DYN-MARS

Fly Smarter: Pilots Needed for Energy-Efficient Approach Simulations

🔍 The Project

The highly dynamic environment of today's airport terminal manoeuvring area (TMA) does not support eco-friendly optimised approaches for individual aircraft. The opportunity to provide optimum fuel-efficient profiles is often reduced by considerations relating to separation and arrival sequencing, as well as capacity needs.

The EU-funded **DYN-MARS** project aims to minimise the environmental impact during the descent and approach phases. Building on previous SESAR initiatives, the project introduces new features for the Flight Management System (FMS) to assist the pilots, as well as novel Controller Pilot Data Link Communication (CPDLC) datalink functionalities such as:

- Continuous idle-thrust FMS descent profiles that dynamically adapt to air traffic controllers' speed assignments
- Dynamic computation of optimum aircraft configuration changes for flaps and landing gear
- Provision of ATC shortcut uplink information (arrival path shortening)
- Implementation of distance-to-go (DTG) information in the FMS lateral path computation via the Permanent Resume Trajectory (PRT) function
- Novel aircraft energy cues in the flight deck
- Improved air traffic controller's speed intervention procedures

DYN-MARS provides a holistic solution that combines airborne and ATM improvements through enhanced communication capabilities. This promotes flights with reduced emissions and noise levels. DYN-MARS provides full benefits in high-density traffic situations, maintaining high runway throughput and improving the pilot's situation awareness without compromising safety.
🌐 Further information about the project can be found on the CORDIS website or on the DYN-MARS webpage.

EXPLAINER VIDEO

🌍 The Simulator Experiments

During the DYN-MARS simulator validation phase, experiments are planned to assess the benefits of the new developments. In various scenarios, pilots and air traffic controllers will test and evaluate the performance of different functions, especially those of the FMS, as well as communication between the flight deck and ATC. In a nutshell:

📍 **Coordination:** German Aerospace Center (DLR)
📌 **Location:** Braunschweig, Germany
📅 **Test phase:** Working days between end of June and November 2025
⏱ **Time commitment for test crews:** 1 day
🛫 **Test scenarios:** You will fly a series of descents and approaches in DLR's Airbus A320 full-flight simulator, representing operations at various airports across Europe. Each scenario reflects a different combination of new functionalities, arrival procedures and communication systems designed to assess their impact on fuel usage, workload, and flight efficiency.

👨✈️👩✈️ **The ideal test crews are:** airline pilots with (preferably) Airbus A320 Family type rating. All levels of experience (flight hours, ranks, etc.) are welcome.
💶 Compensation: €500 lump sum for travel and accommodation; or instead, travel cost reimbursement according to German Federal Law.

REGISTER

Please use the following link to register: **Registration Form.**
You will receive further information about the experiments and available time slots in a second step.

sesar JOINT UNDERTAKING

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