

14:40-15:30 Showcase Part 2:

**Last two of four companies working hands-on
with contrail management present their practical
solutions: Thales & Estuaire**

**COPENHAGEN
CONTRAILS
CONFERENCE**
25-26 March 2025 • Scandic Copenhagen



Julien Lopez
*Head of Green Operations,
Thales*



Maxime Meijers
Co-Founder & CEO, Estuaire

Showcase

Contraails avoidance for airlines

COPENHAGEN CONTRAILS CONFERENCE

25-26 March 2025 • Scandic Copenhagen



Julien Lopez

Head of Green Operations, Thales

Agenda

01

Amelia & Thales contrails avoidance experiment

Yannick Assouad • 1st
Executive Vice-President, Avionics & Thales Executive Committee Member
2w • 🌐

✈️ Contrails contribute to global warming so we're very proud to be announcing the large-scale deployment of a contrail avoidance solution alongside **Amelia** (by **Regourd Aviation**) and **Breakthrough Energy** Contrails.

The **Thales** contrail avoidance solution is a first for France. It is fully aligned with our strategy aiming to transform the aerospace industry towards a more environmentally-friendly future through technology, for more sustainable and responsible aviation. Full story and video explainer below! 📄 📺

Thales Aerospace
156,618 followers
2w • Edited • 🌐

✈️ Contrails are one of the major challenges in the environmental transition of the aviation sector. In 2024, initial trials of a contrail avoidance solution on flights operated by airline Amelia between Paris and Valladolid helped avoid ...more

Thales, Amelia and Breakthrough Energy Contrails announce the deployment of a contrail avoidance solution.



Amelia, Thales Launch Large-Scale Contrail Prevention Experiment

Thierry Dubois February 13, 2025

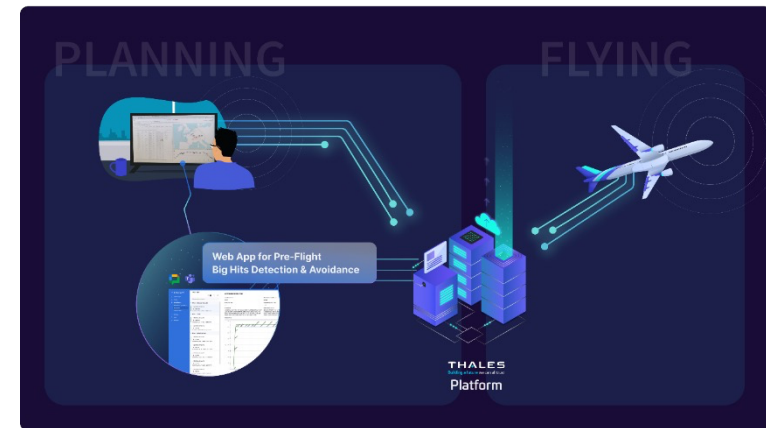


Amelia and Thales expand contrail-avoidance trial after first-phase success

By Dominic Perry | 13 February 2025

02

Call to airlines : come experiment with us



Agenda

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Amelia & Thales contrails avoidance experiment

1st phase : test operational feasibility June-Dec 2024

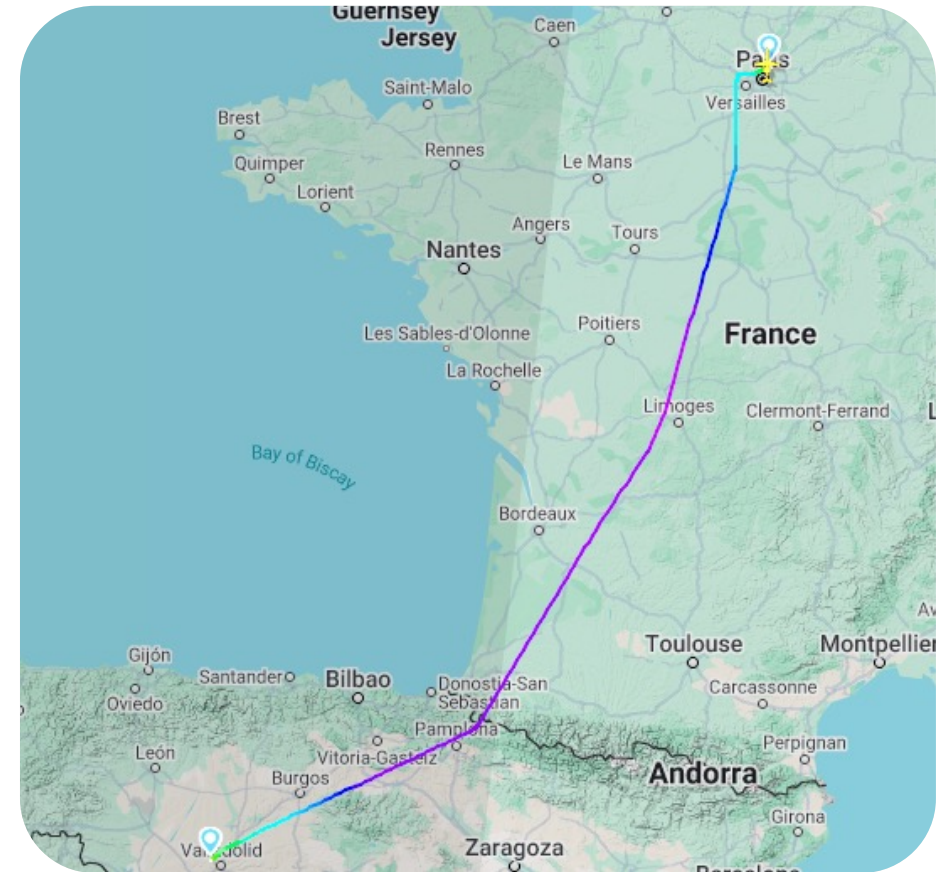
Scope

- Main focus on Paris-Valladolid
 - › 1 rotation / week
 - › 1 aircraft type : ERJ145
 - › 50 flights analysed
 - › 5 avoidance flights realized
- 25 other flights analysed, 4 avoidances realized



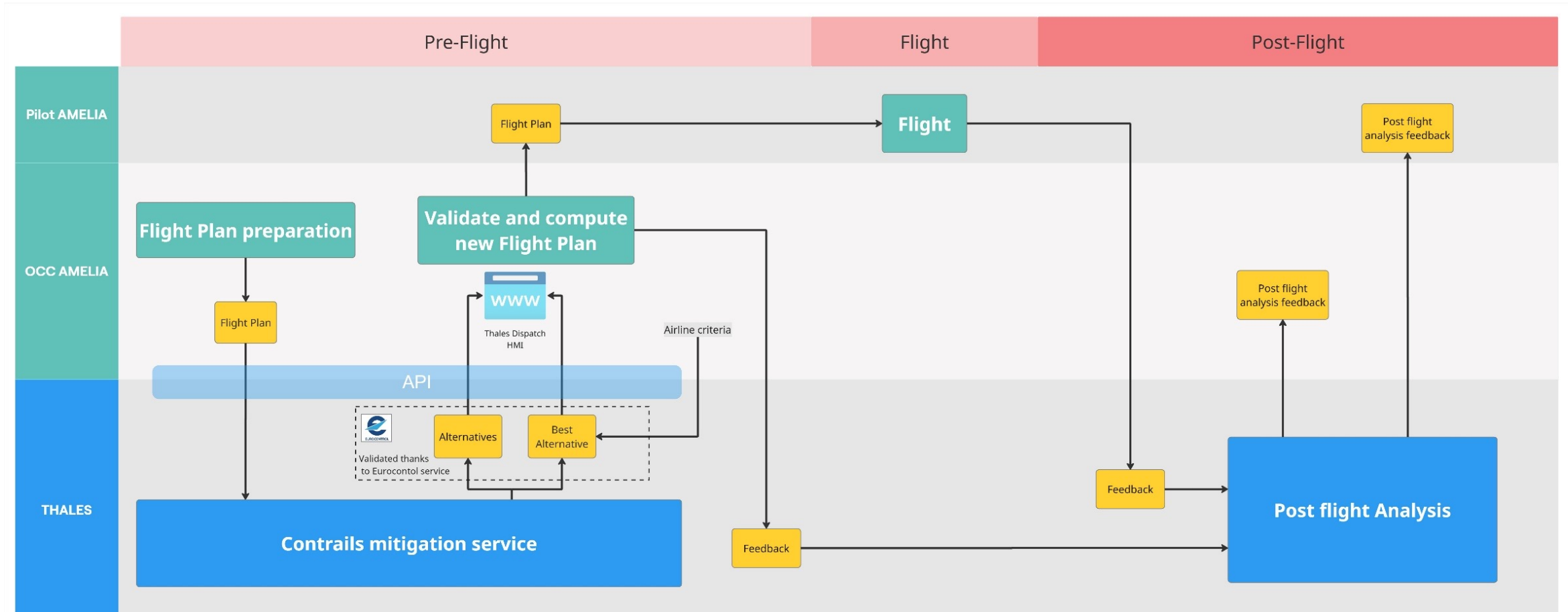
Main objective

- Validate **operational feasibility** and **acceptability**
 - › Smooth integration into airline operational processes
 - › Operational Control Center (OCC) and Pilots adoption
 - › Decision criterion : Climate impact savings vs. Delta fuel & time



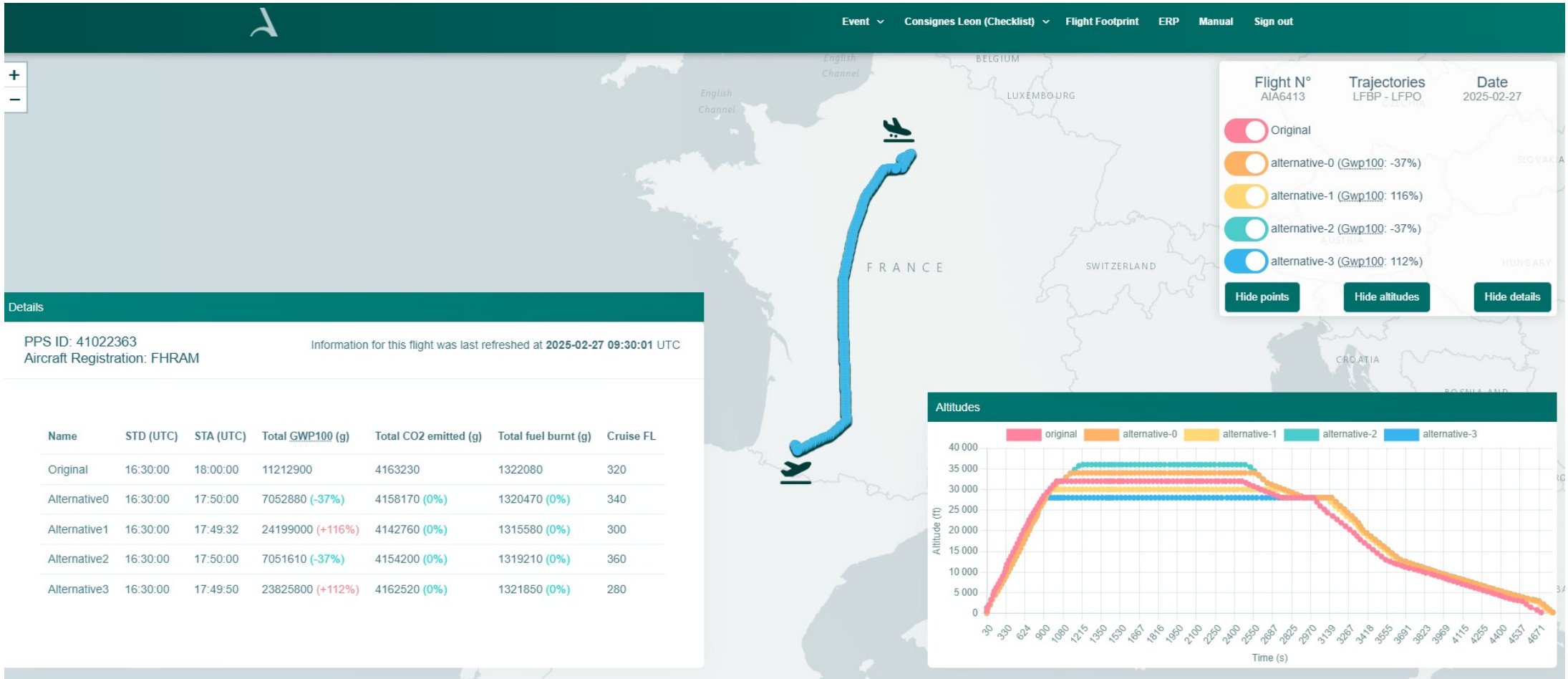
Amelia & Thales contrails avoidance experiment

Operational process



Amelia & Thales contrails avoidance experiment

Pre-flight Amelia OCC interface



Amelia & Thales contrails avoidance experiment

Amelia flight between Valladolid and Paris, June 5th 2024



Initial Flight Plan – FL 360 (36,000ft)

Climate impact (CO₂eq, GWP100) : 12.6 t

CO ₂ : 5.70 t	NO _x : 2.13 t	Contrails: 4.65 t	H ₂ O: 0.12 t
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Fuel consumption : 1.81 t

Optimized Flight Plan – FL 340 (34,000ft)

Climate impact (CO₂eq, GWP100) : 8.8 t (-30.2%)

CO ₂ : 5.84 t (+2.4%)	NO _x : 2.23 t (+4.7%)	Contrails: 0.61 t (-86.9%)	H ₂ O: 0.12 t
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Fuel consumption : 1.85 t (+2.4%)

Flown trajectory – FL 340 (34,000ft)

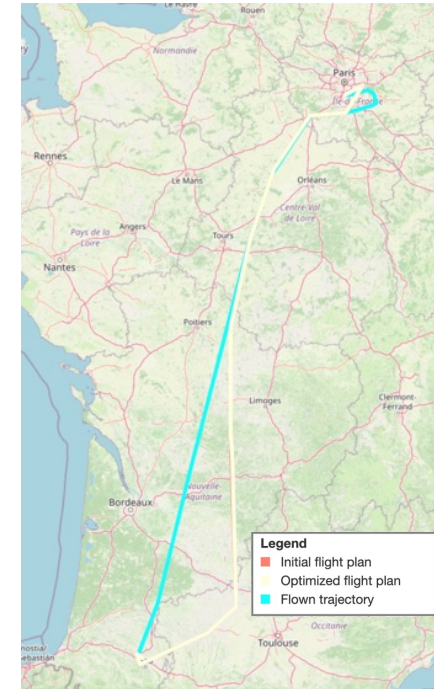
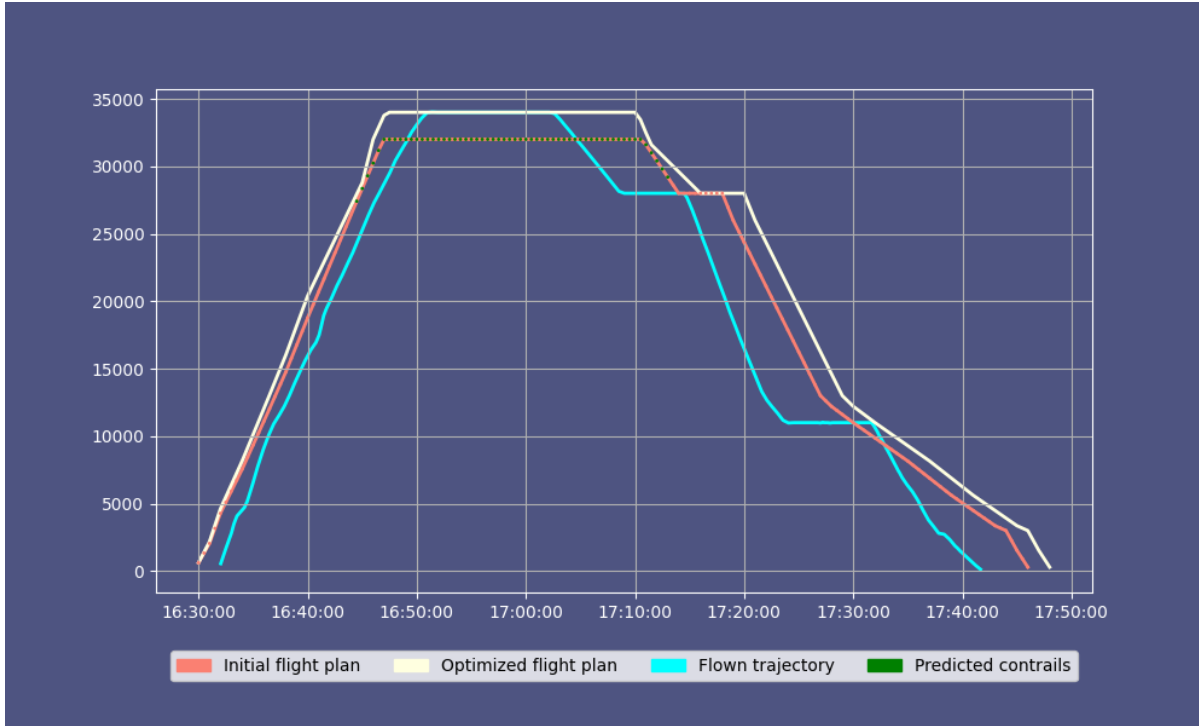
Climate impact (CO₂eq, GWP100) : 9.6 t (-23.8%)

CO ₂ : 6.35 t (+11%)	NO _x : 2.42 t (+13%)	Contrails: 0.73 t (-84.3%)	H ₂ O: 0.12 t
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Fuel consumption : 2.01 t (+11%)

Amelia & Thales contrails avoidance experiment

Amelia flight between Pau and Paris, Feb 27th 2025



Initial Flight Plan – FL 320 (32,000 ft)

Climate impact (CO₂eq, GWP100) : 27.3 †

CO ₂ : 4.19 †	NO _x : 1.52 †	Contrails: 21.5 †	H ₂ O: 0.10 †
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Fuel consumption : 1.33 †

Optimized Flight Plan – FL 340 (34,000ft)

Climate impact (CO₂eq, GWP100) : 8.9 † (-67.4%)

CO ₂ : 3.90 † (-6.9%)	NO _x : 1.38 † (-9.2%)	Contrails: 3.49 † (-83.8%)	H ₂ O: 0.10 †
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Fuel consumption : 1.24 † (-6.9%)

Flown trajectory – FL 340 (34,000 ft)

Climate impact (CO₂eq, GWP100) : 7.9 † (-71.0%)

CO ₂ : 3.78 † (-9.8%)	NO _x : 1.52 †	Contrails: 2.46 † (-88.6%)	H ₂ O: 0.10 †
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Fuel consumption : 1,20 † (-9.8%)

Amelia & Thales contrail avoidance experiment

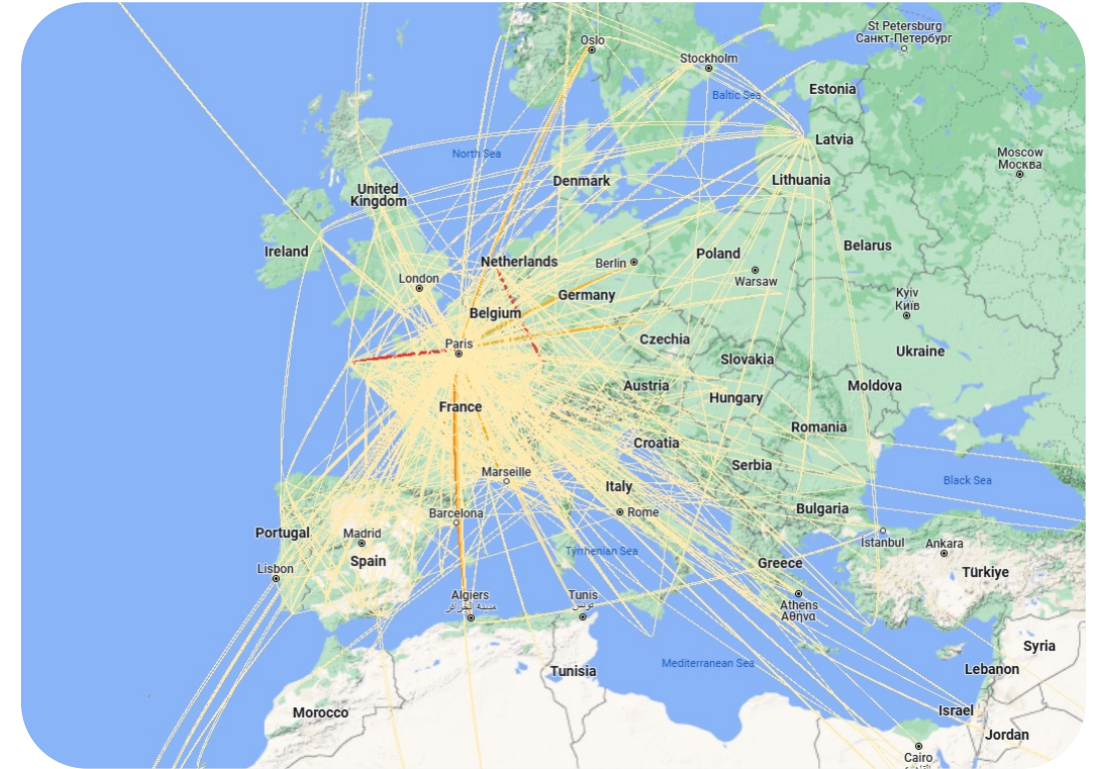
2nd phase : progressive deployment on all Amelia flights - 2025

Scope

- 10,000 eligible flights
- Aircraft types : ERJ145, A319, A319ELR, A320

Main objectives

- **Confirm scalability**
 - on a variety of city pairs
 - be able to manage dozens of daily flights
- **Top-level science**
 - › Management of uncertainties, including ensemble forecasting
 - › Sensibility to evolution of climate models
 - › Verification of contrail avoidance



Agenda

01

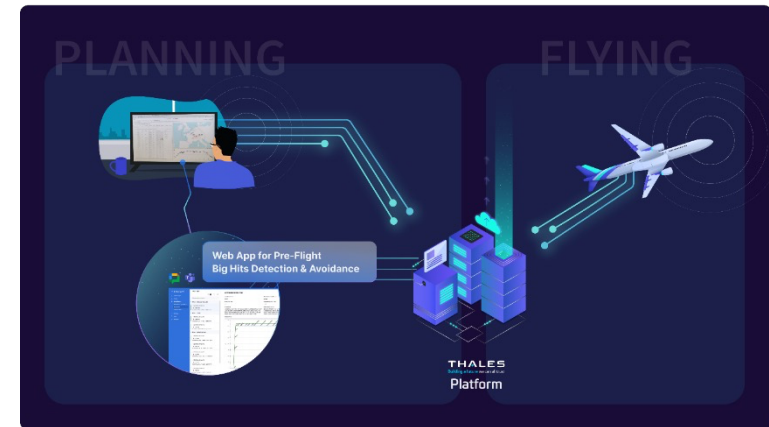


Amelia & Thales
contrails avoidance
experiment

02

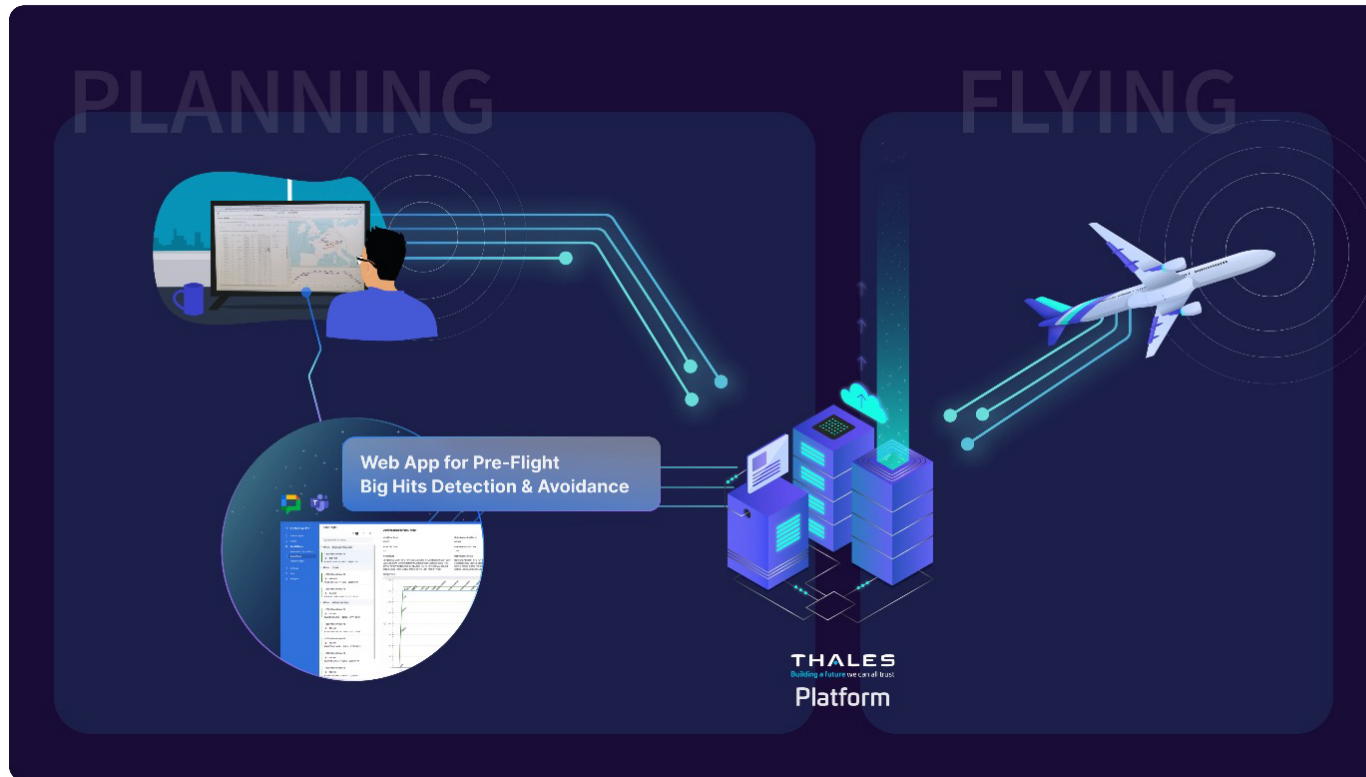


Call to airlines : come
experiment with us



Call to Airlines : come experiment Contrails mitigation with us

- Avoid your first Contrails Big Hits in 2025 with a “no regret” approach
- Connect to our web app to get Pre-flight detection of very Big Hits with very low uncertainties, and a proposed alternative Flight Plan for avoidance, adapted to your own mitigation strategy



Contact

 thales-green-operations@thalesgroup.com


Thales webapp for pre-flight Big Hits detection and avoidance

- FlytAdvisor
- WorldWide
- Amelia Flights - Contrails...
- Daily - All routes
- Daily - Best routes**
- Feedbacks
- Historical - All routes
- Historical - Best routes
- Analytics
- Settings
- Help
- Explorations

Daily - Best routes

Recherche en cours...

Registration number : -



AEH244F EGNO → LFQQ - 13/02 18:02 Z

- 100 % (- 2931KG)
CRUISE FL290

AEH244F EGNO → LFQQ - 13/02 18:02 Z

Dispatcher analysis

Decision **ACCEPTED**

Decision Comment Ok, no slot time modification

Flight information

Registration Number -

City Pair EGNO → LFQQ

Aircraft Type E145

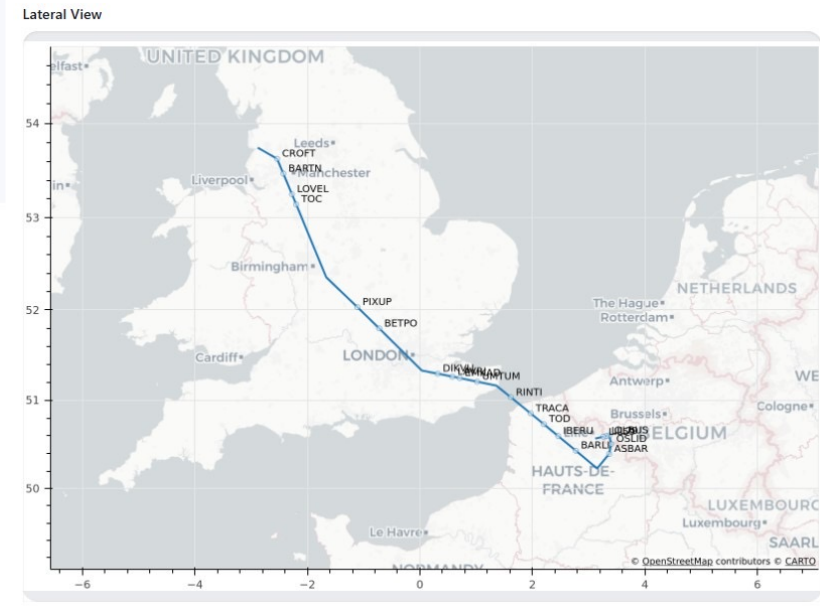
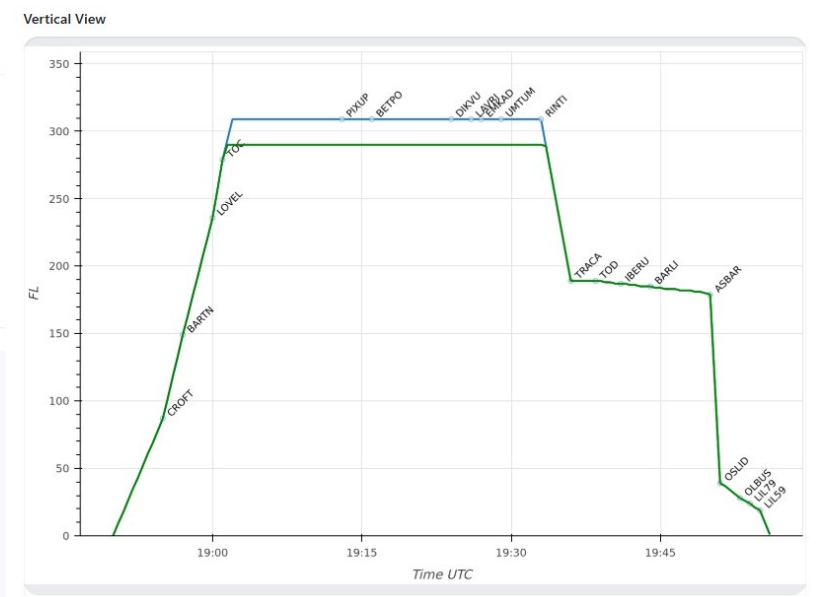
STD 2025-02-13 18:50 GMT

Trip Time 1:06

Distance 360 NM

Optimisation details

Initial FL	F310	Reason	CRUISE FL290	New FPL filable ?	VALID
Delta distance	- 0 NM	Delta ETA	+ 0 sec	Delta Fuel	- 1 KG
Contrails reduction	- 100 % (- 2931KG)	Total emission reduction	- 42 % (- 2459KG)		





Thank you

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