



AI-enabled tactical FMP hotspot prediction and resolution

Inside ASTRA

Dear readers,

Welcome to this **new edition of the ASTRA newsletter!**



Over the past year, **ASTRA has made significant progress** in addressing the challenges posed by increasing air traffic complexity. The project has successfully developed and validated, together with operational end-users, an **AI-based solution (TRL2)** designed to **predict and resolve air traffic “hotspots”** much earlier than today’s methods. By doing so, ASTRA aims to **reduce controller workload, enhance sector capacity, and enable greener, more efficient airspace operations.**

As we move toward the **final phase** of the project, we continue to refine our solution and consolidate the insights gained so far.

Thank you for following our journey as we work to bring AI closer to real-world Air Traffic Management.

Join us as we explore the future of air traffic management and innovation.
Subscribe to our newsletter and follow every step of the ASTRA project!

Overview

The ASTRA project is powered by a dedicated consortium of organizations, each contributing unique expertise. **Learn about the strengths and roles of our partners** and their **significant contributions** to the project by clicking the links below.



**L-Università
ta' Malta**

UM leads the ASTRA project, overseeing project coordination and actively contributing to key areas

[Learn more](#)



deepblue

Deep Blue ensures ASTRA's human-centered approach with HCI and Human Factors.

[Learn more](#)

INGENAV

INGENAV defines ASTRA's operational concept and validates solutions with ATC operations and AI.

[Learn more](#)

skyguide

Skyguide validates ASTRA's prototypes and provides operational data for AI training.

[Learn more](#)

skysoft
A T M

SkySoft-ATM leads ASTRA's technical development, including AI design and simulation.

[Learn more](#)

Latest news

*Over the past months, ASTRA has shared its progress and AI-driven insights at key events across the aviation community. Here's a look at some of the **key highlights and outreach milestones** from our recent activities.*



ASTRA Plenary Meeting – September 26, 2025

The ASTRA consortium met at the University of Malta to align on next steps ahead of the Exit Maturity Gate (2nd October 2025). Partners discussed ongoing activities, shared updates, and explored dissemination opportunities through journal papers and events, including participation in the AIAA SciTech conference. The meeting provided a forum to coordinate efforts, exchange feedback, and ensure smooth progress towards the successful conclusion of the project.



Discover ASTRA on the SESAR JU Website

Our dedicated SESAR JU webpage now features new insights into ASTRA's AI-driven approach to air traffic complexity management.

A highlight article and technical paper explain how ASTRA predicts and resolves 4D areas of high ATC complexity up to one hour in advance — three times earlier than existing tools.

Learn how machine learning supports FMPs and controllers in managing congestion, reducing workload, and improving operational efficiency.

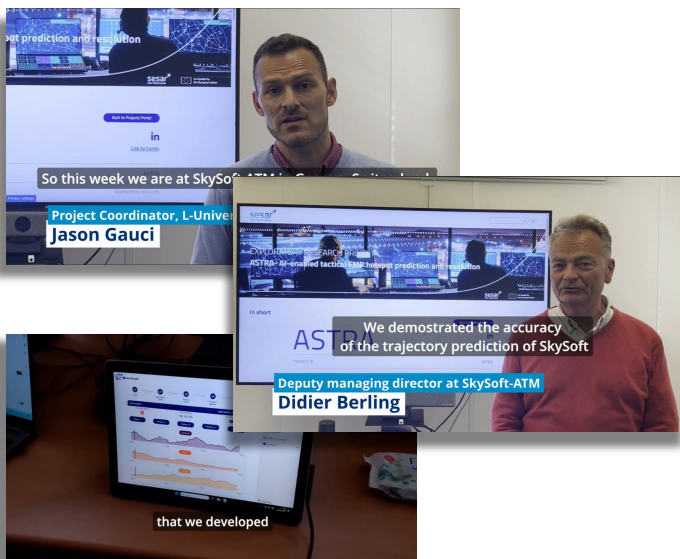
[\[Find out more here.\]](#)

ASTRA Key Terminology – Exploring the Language of Complexity

ASTRA introduces its Key Terminology Campaign, a series unpacking the technical concepts behind the project. From "4DARHAC" to "Domino Effect", each episode clarifies how ASTRA's AI solution detects, predicts, and mitigates complexity across the network. The series bridges research and real-world operations, making AI in ATM more accessible and applicable.

Stay tuned: all terms will soon be available on our SESAR JU webpage.

[\[Details here\]](#)



Watch the Latest Real-Time Simulation (RTS#3)

Our newest video takes you inside ASTRA's final validation exercise at SkySoft ATM in Geneva. Ten air traffic controllers and FMPs tested the system in live, high-complexity scenarios — validating its ability to anticipate hotspots and propose early resolution strategies. With feedback from SkySoft and the University of Malta, the results confirm ASTRA's potential to support proactive, AI-enabled traffic management.

Watch the video and experience ASTRA in action.

[\[Step inside the simulation\]](#)

SESAR JU Endorses ASTRA Progress



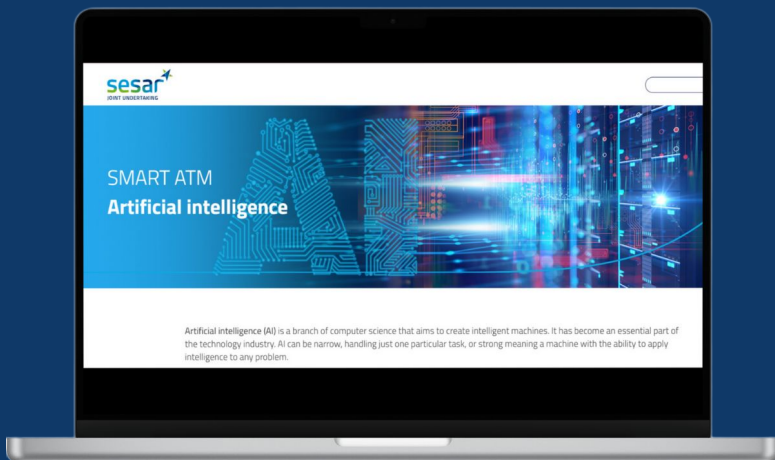
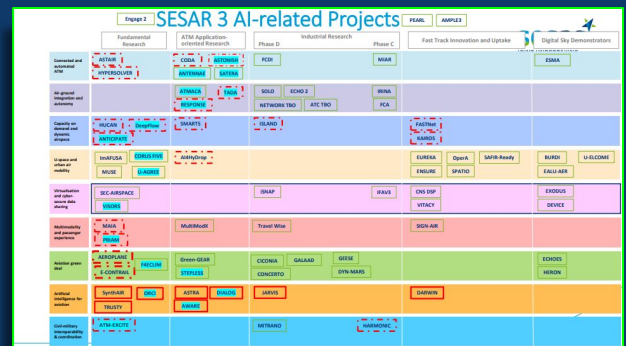
ASTRA successfully passed its **Exit Maturity Gate review** on 2 October. The SESAR Joint Undertaking commended the project's progress and technical depth, acknowledging the achievement of TRL2. This milestone marks a solid foundation for future validation phases and further integration of ASTRA's AI-based capabilities in Air Traffic Management research.

Smarter Skies Ahead: AI in Air Traffic Management

SESAR is driving the future of Air Traffic Management with its portfolio of AI-powered projects, aiming to enhance safety, efficiency, and decision-making across European airspace. These initiatives explore how automation and machine learning can support controllers, optimize traffic flows, and reduce operational complexity.

For a detailed overview, you can check the presentation from the FLY-AI Conference (April 22, 2025), highlighting progress and lessons learnt from SESAR 3 AI projects.

[\[View the presentation\]](#)



SESAR also offers a dedicated webpage to follow all AI-related initiatives and the latest developments in smart ATM, showcasing the vision for more connected, data-driven skies.

[\[Explore SESAR AI projects\]](#)

Upcoming events

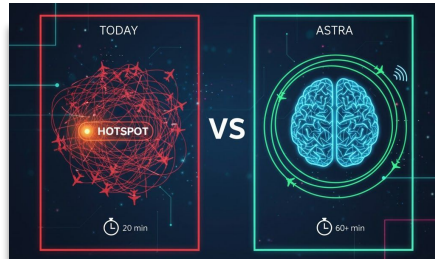


SESAR Innovation Days (SIDs) 2025

📍 1–4 December 2025 | Lake Bled, Slovenia

Hosted by Pipistrel and the University of Ljubljana, the 15th SESAR Innovation Days will bring together researchers and industry experts to explore the future of aviation innovation and showcase cutting-edge SESAR research.

[\[For more information\]](#)



ASTRA Final Dissemination Event

📍 5 December 2025 | Rikli Balance Hotel, Bled, Slovenia

Right after the SIDs, ASTRA will host its Final Dissemination Event: a half-day of discussions, live demos, and insights on how AI can reshape air traffic complexity management.

Don't miss the opportunity to meet the team and experience ASTRA's results first-hand.

[\[Discover more here\]](#)



AIAA SciTech Forum 2026

📍 January 2026 | Location to be announced

ASTRA will be presenting a paper at the 2026 AIAA SciTech Forum. The paper, "Real-time Validation of an AI-based Solution for Tactical Air Traffic Complexity Prediction and Resolution," will highlight the results of ASTRA's final validation exercise carried out in May 2025.

[\[For more information\]](#)

Stay in touch with ASTRA



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