## Enhanced ASM Processes and Civil/Military Coordination

### *Towards More Dynamic Airspace Management …*

One of the major enhancement of Flexible Use of Airspace (FUA) for the next five years is to exploit the airspace in a more dynamic manner by enabling late airspace (re-) allocation as close as practical to the time of operations in order to accommodate short-term changes in traffic situation and/or users requirements.

As such, this dynamic process aims at complementing current ASM activities, with the planning at Level 1 of dynamically manageable airspace structures. Initially, these dynamic structures will be limited to a series of pre-defined route options and military airspace scenarios with associated 'modus operandi' allowing allocation at Level 2 and where required at Level 3 in response to specific short-notice airspace requirements and/or route optimisation. Later on, once adequate information system will be in place, 'ad-hoc structures', whether routes or areas, would be established on an ad-hoc basis to meet operational needs at shorter notice than the usual Level 1 process.

Through this process, permanent ATS routes and available Conditional Routes (CDRs) would become 'plannable' options, while pre-defined military training areas would remain inactive until formally allocated.

The added value of the dynamic airspace management process for airspace users is:

- to provide equitable treatment in allocation of airspace and trajectories required at short notice;
- to allow users to make informed decisions and to increase their benefits by offering a larger choice on possible routeing options.

### *… While Ensuring Safety …*

In order to ensure implementation of the Enhanced Flexible Use of Airspace (FUA) process by EUROCONTROL Member Sates in an acceptably safe manner, "Enhanced FUA Process Safety Policy and Safety Plan" documents have been produced by EUROCONTROL with specific details for the implementation of each Operational Improvement (OI-1B to OI-6B).

### *… Within a Regulatory Framework*

Having regard to the European Community Regulation on the organisation and use of airspace in the single European sky, common implementing rules are about to be adopted to reinforce and harmonize the application of the concept of the flexible use of airspace within the single European sky.

## Enhanced FUA

***A flexible and more dynamic approach to airspace use in Europe***

Airspace is no longer designated as either purely civil or military airspace,

… it is exploited in an active manner with routes becoming 'plannable' options,

… while military training areas remain inactive until formally allocated,

… as close as possible to the time of operations,

… hence accommodating short-term changes in traffic situation and/or users requirements.

## Reference material

Available on the EUROCONTROL Website
http://www.eurocontrol.int/eatmp/fua/index.html

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# ENHANCED FUA

**A flexible and more dynamic approach to airspace use in Europe**

FUA ENHANCED

EUROCONTROL

# The EUROCONTROL Concept of Flexible Use of Airspace

## *In force in Europe since March 1996*

Back in June 1994, the ECAC Ministers of Transport underlining the need for a long-standing cooperation between civil and military partners agreed to adopt for Europe the EUROCONTROL Concept of Flexible Use of Airspace (FUA). The FUA Concept implemented since March 1996 has adopted the principle that airspace should no longer be designated as either purely civil or military airspace, but rather considered as one continuum and allocated on a day-to-day basis according to user requirements. Any necessary airspace segregation would be temporary, based on real-time usage within a specific time period.

***The FUA Concept is based on three levels of Airspace Management (ASM):***

- ***Strategic ASM* (Level 1)** — the definition and review of national airspace policy and organisation;
- ***Pre-Tactical ASM* (Level 2)** — the day-to-day airspace allocation according to user requirements;
- ***Tactical ASM* (Level 3)** — the real-time use of airspace allowing a safe separation between civil and military aircraft.

## *The need for enhancement*

Implemented in 29 ECAC Member States, the FUA is generally leading to a consistent civil/military co-ordination at national level, but there are still great differences from one State to another. If this does not actually hamper national airspace management process, it is sometimes quite detrimental at the interface between two States with a corresponding impact on the overall ATM system. Today, FUA aims mainly to release airspace when it is not used. But the benefits in terms of capacity are very small, since no alternative routing scenarios based on conditional routes have yet been implemented. However, benefits in flight economy have been identified from the shorter routing made available at pre-tactical level. Currently, too much emphasis is being laid on strategic airspace design of permanent route structures, rather than developing airspace management solutions at Levels 2 & 3.

# Enhanced ASM Processes and Civil/Military Coordination

## *The way forward to ensure seamless FUA operations*

An overall action aiming at improving the current ASM/ATFM/ATC processes to ensure seamless FUA operations from strategic planning to tactical use has been recently taken by EUROCONTROL within the framework programme "Dynamic Management of the European Airspace Network" (DMEAN) in view of concrete implementation of required elements within the next five years.

## *The Concept of Enhanced FUA Operations for 2008 - 2010*

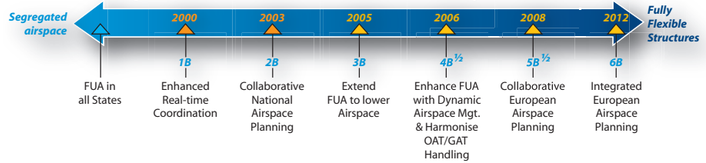
***The Concept of Operations for FUA 2008-2010 scenario at strategic, pre-tactical and tactical levels is based on the establishment of:***

- *New ARN Versions V5 & V6* providing a larger set of route options combined with cross-border and/or modular sector configurations route together with the associated "Modus Operandi";
- *Europe-wide Operational Air Traffic Compatible (OAT-C)* scenarios in the event of large scale exercises and/or operations across Europe;
- *Continuous and Seamless Pre-tactical ASM & ATFM Operations* in a process expanded closer to the time of operations to identify early in advance ASM solutions to overcome capacity shortfalls while enabling late revised airspace allocation;
- *Active Airspace Management Process* enabling the pro-active and dynamic allocation of airspace in response to specific short-notice airspace requirements and route optimisation;
- *Shared Airspace Data Repository* enabling the access of all stakeholders to a standard source of accurate, consolidated and up-to-date ATM information in real-time and offering the possibility to process automatically consistent digital information;
- *Flight Planning Assistance Service*, where required, providing a more comprehensive advice service to flight plan originators and possibly proposing alternatives, when a change occurs in the availability of a route;
- *Consistency in Flight Plan Processing* to ensure that any airspace changes and/or ATFM measures affecting flight plans are properly addressed and to guarantee the consistency/sharing of flight data on a "need to know" basis.

## *The EUROCONTROL Airspace Strategy up to 2015 and beyond*

The evolution of the Flexible Use of Airspace (FUA) Concept during the next ten years is described in the "EUROCONTROL Airspace Strategy for the ECAC States" under the 'umbrella' of the ATM 2000+ Strategy. The subsequent "Transition Plan for Implementation of the Airspace Strategy"' (TPIAS) provides detailed information on the further enhancement of FUA provisions through six main Operational Improvements between 2000 and 2015 (OI-1B to OI-6B).

### *Steps to enhance ASM and civil/military coordination*




**2000** Enhancement of the real-time civil/military co-ordination in providing adequate system support and ensuring proper dissemination of current flight plans [OI-1B]. The OI-1B has been completed with a Closing Report issued in 2002.

**2003** National Collaborative/Integrated Airspace Planning in accommodating shared use of airspace within a State between all users groups [OI-2B]. The OI-2B has been completed with a Closing Report issued in early 2005.

**2005** Extend FUA to Lower and to Terminal Airspace [OI-3B].

**2005** Collaborative Airspace Planning with neighbouring States including bilateral or multilateral agreements for cross-border operations (CBO) [OI-5B1].

**2006** Extend FUA with Dynamic Airspace Allocation to respond in real-time to changing situation in traffic flows and to short-term changes of users' intentions [OI-4B1].

**2006** Harmonise OAT/GAT handling to ensure that the principles, rules and procedures can be commonly applied to the maximum possible extent within the ECAC airspace [OI-4B2].

**2008** Collaborative European Airspace Planning more in line with the 'Single European Sky' (SES) initiative of the European Community [OI-5B2].

**2015** Move towards a more demand-responsive and integrated function to support the ECAC State collective responsibility for European airspace planning and management [OI-6B].

The Enhanced FUA which aims at organising a European airspace no longer constrained by national borders is an essential enabler for the SESAME implementation programme in the frame of the recently established Single European Sky to ensure that the plans to develop the European Air Transport from 2007 to 2020 are synchronised and integrated from research to operations.