

IIT-D study: Climate change strongly affects future fire weather danger in Indian forests

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NEW DELHI: A study by IIT-Delhi warned that warming temperatures will increase the danger of fire in many Indian forests. IIT Delhi researchers developed a very high-resolution data set of future climate projections and used that data to calculate the Fire Weather Index (FWI) for forest regions of India. The results showed that forests in Central and South India and the Himalayan region will see significant increases in FWI by the end of the century. The fire season in these regions will also increase by 12-61 days.

As per the abstract of the study, human activity is causing the earth's climate to change in unprecedented ways. Atmospheric temperatures are rising rapidly and will continue to rise in the

future. "Days with severe fire weather danger will increase by up to 60% in dry forests but will reduce by up to 40% in humid forests."

For countries like India, it suggests fragmented forests and diverse eco-climates, standards and mitigation strategies must be developed at regional instead of national level, as it stated that "the fire season will be longer by 3-61 days across the country and the pre-monsoon fire season will become more intense over 55% of forests." The study stated that almost 21% of India is covered by forests that are home to a wide range of species making Indian forests a biodiversity hotspot and are extremely diverse ranging from arid to alpine. It noted that forest fires occur throughout the year except for the peak monsoon period. "According to climate projections, India will experience a warming of 4.4-4.8 °C by the end-century as compared to the 1976-2005.

The IIT-Delhi researchers developed a very high-resolution data set of future climate projections and used that data to calculate the FWI for forest regions of India. The results showed that forests in Central and South India and the Himalayan region will see significant increases in FWI by the end of the century.

According to the researchers, these findings align well with the conventional wisdom that higher temperatures increase forest fire hazard.

Interestingly, the study showed that not to be the case in all forests. Humid tropical forests in the Western Ghats and parts of the North-East, where rainfall and humidity are projected to rise, will experience lower FWI despite the warming.

Somnath Baidya Roy, professor and head of the centre for atmospheric sciences, and a co-author of the study, said: “We must study forest fires in India at a high degree of granularity to properly represent the diversity in climate and forest types across the country. Course resolution global scale studies simply don’t work for us.”

The study was published in *Communications Earth and Environment*, a highly ranked journal from the Nature Springer group.