Agenda Item - 12: Space and Climate Change

Mr. Chair and distinguished delegates

The Indian delegation is happy to deliberate on the agenda item 'Space and Climate Change'.

Climate change has far-reaching consequences that affect the entire planet impacting ecosystems, societies, and economies. Climate change leads to more frequent and intense extreme weather events, including storms, droughts & heatwaves, threatens survival of number of species, reduction in crop yields and impacting food security. Melting glaciers and ice sheets due to global warming, contribute to rising sea levels and making coastal areas vulnerable to flooding. Therefore, addressing climate change is crucial for the well-being of our planet and future generations. It calls for global cooperation, sustainable practices and urgent action to mitigate its impact.

Mr. Chair

Satellites play a crucial role in studying and understanding climate change. Satellites collect data on various aspects of Earth including atmospheric composition, vegetation health, surface temperature, greenhouse gases, cloud cover, ocean currents, sea surface height and host of other climatic parameters. This comprehensive information helps researchers to unravel the complex interactions within Earth's climate system.

Towards collecting the data on atmosphere and oceans surface, India has launched Oceansat and third generation of INSAT series of satellites. Ocean Colour Monitoring [OCM] and scatterometer payloads, on board Oceansat-3 satellite, are providing information on chlorophyll distribution over the ocean and the global ocean surface wind vector data which are used for weather prediction, detection and tracking of cyclones. The constellations of three weather satellites, INSAT- 3D, 3DR and 3DS, are meticulously designed to enhance meteorological observations by providing frequent data on atmospheric temperature & humidity profiles as well as other geophysical parameters like fog, fire, total ozone concentration in the atmospheric column and land surface temperature.

Mr. Chair

Satellite remote sensing technology proves to be an excellent tool for inventory and monitoring of snow and glaciers due to its wide coverage and revisit capability. The Himalayan Mountains are covered with extensive snow & glaciers cover and are highly sensitive to changes in the global climate, both in terms of their physical characteristics and their societal impacts. The research studies have indicated that glaciers across the globe are experiencing unprecedented rates of retreat and thinning due to global warming specifically attributed to anthropogenic activities.

The melting of snow and glaciers leads to the formation of new lakes and the enlargement of existing ones in the Himalayan region. These water bodies pose significant risks, such as Glacial Lake Outburst Floods (GLOFs), which can have devastating consequences for communities downstream. GLOFs occur when glacial

lakes release large volumes of meltwater due to the failure of natural dams, such as those made of moraine or ice, resulting in sudden and severe flooding downstream. In October 2023, South Lhonak Lake - a glacial lake situated in the northwest of Sikkim, India at 5200-meter height - burst due to glacier melting & incessant rains causing significant loss of human life and properties

Assessing long-term changes in glacial lakes is crucial for understanding glacier retreat rates, assessing GLOF risks, and gaining insights into climate change impacts. Satellite imagery covering the catchments of Indian Himalayan river basins from 1984 to 2023 indicates significant changes in glacial lakes. Long-term changes in the Ghepang Ghat glacial lake (Indus River Basin) at an elevation of 4,100 m in Himachal Pradesh, India, show a 178% increase in size between 1989 and 2022. Satellite-derived long-term change analyses provide valuable insights for understanding glacial lake dynamics, which are essential for assessing environmental impacts and developing strategies for GLOF risk management and climate change adaptation in glacial environments

Mr. Chair

India has established Meteorological & Oceanographic Satellite Data Archival Centre (MOSDAC) and National Information System for Climate and Environment Studies (NICES) programme to collect and archive data sets from satellites, ground based observations, processed geophysical parameters and making it accessible to scientific and research community. The initiatives focus on studying the long-term changes in Earth's land, ocean and atmosphere systems.

Mr. Chair

Climate change is a massive threat to mankind; therefore, many countries, including India, are trying to combat its detrimental effects. Towards this, India has been actively working towards promoting renewable energy sources including solar, wind, hydro, and biomass and aims to achieve 500 GW of installed capacity from non-fossil fuels sources by 2030.

In this regard, the installed solar energy capacity has increased by 30 times in the last 9 years and stands at 81.81 GW as of Mar 2024. India has developed a Solar Atlas for India using the Global Horizontal Irradiance (GHI) derived from the Indian geostationary satellites such as INSAT 3D. The Solar Calculator Application on ISRO's Web Portal was developed for wider dissemination of satellite-derived incident solar energy estimates. These initiatives will play a crucial role in achieving a sustainable and cleaner future to fulfil India's commitment to net zero emission.

India has also proposed to launch a 'G20 Satellite Mission for Environment and Climate Observation'. The satellite would be built by India, would host payloads from the G20 nations and the data from the satellite would be made available for the global community.

In conclusion, India shall continue to focus on renewable energy options to mitigate global climate risk and is committed to work in a multilateral framework for environmental sustainability.

Thank you Mr. Chair and distinguished delegates