

Modelling climate impacts on the aviation sector

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The climate is changing, not just where we live at ground level, but also where we fly at 35,000 feet. We have long known that air travel contributes to climate change through its emissions. However, we have only recently become aware that climate change could have significant consequences for air travel. This presentation will give an overview of the possible impacts of climate change on the aviation sector. The presentation will describe how the impacts are modelled and how their social and economic costs are estimated. The impacts are discussed in the International Civil Aviation Organization's (ICAO's) latest Environmental Report (Puempel and Williams 2016).

Some of the possible impacts are as follows. Rising sea levels and storm surges threaten coastal airports, such as La Guardia in New York, which was flooded by the remnants of Hurricane Sandy in 2012. Warmer air at ground level reduces the lift force and makes it more difficult for planes to take-off (Coffel and Horton 2015). More extreme weather may cause flight disruptions and delays. Clear-air turbulence is expected to become up to 40% stronger and twice as common (Williams and Joshi 2013). Transatlantic flights may collectively be airborne for an extra 2,000 hours each year because of changes to the jet stream, burning an extra 7.2 million gallons of jet fuel at a cost of US\$ 22 million, and emitting an extra 70 million kg of carbon dioxide (Williams 2016).

These modelled impacts provide further evidence of the two-way interaction between aviation and climate change.

References

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