, potentially derailing global climate goals.
- Ocean acidification and pollution also posing major threats to Arctic

Nairobi, 13 March 2019 – Even if the world were to cut emissions in line with the existing Paris Agreement commitments, winter temperatures over the Arctic Ocean would rise 3-5°C by mid-century, finds a new report by UN Environment.

Meanwhile, rapidly thawing permafrost could even accelerate climate change further and derail efforts to meet the Paris Agreement’s long-term goal of limiting the rise in global temperature to 2°C, warns Global Linkages - A graphic look at the changing Arctic.

Other environmental pressures on the Arctic identified by the paper – released at the United Nations Environment Assembly – include ocean acidification and plastic pollution.

“What happens in the Arctic does not stay in the Arctic,” said Joyce Msuya, UN Environment’s Acting Executive Director. “We have the science; now more urgent climate action is needed to steer away from tipping points that could be even worse for our planet than we first thought.”

Even if drastic global emission reductions were to kick in immediately, winter temperatures in the Arctic would still keep increasing at least for the coming two decades, the study finds. This increase is locked into the climate system due to past, present and near-future greenhouse gas emissions and heat stored in the ocean. However, the speed and ambition of global emission reductions will be decisive for further temperature rise in the Arctic after that time frame.

Arctic societies now must respond to climate change through suitable adaptation actions. Arctic Indigenous Peoples already face increased food insecurity. By 2050, four million people, and around 70% of today’s Arctic infrastructure, will be threatened by thawing permafrost, the report notes.

“The urgency to achieve the goals of the Paris Agreement is clearly manifested in the Arctic, because it is one of the most vulnerable and rapidly changing regions in the world,” said the Finnish Minister of the Environment, Energy and Housing, Kimmo Tiilikainen. “We need to make substantial near-term cuts in greenhouse gas emissions, black carbon and other so-called short-lived climate pollutants all over the world.”

The impacts globally would also be huge. From 1979 to the present, Arctic sea ice is estimated to have declined by 40%. Climate models predict that, at the current rate of CO₂ emissions, Arctic summers will be ice-free by the 2030s. The melting of the Greenland ice cap and Arctic glaciers contribute to one third of sea level rise worldwide.

Even if the existing Paris Agreement commitments are met, Arctic permafrost is expected to shrink 45% compared to today. Globally, these frozen soils hold an estimated 1,672 billion metric tonnes of carbon. Increased thawing is expected to contribute significantly to carbon dioxide and methane emissions. The resulting warming will in turn lead to more thawing – an effect known as ‘positive feedback’. This accelerated climate change could even throw the Paris Agreement’s 2°C goal off track, the report underlines.

Ocean acidification and pollution taking their toll

Ocean acidification is disproportionately impacting Arctic marine species. This is because cold water can hold more dissolved CO₂, while fresh water input from melting ice dilutes the seawater and reduces the pH further. Since the beginning of the industrial revolution, the world’s ocean has become 30% more acidic, or less alkaline. The more “acidic” the water, the more energy Arctic corals, molluscs, sea urchins and plankton must use to build their shells and skeletons.

Despite its pristine image, the Arctic’s geographical characteristics and cold climate mean the region’s ocean, seafloor and coastline are a sink for contaminants from around the globe. Only 1,000 out of the 150,000 chemical substances in use worldwide are regularly monitored. A global approval system for new chemicals is therefore needed, the report argues. Alternative controls are also seen as necessary for chemicals that fall outside of existing treaties.

On a positive note, the amount of regulated chemicals in humans and animals living in the Arctic was found to be decreasing. These include some Persistent Organic Pollutants regulated under UN Environment’s Stockholm Convention. However, the decrease could be due to changing diets.

The Climate Change section of the Global Linkages report has been amended following further consultation with global and Arctic climate experts, with adjusted references to scientific literature. Kindly use this revised version as reference.

The report is available for download electronically at:

https://wedocs.unep.org/bitstream/handle/20.500.11822/27687/Arctic_Graphics.pdf?sequence=1&isAllowed=y

and

<http://www.grida.no/publications/431>

NOTES TO EDITORS

The Arctic is home to just over four million people, of which about 10 per cent are indigenous. Permafrost is ground that remains frozen for two or more years and occurs in high latitudes and high altitudes, and under Arctic continental shelves.

The UN Environment Assembly is the world's highest-level decision-making body on the environment. Between 11 and 15 March 2019, UN member states are setting environmental priorities for the coming years and committing to action.

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