

Climate change and the role of Air Traffic Control

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Air Traffic Control, the role of ANSPs

- **Air Navigation Service Providers are responsible for the provision of:**
 - **SAFETY => SAF**
 - **Connectivity between airports (Horizontal and vertical trajectories in a system based on sectorisation) => ENV**
 - **Necessary fluidity to allow flights to be carried out => CAPA**
 - **All this for a reasonable price => COST EFF**
- **These KPAs lead to inefficiencies (extra fuel burn), which negatively impact CO2 emissions, and therefore on climate change**
- **Are ANSPs responsible for all of the inefficiencies? If so, how can ANSPs and ATCOs reduce their impact on the environment and therefore on climate change?**



Sources of inefficiencies

- Current KEP and KEA are a mix of traffic performance assessments including:

=>Network inefficiency

=>Inefficiency due to delays (KPA Capa)

=>Efficiency or inefficiency due to short cuts or vectoring

=>Inefficiency due to filing*

=>Inefficiency due to military activity*

=>Inefficiency due to wind/adverse weather*

=>Inefficiency due to different UR between countries*

=>Inefficiency due to geopolitical issues*

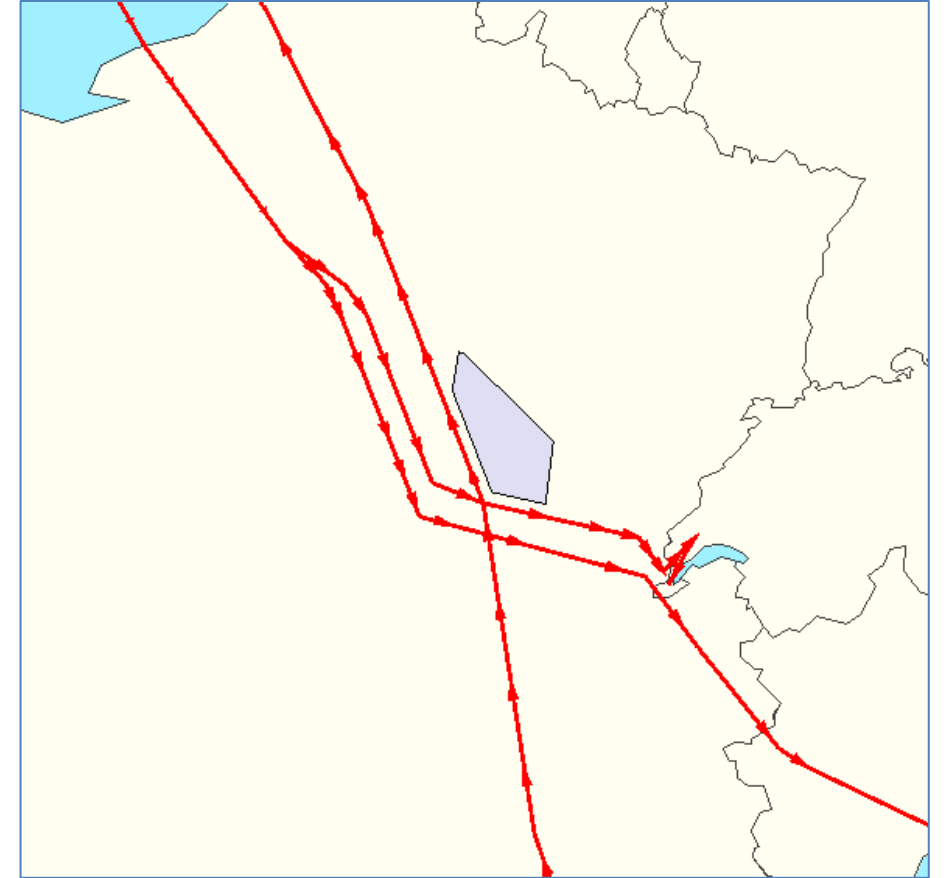
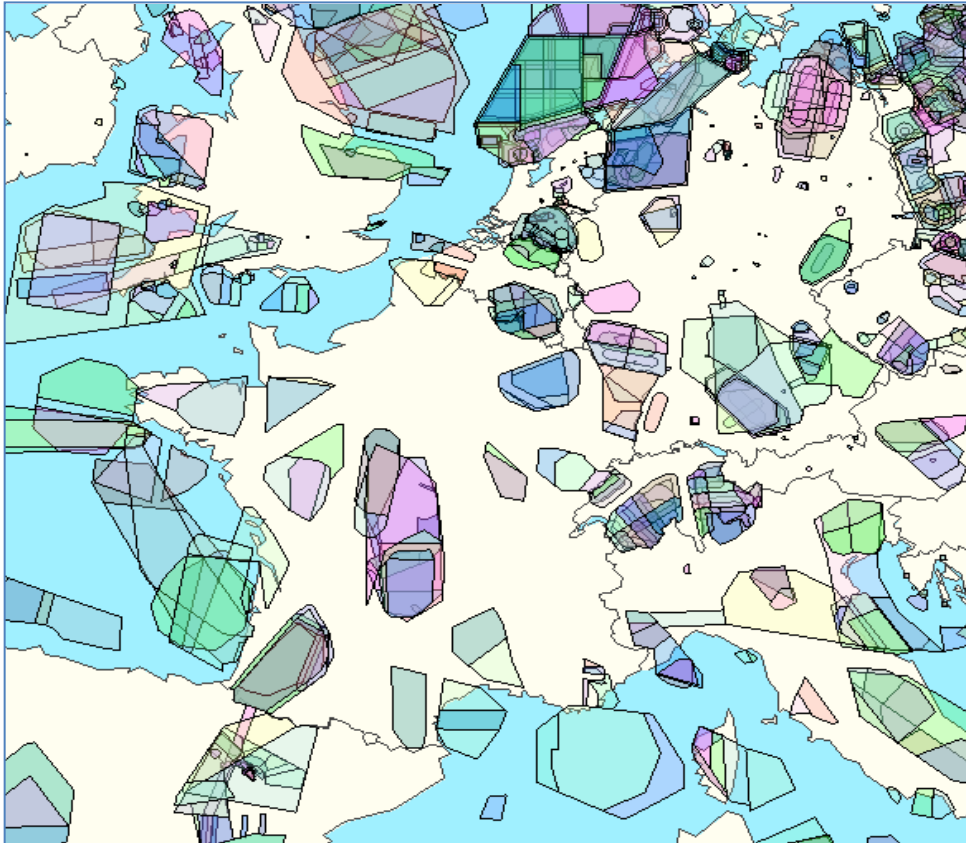
Note * : Not under ANSPs' control

All of these inefficiencies have an impact on fuel/CO2, therefore on environment, but are we so inefficient ?



Some reasons for inefficiency

Traffic segregation for Safety →



← National Air defence requirements

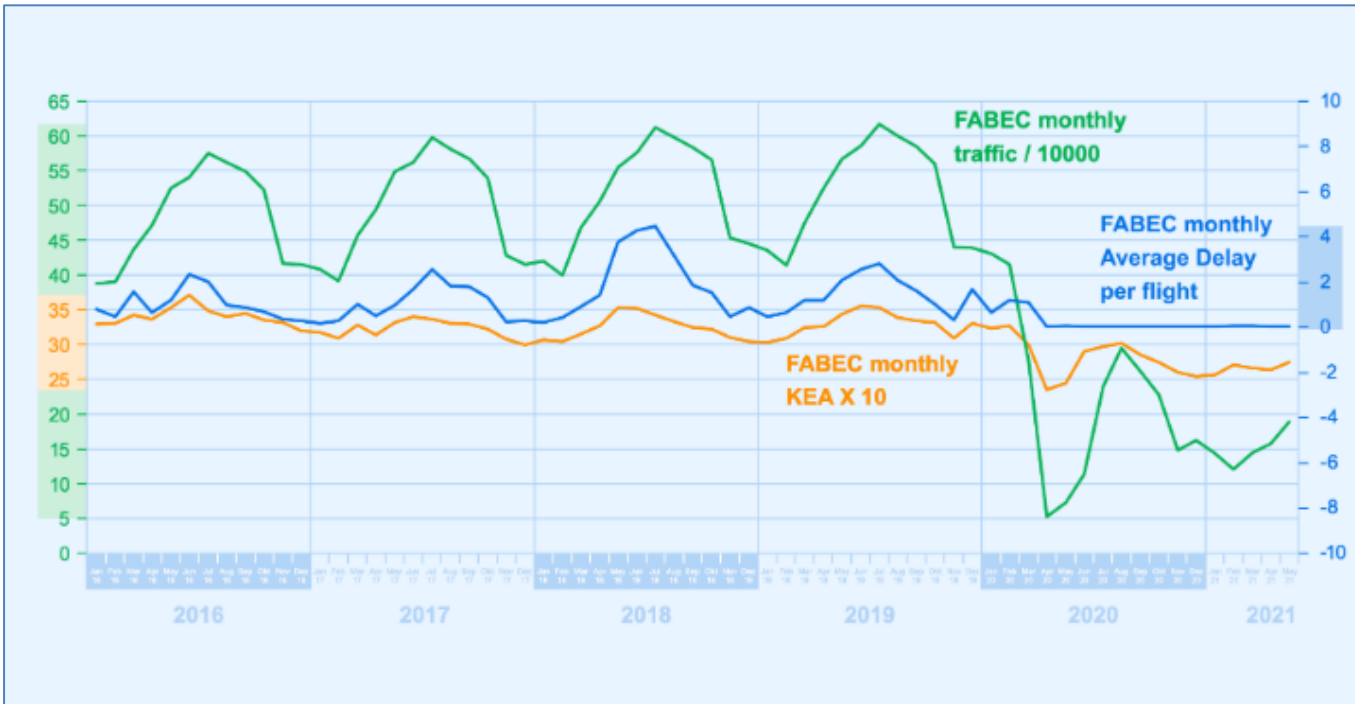


Some reasons for inefficiency

Airline choice →



← Interdependencies



ATC improvements over the last decade

Airports with XMAN procedures

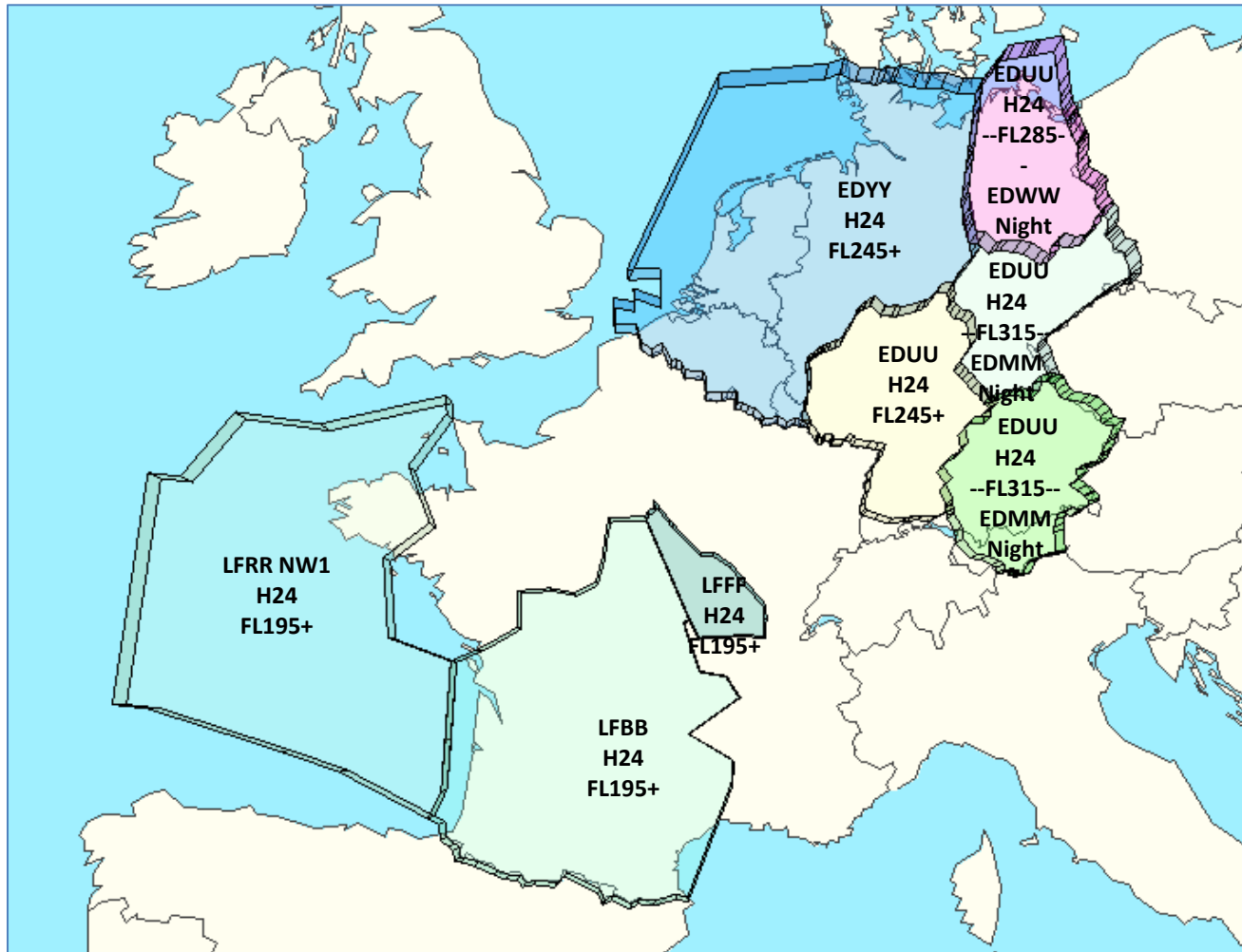


Potential benefits 2016=>2025 :
(depending on traffic volumes)



ATC improvements over the last decade

Free Route Airspace (Dec 2021) & Improved ATS network

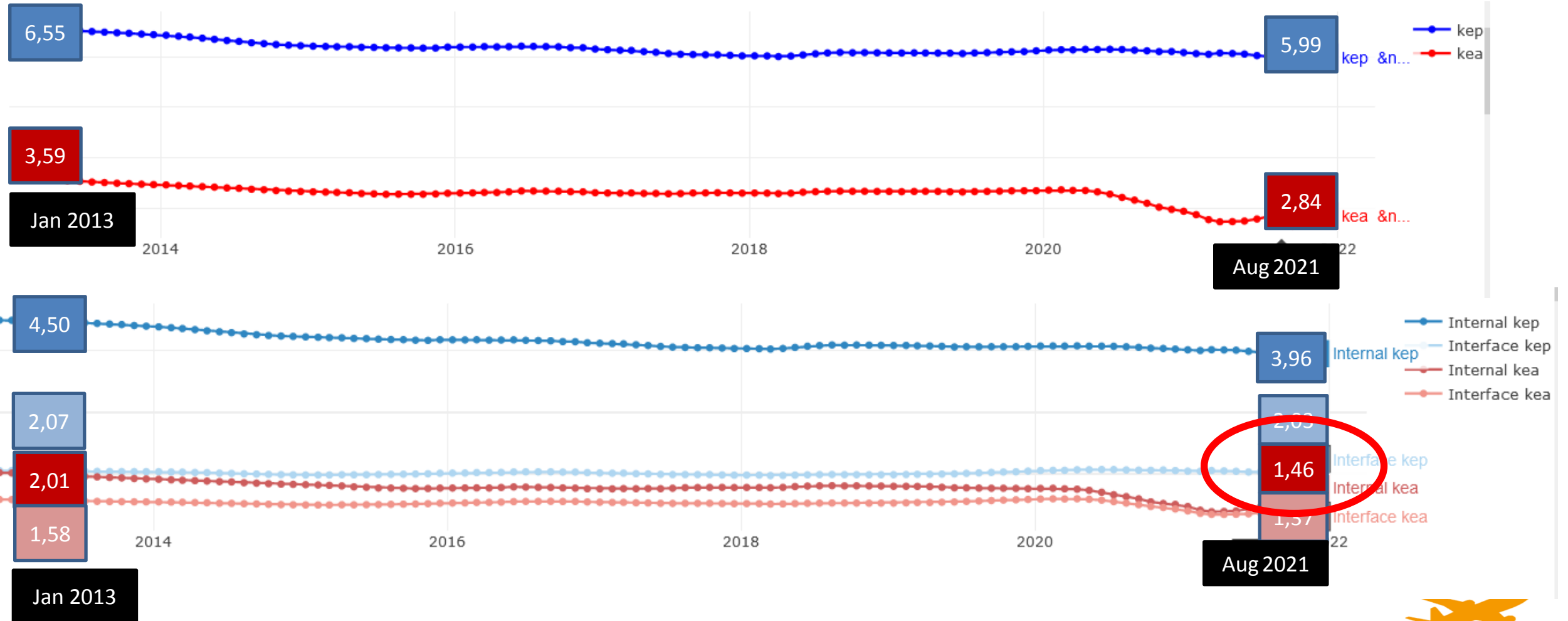


2025



Efficient or inefficient ?

KEP / KEA - FABEC - Rolling year



ATC improvements over the last decade

CCO/CDO implementations (Fuel or noise)



CCO (continuous climb)

- **Almost optimal usage**
 - *76% for CCO fuel
 - *96% for CCO noise

CDO (continuous descent)

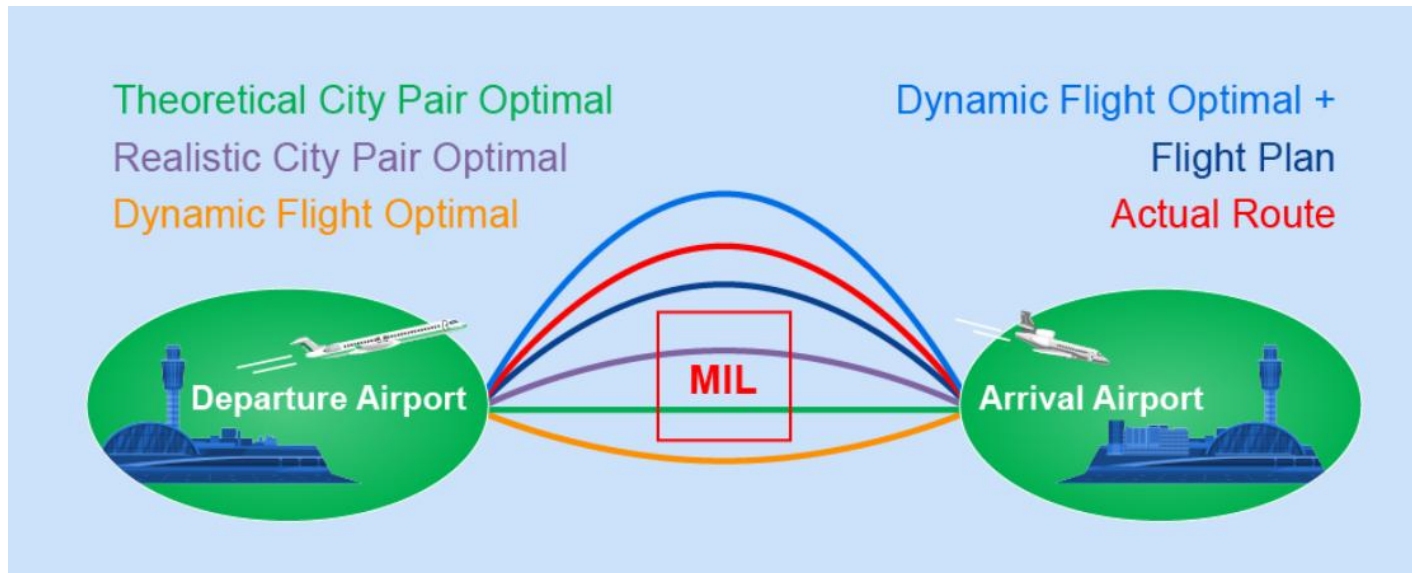
- **Dependent on congestion**
 - *20% for CDO fuel
 - *37% for CDO noise

Note *: 2020 Figures



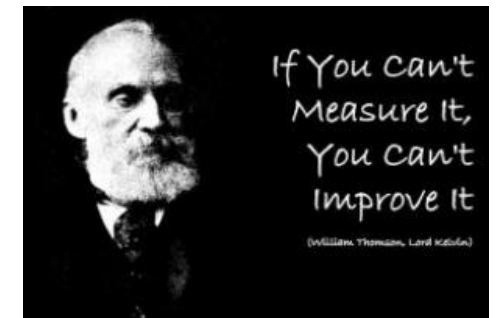
Possible solutions for the future

Limiting the impact of interdependencies



Launch in Oct 2020 of the ATM/ANS Environmental Transparency WG, looking for new metrics to be used for RP4

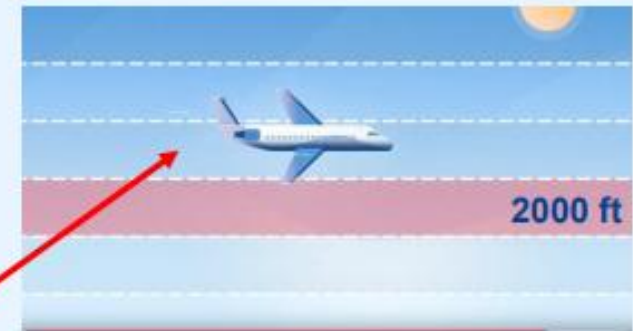
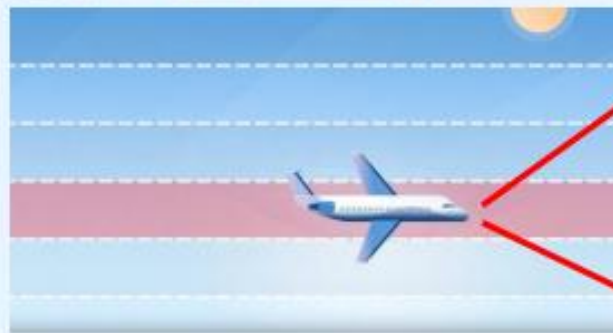
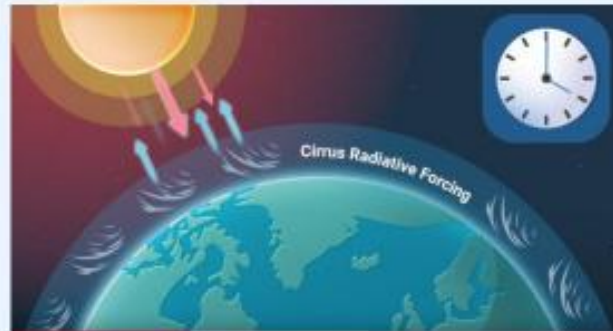
- **New metrics proposed by FABEC for performance assessment**
 - Acropole (DSNA)
 - REDES/RESTR (MUAC)
 - Trajectory comparison indicator (skeyes/NATS)
 - TMA indicator (LVNL/skeyes/Eurocontrol)



Possible solutions for the future

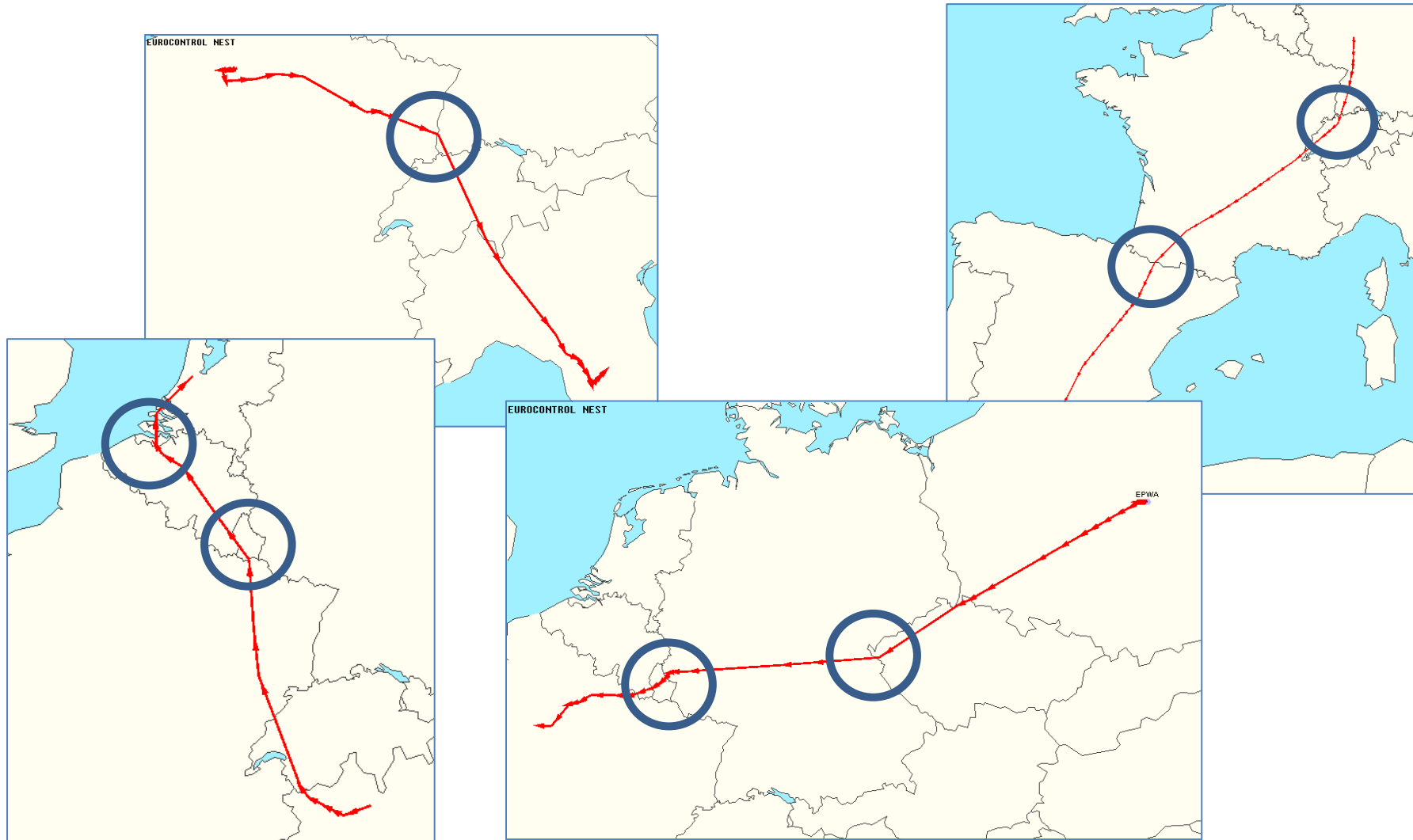
Contrails prevention trial (MUAC)

- MUAC has been running a contrail prevention trial since January 2021; end in December 2021
- Flights may be tactically requested to deviate from the planned/requested flight level by the sector controller
- Any flight flying through MUAC sectors may be chosen
- Daily trials go ahead dependent on weather conditions



Possible solutions for the future

Limiting inefficiencies at interfaces



Possible solutions for the future

Improving the RAD / Dynamic RAD

- **The number of RAD measures are highly dependent on the traffic volumes**
 - In 2020/2021, FABEC lifted a lot of RAD measures
 - As traffic is partially back, there is a need to reintroduce some of them, potentially leading to CO2 emissions, even when not necessary
- **Towards more flexibility in RAD application.**
 - Dynamic RAD under trial in 2021 (DSNA, skyguide, ENAV, ENAIRE, NATS, IAA)
 - Restrictions to be activated dynamically, only when necessary
 - Cooperation between stakeholders needed, for an optimum use of dynamic RAD



Conclusions

- **A great effort has been made to reduce the environmental impact of aviation, with horizontal flight efficiency now above 97%**
- **Current Environmental Performance Indicators do not provide a good measurement of ANSPs' performance. Better indicators are needed to measure ANSPs' progress towards European net zero emissions goal**
- **Recommendation for new metrics will be done by the ATM/ANS Environmental Transparency Group in which FABEC participates**
- **Further development of FABEC ENV projects such as FRA, CCO/CDO, XMAN and contrail prevention will reduce the impact of aviation on climate**
- **Collaboration between operational stakeholders is key for environmental improvement**



**Thank you
for your attention!**