# India’s Arctic imperative

## Why in news?

India’s first winter experience at the Arctic came to a successful end recently.

## What is the history of India’s involvement in the Arctic?

*Arctic region is the region, which is above the Arctic Circle and includes the Arctic Ocean with the North Pole at its centre.*

- **Svalbard Treaty, Paris**- India is a signatory to this treaty which recognizes the sovereignty of Norway over the archipelago of Svalbard and grants equal rights to all parties to engage in economic activities, such as mining and fishing in the region and its territorial waters.
- **Research mission**- In 2007, India undertook its first research mission to investigate Arctic microbiology, atmospheric sciences, and geology.
- **Himadri research station**- India’s permanent Arctic research station is inaugurated in 2008 which located at Spitsbergen, Svalbard in Norway.

*India is the only developing country aside from China to have research base in Arctic which is located at International Arctic Research base, Ny-Alesund.*

- **1st winter expedition**- Himadri research station had hosted missions only in summer, this winter expedition will give a major boost to the country’s research around global climate, sea levels and biodiversity.
- **Observer status-** India has granted ‘observer’ status by the *Arctic Council* in 2013.
- **Infrastructural base**-India has since set up a multi-sensor moored observatory (2014) and an atmospheric laboratory (2016) in Svalbard, focusing on Arctic ice systems, glaciers, and their impact on the Himalayas and the Indian monsoon.
- **Arctic Policy of 2022**- It mentions that the country’s approach to economic development of the region is guided by UN Sustainable Development Goals

| Pillars of India's Arctic Policy |
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| • Science and Research<br>• Climate and Environmental Protection<br>• Economic and Human Development<br>• Transportation and Connectivity<br>• Governance and International Cooperation<br>• National Capacity Building |

## Why the winter arctic expedition is significant for India?

- **China's involvement -** China's growing investments in the Arctic have raised India's strategic interests in the region.
- **Russia-Ukraine war**-Russia's decision to grant China expanded access to the Northern Sea Route has intensified concerns, especially amid rising geopolitical tensions following the Russia-Ukraine conflict.
- **Economic route**- The opening of Arctic sea routes, such as the Northern Sea Route, presents potential economic benefits for India such as reduction in shipping costs, transit time, fuel consumption, and enhance security for Indian trade.




- **Scientific imperatives-**The accelerated warming of the Arctic has profound implications for global and regional climates. India's research in the Arctic aims to understand these changes and their effects on Indian weather patterns, particularly the monsoon.
- **Polar studies**- The polar regions, Arctic and Antarctica, offer pristine environments for scientists to study a range of natural phenomena for atmospheric, oceanic, biological, geological, glaciological and earth sciences research.
- **Economic value**- The Arctic has many natural resources such as crude oil, gold and industrial metals, and diamonds which are presently being extracted now, still much of the Arctic's potential for natural resources is unknown
- **Study cosmic dawn**- For the first time researchers will undertake the characterization of the radio frequency environment in the Svalbard region of the Arctic, it will help astronomers assess the suitability of this uniquely located region.
- **Unique study**- It will allow researchers to conduct unique scientific observations

during polar nights, where there is no sunlight for nearly 24 hours and sub-zero temperatures (as low as -15°C).

## What are the challenges?

- **Radio silence -** The Arctic station is located in a *"radio silent" zone*, meaning the use of all wireless devices, including mobile phones, WiFi and Bluetooth, is prohibited.
- **Extreme cold-** Temperatures in the Arctic can drop below -40 degrees Celsius in winter, posing significant risks to human health and equipment functionality.
- **Extreme weather condition-** The absence of sunlight for weeks in winter (polar night) and continuous daylight in summer can disrupt circadian rhythms and complicate scheduling and operations.
- **Remote locations –** The Arctic is one of the most remote regions on Earth, making transportation and supply delivery expensive and time-consuming.
- **Limited resources -** The remote locations of some Arctic research stations are difficult to access essential supplies and resources.
- **Climate change-** Rapid changes due to global warming are altering the Arctic environment, complicating long-term studies and necessitating continuous adaptation of research methods.
- **Health risks**- Researchers face risks from hypothermia, frostbite, and other cold-related health issues, as well as potential encounters with dangerous wildlife like polar bears.

## What lies ahead?

- The 1st winter expedition realizes the India's vision of making it a developed nation by 2047, as it is committed to expanding scientific activities and international cooperation and collaboration.
- As global geopolitical tensions are also mounting in the Arctic, finding constructive and non-sensitive ways to alleviate pressure will be in the interest of both India and Norway.

## Reference

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