

Using Big Data and AI to improve operations and reduce aviation's CO2 footprint

AVIATION REIMAGINED
Decarbonising flight



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OpenAirlines



Aviation current challenges



Social Pressure

Flygskam: an anti-aircraft movement led by the activist Greta Thunberg.



Environmental Pressure

Air transport is responsible for more than 3% of CO₂ emissions worldwide. If nothing is done, aviation's carbon footprint is expected to increase by **45%** over the next 15 years.



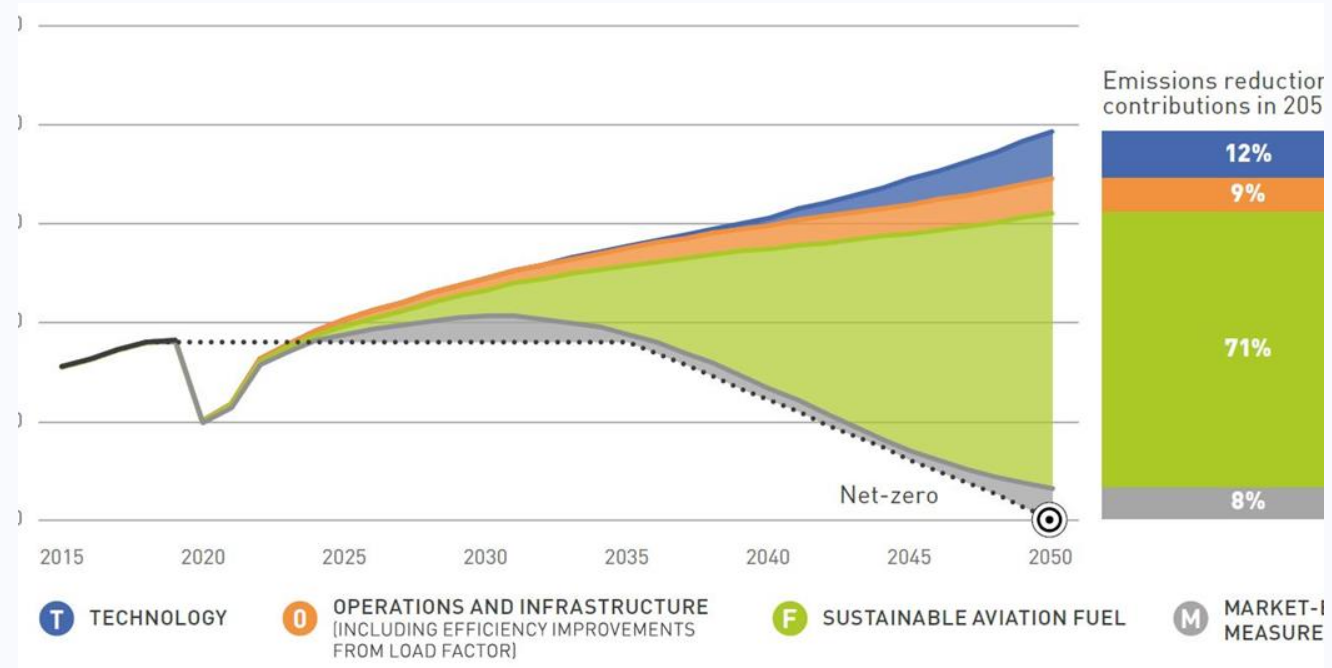
Economic Pressure

An unprecedented worldwide crisis that struggles the whole industry.



The problem

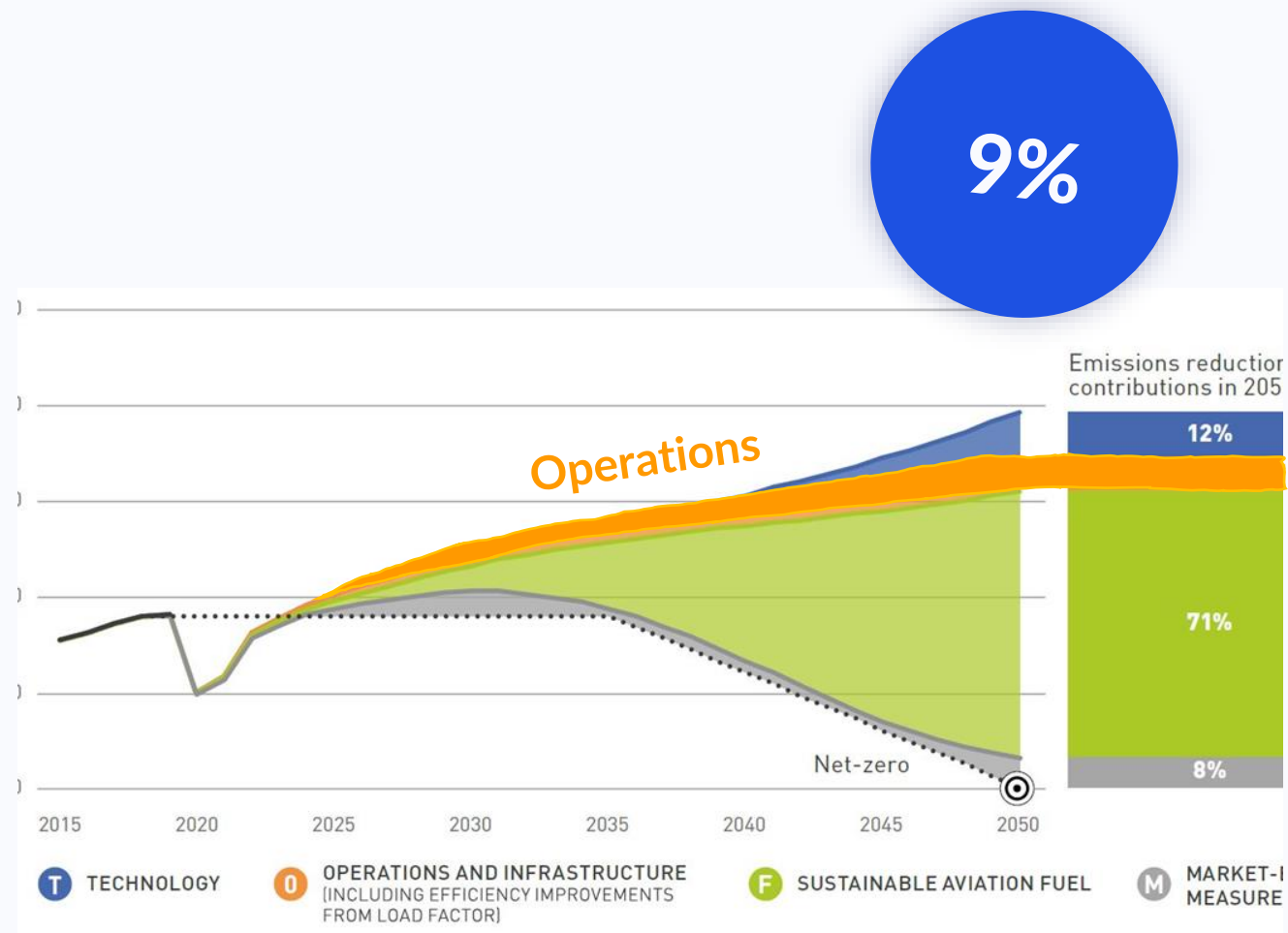
If no action taken, aviation CO2 emissions are expected to grow by **+45% in the next 15 years.**



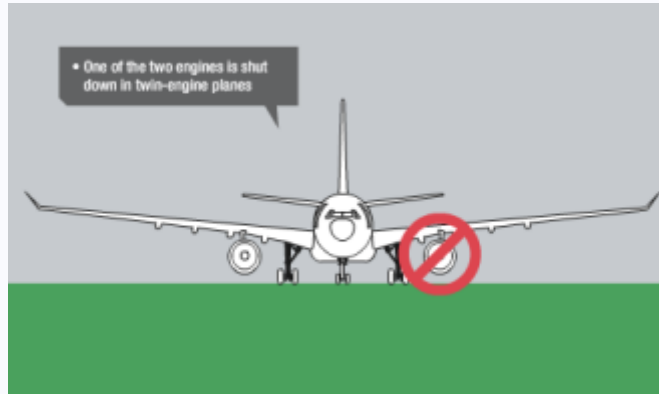
The solution



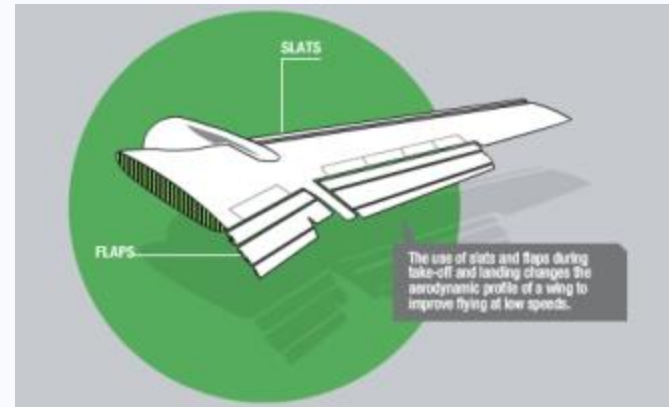
Without waiting for the hydrogen or electrical aircraft, there are opportunities to reduce fuel burn and consequently CO2 emissions by **optimizing current fleet's operations.**



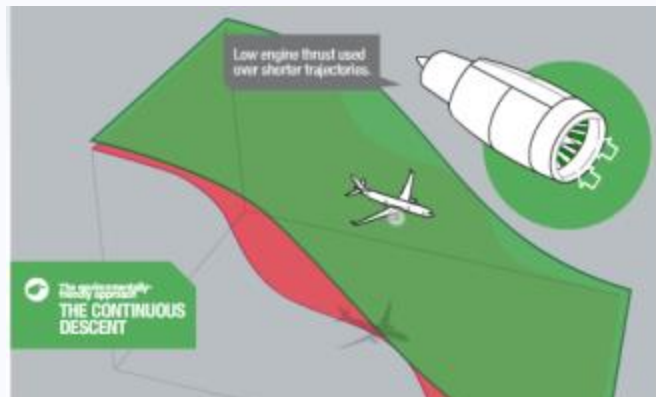
Operational Improvements



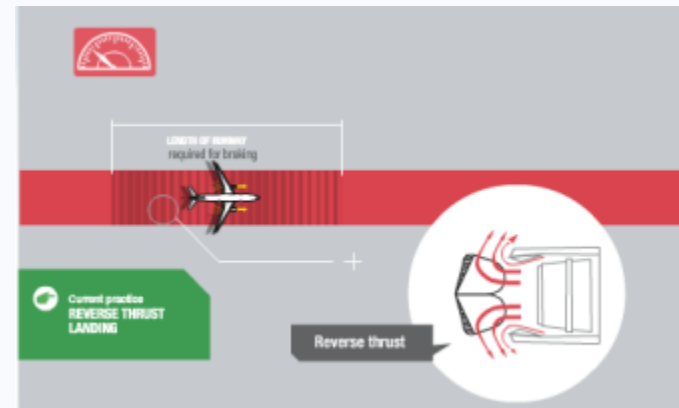
Single Engine Taxi



Reduced Flaps



Continuous Descent Approach



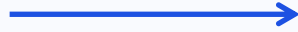
Idle Reverse Thrust

Industry Best Practices



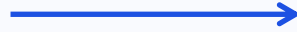
FLIGHT OPS

- Engine out taxi-out
- APU during taxi-out
- Reduced flaps at take-off
- Derated take-off thrust
- Reduced acceleration altitude
- Optimal flight level
- Continuous descent approach
- Reduced flaps at landing
- Idle reverse thrust
- Engine out taxi-in
- Short approach
- Direct routes
- APU during taxi-in
- Packs-off take-off
- Holdings
- Go arounds
- Landing gear deployment/retraction
- Speedbrakes usage
- Eco cruise



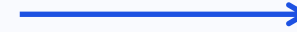
DISPATCH

- Pilot extra fuel
- Dispatcher extra fuel
- Best alternate
- Zero fuel weight error
- Over fueling above requested
- Over tankering
- Fuel bias
- Accurate cost index
- Optimized flight plan
- Statistical contingency fuel
- Optimized center of gravity
- Optimized taxi fuel
- Fuel reserves usage



ENGINEERING AND MAINTENANCE

- Surface controls misrigging
- Engine wash
- Aircraft performance monitoring



COMMERCIAL AND GROUND OPERATIONS

- APU at turnaround
- Potable water
- Reduced zero fuel weight (Magazines, duty free, seats, catering, galley and cabin equipment, etc.)

EBOOK

THE GREEN AIRLINES

FUEL BOOK



FREE DOWNLOAD

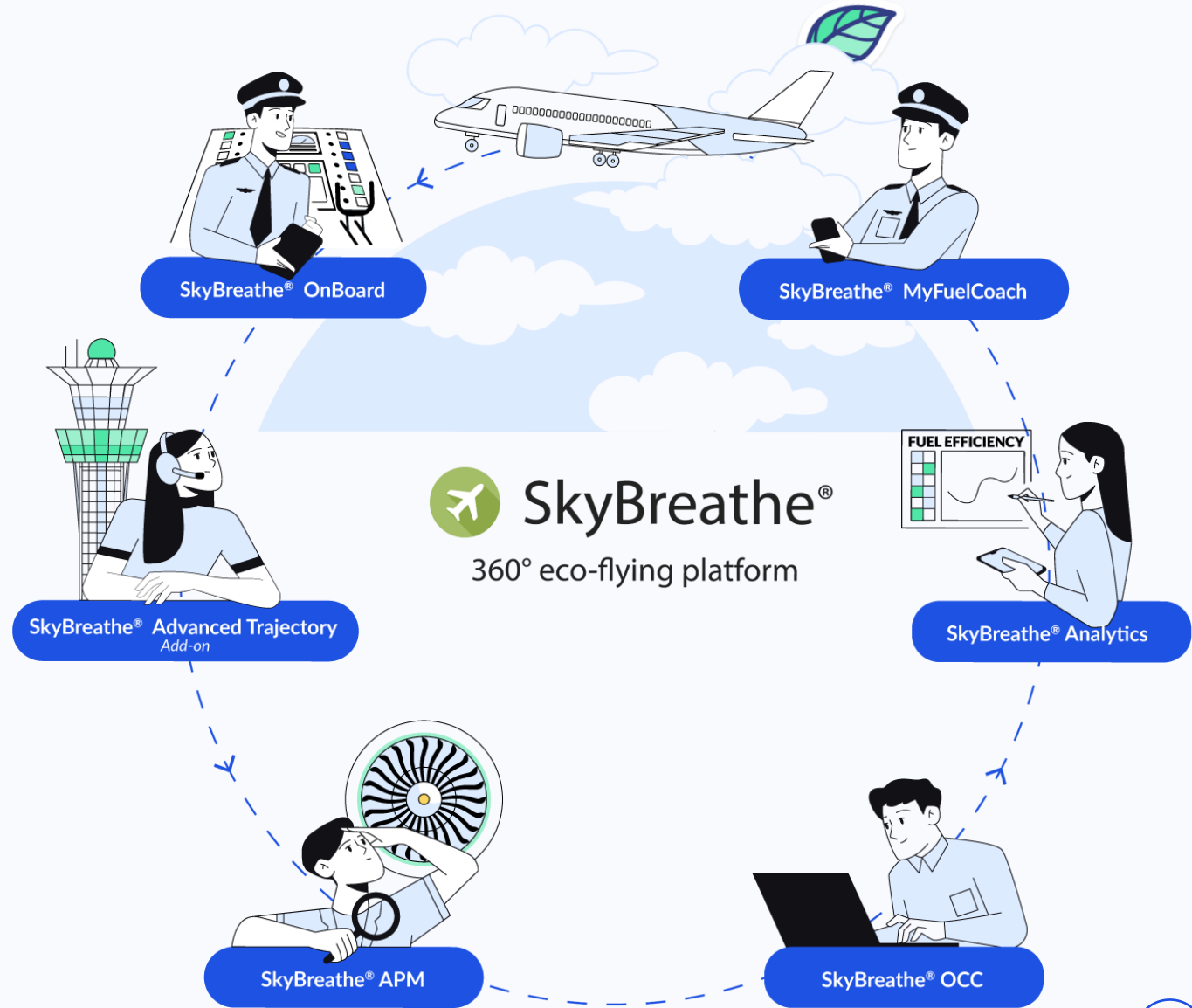


<https://blog.openairlines.com/the-green-airlines-fuel-book>

Fuel efficiency is a team's game.

CO₂ can be avoided by people from maintenance, ground ops, dispatch, flight ops, and ATC.

A key success factor is to engage all stakeholders around a common CO₂ avoidance culture.



More fuel savings



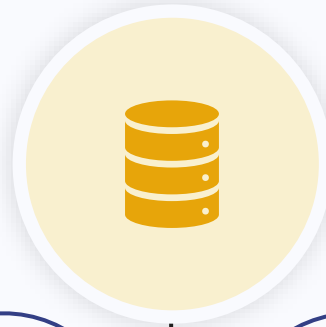
The innovation behind

INTEGRATE & CHECK



Data integration,
Automation and
Machine Learning

COMPUTE BIG DATA



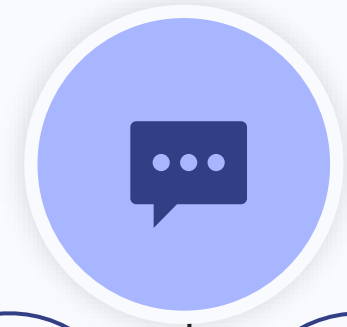
Performance Models on
actual flight conditions
Big data Algorithms
Artificial Intelligence

ANALYZE



Advanced Analytics,
Data Science,
Query Engine, Reports

COMMUNICATE

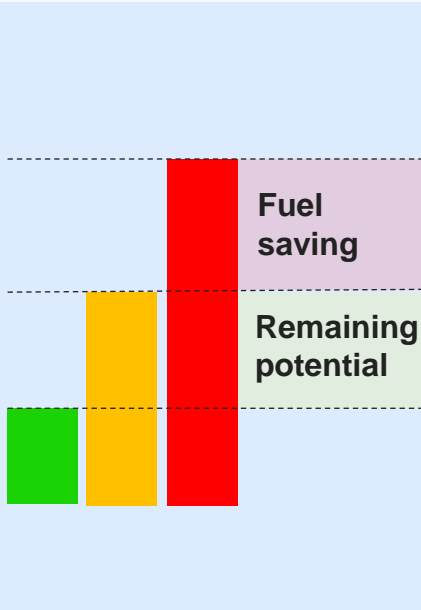
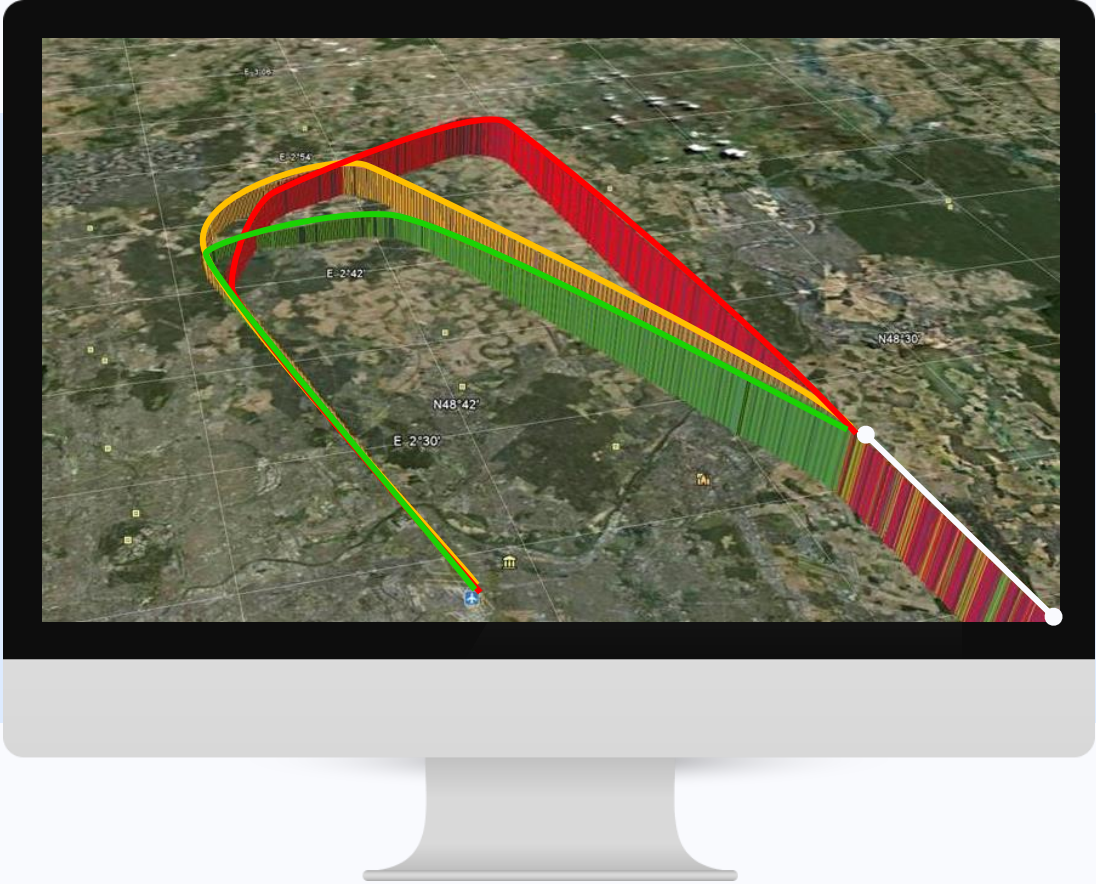


Data Driven decision
MyFuelCoach™
mobile app



Actionable insights through Big Data analysis and AI





“You cannot improve what you don’t measure.”



2023

SkyBreathe® MyFuelCoach™

Better pilot engagement for greater savings

-  Get individual briefing and debriefing analyses
-  Visualize your flights in 4D
-  Compare with other pilots' results and flight plans
-  Get individual CO2 reports & track your progress



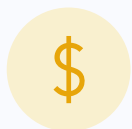
Case study:

Transavia

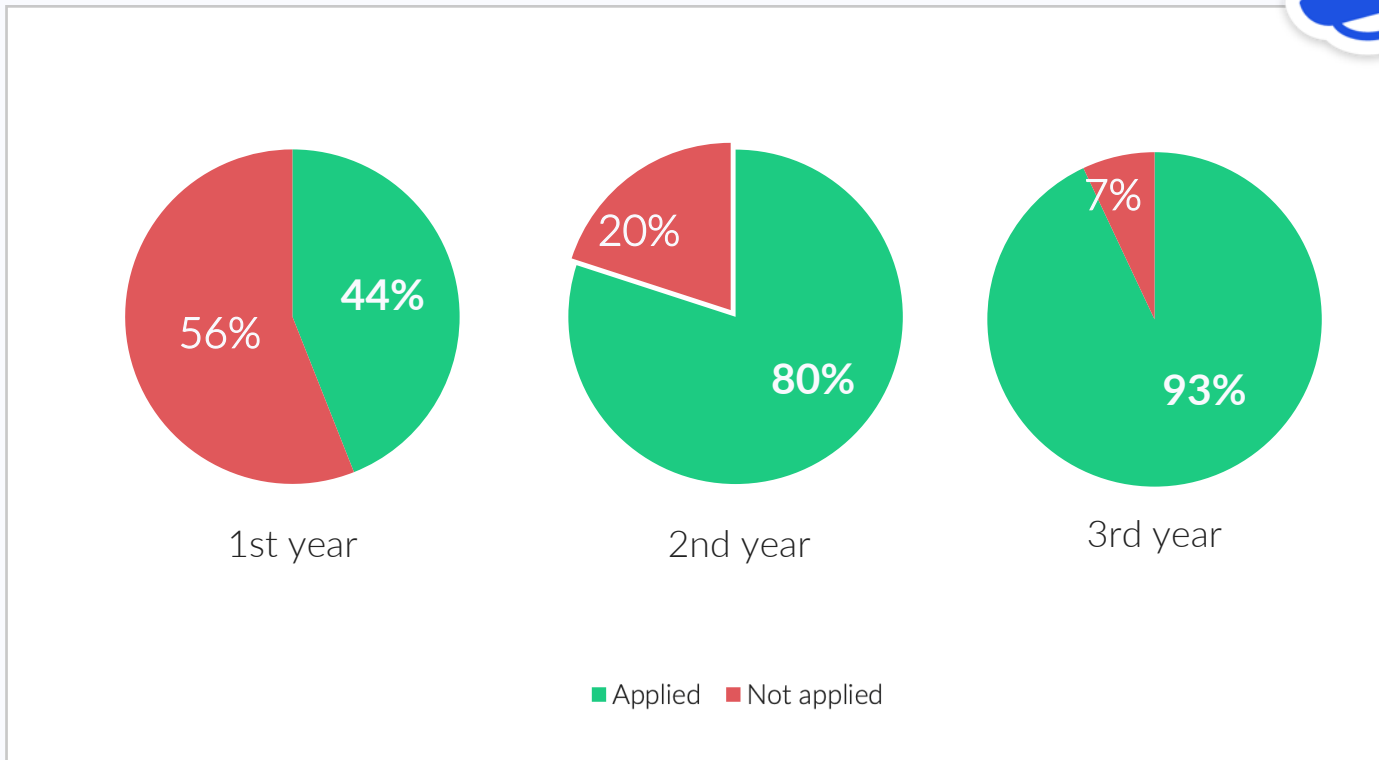
Idle Reverse Thrust Application



+49pp application rate
in 3 years



15 000 USD ~50 tons CO2 saved
per aircraft and per year.





Case study:

Engine out taxi in

Evolution at Buenos Aires airport:

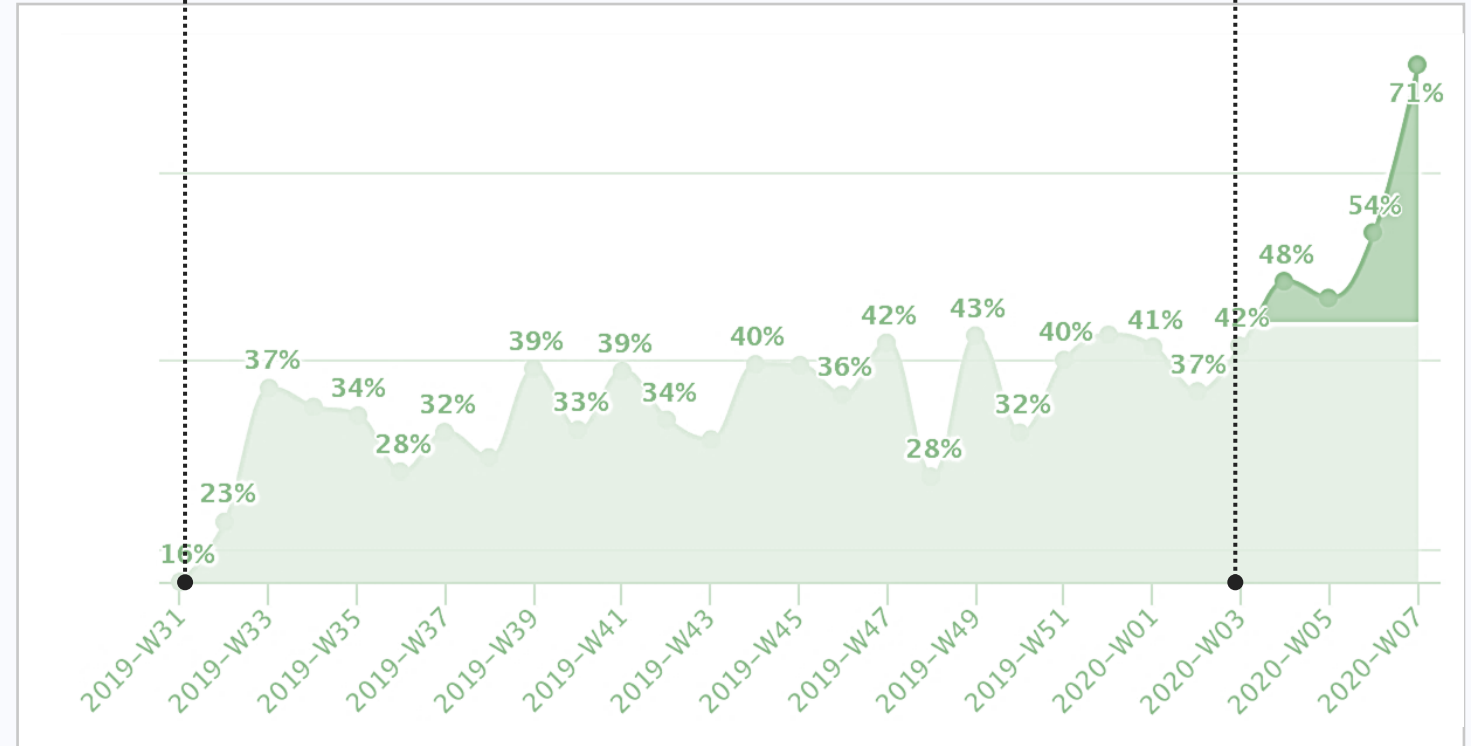


x4.5 application rate

5kg saved per flight

Introduction of
SkyBreathe®

Introduction of
MyFuelCoach™



**Aerolíneas
Argentinas**

82 fleet of 44 Boeing,
12 Airbus, 26 Embraer



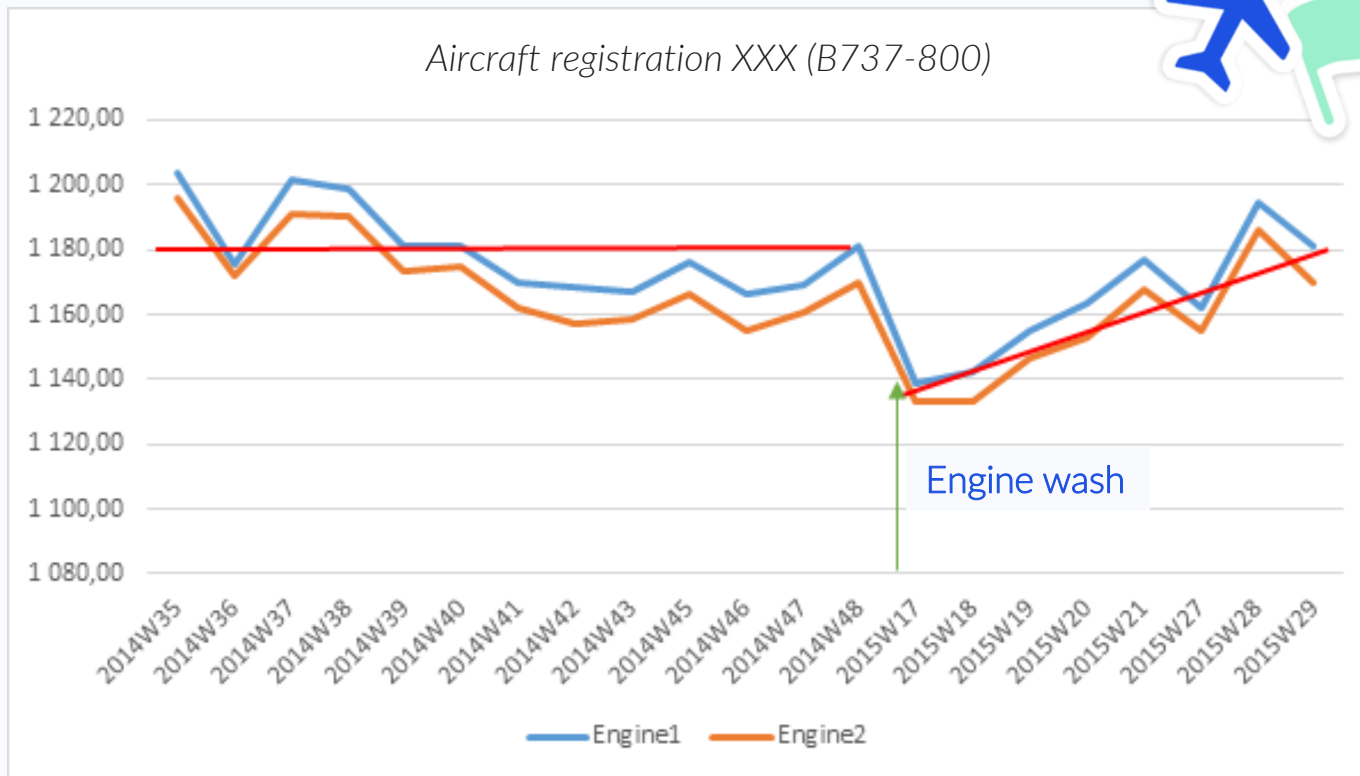
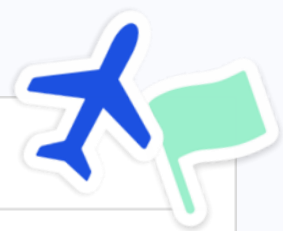


Case study:

Engine wash



Benefit of 80kg/h and back to former value after ~3 months



Case study:

Western arrivals

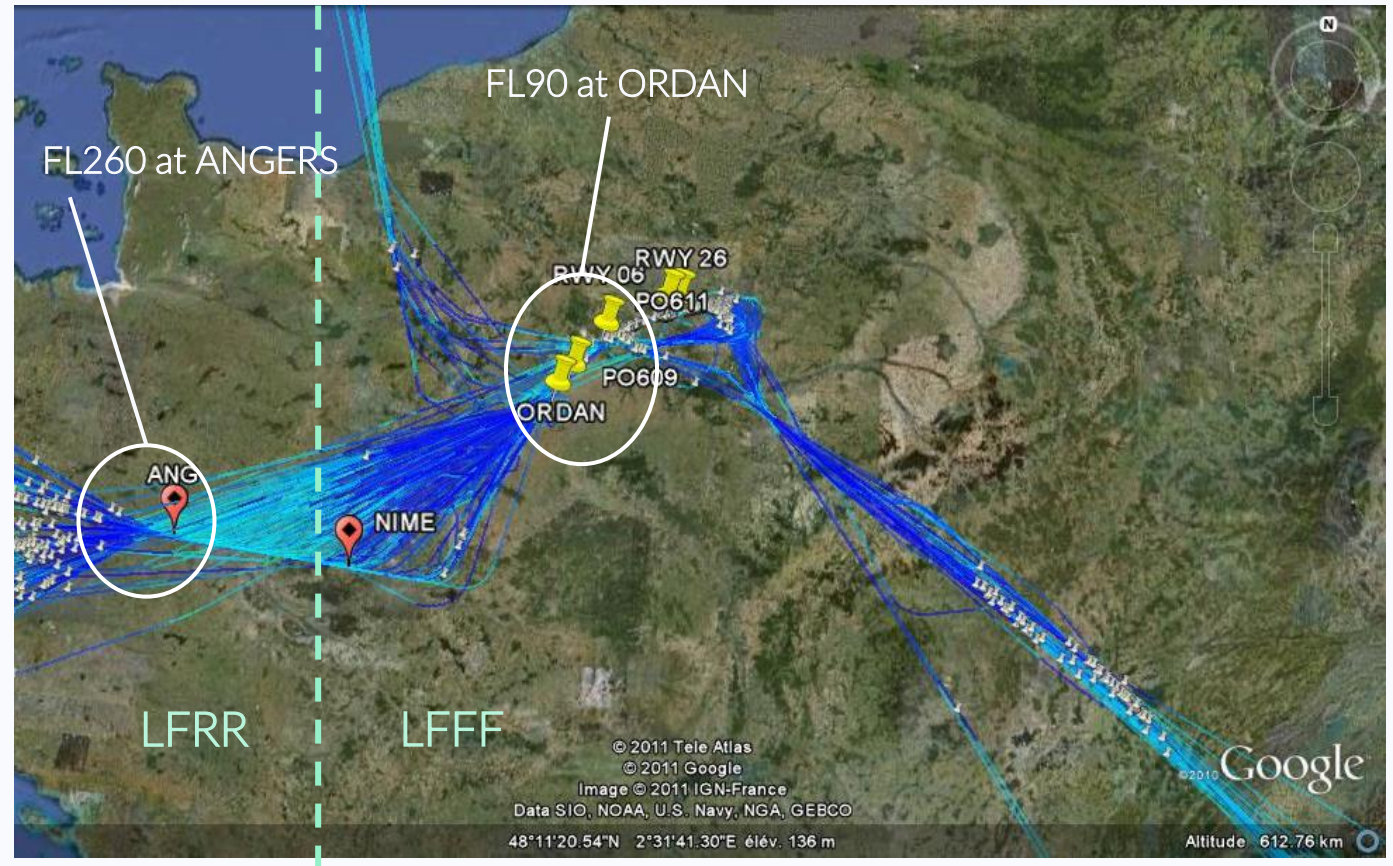
at Paris ORY



100% of Corsair flights were constrained to FL260 at ANGERS leading to 120kg of extra fuel (378kg of CO2) per flight.



500kg/flight total cost of vertical constraints during descent



AIRFRANCE

transavia

CORSAIR

fnam





Case study:

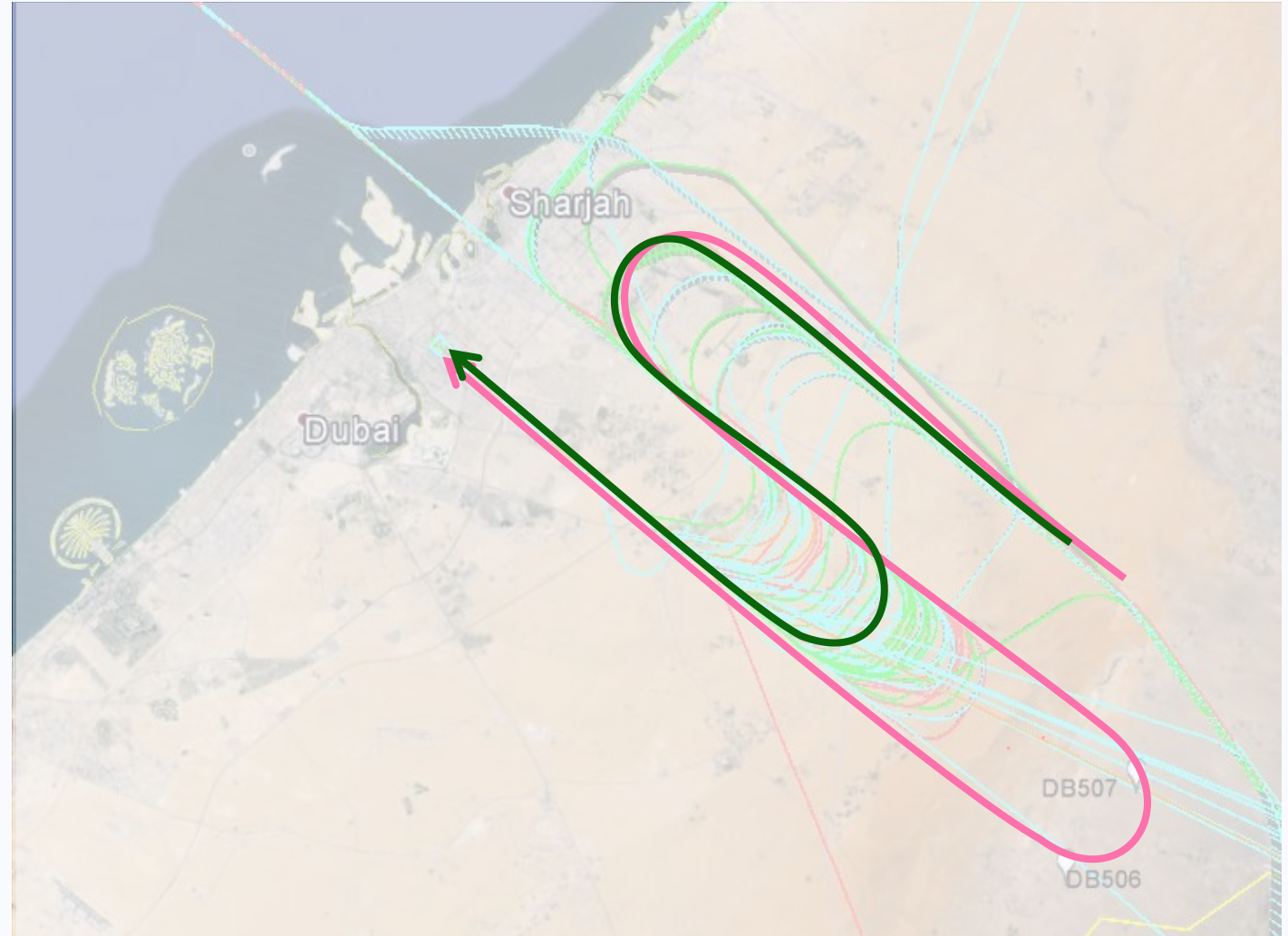
Trajectory optimization and ATC



Waypoints moved after dialogue with local ATC authorities.



~25,000 tons of CO₂ saved each year.



About the OpenAirlines community

64 Airlines worldwide

Thousands of teams around the world rely on the SkyBreathe® platform to manage their fuel program and improve their green culture.

It is airlines' preferred solution, no matter the organization size.



“Sustainability is in our DNA. It’s part of why we were created.”

1 million tons of CO₂ saved in 2022



300 million
kg of fuel saved



1 000 000
tons of CO₂ saved



350 million
USD saved



125 million
trees equivalent





← Start the free eLearning course

COURSE #1

Fuel efficiency basics: an introduction to pilot's eco-flying techniques

📖 6 interactive lessons ✓ Quizzes ⌚ 1 hour 🎓 Certification

This e-learning course equips aviation professionals with the basic knowledge to start their fuel efficiency and eco-flying journey.

In this comprehensive program, you'll discover practical strategies to minimize fuel consumption and reduce CO2 emissions.

Enroll now on this transformative journey to cultivate cockpit fuel efficiency best practices that contribute to a sustainable and greener future for aviation.

START COURSE



Thanks!

Do you have any questions?

Contact us



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