

The banner features a green and blue background with stylized mountains, a sun, and an airplane. The text is in white and blue.

# ICAO Symposium on Non-CO<sub>2</sub> Aviation Emissions

16 — 18 September 2024  
Montréal, Canada

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Speaker

Day 2 - Setting the Scene *by the Industry*

# The nature of the ATM challenge

Globally, most warming contrails are formed by a small percentage of flights

**But**

Those flights are not random in time or space

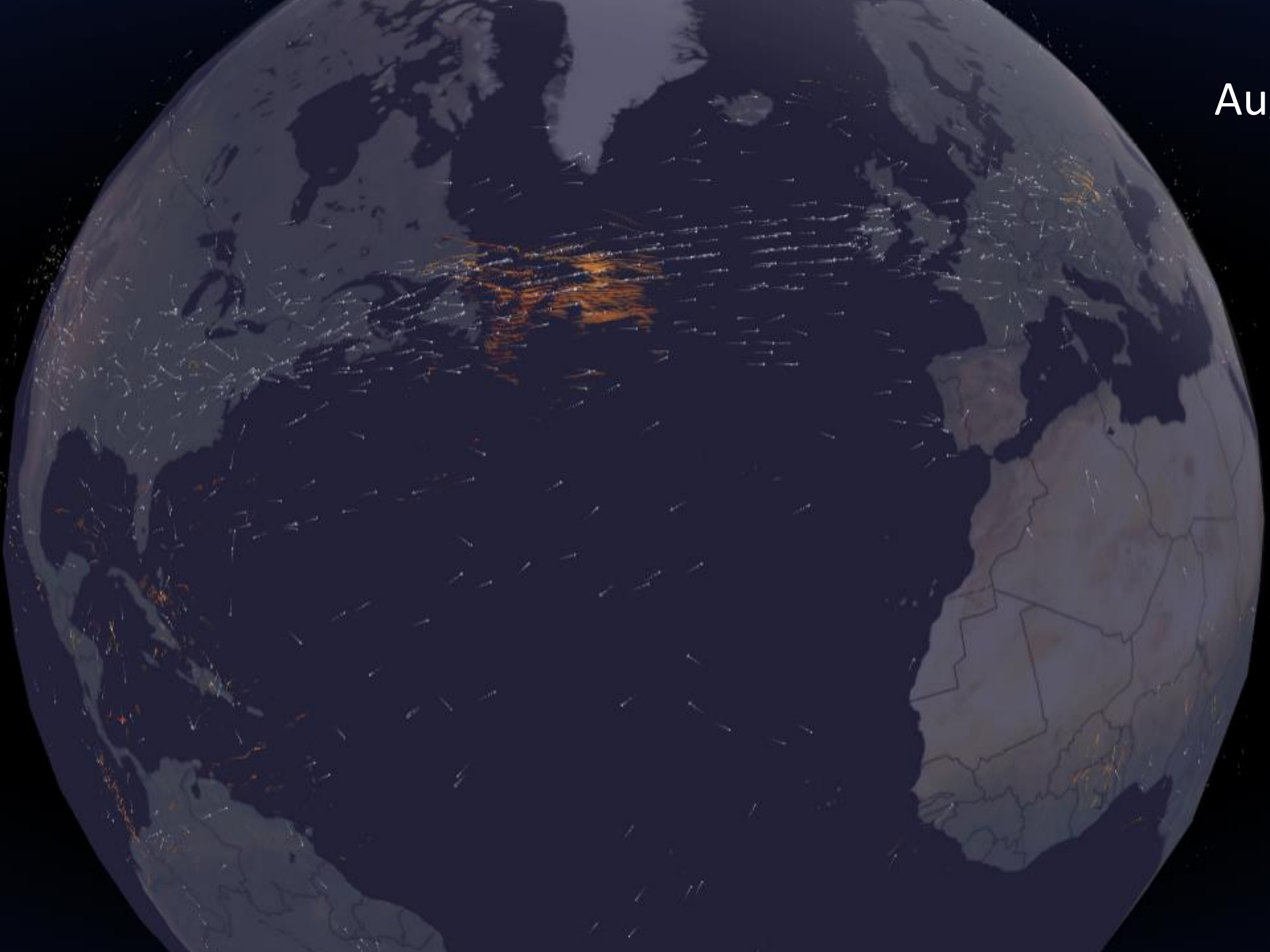
December 8,  
2023



July 13, 2023



August 1,  
2024



August 31,  
2024



July 28, 2023



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***The good news*** - Single flight trials have shown the potential feasibility of operational avoidance mitigation measures

Successful mitigation of our contrail warming impacts necessitates our ability to implement at scale - few at scale trials to date

***The challenge*** - It is not a coincidence that large incidence of contrails form in areas of heavy traffic, making the implementation of avoidance complicated from an ATM perspective. Rarely does the “lived experience” of contrail formation equal a small percentage of flights

- Demand capacity balancing,
- Delay impacts,
- Workload / safety impacts of more flight level changes in enroute airspace,
- Potential flight efficiency impacts for aircraft that wouldn't have formed contrails



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## Where to next?

Urgent need to test different concepts of operations (CONOPS) to identify options with highest potential for success at scale

What method best enables management of adjusted flight trajectories on a system basis, and best overcomes limitations of weather forecasting

- Pre-tactical / tactical / mix
- Controller initiated/ Pilot initiated

Different regions and airspace may lend themselves to different approaches

Important to share outcomes and lessons to continue to advance towards a proven approach with clarity regarding roles for dispatch, pilot and ATCO

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# Thank You

