

CONTRIBUTING ORGANIZATIONS

PLATINO Programme

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HADA Project

(Light Aerial Platform for Innovative Technologies)

As described in the previous UVS International yearbook and presented at the UVS International conference in 2007, the PLATINO Programme is being developed by a national Spanish consortium created to this end (16 entities in the feasibility phase).

In 2007 PLATINO has been financed by the Ministry of Education and Science (MEC) within the framework of the national Spanish R&D programme and complemented by important funding from the Minister of Defence through INTA, which is the originator of the project and its main leader.

The aims of the HADA project remain as they were, namely:

- 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 through 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.

Technical Progress

HADA was structured to be developed in a time-frame of 4 years, in phases. In 2007 the following a limited demonstration of critical processes, especially transition in the morphing phases, using a reduced scale aircraft (helicopter), took place:

- Flight characterization of the basic model: helicopter
- Wind Tunnel test of the basic Model: helicopter;
- Design, building and installation of deployable wings on the Model;
- Wind Tunnel testing of the Model in HADA configuration;
- Design of propulsion solution for HADA-COLIBRÍ in Aircraft Mode;
- Testing of propulsion performances in Wind Tunnel;
- Wind Tunnel assessment of forces and moments during transition phases

All these tasks have now been carried out and the resulting data are being analyzed with encouraging preliminary results.

Next HADA Project Actions

Data from flight and Wind Tunnel tests will be analyzed and conclusions implemented in the final design of the HADA prototype.

These conclusions will be tested on a 1/2 scale aircraft of the final HADA.

Propulsion transfer mechanisms will be tested on this model (dubbed «ALBATROS»), as well as main rotor blades retraction and folding, which cannot be tested on the 1/3 scale model (COLIBRÍ) due to its reduced size.

Other PLATINO Projects

PLATINO comprises 4 other projects focused on advanced aeronautical technologies. These are:

- **COBOR:** (Comunicaciones Ópticas a Bordo = Optical Communications on Board)
This project aims at substituting as much as feasible, the cabling and subsystems of on board communication elements for optical links, in this case based on two types of solutions:
 - Diffuse Infrared communications;
 - Optical fiber links.Currently, COBOR is being implemented on a space project lead by INTA (OPTOSAT), but it will be developed in its aeronautical application during 2008.
- **SATA:** (Sistema de Aterrizaje Automático = Automatic Landing System), will be developed along with HADA and will be based both on Galileo (and other GNSS) and proximity sensors to enable safe landing on moving platforms, such as ship decks.
- **SANAS:** (Sistema Automático de de Navegación Aérea Segura = Automatic System for Safe Air Navigation), that will be developed in conjunction with European initiatives.
- **MINISARA:** a project that will develop a Miniature synthetic aperture radar suitable to be embarked on board medium-size UAS and light aircraft.

The aforementioned projects are being lead by INTA and are part of the Spanish national research and development initiatives.

