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## EAD – The European Aeronautical Information Services Database

**Successful take-off for the world's largest aeronautical information system**



**When aeronautical Data Availability equals Quality...**

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GroupEAD Europe S.L.

*The AIS Expert Team*

**FREQUENTIS**

### EAD - The AIS Future has started

EUROCONTROL dreams the dream of a unified European sky. Since June 6, 2003 a first milestone of this dream has become reality. Due to terrific technological know-how, deep and honest respect for partners, excellent project management skills and ambitious people, Frequentis has managed to propel EAD, the European Aeronautical Information Services (AIS) Database, to a soaring start.

The timing could not have been better. Well timed for its 40th anniversary, EUROCONTROL made a large step forward in turning its vision of creating one sky for Europe into reality. This is, of course, no coincidence. A huge project like this takes meticulous planning and the right partners. In 1999, EUROCONTROL therefore assigned the Austrian high-tech company Frequentis with the EAD system implementation contract. During four years, all project milestones were achieved in time, leading to a Provisional Acceptance by EUROCONTROL in April 2003 and the successful start of Operations as planned.

The EAD service is provided for any Customer on behalf of EUROCONTROL by GroupEAD Europe S.L., with its operational centres in Madrid and Frankfurt. The concept has been so well accepted that EUROCONTROL won this year's ATC Maastricht "Future Systems" Award. And it is the first time the agency outsourced a EUROCONTROL service.

At a stroke the EAD database provided a single reference database of aeronautical information covering the entire ECAC area. Life has suddenly started to become much easier for those who plan flights across Europe thanks to this innovative programme for collecting and disseminating aeronautical data.

### AIS before EAD

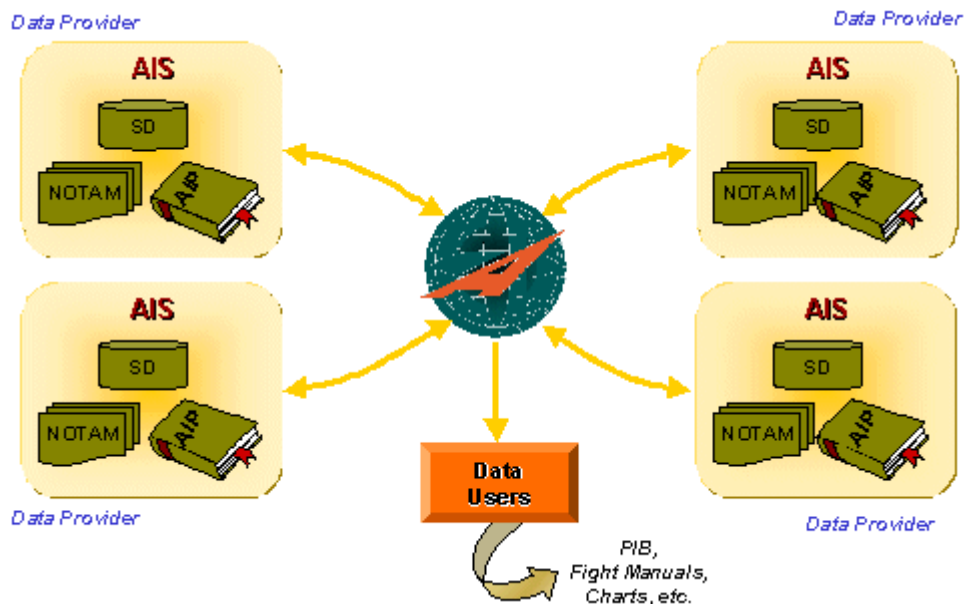
Until recently, an inevitable part of the process involved the acquisition of the relevant aeronautical information from each of the countries to be crossed, which was both inefficient and potentially open to errors.

NOTAMs (Notices To Air Men) and AIPs (Aeronautical Information Publications) have traditionally been processed, quality-assessed and corrected individually by each national AIS so that, in effect, the same job is carried out independently by dozens of different organisations. This fragmented system has often

resulted in incomprehensible cross-border aeronautical information, inconsistent data quality throughout the ECAC area, the growth of systems that cannot operate with one another, and, most seriously, a systemic failure in ensuring the timely distribution of aeronautical information updates to all stakeholders.

**EAD - AIS Today and Tomorrow**

EAD provides a single source of information for worldwide NOTAMS, Flight Information Region (FIR) and route data and the AIP data of all ECAC states. The service is a guaranteed source of the highest data quality, which is achieved by consistently checking data, including cross-border data and is therefore a secure channel for timely and efficient electronic distribution of aeronautical information to everyone needing it. Each state can use this data to provide its own AIS services, removing data duplication, remedying current deficiencies and supporting the work of harmonising and standardising the collection of and access to aeronautical information.



Interfaces are standardised, so the system is totally interoperable, which is expected to lead to major cost savings because users will no longer need to independently process erroneous data, or to maintain expensive AIS systems of their own. It is, in effect, a "one stop shop" providing up-to-date access to the highest quality aeronautical information at the click of a mouse.

The data gathered can then be plugged into existing software suites, so there is no need to learn how to operate a new system. All users have access to the same data at all times, making route planning and forecasting much easier and more efficient. Pilots can simply check on their planned routes, online, from their hotels or home.

The EAD is designed for the operation in a sensitive environment. Only users with appropriate access rights are entitled to create, update, delete and retrieve data or access specific applications.

Legal recording entries are created for all transactions to document all data updates and sensible retrievals such as briefing reports.

And: EAD is operational 7 days a week, 24 hours per day.

## **EAD - The Users**

EAD Users include general aviation, private pilots, who will gain access via the internet, military organisations throughout the ECAC area, both as data providers and data users, and commercial organisations, who will use EAD to produce value-added services and products for airspace users.

## **EAD - Functionality**

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EAD provides different kinds of services and functionality through various modular subsystems which can be selected by each client as needed:

**INO (International NOTAM Operations)**

INO provides facilities for processing, checking, and creating international NOTAMs and other relevant message data to be handled by EAD. The INO data is checked against the SDO data and all other INO data in order to ensure coherence and to prevent double publications.

## **SDO (Static Data Operations)**

SDO provides facilities for the input and checking of the static aeronautical data required for the safe and timely execution of flight operations, for the efficient operation of the INO, and for additional data that is of common interest to EAD Clients.

## **AIP (Aeronautical Information Publications)**

AIP is responsible for the production, maintenance and storage of the AIPs, AIP Amendments, AIP Supplements and AICs. The AIP subsystem is based on the FrameMaker/FrameAPS COTS product.

## **PAMS (Published AIP Management System)**

PAMS is responsible for storing the published documents, viewing services through read-only access and printing the documents. This includes maps and charts that are part of any of the above types of documents. The PAMS can also manage single charts in PDF format. The PAMS subsystem is based on the flash-DMS COTS product.

## **Chart Production**

The Chart Production subsystem is used to generate and maintain aeronautical charts from the SDO database. Charting parameters like chart specifications, graticule definitions, ellipsoid definitions and symbolisation can be used and maintained. Chart Production also offers specific charting functionality, such as geographical calculations and map projections. The Chart Production subsystem is based on the MicroStation/SmartGlobe COTS product.

## **Surveillance and Security**

This module includes System Management, Network Management, Help Desk, and state-of-the-art security.

## The Benefits

Nowadays, every ANSP is confronted with the same requirement: The quality of Aeronautical Information must be improved and services must be delivered at reduced cost to the AIS Community.

EUROCONTROL estimates that the Euros 15 million cost of developing EAD will be recovered in one year in one EAD area alone - NOTAM processing. Overall cost savings are difficult to estimate but it seems certain that EAD is on track to exceed expectations.

Major benefits - out of many - for all clients by joining EAD are an increase of safety with - at the same time - reduced cost.

Improved Data Quality is achieved by:

- Applying ICAO standards, operational procedures for AIS Dynamic Data (OPADD) and AICM/AIXM,
- Less reliance on human inputs
- Increased data integrity
- Increased data coherence through validation checks
- Automated processes between applications
- Timely distribution of aeronautical information

Reduction of cost is achieved by integration of the different AIS components in EAD, which leads to:

- Reduction in workload throughout the complete AIS process
- Reduction in local AIS Development Costs through the use of commonly developed applications
- Reduction in paper dissemination

## EAD - How to connect

The following EAD connections are offered to users:

- EAD Basic, which requires only a web browser to provide simple access to all data,
- EAD Pro, for more advanced applications allowing the user to create and modify profiles, charts, routes and document libraries. The EAD Pro terminal is connected to the EAD database via a graphical interface.
- My EAD, for users who want to manipulate AIS data with their own applications. A standard interface, called EAD System Interface (ESI), is used which allows customers to interface directly with the EAD data centre.

**EAD - The Service**

GroupEAD Europe S.L. - with its founding shareholders Aeropuertos Españoles y Navegación Aérea (Aena), Madrid, DFS Deutsche Flugsicherung GmbH, Langen and Frequentis Nachrichtentechnik Gesellschaft mbH, Vienna, - provides the services for any customer on behalf of EUROCONTROL.

The formal delivery of the Service includes data operations, provision of a 24 hour helpdesk, monitoring and maintaining the EAD system network and the training of clients. Since GroupEAD Europe S.L. is the single source of mission-critical European flight data, it is vital that the service is provided flawlessly and without any downtime. Therefore, the technical and operational infrastructure simply has to be fully redundant.

The EAD system is operated from two independent IT centres in Copenhagen, served by CSC, and two independent operational centres in Madrid and Frankfurt, operated by GroupEAD Europe S.L., to provide redundancy in the event of power failure, earthquakes, strikes and so on. The two operational centres have responsibility for certain site-specific functions as well. Frankfurt provides training for all data users and providers, Madrid being responsible for making available the ECAC AIPs in electronic form. Both IT sites in Copenhagen are separated by a distance of 10 km.

**EAD - The next Months**

ECAC states are already migrating to the new system, giving them the first ever opportunity to join a Europe-wide, harmonised AIS which allows them to create and maintain all their data directly onto the EAD database rather than on their own systems. Portugal, Germany and Slovenia have already joined, and Norway and Sweden have signed up to the Static Data Operation. By the middle of 2004 over 20 ECAC states are expected to have moved to the EAD.

**EAD - Answering Your Questions**

Since this article cannot cover all aspects of EAD the following contact persons will be pleased to answer your questions and to provide you with more information:

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