FORUM: SPECIAL ENVIRONMENTAL COMMITTEE

ISSUE: Measures to manage the rapid deterioration of the Arctic

Sydney Vennin

Introduction

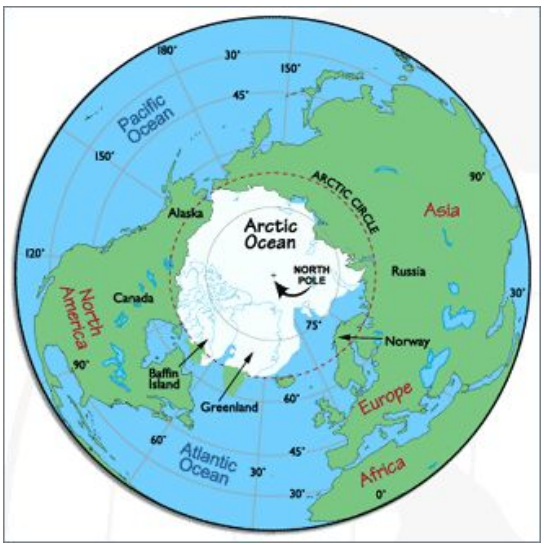
"We need to save the Arctic not because of the polar bears, and not because it is the most beautiful place in the world, but because our very survival depends upon it."

Lewis Gordon Pugh

Unlike what is generally believed, the Arctic does not stand as a permanent sheet of ice, rather it amounts to both thick, long-term ice that remains frozen year long and thinner ice that is formed and then melts yearly. The deterioration of the Arctic mostly refers to the former, dubbed 'multiyear ice', whose mass and presence have decreased significantly in the past decades.

The Arctic sea ice level thus is fundamentally and irreversibly changing, both in size and in thickness, eventually developing into ice-free summers, which will take place decades before the predicted schedule.The melting of sea ice will not in itself raise the level of the ocean, but it will disturb oceanic and atmospheric patterns and make the ocean warmer, which in turn may cause Greenland's ice sheet to melt, thus raising sea levels. Additionally, with the melting of more sea-ice, more dark ocean water is exposed to sunlight, absorbing heat and further warming the arctic region. Finally, the deterioration is harmful to some arctic species, as well as to indigenous populations living in the arctic.

Managing the deterioration of the Arctic should of course be a global **project,** as all will be affected by its impacts and provided that no one country alone is responsible for the wide area. The disappearance of the summer-sea ice cover today stands as one of the most striking warning signs of the effects of climate change.



Definition of Key Terms

document 1: map showing the area of the globe defined as 'Arctic'

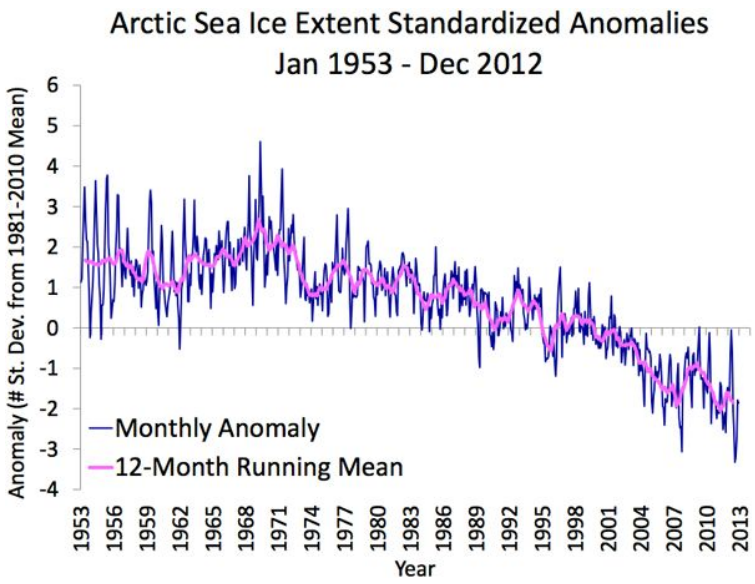
- **Arctic:** The Arctic is a polar region, north of the Arctic Circle (66° 33'N), and consists of the Arctic

ocean as well as parts of Alaska (United States), Canada, Finland, Greenland (Denmark), Iceland, Norway, Russia, and Sweden. It is a vast ocean surrounded by treeless permafrost (frozen soil), home to indigenous populations which have adapted to the extreme cold.

- **Indigenous:** the term 'indigenous' in equivalent to 'native' in less scientific usage, and here defines the original inhabitants of a particular place
- **fauna:** animals of a particular region, **flora**: the plants of a particular region
- **deterioration:** 'the act or process of becoming worse', here deterioration refers to the melting of multiyear ice and the consequent changes in environment
- **first year ice:** ice which lasts less than one year and does not survive the melting season (thickness inferior to 100cm)
- **perennial ice:** perpetual ice, usually lasting between 1 and 3 years, the National American Space Agency defined it as 'ice that has survived at least one summer'
- **summer sea ice:** the term refers to the arctic ice-sheet that survives higher temperature summer seasons
- **climate change:** this term has come to replace global warming, and describes the long term shift in weather patterns

Background information and Overview

The volume of Arctic ice has decreased by 40% over the past 3 decades, according to the Polar Science Center, and as illustrated by the downwards trend in document 2 (below). This melt is from 70% to 90% caused by human activity (Environmental Research Letters, percentage starting in 1979). Indeed, due to climate change, the Arctic region's temperatures are rising twice as fast as the global average.



document 2: graph illustrating the decreasing levels of sea ice Image by Walt

Meier and Julienne Stroeve, National Snow and Ice Data Center, University of Colorado, Boulder.

In addition, air pollutants from human industry are dirtying the Arctic snow and Ice, absorbing more heat, raising the temperature of their surroundings and therefore accelerating the melting.

The Arctic is also vulnerable to both natural and man-caused disasters. A an example of the former, an unusually strong storm in the arctic in 2012 tore off swaths of ice, pushing them to warmer sites and churning ice, thus causing it to melt more rapidly. Claire Parkinson, a climate scientist at NASA, also indicated that such storms today affect the Arctic more than decades ago, when the sea ice cover was 'thicker and more expansive'. Man-caused disasters include oil spills, such as the Exxon Valdez oil spill of 1989, in which an oil tanker spilled crude oil into arctic waters, resulting in massive environmental damage which to this day still affect the region.

Changes in the Arctic Circle further affect temperatures worldwide. For example, Arctic conditions are modifying air currents (such as the west-to-east jet stream) which in turn changes weather patterns, for example perhaps explaining the 2010 Moscow Heat wave.

Consequences of the deterioration of the Arctic also affect both the Arctic fauna and the flora. Arctic flora is divided between polar deserts (bare ground), boreal forests and tundra (low shrub vegetation). Due to climate change, the boreal forests should expand into the tundra, decreasing the tundra's size. Increase in the size of the highly inflammable boreal forests has also resulted in a higher incidence of forest fires in the Arctic. Nonetheless, trees of the boreal forest could absorb more carbon, reducing the concentration of carbon in the region. Arctic fauna is also suffering from deteriorations of the Arctic, perhaps the most famous example, the polar bear, depends on both sea ice and water productivity to survive. A complete loss of summer sea ice would threaten their survival: they would have to live on land, compete with other predators and interact with humans. Seabirds like ivory gulls also need ice and its cracks to fish from, an seals need ice for accommodation and feeding ground. Finally, melting ice increases salinity and temperature of the surface of the ocean waters, jeopardizing marine life and food web.

The current situation is last but not least affecting the indigenous Arctic population. Increased temperature, less ice and thus stronger waves have accelerated shore erosion, forcing some entire villages to relocate more inland. Unstable weather conditions prevent hunters from building igloos, and skin rashes caused by sun exposure are spreading

amongst Arctic communities, who are unable to adapt to the fast pace of climate change in the Arctic.

Major Countries and Organisations involved

The arctic states:

- **Denmark:** Denmark is a member of the Arctic council, provided that Greenland and the Faroe Islands are autonomous countries within the kingdom of Denmark. Greenland is located within the Arctic circle, and its 2.5 km wide ice-sheet covering an area of up to 2.480 km long and 750 km wide, if it were to melt completely, could drastically raise sea levels by 7 meters. This could potentially drown vulnerable countries like the Philippines, Bangladesh, Kiribati or Egypt, displacing millions of people. The melting Greenland Ice sheet could also affect ocean circulation and global heat transfer.
- **Canada**: The Canadian Arctic encompasses 40% of the nation's total land mass. The federal government is monitoring Arctic ice caps and the Deputy minister of the Natural Resources Canada has stated that the shrinking of ice caps accelerated since 1995. Canada signed the Copenhagen accord to reduce the country's Greenhouse emissions, but carbon pollution from oil sands has increased, causing the emission of 55 million tons of CO2 into the atmosphere.
- The **Russian Federation**: The Russian Arctic covers an immense territory, and according to the website of the Arctic council, the country's main interests in the Arctic include "the use of the Arctic Zone as a strategic resource base of the Russian Federation, providing solutions to the task of socio-economic development of the country; preservation of the Arctic as an area of peace and cooperation; conservation of the unique ecosystems of the Arctic; and the use of the Northern Sea Route as a national unified transportation line of the Russian Federation in the Arctic."Nonetheless, the latter arouses much controversy, as some argue that the melting of the Arctic ice is advantageous to Russia and therefore that managing the deterioration of the Arctic isn't one of country's priorities.
- **Norway:** A tenth on the Norwegian population lives in the Arctic, the indigenous population there are called the Sami.
- **Iceland** hosts the The Icelandic Arctic Cooperation Network (IACN) an NGO focused on facilitating the cooperation concerning the Arctic region. It is an island located between the North Atlantic and the Arctic Ocean.

- The **USA** purchased Alaska from Russia in 1867 and state they have ‘ varied and compelling interests in the Arctic such as national and homeland security, environmental protection, sustainable development, [...] promoting scientific research across the region.” Criticism of drilling in the Arctic has been aimed to the USA.
- **Sweden** is also home to 20.000 Sami as well as to modern logistics platforms for environmental research in the Arctic.
- Finally, **Finland**’s policy in the Arctic is focused on 7 priorities: environment, security, economy,indigenous people, infrastructure and the European Union.

Organisations: Many NGOs, such as WWF, the International Polar Foundation,the Indigenous Peoples Secretariat, Greenpeace or Earthjustice are involved in the Arctic. Since 2011, they can exchange within the Framework of the Arctic NGO forum.

The United Nation’s Intergovernmental Panel on Climate Change (UNIPCC) is actively involved with managing the deterioration of the Arctic.

Timeline of Events

• Dates of key events related to the issue and important to the issue's development

- The Svalbard Treaty signed in 1920 by the fourteen countries governs the political and economic status of Svalbard, an arctic archipelago under Norwegian sovereignty, and shows cooperation between different countries with regard to the Arctic.
- The Arctic Cooperation Agreement of 1988 was signed between the United States and Canada and concerns the Northwest Passage, it did not resolve the disagreement between the two countries about the legal status of the passage.
- In 1991, the Arctic Environmental Protection Strategy (AEPS) was adopted by Canada, Denmark, Finland, Iceland, Norway, Russian Federation, Sweden and the United States.
- On September the 19th 1996, the Arctic council was established
- In march 2007, the International Maritime Organization put in place the ‘Guideline for Ships Operating in Arctic Ice-covered Waters’.
- In 2011, the Arctic Search and Rescue Agreement was concluded by the Arctic Council member states. It coordinates search and rescue in the Arctic.

- On July 8th, 2015, UN secretary General Ban-ki-moon visited Norway's arctic region, stressing the need for the international community to take action with regard the Arctic's rapid deterioration

Relevant UN treaties and events

• 'Climate change and its possible security implications', General Assembly Resolution 63/281

• Kyoto Protocol, adopted on 11 December 1997 and entered into force on 16 February 2005

• Declaration on the Establishment of the Arctic Council, 19 September 1973
• Agreement on the Conservation of Polar Bears, signed by Canada, Denmark, Greenland, Norway, the Soviet Union, the United States, 15 November 1973

• Letter from the United Nations Secretary General Ban Ki-moon, "The ice is melting", The New York Times, 17 September 2009

Previous Attempts to solve the issue

- **The Arctic Environmental protection strategy (AEPS)** is an non-binding agreement amongst the 8 Arctic States which was adopted in 1991. The AEPS deals with monitoring, assessment, protection, 'Emergency Prevention, Preparedness and Response in the Arctic, and Conservation of Arctic Flora and Fauna'. It is still used by the Arctic Council's working groups.

  Nonetheless, it is criticized for lacking the legal authority of a treaty and concrete action and for not addressing specific problems like the arctic Haze.

- The **Ottawa Declaration** (1996) established the Arctic council as a high level forum promoting cooperation and coordination amongst the arctic states and with Arctic indigenous communities.

- The **Arctic Climate Impact Assessment** is a study published in 2004. (ACIA)'s goal is 'to evaluate and synthesize knowledge on climate variability, climate change, and

increased ultraviolet radiation and their consequences.' . The **Snow, Water, Ice and Permafrost in the Arctic** (SWIPA), an assessment report published in 2011, is a follow up of the ACIA report.

- The **Arctic Report Card** is produced by The United States' National Oceanic and Atmospheric Administration (NOAA) yearly since 2006. It provides environmental information on the condition in the arctic, and includes updates on statistics and indicators (for example, air temperature) as well as essays written by up to 141 authors. The Arctic report Card's audience is wide, including teachers, scientists, and decision makers.

Possible Solutions

As the issue 'measures to manage the rapid deterioration of the Arctic' hints at, completely preventing the said deterioration is a utopic and practically impossible task, but by working together countries can manage it and slow it done, and hence better manage the fast-moving climate change. Climate change is closely linked to both CO2 emissions and black carbon (=soot, which blackens snow and Ice and causes them to melt) emission, so diminishing these emissions could be a solution. To do so, countries could agree on rerouting airplane flights above the Arctic Circle, as well as reducing diesel exhaust and burning of waste or forests. Likewise, replacing fossil fuels with renewable sources of energy would reduce emissions partly responsible for the deterioration of the Arctic. Finally, collaboration between countries and parties involved, through instances such as the Arctic council is key to helping indigenous populations, preserving Arctic fauna and flora, and generally managing the rapid deterioration of the Arctic.

9. Bibliography/sources

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http://dictionary.reference.com/browse/arctic+circle

http://www.arctic-council.org/index.php/en/
https://nsidc.org/cryosphere/sotc/sea_ice.html

10. Appendices

• The main websites (5-10) to give delegates guidelines on where to continue their research

http://www.worldwildlife.org/places/arctic

http://www.amap.no/

http://www.unep.org/regionalseas/programmes/independent/arctic/instruments/r_profile_pame.pdf

http://www.arctic.noaa.gov/reportcard/

http://www.eea.europa.eu/articles/the-melting-arctic

http://www.unep.org/gc/gc27/Docs/se/What%20Future%20for%20the%20Arctic.pdf

http://www.google.fr/url?sa=t&rct=j&q=&esrc=s&source=web&cd=2&ved=0CDEQFjABahUKEwjJ8Zu0kZnHAhWJBBoKHVihD10&url=http%3A%2F%2Fwww.arctic-council.org%2Findex.php%2Fen%2Fdocument-archive%2Fcategory%2F4-founding-documents%3Fdownload%3D53%3Aaeps&ei=68bFVYnQHomJaNjCvugF&usg=AFQjCNExh1ZF0IOzJXWJS3-RTzo0NhBAVA