



Reducing non-CO2 impacts of aviation

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Founding Members



THE AVIATION GREEN DEAL IN SESAR



Roadmap 7 – AVIATION GREEN DEAL



Vision

The European airspace is the most efficient and environmentally friendly sky in which to fly in

Flights are planned to maximise fuel efficiency. ATC actions preserve, as far as safety permits, this optimal planned “green trajectory” from any potential degradation.

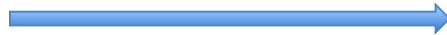
However, in order to minimise the impact of flights on the climate, ATC manoeuvres may, from time to time, lead to a slight increase in fuel consumption. In the vicinity of airports, flight operations are designed to offer the best compromise between emissions and noise impact.

At airports operations are tailored to minimise fuel/emissions; taxiing is emissions free. All new air vehicles have been integrated seamlessly in the ATM system, with minimal additional noise or emissions pollution.

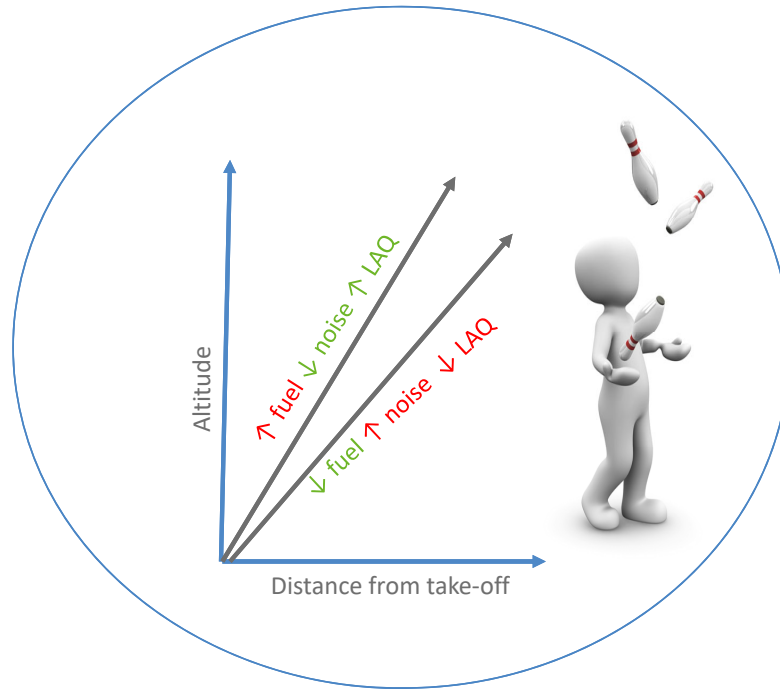
Environmental dashboards, which incorporate new metrics developed through machine learning, are providing incentives for all actors to take decisions and actions to find operational solutions that minimise environmental impacts.

The airport: no “one size fits all”

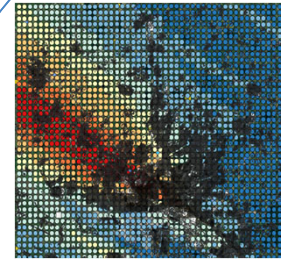
Generic trade-offs



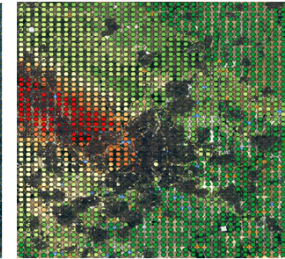
Local environment



Hamburg



Madrid



Surface level local air quality (ECF). The population density is superposed on the population-weighted NO_x concentration.

Source: ATM4E Final Project Report, 2018

En-route: focus on climate change

What we know so far

- Where emissions are released into the atmosphere matters
- Aviation Induced Cloudiness (AIC) is not always warming!
- Contrails are not the whole story
- We have a choice of metrics and look ahead time
- Two aircraft \neq double impact?
- We do not know enough, we need to learn more about the atmosphere
- But in some cases we do know... BIG HITS



What is the potential?

↑ CO ₂	↓ Climate Impact (*)
1%	60%
13,5%	80%

(*) ATM4E results, based on simulation on sample of > 10.000 intra-ECAC flights of one day in 2015, metric ATR20
<https://cordis.europa.eu/project/id/699395/results>

Where to start?

- MET service publishes ECHO areas 4-6 hours ahead
- ECHO areas to be avoided for environmental reasons
- Managed similarly to military training “DELTA” areas
- Aircraft flight plan around them
- & ATC support ECHO area avoidance in real time
- Downlink more data from aircraft (in particular humidity)
- Transparency: Environmental Performance Dashboards



Thank you for your attention!



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