



ALTAIR

## What is the ALTAIR project?

ALTAIR is the European project aimed at demonstrating the economic and technical feasibility of a semi-reusable launch system for small satellites. It consists of an innovative "air-launch system, whereby the carrier is a reusable automated aircraft, jettisoning at high altitude an expendable launcher.

## Exceptional performance

The launcher will use:

- green and low-cost hybrid propulsion
- a high-performance composite structure
- innovative avionics
- a reconfigurable upper stage for greater mission flexibility

The carrier is automatic and designed specifically for the mission, without the inherent constraints associated with the reuse of an existing aircraft.

Furthermore, the ground systems architecture will be simplified and will make the operations more cost-effective.

## What are ONERA's assets?

ONERA, which is dual-skilled in space and aeronautics, coordinates the project in which 8 partners from 6 countries are participating. The system design will benefit from the Multidisciplinary Design Optimization (MDO) approach developed at ONERA over the past 15 years.

In addition, flight tests will be conducted with the existing Eole demonstrator (developed under ONERA project management for the PERSEUS project of CNES), in order to validate the key technologies concerning the launcher's avionics and its jettisoning sequence.

## Partnerships and funding

For over a decade, ONERA and CNES have been working together to study the potential and the performance of this air-launch concept.

Funded by the European Commission to the tune of €3.5 million and by Switzerland for €0.5 million in the framework of the Horizon 2020 program, the 36-month project will culminate in a detailed definition of the complete system (carrier, launcher and ground segment), associated with a business plan and a roadmap, as well as an industrial organization proposal.

Along with ONERA and CNES, the ALTAIR project is conducted in partnership with Bertin, Piaggio Aerospace, GTD, ETHZ, NAMMO and SpaceTec.

To stay informed about the ALTAIR project, visit: <http://altair-h2020.eu/>



Altair vehicle in flight with launcher attached



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 685963

Contact: [nicolas.berend@onera.fr](mailto:nicolas.berend@onera.fr)



# ALTAIR

**The European future for the low-cost launch  
of small satellites**

The miniaturization of the components for small satellites and the emergence of mega-constellation projects, as deployed for telecoms or the Internet, are providing fertile ground for the small satellites market. The multi-disciplinary expertise of ONERA, its experience of involvement with future launcher systems design, and its capacity to deal with cross-functional issues give it a strong voice in this area. The European ALTAIR project (Air Launch space Transportation using an Automated aircraft and an Innovative Rocket), coordinated by ONERA, proposes an innovative space launch system for small satellites.

ONERA

THE FRENCH AEROSPACE LAB



Uwe W. Jack

This is a document from Uwe W. Jack's archive.

These documents are intended to illustrate aspects of aerospace history.

You are free to share it with friends.  
commercial use is prohibited.

Uwe W. Jack occasionally puts new documents on his website.

Please visit:

[www.aerospace-jack.com](http://www.aerospace-jack.com)



## Junkers Ju 287

The most advanced Jet-Bomber of the Luftwaffe

This is the story of an aircraft that might have changed the air-war in 1945/46. Lots of photos, drawings, information, data and more than 6000 words give a detailed insight into the development of this unique piece of aviation.

Available as eBook on

**Amazon**

and

**smashwords**