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PRESS RELEASE

IIT (ISM) Dhanbad eye opener research reveals significant decrease in snow cover of low altitudinal region of Hindu Kush Himalayan Region; Calls for efforts to reduce emission of greenhouse gases and implementing carbon capture technology in oil and gas sector

A recent research conducted by the Department of Applied Geology of one of the oldest premiere technical institutes of the country, IIT (ISM) Dhanbad indicated significant decline in the snow cover (from 5-15%) in the central zone and eastern zone of Hindu Kush Himalayan Region.

The study conducted by the department as part of the research of PhD scholar Nirasindhu Desinayak under the guidance Dr Anup Krishna Prasad, associate professor of Applied Geology Department attributed the depletion of snow cover and melting of glaciers etc to warming tendency of the atmosphere (troposphere) over the Himalayas.

The eye opener research based on analysis of seismic data of the regions from 2000-2017 further calls for initiation of efforts to reduce or control emission of greenhouse gases like Carbon oxide (CO_2) and Methane (CH_4).

The findings of the research also highlighted the need for implementing Carbon Capture Technologies in the Oil and Gas sector and Coal Fired Thermal Power Plants.

The research also underlined the need for usage of low carbon energy sources besides development of hydro, solar and wind power and at the same time lays stress on capture of Carbon through afforestation and algal farming (bio fuels).

The research was conducted with the additional guidance of three USA based experts, including Professor Hesham El Askary of Centre of Excellence in Earth Systems Modelling and Observations, Schmid College of Science and Technology, Chapman University, USA; Professor Menas

Kafatos, Director of the same institute at Chapman University besides Ghassem R Arsar, Senior Vice President for Science, Universities Space Research Association (USRA), Columbia.

The five year research conducted from 2015 onwards on the basis of analysis of seismic data set from HKH region of 2000-2017 describes long term altitudinal variations and variability in coverage of snow and glaciers of the world's greatest mountain region, Hindu Kush Himalayas.

Dr Anup Krishna Prasad, while elaborating about the findings of the research said " The western zone or High altitude Region (above 6000 meter) of HKH exhibit no significant loss in snow cover in the same period of 2000-2017 when the central zone witnessed significant decline of snow cover.

"Such large, anomalous and significant changes in snow cover of HKH region and particularly in the central region of 2000-6000 meter altitude indicate an immediate impact on river discharge, which is anticipated to raise the level of major rivers of Asia" further said Dr Prasad.

"The rising loss of snow cover in relatively low altitude regions (2000-6000 meter) which can reach as high as 15% in some regions, necessitates the monitoring of all such zones "opined Dr Prasad.

Elaborating about challenges posed by the depleting snow cover Prasad said, "It is likely to increase the number of natural snow melt lakes in Himalaya which pose a risk to the downstream settlements due to possibility of rapid bursting"

"The losses due to glacial melt lakes can be minimised through mapping of these melt lakes "explained Prasad.

Moreover, with the snow cover over the HKH region is known to influence the monsoon over the Indian Subcontinent these relatively quick changes (significant loss of snow cover) are expected to influence the monsoon rainfall distribution across India.

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Picture Captions

1. Profile picture of Associate Professor of Applied Geology Department of IIT (ISM) Dhanbad, Anup Krishna Prasad.

2. Profile Picture of Nirasindhu Desinayak, a research scholar of IIT (ISM) who conducted the research that revealed melting of snow in Hindu Kush Himalayan Region.

3. The significant reduction in snow cover area and the shrinking of glaciers (snow cover is visible in white color) spanning Nanda Devi, Nanda Khat, and Chamoli in Chamoli district, Uttarakhand, India, as shown in Landsat Series remote sensing pictures from 2005 (Courtesy-Google Earth photos of October 2005)

4.The significant reduction in snow cover area and the shrinking of glaciers (snow cover is visible in white color) spanning Nanda Devi, Nanda Khat, and Chamoli in Chamoli district, Uttarakhand, India, as shown in Landsat Series remote sensing pictures from 2017 (Courtesy-Google Earth Photos of October 2017).

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