Russia to launch first satellite to monitor Arctic climate

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Russia will launch first Arktika-M satellite for monitoring Arctic climate this year at the end of
the year, General Director of Lavochkin aerospace company Vladimir Kolmykov told sputnik news agency. He said as of now first satellite is developed and the launch is planned for 2020. The satellite will be launched by Soyuz-21b carrier rocket with frigate booster. The remote sensing Artika-M will monitor the meteorological conditions in the polar region.

India and Arctic

I. The National Centre for Antarctic and Ocean Research has been renamed as the National Centre for Polar and Ocean Research.

Three decades after its first mission to Antarctica, the government is refocusing priorities to the other pole — the Arctic — because of opportunities and challenges posed by climate change.

This month, it has renamed the National Centre for Antarctic and Ocean Research (NCAOR) — since 1998, charged with conducting expeditions to India’s base stations to the continent — as the National Centre for Polar and Ocean Research. It’s also in talks with Canada and Russia, key countries with presence in the Arctic circle, to establish new observation systems, according to a source. Now, India only has one Arctic observation station near Norway.

Along with the Arctic, India’s earth sciences community also views the Himalayas as a “third pole” because of the large quantities of snow and ice it holds, and proposes to increase research spends towards understanding the impact of climate change in the Himalayas. It has already established a high-altitude research station in the Himalayas, called HIMANSH, at Spiti, Himachal.

While annual missions to maintain India’s three bases in Antarctica will continue, the new priorities mean that there will be more expeditions and research focus on the other poles, earth science ministry.

Climate change, said the source, was a decisive factor in India re-thinking priorities. Sea ice at the Arctic has been melting rapidly — the fastest in this century. That means several spots, rich in hydrocarbon reserves, will be more accessible through the year via alternative shipping routes.

India is already an observer at the Arctic Council — a forum of countries that decides on managing the region’s resources and popular livelihood and, in 2015, set up an underground observatory, called IndARC, at the Kongsfjorden fjord, half way between Norway and the North Pole.

Why Arctic research?

A big worry for India is the impact of melting sea ice on the monsoon. Over the years scientists across the world are reporting that the rapid ice-melt in the Arctic is leading to large
quantities of fresh water into the seas around the poles. This impedes the release of heat from the water and directs warm water into the seas around India, the theory goes, and eventually weakens the movement of the monsoon breeze into India. “Therefore we need more observations and stations in the Arctic countries to improve understanding of these processes,” the source added.

II. India’s Antarctic Missions

- India officially acceded to the Antarctic Treaty System on 1st August 1983. On 12 September 1983, she became the fifteenth Consultative Member of the Antarctic Treaty.
- India is expanding its infrastructure development in Antarctica.
- The newest base commissioned in 2015 is Bharati.
- India is rebuilding its station, Maitri, to make it bigger and last for at least 30 more years.
- Dakshin Gangotri, the first Indian base established in 1984, has weakened and become just a supply base.

III. India’s Vishnu Nandan will be the only Indian aboard the multidisciplinary drifting observatory for the Study of Arctic Climate (MOSAiC) expedition.

He will be aboard the German research vessel Polarstern, anchored on a large sheet of sea ice in the Central Arctic, drifting along with it during the pitch-black Polar winter.

About MOSAiC:

- Spearheaded by the Alfred Wegener Institute in Germany.
- It is the largest ever Arctic expedition in history.
- It will be the first to conduct a study of this scale at the North Pole for an entire year.
- The aim of the expedition will be to parameterise the atmospheric, geophysical, oceanographic and all other possible variables in the Arctic, and use it to more accurately forecast the changes in our weather systems.
- The international expedition will involve more than 60 institutions from 19 countries.

Significance:

- MOSAiC will contribute to a quantum leap in our understanding of the coupled Arctic climate system and its representation in global climate models.
- The focus of MOSAiC lies on direct in-situ observations of the climate processes that couple the atmosphere, ocean, sea ice, biogeochemistry, and ecosystem.

Why study and understand about changes in the Arctic?

- The Arctic is the key area of global climate change, with warming rates exceeding twice the global average and warming during winter even larger.
- It is well possible that the Arctic ocean will become ice free in summer during the 21st century.
- This dramatic change strongly affects weather and climate on the whole northern hemisphere and fuels rapid economic development in the Arctic.