

# Traveling by car increases global temperatures more than by plane, but only in long term

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Credit: AI-generated image ([disclaimer](#))

Driving a car increases global temperatures in the long run more than making the same long-distance journey by air according to a new study. However, in the short run travelling by air has a larger adverse climate impact because airplanes strongly affect short-lived warming processes

at high altitudes. The study appears in ACS' *Environmental Science & Technology*.

In the study, Jens Borcken-Kleefeld and colleagues compare the impacts on global warming of different means of transport. The researchers use, for the first time, a suite of climate chemistry models to consider the climate effects of all long- and short-lived gases, aerosols and cloud effects, not just [carbon dioxide](#), resulting from transport worldwide.

They concluded that in the long run the global temperature increase from a car trip will be on average higher than from a plane [journey](#) of the same distance. However, in the first years after the journey, air travel increases [global temperatures](#) four times more than car travel. Passenger trains and buses cause four to five times less impact than automobile travel for every mile a passenger travels. The findings prove robust despite the scientific uncertainties in understanding the earth's climate system.

"As planes fly at high altitudes, their impact on ozone and clouds is disproportionately high, though short lived. Although the exact magnitude is uncertain, the net effect is a strong, short-term, temperature increase," explains Dr. Jens Borcken-Kleefeld, lead author of the study. "Car travel emits more carbon dioxide than air [travel](#) per passenger mile. As carbon dioxide remains in the atmosphere longer than the other gases, cars have a more harmful impact on [climate](#) change in the long term."

**More information:** "Specific Climate Impact of Passenger and Freight Transport", *Environmental Science & Technology*.

Provided by American Chemical Society

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