

Distribution pattern of Perfluorinated compounds (PFASs) in the Environmental matrices of Arctic, Ny-Ålseund

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Per- and polyfluorinated chemicals (PFASs) are anthropogenic chemicals of emerging concern. It is widely distributed in environmental matrices of both tropical and polar regions. The present study focusing on their presence in the different environmental matrices such as sediments, water samples, Terrestrial soil, and snow samples in the Svalbard archipelago in Norway. Samples were collected during the Indian Arctic expedition 2023-34 and the India's first winter expedition 2024-25. There are 11 perfluorinated compounds assessed in the present study. The concentrations of per- and polyfluoroalkyl substances (PFAS) in Arctic snow and sediment samples revealed significant variation and elevated levels. These concentrations exceed the previously reported studies. It also implicates the importance of long-range air transport in the distribution pattern of PFASs in the polar region. The elevated PFAS levels observed in this study may surpass existing environmental thresholds. The results emphasize the possibility of bioaccumulation and transmission into terrestrial and aquatic food chains, which could endanger ecosystems and human health in the long run. In the midst of the climate change scenario, more studies have to be conducted to understand their fate in the sedimentary environment with variations in the physio-chemical properties of the sediments.

Keywords; Hazardous, Pollutant, Polar, Sediment, Toxic

Reference

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