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Air turbulence likely to worsen in coming decades, say researchers

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Dhaka: Nervous flyers may face rougher skies ahead as new scientific findings suggest flight turbulence is expected to worsen significantly due to ongoing climate change.

A recent study published in the Journal of the Atmospheric Sciences by researchers at the University of Reading reveals that rising global temperatures are making the atmosphere less stable — a key factor in the increase of turbulence experienced by aircraft.

The team analyzed 26 of the latest global climate models, focusing on the impact of warming temperatures on jet streams — the narrow bands of strong winds around 35,000 feet, where most commercial aircraft cruise. Their findings indicate that higher temperatures disrupt the flow of these jet streams, leading to more frequent and intense turbulence.

Such disturbances can cause sudden jolts in altitude, creating hazardous conditions inside aircraft cabins. Passengers may be violently thrown around during severe turbulence, risking serious injuries or even fatalities.

“Recent years have seen severe turbulence incidents causing serious injuries and, in some tragic cases, fatalities,” said Professor Paul Williams, lead author of the study. “Pilots may need to keep seatbelt signs on longer and suspend cabin service more frequently. But to truly protect passengers, airlines must invest in advanced technology capable of detecting turbulence before it strikes.”

The study also examined both moderate and high greenhouse gas emission scenarios. Under the high-emission projection, researchers anticipate CO_2 levels to double by 2050, with global temperatures potentially rising by 4.4°C by the end of the century. These conditions would significantly increase the likelihood of strong turbulence events across global flight paths.

Notably, the threat is not limited to specific routes. The effects of global warming are expected to impact both hemispheres, meaning turbulence will be a worldwide concern, regardless of a plane’s origin or destination.

Severe turbulence, which exerts more than 1.5g-force on the human body, could become more common, increasing the importance of strict adherence to safety protocols. Airport authorities and airlines may enforce seatbelt regulations more rigorously to minimize risks.

As skies grow more unpredictable, researchers stress the need for the aviation industry to adapt swiftly — both to ensure passenger safety and to navigate the challenges posed by a rapidly changing climate.

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