The 2015 Airspace Concept & Strategy for the ECAC States

Up to 2011, the DMEAN Framework Programme will determine and lead airspace developments in the ECAC States. As of 2020, the SESAR ATM Target Concept (D3) will take over. In airspace terms, a key conceptual evolution is needed between the DMEAN and SESAR 2020+ timeframes. The 2015 Airspace Concept and Strategy for the ECAC Area (the Airspace Strategy) is the intermediate solution, providing a target for airspace developments. It aims to:

- Manage the challenging 35% traffic increase forecast for 2015 as against 2007
- Meet environmental and flight efficiency demands.

In line with SESAR, the 2015 Airspace Concept and Strategy for the ECAC Area is performance-driven. As such, it creates a link between airspace changes and performance targets.

The 2015 ECAC Airspace Concept

Air traffic in the ECAC region is forecast to increase by at least 35% between 2007 and 2015. This shows the need to enhance the organisation and use of the European ATM network.

For more flexibility and adaptability, ECAC airspace will have to allow an effective balance between capacity, mission effectiveness, flight efficiency and environmental requirements on the one hand, and the diversity of user requirements on the other hand, while maintaining or improving the safety of operations. Achieving this balance is the prime objective of the 2015 ECAC Airspace Concept (the Airspace Concept).

Description

To meet these requirements, the Airspace Concept encompasses strategic planning and design, including:

- The “packaging” of en-route airspace and terminal routes, optimised trajectories, airspace reservations and ATC sectors into airspace configurations by offering more dynamism and targeting terminal airspace.

In addition to being an evolutionary step towards SESAR, the Airspace Concept is also an evolutionary step from DMEAN. As such, DMEAN’s concept of airspace scenarios is extended to airspace configurations by offering more dynamism and targeting terminal airspace. Significantly, the Airspace Concept includes environmental objectives and envisages the use of optimum trajectories preceding SESAR’s business trajectories.
Trade-offs
The aim of the Airspace Concept and its supporting Strategy is a European ATM network where operations are optimised. Consequently, the prioritisation of various strategic objectives will influence decision-making processes. In certain areas, trade-offs will sometimes be needed between capacity, flight efficiency and environmental mitigation, but without compromising safety. However the main aim is to implement solutions to achieve the various performance objectives and targets.

When appropriate, airspace users will be offered better flight profiles, routing options and greater opportunity to use reserved or segregated airspace. This will benefit the environment in terms of noise mitigation, fuel burn and emissions. Military users will also be benefit from changeable airspace configurations through adaptable airspace allocation moving in time and place; this will improve mission effectiveness.

Where possible, the use of optimised trajectories will allow airspace users to choose the most efficient trajectory as a means of meeting their particular requirements.

The Airspace Strategy
The Airspace Strategy describes how the Airspace Concept will be achieved. The main elements contributing to the Airspace Strategy are:

Terminal Routes and Structures (Strategic Stream 1)
The creation of flexible terminal airspace configurations encompasses essential ingredients such as:
- the flexible placement of terminal routes using precision RNP (P-RNAV);
- the rationalisation of terminal airspace structures;
- the introduction of Terminal Airspace Systems (TAS);
- the reduction of environmental impact by requiring enhanced navigation performance and capacity.

ATC Sectors (Strategic Stream 2)
Strengthened modular sector design calls for capacity and complexity prediction tools and relies on cross-border sectorisation as a means of enabling regional airspace configurations (e.g. functional airspace blocks - FABs).

ATS Routes and other Structures (Strategic Stream 3)
The objective is future development of a flexible and more dynamic airspace route network (ARN) as the backbone of en-route airspace configurations. Optimised trajectories are introduced, possibly with multi-sector planning tools, and route spacing and use of parallel offset (enabled by airborne navigation functionality) are reduced to enhance capacity. All other airspace structures have modular design to enable their flexible use.

Airspace Network Management (Strategic Stream 4)
With the advent of the airspace demand reservoir (ADR) and its associated tools, a better management of conditional routes (CDRs) and temporary segregated/restricted airspace will offer the dynamism necessary to an effective use of airspace configurations. The rules associated with the application of the ICAO airspace classifications will become more uniform. As a consequence, the management of traffic will be improved through dedicated sequencing functions and advanced metering into major terminal airspaces.