



PLATINO Programme

By Manuel Mulero, Platino Programme Director

As described in the previous UAS yearbook the PLATINO (Light Aerial Platform for Innovative Technologies) Programme is being developed by a National Consortium in Spain created to this end, counting up to now with 32 partners during 2008. During its second year it has been financed by the Ministry of Science and Innovation (MICINN), formerly Ministry of Education and Science (MEC) within the framework of the Spanish National R&D «Singular and Strategic Projects» and complemented by important funding from the Ministry of Defense through INTA, which is the originator of the project and its leader. Four Projects were active during 2008 under the «umbrella» of PLATINO:

- HADA (Helicopter ADaptive Aircraft)
- SATA (Automatic Landing System)
- COBOR (Optical Communications On Board)
- Management of PLATINO

HADA Project

The aims of the Project are:

- Design and develop a new concept of «Morphing Aircraft», able to perform VTOL operations and cruise as a conventional fixed wing aircraft;
- Achieve high figures of cruise efficiency trough flight efficiency based on morphing to fixed wing configuration;
- Perform this morphing process under safe and reliable conditions due to sound design and advanced Flight Control performances.

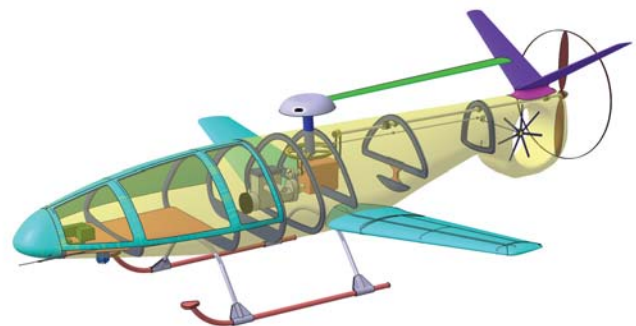
During 2008, tests have been performed in the INTA wind Tunnel (open test section of 3x2 meters and 3 meters long in the stream direction).



These test were performed on a 1/6 geometrical scale model to obtain the main characteristics related to lift, drag and momentum of the model in both configurations, as well as an estimation of the transition process when deploying the wings. These tests will be continued during 2009 when the rotor mechanisms for stopping and folding the blades are fabricated. Flight tests in helicopter configuration have continued during 2008 in order to characterize the model in that configuration. Progress has been achieved in the design and lay-out of the first flight model of the HADA concept. This model will be a 2/3 scale of the final model (dubbed «ALONDRA») and will be tested on the ground, as well as in flight in the last quarter of 2009. It will have a MTOW in the order of 365 kg with a rotor diameter of around 5 meters, a wing span of 5 meters, a Fenestron type tail rotor and a «V» tail with a pusher propeller and an engine of 48 Kw output power. It will be able to carry a payload of 50 Kg for 3,5 hours endurance or a 20

Kg payload for 7 hours. CFD studies as well as stability analysis are being performed in order to implement the control laws on the on board computer.

HADA is being led by INTA in the technical and scientific aspects and the company Aries Complex in the industrial and integration aspects. 24 other companies, research centers and universities participate in various aspects of the design of the system.



SATA Project

Feasibility studies have been performed during 2008 by the consortium for this project, which is led by the company GMV. The aim is to develop novel advanced technologies for helicopter landing on board a moving platform, which will involve a set of sensors on board the helicopter, specific software for the approach and landing, communications links with the ship's systems and reliable fixing systems on board the ship's landing pad. A demo system will be tested in the last quarter of 2009.

COBOR Project

This project aims at substituting, as much as feasible, the cabling and subsystems of on board communication elements with optical links, in this case based on two types of solutions:

- Diffuse Infrared communications;
- Optical fiber links.

This solution will provide the unmanned aircraft with light on board avionics and will confer a high degree of immunity to EMI. This project is led by the CTA (Aeronautical Research Center of the Basque Country) and ELIMCO (aerospace company in the Andalucía region).

Programme Management

Given the complexity in technical as well as management aspects of the programme, which involves 32 partners in these three projects, it was decided to constitute a separate team, funded as a separate project, able to manage and coordinate all activities, not only related to the projects themselves, but also to interact with the funding organizations. This project is carried out by INTA and CATEC (Aeronautical Research Center of Andalucía). For, additional information contact:

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