

The Crucial Role of Arctic Research and Science Diplomacy in a Changing Climate

Ana-Maria Stan

Why is Arctic research so essential? The primary answer likely lies in the need for a deeper understanding of the Earth system, in a climate change world. Geopolitical considerations also factor in, as they encompass the political and strategic interests of individual states from the Arctic region and beyond. Arctic scientific cooperation is crucial during this period of rapid global warming, as it enables us to better comprehend current changes in Earth's systems and develop adaptation strategies.

Concurrently, many nations and other stakeholders have identified **commercial opportunities** in the Arctic, driving investment in Arctic research. Countries such as China, Singapore, South Korea, and India are increasingly active in the region, notably by setting up scientific research stations. Planning for oil and mineral extraction, as well as new shipping routes, is also advancing.

One unique characteristic of the Arctic is the so-called "**Arctic amplification**", and this is where the effects of climate change are most visible. Both the Arctic and Antarctica are the most inhospitable places on Earth, but they are also the most vulnerable to global warming. The situation is particularly problematic in the Arctic because, unlike Antarctica, the region is inhabited. Scientific activities can directly affect Indigenous peoples and local communities living there. While the treaty dedicated to Antarctica limits activities on the continent to scientific research, no similar agreement exists for the Arctic.

Geographical discoveries in the High North, coupled with advancements in theoretical knowledge and improved techniques for observation and experimentation in extreme polar conditions, have spurred Arctic scientific research across various disciplines since approximately the second half of the 17th century.

The concept of **international cooperation** became indispensable for Arctic research during the 19th century, especially in meteorology. Such

collaboration had significant practical implications for navigation and understanding climatic phenomena. The challenges and costs associated with conducting research in the Arctic further encouraged cooperation among nations.

The first international cooperation programs in the Arctic were the **International Polar Years (IPYs)**. The inaugural IPY in 1882-1883, with 12 participating states, involved geophysical, meteorological, and some biological observations. It saw the creation of a network of stations around the North Pole, where regular observations using similar equipment and standardised techniques took place. Subsequent IPYs occurred in 1932-1933, 1957-1958, and 2007-2008.

The **Svalbard Treaty** (1920, Paris) further supported the development of Arctic observations and research by enabling researchers to work in the archipelago.

Another critical organisation is the **International Arctic Science Committee (IASC)**, established in 1991, following the end of the Cold War and President Gorbachev's Murmansk Initiative. Since its inception, the IASC has been a fundamental platform for international scientific cooperation in the Arctic. As a non-governmental organization, its mission is to support and facilitate research collaboration between all parties seeking knowledge about the Arctic region.

Both Arctic and non-Arctic countries maintain Arctic research programs, with different needs or motivations behind their research and varying degrees of involvement in the Arctic region.

Non-Arctic states acknowledge the significance of their engagement in polar research. Their scientific activities conducted in the Arctic can strengthen their legitimacy in dealing with Arctic affairs while informing decision-making, supporting policy, and contributing to the region's stable governance. Countries with Arctic territories typically have a longer, more robust, and comprehensive tradition of Arctic research, while non-Arctic states have a different scientific perspective due to their distance from the region. Countries with high mountains, increasingly referred to as "the third pole" may have

additional motivation and capacity for conducting Arctic research, as is the case for instance for Austria, Italy, or Switzerland.

Presently, countries participating in **Arctic science ministerial meetings** run the most active research programs. Historically, some European countries, such as the UK, France, Germany, Italy, Spain, Norway, Denmark, and the Russian Federation, have a long tradition of polar research. More recently, Asian countries, including China, Japan, and South Korea, have shown a growing interest in the Arctic region, investing heavily in polar research programs and infrastructure.

The first-ever **Arctic Science Ministerial** (ASM) took place in Washington, DC, on September 28, 2016, at the initiative of the US, to advance international research efforts. A Joint Statement of Ministers was signed during that event attended by Ministerial Delegations representing 24 nations and the European Union, namely Canada, China, Denmark, Greenland, the Faroe Islands, Finland, France, Germany, Iceland, India, Italy, Japan, Korea, the Netherlands, New Zealand, Norway, Poland, the Russian Federation, Singapore, Spain, Sweden, Switzerland, the UK, and the USA.

The report covered the following topics: (1) points of contact, (2) Arctic research goals, (3) Arctic research policy, (4) major Arctic research initiatives, and (5) Arctic research infrastructure.

Two subsequent editions of Arctic Science Ministerial meetings followed a similar path and structure. ASM2 took place in 2018, organised by Germany, Finland, and the European Commission, while ASM3 was held in 2021, co-hosted by Iceland and Japan. The latter marked the first time a non-Arctic Asian country was involved in the process. The custom is now for the meeting to be organised by the country holding the Arctic Council chair, in collaboration with another non-Arctic country with a significant Arctic research program. "**Knowledge for a Sustainable Arctic**" served as the overarching theme for ASM3, with participants keenly aware of the climate change and biodiversity challenges that require attention, particularly in the Arctic.

However, multilateral scientific cooperation has been disrupted due to the unprovoked invasion of Ukraine by the Russian Federation in February 2022. The ensuing war has significantly obstructed Arctic research and international cooperation. Numerous processes, including the Arctic Science Ministerial meetings, have been put on hold. Arctic research is entering a period of uncertainty.

For more on this, read...

Łuszczuk M, B Padrtova, W Szczerbowicz, 'Political dimension of Arctic research' (2020) 62 *Oceanologia* 608

Vääänen V, 'Political geographies of the 'changing' Arctic: perspectives on the interface between politics and the region as a process' (2020) 49 *Nordia Geographical Publications* 1
<https://nordia.journal.fi/article/view/95703>

