

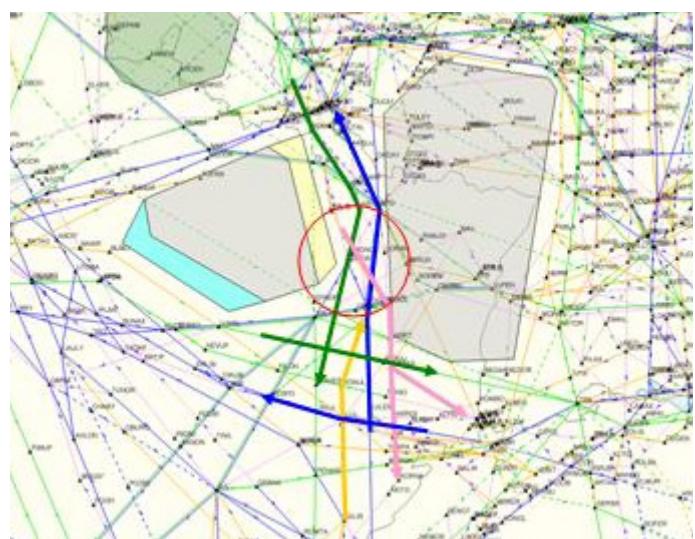
Airspace

De-confliction of airways

During the FABEC feasibility study phase, one point for discussion was the so-called SWAP. Two major airways cross in the Nattenheim-Diekirch area, which is squeezed in between three military training areas in the triangle formed by France, Germany and Luxembourg. To find a short-term solution, experts have developed two scenarios based on a reshaping of the military area (TSA 20). The plans were worked out in cooperation between the French military and the area control centres (ACC) of Reims and Paris. One scenario is based on the existing standard arrival and departure routes for Geneva Airport, the other envisages a modified connection to Geneva.

These two scenarios will be validated in a prototype simulation at the Brétigny Experimental Centre in November 2009 to choose a solution. Air traffic controllers from Geneva, Paris and Reims ACCs will participate in this simulation. A more comprehensive second simulation (planned for spring 2010) will also cover the interfaces with the adjacent area control centres of Brussels, Maastricht and Zurich. A fast-time simulation conducted

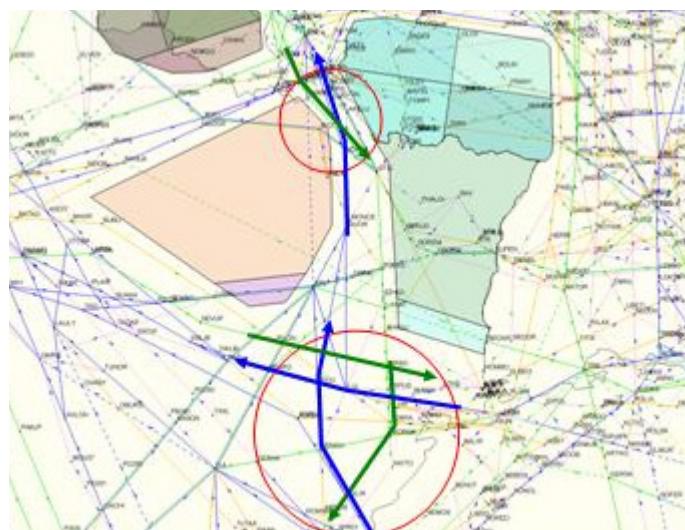
for the feasibility study showed that, in addition to reducing the number of possible conflicts by eliminating the two airway intersections, it would also be possible to shorten the route length on this airway portion by four percent. Considering that 132,000 flights use this route each year, this would have a major impact on ecological sustainability.



One scenario is based on the existing standard arrival and departure routes for Geneva Airport



The other scenario envisages a modified connection to Geneva



Two major airways cross in this Nattenheim-Diekirch area



ATFCM/ASM

Field trial starting in November 2009

From 23 November to 4 December, a field trial will take place at the premises of EUROCONTROL's Central Flow Management Unit (CFMU) concerning the pre-tactical phase of air traffic flow and capacity management (ATFCM) and airspace management (ASM). More than 30 civil and military experts will come together to develop the first short-term implementation packages of a common ATFCM/ASM function. The trial will include the following activities:

- ❑ developing and assessing coordination and communication procedures at FABEC level;
- ❑ evaluating the use of pre-defined scenarios for FABEC, i.e. level capping, re-routing, scenario conferences for special events, etc.;
- ❑ identifying requirements for all ATFCM and ASM functions, i.e. information-sharing between all the partners involved and the preparation of common products;
- ❑ assessing the task of delay-sharing.

Areas which will require special attention are the civil-military coordination process and the impact of procedures on current working methods. In particular, new or modified procedures which may be applied at FABEC level will be thoroughly assessed in the course of the trial.

The field trial has the following individual objectives:

- ❑ to prepare common products for short-term implementation at pre-tactical level to support FAB-enhanced ATFCM/ASM integration, such as a FABEC-wide pre-tactical plan for optimised planning;
- ❑ to develop and assess harmonised procedures which facilitate the communication processes within the ATFCM/ASM functions of the various ANSPs;
- ❑ to improve responsiveness to traffic flows and the needs of airspace users by assessing existing scenarios used for demand/capacity balancing or by developing new ones, such as delay-sharing, re-routing, level capping, sectorisation and rostering;
- ❑ to identify the need for improved tool functionalities to support the common ATFCM/ASM function.

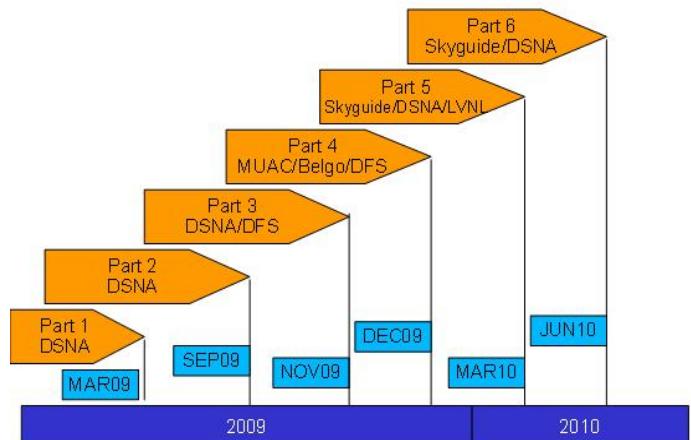
The success of this field trial will be measured by three criteria: an overall reduction in delays within the FABEC area, closer adherence to the aircraft operators' business trajectories, and improved coordination between FABEC partners. Since delay-reduction and flight efficiency may be conflicting criteria, a final analysis and balancing is planned. This assessment will also include the distribution of effects over individual ANSPs, military stakeholders and aircraft operators.

Night Network

The development of the Night Network arose from two different origins:

- ❑ The feasibility study highlighted a promising concept called 'tailored routes systems' based on direct tracks in a certain volume of airspace. This concept is possible only with a reasonable amount of traffic, which means at night or above a certain flight level (FL375 or FL385). In addition, FABEC partners need to have a flight data processing system (FDPS) which is fully interoperable throughout FABEC airspace. For these reasons, this concept cannot be implemented before 2018 or later.
- ❑ On the other hand, the controllers' tactical vectoring of traffic to give the most direct track from entry point to exit point at night has created a 'tactical night network' in each ANSP.

Implementation Schedule



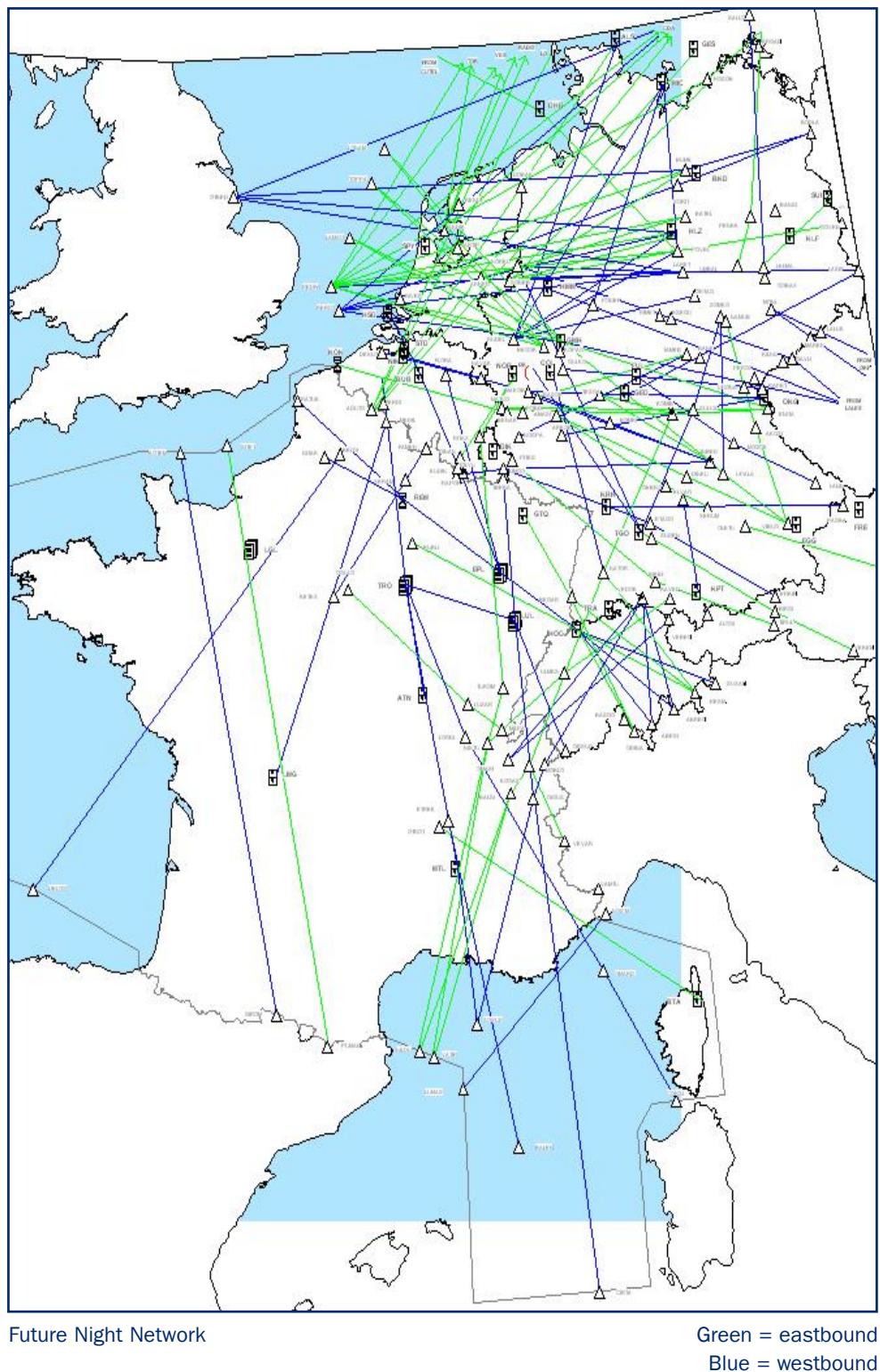
The routes are scheduled for implementation in accordance with the timetable above.

In order to combine these two different practices in a feasible early implementation package, the 'night network EIP' started its work in January 2009. In parallel, UK proposals for 'fuel-saving routes', developed with MUAC and the DFS, were incorporated into the work of this EIP. The objective is to offer a better service to operators by allowing better adapted fuel carriage.

The group is now working at FABEC level, including all earlier national initiatives, in order to build up a full flight-plannable network for night flights. This network has to be connected with the normal H24 network and also with the adjacent FABs' networks.

After six meetings, the group had to agree on various matters, such as activation hours (depending on military activity in each country), status (published route or RAD direct allowed), or implementation dates for various packages. In this connection, technical problems due to differences between the national systems were raised, such as coordination points, and these need to be tackled by FABEC's various ANSPs.

At the moment, more than 140 routes or DCTs are planned. Dedicated for overflying traffic, or for airports open at night, the benefits are quite promising in terms of fuel savings and in reductions in CO2 emissions.

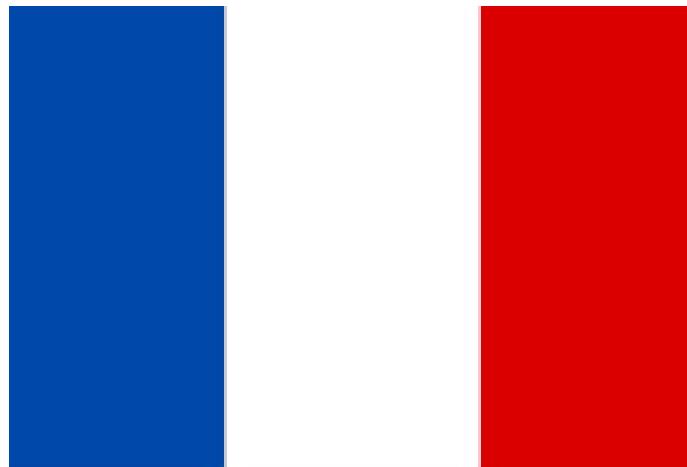


Civil-military cooperation in FABEC

Most people in the European aviation industry know ‘their’ air navigation service providers. We mean civil ANSPs, of course, because even civil ANS professionals are quite often unaware of their military counterparts. The creation of FABEC relies not only on international cooperation but also on a close civil-military partnership, with greater transparency of the military ANSPs. This article is the second of a series on the military and civil-military ANS situations in each of the six FABEC countries.

‘The French case’

The various EU regulations, especially the first Single European Sky package, had a major impact on cooperation between the French civil aviation authority (DGAC) and the Ministry of Defence (DirCAM).



In this context, DirCAM (the Military Air Traffic Management Directorate), which is the Ministry of Defence (MOD) regulator, decided to adopt a similar type of organisation to that adopted by the DGAC. Two DirCAM sub-directorates are responsible for airspace and regulation matters. The third is entirely dedicated to certification and oversight of the military air navigation service providers (ANSPs) and approval of major changes to the ATM systems planned by the military ANSPs.

The French MOD currently has five certified ANSPs. Four provide ATC services in certain volumes of airspace

whilst the fifth provides aeronautical information at national level. The way forward is to certify the military organisations in charge of the communication, navigation and surveillance systems.

Around three thousand military controllers work for the MOD. Half of them are air traffic controllers providing both general air traffic (GAT) and operational air traffic (OAT) services. The other half are air defence controllers providing IFR OAT and combat training services.

The final stage, which is already in progress, is to license the military controllers providing services to GAT flights. This has been entrusted to the DGAC and is scheduled for completion by May 2010.

Four questions to:

Col. Philippe Adam, the new director of DirCAM

Colonel Philippe Adam, who was recently appointed as the new Director of DirCAM (the Military Air Traffic Management Directorate) and is a member of both the States Strategic Board (SSB) and the High-Level Implementation Board (HLIB), is well placed to comment on the French strategic objectives.

1. *‘Le Livre blanc sur la défense et la sécurité nationale’* (referred to in short as the “*Livre blanc*”) defines a new strategy for France and therefore the French military.

How and to what extent do you see this influencing the development of FABEC?

The ‘*Livre blanc*’ is a basic document issued in June 2008 some fourteen years after the previous one. It confirms in particular the need to strengthen cooperation between the European countries and to make joint use of European training capacity.

In parallel with the publication of the ‘*Livre blanc*’, the French government announced a major restructuring and rationalisation of the military units.

In this context, four major airbases, all located in the



Col. Philippe Adam

core area, will be closed, namely Colmar, Reims, Cambrai, and Metz (partly). This decision shows that the French government has also taken into account the constraints imposed by the growth in air traffic.

2. In recent years, cooperation has been increasing between French military and civil ANSPs. What major steps have been taken, what are you aiming for, and what major hurdles remain?

As was said in the introduction, the Ministry of Defence took due note of the Single European Sky developments and concluded that the best strategy for the military was to implement the European specifications to the maximum possible extent, provided, however, that this did not interfere with the training of the armed forces.

In 2008, a joint roadmap describing the way forward for the ‘insertion’ of military controllers in civilian centres was signed by the DSNA and the French air force. ‘Insertion’ means that the military staff remain within their own hierarchical structure, but will adapt their control methods when using the same systems as their civilian colleagues.

3. The French air force has for many years been carrying out military cross-border training exercises in Belgian and Swiss airspace. What is your opinion of this cooperation & what possibilities do you see of improving the benefits?

The long-standing cooperation with the Belgian and Swiss air forces in cross-border operations can be regarded as being very positive and fruitful and we will continue to develop it. In a FABEC context, we are confident that a cross-border Area with Germany will also be very productive, especially in terms of exchanges of skills between the pilots and controllers of both countries. We just have to bear in mind that such activities will need an efficient airspace management cell.

4. Speaking of airspace management (ASM), how do you see the future of ASM in FABEC?

At present, the French military are modernising the tool used for national ASM purposes in order to make it interoperable and capable of automatically sending key performance indicators to the Central Flow Management Unit (CFMU). By the way, some figures are already available on the EUROCONTROL website.

In the near future, we will probably need to develop a joint civil-military FABEC cell responsible for managing both civilian and military needs within FABEC airspace and also taking into account the inter-FAB dimension.

Of course work is still ongoing and I do not want to anticipate the conclusions, but I am confident, because the military are willing, and the working atmosphere is good.

Cross-Border Area (CBA)

In terms of airspace design, the FABEC volume is regarded as a continuum and the objective is to place military areas at locations which are optimal for both civil and military users.

Future military requirements call for expanded military training areas (100 x 60 NM) in order to enable complex missions to be performed with new fighters equipped with multiple weapons. For this reason, the design of training areas has focused on cross border options and this has led to an increase in the number of cross-border areas (CBAs) to be used by FABEC’s various military partners.

During the feasibility study, areas of lower traffic density were identified and used as a basis for developing military training areas in order to fulfil future military requirements. The problem is to find the best balance between

civil and military needs.

Improved cooperation between military partners will also play a key role, because the overall demand from civil and military parties will exceed the available capacity of the airspace. In this regard, collaborative common management in order to overcome these difficulties will be absolutely essential in the future.

In order to allow further progress, priority rules for the use of airspace, which is a limited resource, are under development, with good cooperation between operational task forces. A balanced compromise which is satisfactory for all concerned can be achieved only on the basis of a combined solution at the three levels of flexible use of airspace (FUA).

Here are two examples to illustrate these CBA developments:

1. ‘CBA Land’, located across the Dutch and German borders, which will allow the Dutch and German air forces to carry out training exercises in certain slots still to be defined.
2. ‘CBA 22’, located across the French and German borders, which will allow the French, German and US air forces to carry out training exercises.

These CBAs are being developed by the various working groups of the FABEC task forces and will be included in the implementation plan. Implementation is currently planned for 2013, after verification in real-time simulations.

Munich-Zurich interface More space for routes towards the east

The DFS Munich Control Centre has further optimised traffic flows at the interface with skyguide's Zurich Control Centre.

In recent years, routes towards the west have been modified, the last time being in March 2008. DFS and skyguide are now focusing on routes towards the east, with the aims of optimising traffic flows. The following routes are affected: overflights from Switzerland into German airspace, departures from Zurich and approaches to Munich.

Overflights have been transferred as far as possible to the south in order to increase the spacing between these routes. As the routes were transferred, some constraints had to be taken into account, such as a TRA in Swiss airspace and uncontrolled airspace G below flight level 200 in Austria. Bernd Freese of the Munich Control Centre says: “At the end of the day, we managed to come up with a solution which constitutes an improvement for all stakeholders involved.”

AGDL task force Data link is on the way!

By creating functional airspace blocks, European air navigation service providers intend to increase the capacity and efficiency of European airspace in order to be able to handle future increases in air traffic.

Facing this abstract objective the work behind the scene will be done by experts who bring in their knowledge and expertise. We would like to introduce to you some of the people working on the FABEC project and their areas of responsibility. In this newsletter, we introduce Klaus Peter Hauf, head of the Air Ground Data Link Services (AGDL) task force.

In January this year, the European Union adopted a Regulation on the introduction of data link technology in upper airspace. Data link facilitates the exchange of text messages and thus communication between controllers on the ground and pilots in the cockpit. The new Regulation imposes mandatory time limits on air navigation service providers and airlines for the implementation of the new technology.

This Regulation requires the air navigation service providers of Germany, Austria, Belgium, France, Italy, Luxembourg, the Netherlands, the United Kingdom, Spain and Portugal to provide data link technology in upper airspace by February 2013 at the latest. Other European air navigation service providers are to follow suit by February 2015. As regards the control of upper airspace in Europe, data link technology has been in use only at the EUROCONTROL Control Centre in Maastricht, since 2003.



Klauspeter Hauf

Klauspeter Hauf, a member of staff at the DFS, is head of the AGDL Services task force, which is part of the FAB Europe Central project. An engineering graduate in electronics and telecommunications, he has been working at the DFS since 1997 and has already participated in several international projects.

Klauspeter describes the role of his task force as follows: "Our task is to provide the telecommunication infrastructure required for data link communication between pilots on board and controllers on the ground, as stipulated in the SES Regulation, for Western and Central Europe by February 2013." The task force comprises representatives of all FABEC partners, except for Luxembourg.

The FABEC partners requested that the task force did not focus on operational matters. Klauspeter says: "We only consider the relevant radio network, radio infrastructure and the providers of the necessary equipment." It became obvious right at the beginning that SITA and ARINC, the only companies operating on the European market, could serve as providers and partners.

The task force members prepared a three-step time schedule for their course of action. The first step has already been taken. The task force members agreed on a common strategy: "We demonstrated that we will be able to set up the required infrastructure at lower cost if all FABEC partners act in concert instead of conducting separate negotiations with the providers."

However, the precise contractual form remains to be clar-

fied. Consequently, the next stage is to establish a legal framework which will allow the seven different ATC providers to act as one customer.

As the SES regulations specify that ATS providers have to be able to communicate with each aircraft in the relevant airspace via data link, the FABEC partners are likely to conclude agreements with SITA as well as ARINC. Providers do not have access to other networks via standardised data link systems, as in the field of mobile telephony. If, for example, an airline has concluded an agreement with ARINC, then its aircraft require the relevant ARINC infrastructure on the ground in order to communicate via data link.

The second step comprises definition of the technical specifications and the type of procurement. There are two options. The first involves buying the infrastructure from the providers and offering services independently, as the DFS and SITA have been doing since 2005. The second option involves buying in services, as Maastricht UAC has already been doing for several years. Klauspeter explains: "We looked at both options, and during the first step we recommended choosing the first option." The completion of the second step is scheduled for October 2010, when the relevant procurement and user agreements will be signed.

The third step comprises the technical installation and commissioning of the telecommunication infrastructure as well as all tests and approvals required. The start of operational use in January 2013 completes the third step, so that data link technology can be used by all FABEC partners by 7 February 2013, the deadline set by the EU. "The time schedule is tight", says Klauspeter, "but I am convinced we will meet it."

List of abbreviations:

ACC	Area control centre
AGDL	Air ground data link services
ANA	Administration de la Navigation Aérienne
ANSP	Air navigation service provider
ASM	Airspace management
ATC	Air traffic control
ATFMC	Air traffic flow and capacity management
ATM	Air traffic management
ATS	Air traffic services
CBA	Cross-border areas
CFMU	Central Flow Management Unit
DCT	Direct
DFS	Deutsche Flugsicherung
DGAC	Direction Générale de l'Aviation Civile
DirCAM	Direction de la Circulation Aérienne Militaire
DSNA	Direction des Services de la Navigation Aérienne
EIP	Early implementation package
EU	The European Union
FABEC	Functional Airspace Block Europe Central
FDPS	Flight data processing system
GAT	General air traffic
HЛИB	High-Level Implementation Board
IFR	Instrument flight rules
LVNL	Air Traffic Control the Netherlands
MUAC	Maastricht Upper Area Control Centre
OAT	Operational air traffic
RAD	Radial
SES	The Single European Sky
SSB	States Strategic Board

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