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NCPOR warns of a dramatic decline of Arctic sea ice that will change the world's environment

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The National Center of Polar and Ocean Research (NCPOR) found a dramatic decline in Arctic sea ice, associated with global warming. The decline of sea ice has led to localized increases in evaporation, air humidity, cloud cover, and rainfall. Arctic sea ice is a sensitive indicator of climate change and has strong feedback effects on other components of the climate system.



A NCPOR observations revealed that the largest Arctic sea ice decline in the last 41 years happened in July 2019. In the last 40 years (1979-2018), sea ice has been declining at a rate of ‘- 4.7%’ per decade, while its rate was found to be ‘-13%’ in July 2019. If Arctic sea ice continued to decline in this way, Arctic ice would be free by 2050, which would be very dangerous for humanity and the entire environment.

NCPOR carried out this study based on the satellite data collected from 1979 to 2019 to understand the rate of surface warming and global atmospheric circulation changes. It becomes clear from the study that the decrease of the Arctic sea ice area and extent in summer and autumn has affected the local weather and climate over the Arctic Ocean and its marginal seas. Arctic sea ice cover is not only a sensitive indicator of climate change but also has strong feedback effects on other components of the climate system such as prevention or reduction of heat and momentum, water vapor, and other material exchange between the atmosphere and the sea. The process of sea ice formation during winters is unable to compensate for the sea ice loss during summers.

“In the background of the global warming scenario, the study reveals that global ocean-atmospheric warming has enhanced the Arctic sea ice loss. The study demonstrated the application of satellite observations and model reanalysis data for the determination and validation; the 2019 year sea-ice extent tied to the second-lowest sea-ice minimum record. Although there are no extreme weather events recorded this year, an accelerated decline in sea-ice extent and sea-ice volume in summer 2019 was dominant, and also the northern hemisphere has experienced record high-temperature rise especially during the spring and summer months,” Avinash Kumar, a senior scientist at NCPOR, who is involved in the research, said.

“The sea-ice loss at this rate, concerning to all the lives on Earth, can have a catastrophic impact by rising global air temperature and slowing down of global ocean water circulation,” he added. Led by Avinash Kumar, the research team comprised Juhi Yadav and Rahul Mohan of NCPOR, Ministry of Earth Sciences, Goa, The research paper has been published in the *Journal of natural hazards*. **(India Science Wire)**