

## News

AEROSPACE CLUSTER IN RHÔNE-ALPES NEWSLETTER - JUNE 2005

**“A cluster to support a structured regional aeronautics offer with a high capacity for innovation.”**

**“A joint approach worth getting involved in.”**

Although the history of aeronautics in Rhône-Alpes is not the same as in the Midi-Pyrénées region, the industry here totals - out of the 500 companies identified as working in the sector in Rhône-Alpes - 100 specialist companies accounting for 16,000 employees and €1 billion of turnover. In addition, Rhône-Alpes is the fourth region in Europe and the second in France for research and development, with very high-level activities in a varied range of fields such as composite materials, electronics, optics, optical electronics, materials, assembly, mechanics, surface treatment, acoustics, vibrations and fluids.

This was the background against which, on the 7<sup>th</sup> December last year, I suggested to those involved in the sector, meeting at the Regional Council, to start up an Aerospace Cluster In Rhône-Alpes initiative, in line with the regional push to create jobs and innovation, to support competitiveness and to develop areas within Rhône-Alpes. Industrialists, those involved in research, technology, higher education, and institutions for economic development, agreed to get together to bring to fruition this ambition for a structured, regional aeronautics offer with a high capacity for innovation. A partnership was drafted and organised with the Rhône-Alpes regional Chamber of commerce and industry which took responsibility for leading the regional cluster, in association, for matters of innovation and performance, with the regional agencies ARAMM, ARATEM and Pôle Productique.

Since then, the companies and those involved at regional level have been working together on Commercial and International Development, Industrial Performance and Technological Innovation, in particular by improving collaboration between those working in industry and those in research and innovation. Aerospace Cluster in Rhône-Alpes can therefore boast both a high degree of involvement on the part of the authorities and also - and this is what counts above all - the determination of those involved in the sector, whether they be industrialists, experts or researchers, to act together to strengthen their competitiveness and drive.

Sounds interesting? Meet up with them in the cluster working parties, and you too can get involved in maintaining this regional drive: an ambitious innovation for the development of Rhône-Alpes, its companies and its jobs.

Jean-Louis Gagnaire  
Vice-chairman, representative for economic  
development in the Rhône-Alpes region

# Rhône-Alpes: a different perspective

**W**hile the constantly developing field of aeronautics is today an industry made up of integrated systems in which products are designed according to standardised architecture and modules, suppliers are developing more and more complex and technical offers. Their solutions are designed for a level of efficiency, a function, a cost per hour of flight and a service life. In structural terms, in order to win new markets, companies are adapting - project management, supply-chain management, technological innovation, financial soundness - to take up the challenge of becoming more competitive.

## Industry/research: an established duo

Close on 500 companies in Rhône-Alpes working in the aeronautics, space or defence industries are involved in the Aerospace Cluster in Rhône-Alpes initiative. Amongst these, over 100 are specialists. This industrial potential benefits from an exceptional aeronautics research and development environment: the 4<sup>th</sup> region in Europe for aeronautics R&D.

Together they are developing know-how and skills in mechanical engineering, mechatronics, electronics and electrical engineering, composites, technical textiles and hydraulics. These skills have been instrumental in bringing in huge contracts on the A 380. For example Duqueine Composites is making the secondary air tunnel for the GP 7200 using an RTM process; Adeneo is producing test equipment and has worked on the topology of computer power supplies.

Around these regional equipment and systems suppliers such as Sarma (SKF Group), which produces control rods for the A 380 and composite structure parts, small and medium enterprises are getting organised to develop a top-level offer.



## Rhône-Alpes, the 4<sup>th</sup> region in Europe for research into aeronautics

Over 40 international-scale laboratories\* and technical centres\* develop high-level skills in all fields of aeronautics. The research they perform and the fruit of their collaboration with companies such as Airbus, Dassault, Snecma, ESA, EADS, are a source of innovation and performance in terms of design, reliability, safety, weight reduction, durability and comfort for aeronautical systems.

### PASSENGER COMFORT

- Simulating acoustic comfort in the passenger compartment, noise perception studies.
- Studying thermal comfort in the passenger compartment, thermal transfer through the walls of the plane.
- Aero-acoustic simulation of systems subject to high frequency vibrations.

### WEIGHT REDUCTION

- Developing impregnation processes for textile structures to give lighter skins.
- Studying multi-material assemblies: metal/metal, ceramic/metal.

- Studying aluminium alloy bimetallic parts with solid titanium inserts.
- Light materials: alloys, metallic foams, composites.

### PERFORMANCE AND SERVICE LIFE

- Improving aerodynamics by reducing drag.
- Studying how complex mechanical parts become damaged.
- Thermo-structured compound fatigue at high temperature.
- Developing ceramic/ceramic composites for high-performance braking applications.

### SAFETY

- Fully-electric aircraft: electric actuators, network safety, component cooling.
- Modelling power transmission.
- Developing parietal sensors of the MEMS type including pressure, temperature and fluid measurement.

### Denis Jeandel – Lecturer at the ECL and Chairman of the Groupe Rhône-Alpes AAAF

*"The Rhône-Alpes region provides a first-rate potential for aerospace research with a uniquely diverse range of scientific fields: aerodynamics, acoustics, combustion and propulsion, mechanics and materials, systems, etc.*

*The quality of its staff, who have acquired an enormous amount of experience of partnership with major European companies, is internationally-recognised.*

*For Rhône-Alpes laboratories, the cluster will make it possible to find new ways of making use of these skills in companies in the region, with a new vision of the shared approach to innovation".*

\* From the nine universities and nineteen engineering schools located in the four university centres in the region (Lyon, Grenoble, Saint Etienne and Chambéry).

## Working better together, designing solutions to meet clients' needs



### TOOLING AND EQUIPMENT

#### A speciality

Companies within Rhône-Alpes are kitting out the A380: for example Tardy supplied the tooling for machining its nose cone; VAI Clecim tooling for static tests, and Courbon designed a flexible machining shop for the Méaulte plant. Three other companies have grouped together to form a consortium directed by a regional small-to-medium enterprise (REEL), to design and manufacture assembly station 30 of the A 380 used to integrate electrical and electronic systems.



### POWER ELECTRONICS

#### Innovating to win

One of the strengths of Rhône-Alpes companies is to provide functional solutions while keeping total control over product development. The flight control computer chip for the control surface of the A 388 made by Dolphin Intégration is an illustration of this.



### COMPOSITE MATERIALS AND TECHNICAL TEXTILES

#### High-performance

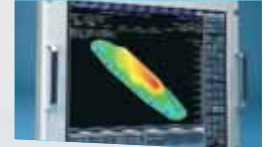
From the manufacture of fibres and reinforcements for the structure of aircraft (Hexcel, Porcher) to the design and production of composite sub-assemblies and equipment (Sarma, Duqueine, Courbis, RBE Aeronautique) via the production of moulds and tooling, (Aeroform France, Isojet Equipements, Le Creneau Industriel), Rhône-Alpes companies can offer very competitive solutions.



### MECHANICS

#### Competitiveness and technology

Harnessing together cost control and technological know-how, product quality, lead times and reactivity, solutions offered by companies in the Rhône-Alpes region are a source of competitive advantage for their clients: Airbus, Boeing, Eurocopter, Rolls Royce, Snecma, etc. For example: SNR with high-precision bearings for aerofoil rollers or flap activation; Sorome with titanium hydraulic blocks; FMDL et Setforge with their forged parts for under-carriage or engine.



### ACOUSTICS, VIBRATION

#### Single solutions

Measurements in harsh environments, identification of sound and vibration sources, noise level predictions, digital modelling, computing aerodynamic and hydrodynamic solutions (01dB-Metravib, Vibratéc, Fluorem), Rhône-Alpes companies offer a range of unique solutions for the vibro-acoustics of turbo-machines, fatigue analysis or silent design.

## Testimonies

### Frédéric Davrieux, Sales director - Adeneo :

"Aerospace cluster will gear up development for us. At a time when close to 30% of our turnover comes through the aeronautics industry, this initiative will help us to communicate better and group together with small and medium enterprises working in complementary fields to design offers aimed at aircraft manufacturers and local or foreign systems developers. It will make it easier for us to take part in European or national research programmes.

ADENE0 is developing a three-way offer covering technical assistance, design and development of in-flight test facilities, and equipment production.

On the A 380 we took part in the design and development of power supplies for the central computer, and have supplied ten or so test facilities such as a load bench and a PMA bench whose function is to test the electrical generation channel and check that it is operating correctly.

We have also developed electronic functions for different equipments: electronic safety locking controls, electronic controls for hydraulic valves, jack control software, etc. for thrust reversers, the ventilation system, etc."

[www.adeneo.adetelgroup.com](http://www.adeneo.adetelgroup.com)

### Patrick Magne, Sales Director - Fluorem

"Aerospace cluster will enable companies and laboratories to work better together and to pool their efforts, so as to be better positioned and more visible in the aeronautics landscape. This should lead to concrete results: new clients, new investors wishing to take part in our development.

This local and regional initiative is just what is needed to take advantage of the current new growth cycle and ensure success in the long term.

For FLUOREM, a software editor, specialized in the fields of aerodynamics and acoustics, the aeronautics market is a priority target. Our aeronautics activity counts for about 50% of our turnover. As for our advanced technology, it is naturally to be found in the new Airbus programmes."

[www.fluorem.com](http://www.fluorem.com)

## Rejoignez Aerospace Cluster in Rhône-Alpes

**B**ringing together industry and research to sustain the development of a structured, regional Aeronautics offer with a high capacity for innovation: such is the objective of the Aerospace Cluster in Rhône-Alpes initiative. Its pragmatic approach is based on direct participation of companies and research partners in defining strategy and implementing actions

Aerospace Cluster in Rhône-Alpes counts already over a hundred regional companies specialized in the aeronautics market. It provides a response to the determination shared by laboratories and companies to become more competitive and to get the region riding the wave of the boom in the aeronautics market. Its activities are run, and the action of its working parties coordinated, by the Rhône-Alpes CRCI (Regional Chamber of Commerce & Industry).

### 3 groupes de travail en action

#### • COMMERCIAL DEVELOPMENT – INTERNATIONALIZATION

This group, run by the CRCI, works on strengthening relationships with prime contractors, access to international markets, networking and monitoring. The aims are to help the members of the cluster to be more visible on the international scene by taking part in specialized events (trade fairs, conventions, missions, etc), implementing projects to help companies set up, technical or commercial partnerships

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#### • INDUSTRIAL EFFICIENCY

Industrial efficiency: the group is run by the Pôle Productique Rhône-Alpes. It works on controlling costs, quality, lead times and reactivity, as well as the effectiveness of exchanges between suppliers and prime contractors by controlling information and product flow. It brings together skills, or shares resources, capitalizes on the exchange of good working practices so as to implement strategies for continuous improvement using approaches such as Lean Manufacturing, Six Sigma, process control, etc., and to accompany the roll-out of e-business projects.

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#### • TECHNOLOGICAL INNOVATION

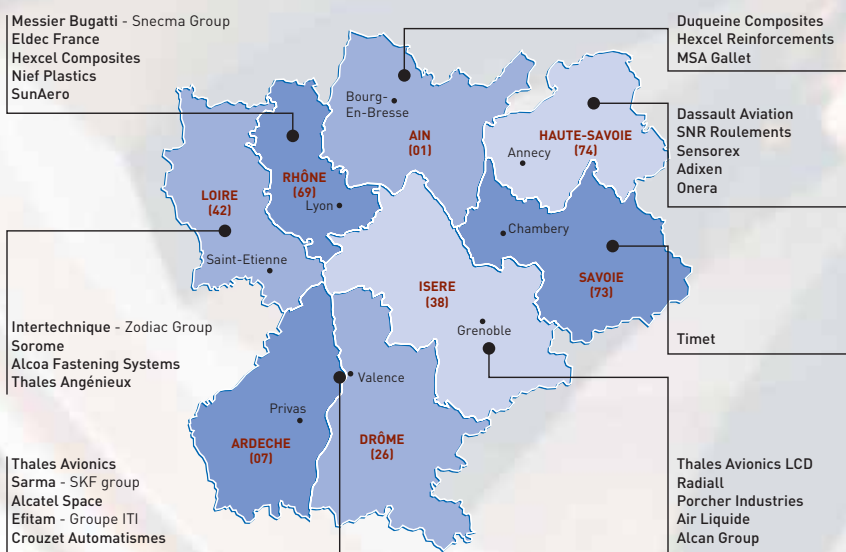
the group, run in conjunction by, ARAMM and ARATEM, works on collective technological projects covering aspects such as structures, on-board systems, passenger comfort, etc. Awareness of available forces in the Rhone-Alpes region (both industrial and for research) and the needs of the aeronautics market make it possible to network all those involved in the chain to ensure efficiency and quality and to propose integrated systems.

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