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Press release

ONERA is preparing Europe's future in the launching of small satellites

The ALTAIR project (Air Launch space Transportation using an Automated aircraft and an Innovative Rocket) is a European H2020* project coordinated by ONERA and involving partners from six countries. The goal is to demonstrate the industrial feasibility of a low-cost launching system for small satellites. This research program will last 36 months.



A possible vehicle architecture for the future ALTAIR air-launch system

The ALTAIR project focuses on an innovative solution for launching space satellites in the 50-150 kg range into low Earth orbit at altitudes between 400 and 1000 km. ALTAIR will use a semi-reusable "air launch" system, whose carrier will be a reusable automated aircraft, releasing an expendable launch vehicle at high altitude.

This launcher will use an environmentally friendly hybrid propulsion, advanced lightweight composite structures, innovative avionics and an upper stage providing mission versatility. The architecture of the ground systems will target cost-effective operations. The system design will involve multidisciplinary design/optimisation methods (MDO), which ONERA has developed for over ten years.

The output of the project will be a detailed definition of the complete system (carrier, launcher and ground segment), associated with a *business plan* as well as a development road map and an industrial organization proposal.

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

ONERA's partners for the ALTAIR project are: Bertin Technologies (France), Piaggio Aerospace (Italy), GTD Sistemas de Información S.A. (Spain), the Swiss Federal Institute of Technology Zurich (Switzerland), NAMMO Raufoss AS (Norway), SpaceTec Partners (Belgium) and CNES (France).

* H2020 = Horizon 2020 is the European Union research and innovation programme for the 2016-2020 timeframe.

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