

10 February 2010

## CANAC 2 : an asset for the future of Belgocontrol

On the eve of profound changes induced by the legislation on the Single European Sky, Belgocontrol reinforces its position by the commissioning of the most up-to-date air traffic control centre of Europe.

CANAC 2 is the outcome of an investment program that started with the construction of the control tower of Brussels Airport and the new operating site of Belgocontrol at the end of 2004. CANAC 2 is not only an air traffic control centre but also an air traffic management system that is installed in the control towers of the five Belgian public airports - Brussels, Charleroi, Antwerp, Ostend and Liege. It implements an innovative operational concept focused on the tactical management of the air traffic flows.

CANAC 2 represents a decisive step for Belgocontrol on its way to conquer a status of key partner in the future of air traffic control as it was set up by the Single European Sky regulation. Decreed by the European Commission, this regulation came into force in 2004 and was followed by a second legislative package in 2009. The goal of these measures, which was the result of demands made by the airlines, is to make the air traffic control in Europe as safe as possible at a minimum cost and a maximum efficiency and so, by creating functional airspace blocks (FAB) regardless of national borders. Therefore there will be, as from 2012, a rationalisation of the air traffic control sector in which this global performance will be a decisive factor.

### Performance

Safety, efficiency and cost control were the leading principles throughout the making of CANAC 2. Belgocontrol's mission of public service – ensuring the safety of air traffic – is consequently even reinforced. As regards safety, the contribution by CANAC 2 is significant. The safety nets, based on radar data and flight plans, produce audio and visual alarms when detecting a potentially dangerous situation as, for example, the non-observance of safety distances between aircraft.

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The automation of the tasks, the ergonomics and the smooth and quick access to all the tools and information enable air traffic controllers to concentrate at the most on the traffic they manage. As far as air traffic safety is concerned, it is essential to be able to rely on emergency systems in case of a breakdown. In CANAC 2, systems have been made physically redundant and are installed in two separate computer rooms and there are two emergency modes, Fallback and Ultimate. In case of damage, these safety measures ensure the continuity of the services with no loss of capacity.

The ergonomics of the work stations that are the single points of access to all of the air traffic controllers' tools was subjected to intensive studies. Air traffic controllers need no longer constantly change display screens to access the different applications. The 'petal' configuration of the operational room facilitates communication, which is essential between air traffic controllers. The automation of many tasks enabled us to reduce the staff, necessary to manage one air sector, from three to two air traffic controllers. These sectors - parts of airspace – are no longer linked to well-defined work positions as it was the case in the former centre. This new flexibility makes it possible to reorganise the work in the operational room and to adapt staff numbers to the traffic situation. These advantages will lead to a substantial productivity profit. This is very important for Belgocontrol that manages the airspace that is by far the most complex of Europe and must consequently mobilize more staff.

New applications in CANAC 2 which, as we may remind, are also used in the control towers, optimize the tactical management of air traffic flows. Traffic is managed in a more global and precise way. Air traffic controllers have a real-time view of the status of the various military areas in the airspace and can take advantage of their temporary availability to let the aircraft follow more direct routes resulting in fuel savings, thus costs reduction for airlines, but also a positive environmental impact thanks to a reduction of greenhouse gas emissions. Many systems for data management, calculation and updating of automatic data integrated into CANAC 2, allow savings on the punctuality and efficiency side, both on the economic and the environmental level.

The performance of CANAC 2, its flexibility and the possibility to integrate the military air traffic control makes that Belgocontrol is in a favourable strategic position when entering into the Single European Sky.

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## Investment

The investment in CANAC 2 amounts to about 60 million euros. An important sum for the company, but it provides a sound basis for its future. In the aeronautical sector, this investment must be put into perspective as it does not even represent the price of a single Boeing 737 or Airbus A320 airliner. This investment will very quickly provide cost-effectiveness that will directly benefit our users, the airlines, which pay en-route charges for using our services. Savings will derive from a better productivity thanks to new equipments (more direct routes, flexible sectorisation, enhanced civil-military collaboration, better management of traffic flows) and to the reduction from three to two men per work position; assistants air traffic controllers will soon no longer be necessary depending on the availability of information and the communication means thanks to technology.

## The CANAC 2 project

The building of the new CANAC 2 centre started in September 2007. Only a little more than two years were necessary between the order and the putting into service of the centre, which is an outstanding performance. Today, Belgocontrol has the most up-to-date air traffic control centre in Europe. It has been put into service discreetly and successfully on 28 November 2009, so that the air traffic controllers could get used to the new system and make sure that it worked well. It replaces the former CANAC, which dated from 1993 and no longer fitted the present performance needs nor the technological evolution necessary to the building of the Single European Sky. We have to point out that the transition was carried out without a noticeable reduction of capacity, thus with no major drawbacks for the customers.

CANAC 2 was developed in collaboration with one of the world leaders in air traffic control systems, Thales ATM, that is also an important stakeholder in the SESAR (Single European Sky ATM Research) programme. This European programme, which is the technical section of the future Single European Sky, gathers together institutions as the European Commission and Eurocontrol, and manufacturers in order to design the technological future of air traffic control.

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After the drawing up of the terms and conditions and the selection of the suppliers, the order for the Eurocat-E system was placed in September 2007 with the THALES ATM company. Its adaptation to our needs and the integration of the existing systems and/or systems under development within Belgocontrol mobilized our engineers, our technicians and our air traffic controllers during many months. Thales ATM provided Belgocontrol with a COTS system, but Belgocontrol kept the control of the project from the beginning till the end. We also had to organise the training of the operational and technical staff for the future new environment, then to test and integrate the system in careful stages through the “shadowing”, a transitional period during which the operational room of the former CANAC was ready to take over the activities in case of problem. The whole process was subject to safety cases until the putting into service of CANAC 2 under the constant supervision of our Safety Management Unit.

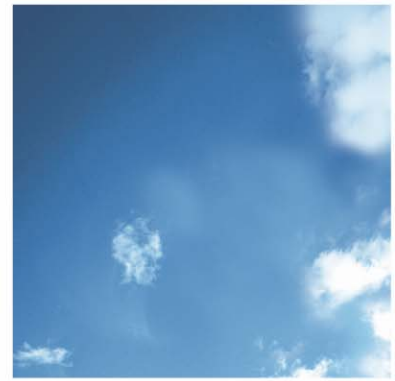
### **An asset for the future**

With the putting into service of CANAC 2, Belgocontrol positions itself as a key stakeholder in FABEC. It is an essential asset for the future of the company and its staff. But these efforts must go hand in hand with the awareness of our political leaders of the necessary adaptation of our incomes according to the latest regulations of the Single European Sky as far as air navigation charges are concerned. Both our economic performance towards our customers and the balance in the budget of the company depend on it.

**BELGOCONTROL** is an autonomous public company, created in October 1998, with the mission to guarantee the safety of air navigation in the airspace for which Belgium is responsible. Its zone of activities extends from ground level (at Brussels airport and the airports of Antwerp, Charleroi, Liege and Ostend) to 8,000 metres for Belgium and from 4,500 to 8,000 metres for the grand duchy of Luxembourg. The Eurocontrol centre in Maastricht is responsible for the area above 8,000 metres, and jointly manages the air traffic of the upper airspace of Belgium, Luxembourg, the Netherlands and the western part of Germany. Belgocontrol manages the air traffic at five public airports: permanently at Brussels Airport, Antwerp, Charleroi, and Ostend, and only at night during the week and 24/24h during weekends in Liege (the military is responsible for the traffic control by day during the week).

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## Captions



### **consoles.tif**

The consoles which feature screens in triptych give immediate access to all operational information.



### **ops-room.tif**

The operational room of the CANAC 2 centre filled with natural lightness coming from the light shaft.



### **petal.tif**

The four petals forming the air traffic controllers' work positions in the operations room. The ACC West, ACC East, APP and Training petals. The Training petal is intended for continuous air traffic controller training, though it can be used for operations control if such is required by air traffic conditions.



### **radar\_screen.tif**

The radar colour image offers many assistance tools that produce a visual alarm and highlight specific airspace areas.



### **jc-tintin.tif**

Jean-Claude Tintin, Chief Executive Officer of Belgocontrol.

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