

Statements from Oulu 2017 Observer Special Session: Observer States

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INDIA'S STATEMENT AT THE SENIOR ARCTIC OFFICIALS MEETING, OULU, FINLAND, 25-26 OCTOBER, 2017

Thank you, Chair.

Good Morning colleagues,

I am extremely delighted to be here on behalf of India at the meeting of Senior Arctic Officials and specifically the Observers Special session in this beautiful city of Oulu in Finland. I gratefully acknowledge and deeply appreciate the excellent arrangements and warm hospitality of Finland as evident from grand dinner hosted last night by Government of Finland and City of Oulu. I join other delegations in congratulating new observers.

Mr. Chair,

India has a strong presence in Arctic having research station at Ny Alesund at Swalbard. India considers, the Arctic and the Antarctic as integral parts of the global climate system which require long-term monitoring and research. In this regard, India launched a dedicated project on polar aerosol measurements in 2010 to understand the anthropogenic influence in Svalbard through the study of direct effects and snow albedo effects. The assessment of direct effects is made through the observation of optical properties of aerosols to derive single scattering albedo and to estimate the energy balance over bright surface whereas the snow albedo forcing is inferred from the quantification of absorbing aerosol (e.g., black carbon) depositions in snow. Our measurements from Ny-Ålesund indicate strong seasonality and signatures of vertical heterogeneities associated with convective atmospheric boundary layer and transport. While the current measurements have been carried out over a period of 6 years we need to study long-term trends to arrive at conclusive analysis. This climatological study has also shown consistent springtime enhancement in black carbon concentrations, nearly 3-times higher than the lowest black carbon concentrations in summer. The study also indicates that sources of black carbon over Arctic is mostly from fossil fuel, with significant contributions from long-range transported biomass burning in spring.

Mr. Chair,

Arctic Fjords are considered as indicators of climatic variations and environmental pollution. As the glacial melt and permafrost thaw increases, transboundary and highly persistent pollutants are deposited into the sedimentary environment of these Fjords. The Indian study of the Fjords - Kongsfjorden and Krossfjorden of Ny-Ålesund determined the distribution of

total mercury (THg) in the sediments and adjoining terrestrial regimes which were found to be within the limits and agrees with the previous studies. The analysis of sediment samples from Krossfjorden indicated Beta blockers, metoprolol and propranolol as emerging contaminants. Another aspect of this study was to probe for microplastics from the sediment samples, the mean abundance of which was derived along with the particle size. Polymers identified include polyester fibre, nylon, polypropylene and polyamide. This study, is expected to provide impetus for further research on the distribution and impact of this emerging pollutant in various matrices of Arctic region.

Mr Chair,

Based on the analysis of data and published literature, our findings, intrusion of bacterial genera to the Arctic was observed. In this process, mesophilic pathogens, including *Escherichia coli* were detected from the arctic environment. Studies of diverse serotypes present in the tundra environment, especially in the faecal pellets of migratory bird, Barnacle Goose in Svalbard population and also in respect of faecal matters of Reindeer are presently being carried out. The prevalence of multi drug resistance was also identified.

These are some of the key findings of our researchers working in the Arctic.

Thank you, Mr. Chair.