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Carbon removal capacity of Kaziranga forest may reduce over time: IITM study

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Pune: Carbon removal capacity of the forest in Kaziranga park in northeast India may reduce over time according to a recent study conducted by scientists at Indian Institute of Tropical Meteorology (IITM) Pune and University at Tezpur, Tezpur. However, similar trend may not be seen in other parts of India according to scientists.

The study was recently published in Elsevier journal, Agricultural and Forest Meteorology. Dr Supriyo Chakraborty, Lead author of Study and Deputy Project Director, Centre for Climate Change Research (CCCR), IITM said that the study finds and highlights that trees and forests behave in a way where they absorb carbon dioxide and emit oxygen.

“We investigated carbon movement processes at Kaziranga National Park.

which is a deciduous forest in northeast India. We have observed that Kaziranga forest removes maximum carbon from the atmosphere before the monsoon season, typically during March, April and May month. However, as we collected and studied multi-year data it showed us that the Kaziranga forest may not be a carbon sink,” said Chakraborty.

The study found that the forest releases more carbon dioxide than it absorbs.

“The reason for this unusual behaviour lies in the soil. Due to the high bacterial population, the Kaziranga soil emits significant carbon dioxide, known as heterotrophic respiration,” said Chakraborty.

He added that one of the reasons for this observation may be due to climate change.

“Rainfall data by India Meteorological Department (IMD) suggests that rainfall has decreased for several decades, especially during the pre-monsoon season. The amount of rainfall derived from the locally generated moisture, through transpiration, is also experiencing a reducing trend this season. This is especially significant for March-April because this is the time an enhanced hydrological cycle triggers the primary productivity. Reduction in rainfall may affect both the ecosystem productivity and the transpiration process. If the plant productivity weakens, it may further affect the carbon sequestration capacity of this fragile ecosystem of northeast India. So, over a long-term period, the forest may emit more carbon dioxide into the atmosphere,” Dr Chakraborty.

He also added that a similar trend is unlikely to be seen in other parts of India.

“Northeast has different weather conditions, forest type and soil type. The pre-monsoon rainfall in February and March are relatively higher in the Northeast than other parts of India. And so a similar trend is not possible in other parts of India” said Chakraborty.

Talking about the future studies related to this one, Chakroborty added that this time Scientists studied only woody forest which is just 20 percent of the kaziranga park.

“Around 60 percent of the forecast is grassland. We have not studied the grassland as of yet. Moreover, there is plenty of opportunity to explore other forests of northeast which are to be studied yet,” said Chakraborty.

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