



## Will flights get bumpier because of climate change?

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Atmospheric turbulence is the leading cause of aircraft incidents. Every year, turbulence injures hundreds of passengers (sometimes fatally) and costs airlines around \$100m. Turbulence in clear air (as opposed to clouds) is especially difficult to avoid, because it is invisible. Clear-air turbulence is produced by atmospheric wind shears, which are expected to get stronger because of climate change. However, until recently, the response of clear-air turbulence to climate change had not been studied. We have shown using climate model simulations that clear-air turbulence changes significantly when the atmospheric CO<sub>2</sub> is doubled. For example, within the busy North Atlantic flight corridor in winter, most clear-air turbulence measures show a 10–40% increase in the average strength of turbulence. They also show a 40–170% increase in the likelihood of encountering turbulence strong enough to dislodge unsecured objects. We conclude that climate change will lead to bumpier transatlantic flights by the middle of this century.

### Reference

PD Williams and MM Joshi (2013) Intensification of winter transatlantic aviation turbulence in response to climate change. *Nature Climate Change* 3(7), 644–648. doi:10.1038/nclimate1866