



# New methodologies and tools to assess the environmental impact of aviation and to improve the ATM system resilience against weather disruptions



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CREATE project has received funding from the SESAR Joint Undertaking with grant agreement No 890898 under European Union's Horizon 2020 research and innovation program.

## Operational need

Aviation operations have **environmental consequences** via noise, air quality and climate impacts. On the other hand, the **ATM operations** will be more likely affected by **disruptive weather events** due to the **changing climate**.

## What is CREATE?

CREATE is a SESAR exploratory research project which aims to study and develop innovative procedures in the field of **air traffic management** to **reduce the impact** on the climate and environment, while making ATM operations **more resilient** to severe weather phenomena.

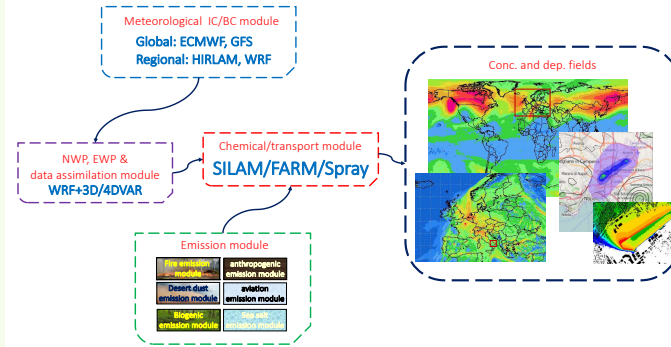
## CREATE Solution 1

Development of a comprehensive **multi-scale** (from the global to micro) **multi-pollutant air quality system (AQS) software**

## CREATE Solution 2 – Weather Avoidance for extended ATC planning (WAAP)

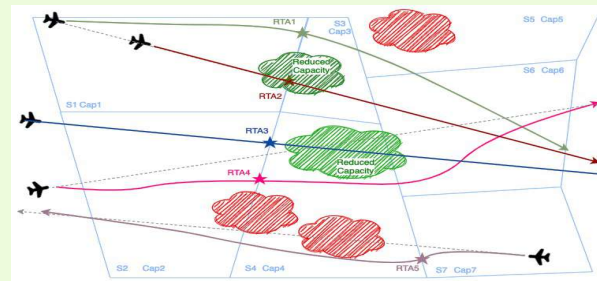
Development of a **framework** for **multi-aircraft environmentally-scored weather-resilient optimized 4D-trajectories** in the **flight execution phase**

## CREATE multi-scale, multi-pollutant AQS

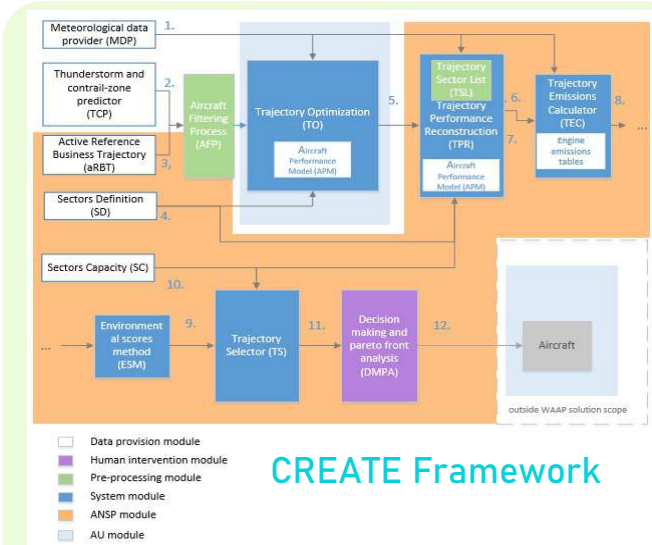


Impact on air quality can be fully assessed through an advanced AQS

## CREATE Concept of Operations



The CREATE concept considers advanced numerical weather forecasting to predict thunderstorm locations and contrail formation regions.



## CREATE Framework

The CREATE framework describes **solution 2**, which integrates:

- a) Weather-resilient trajectory (re)planning
- b) Trajectory (re)planning in the flight execution phase (tactical)
- c) 4D optimised trajectories
- d) Multi-aircraft problem consideration
- e) Environmentally-scored decision-making (= solution 1)
- f) ATC-driven decision-making

Follow the CREATE project on its official channels

@CREATEEUproject company/createproject www.create-project.eu www.sesarju.eu/projects/create

