

Paris, 31 March 2017

Airbus Safran Launchers and ONERA are cooperating more closely to prepare jointly the French and European space sector for the future

- **The Partnership Agreement applies to R&T activities in the field of launch systems for both civil and military use anticipated in the coming decades**
- **This agreement underscores how the two players complement each other and defines the conditions for optimum collaboration in the future**
- **A Steering Committee comprised of members of the two entities has been created and the first ten research topics have been defined**

Airbus Safran Launchers and ONERA, the French national aerospace research center, have decided to cooperate more closely to prepare for the future.

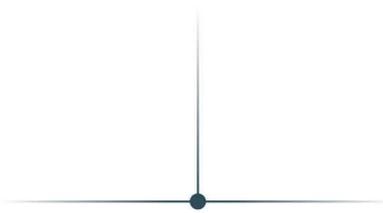
The Partnership Agreement, created over the past few months by the two entities to define jointly the most efficient modes of collaboration, was signed in Paris by the CEO of Airbus Safran Launchers, Alain Charneau, and Bruno Sainjon, the CEO of ONERA.

With the aim of meeting the looming global competitiveness and technological innovation challenges in the space and defense technology fields, this partnership will highlight the basic research developed by ONERA in fields related to strategic and space transport systems and technologies, as well as create more rigorous management of joint applied research carried out.

"This partnership agreement is looking to the long term and focuses on the technologies which will be implemented in the coming decades, in future civil and military space launcher programs, from solid to cryogenic propulsion, drawing on the most sophisticated digital technologies. It will enhance the complementarity between ourselves, an industrial concern faced with the market and the changing needs of our institutional and commercial customers, and ONERA, whose competencies are recognized worldwide, and will thus be able to assist us with optimal preparation for the future", said Alain Charneau, the CEO of Airbus Safran Launchers.

"The objectives and performance contract signed at the end of 2016 by the French Minister for Defense sets out the roadmap for ONERA for the period 2017-2021. It more specifically defines the expectations of the official agencies, primarily DGA, CNES and MESR, with respect to ONERA in terms of ballistic missiles and orbital systems. It also reaffirms the benefits to be had from strong ties between ONERA and industry. Airbus Safran Launchers - a major player in this field (as were the firms that it now comprises) - and ONERA have quite naturally been working together regularly for several decades. The agreement signed today aims to strengthen and organize this cooperation to build a long-term partnership. In the light of the strategic importance of the space sector, both military and civil, and the emergence of growing competition, this partnership agreement represents a boost for the future of French and European industry. This partnership is fundamental for research and for preparing for the future. It will enable us to keep pace with the best in the world", added the CEO of ONERA, Bruno Sainjon.

In the coming months, the teams from Airbus Safran Launchers and ONERA will meet in working groups to address specific defined topics and will report on the progress of their work to a Steering Committee made up of members from the management of both parties.



The 10 research topics defined for the partnership:

- Modeling of combustion in solid propulsion engines
- Solid propulsion experimental resources
- Hybrid propulsion
- Oxygen-Methane propulsion
- Instrumentation of test resources
- CFD (Computational Fluid Dynamics) codes
- Disruptive technologies for reusable launchers
- Advanced Systems Engineering methods
- Atmospheric re-entry of space debris
- Electromagnetic radiation and lightning protection

About Airbus Safran Launchers

The Airbus Safran Launchers group develops and supplies innovative and competitive solutions for civil and military space launchers, with expertise in all aspects of state-of-the-art propulsion technologies. Airbus Safran Launchers is lead contractor for Europe's Ariane 5 and Ariane 6 launcher families, responsible for both design and the entire production chain, up to and including marketing by its Arianespace subsidiary, as well as for the missiles of the French oceanic deterrent force. The Airbus Safran Launchers group and its subsidiaries enjoy a global reputation as specialists in the field of equipment and propulsion for space applications, while their expertise also benefits other industrial sectors. The group is a joint venture equally owned by Airbus and Safran, and employs nearly 9,000 highly qualified staff in France and Germany. Its estimated proforma revenues exceed 3 billion euros.

About ONERA

ONERA, a key player in aeronautics and space research, employs approximately 2000 people. Under the supervision of the Ministry of Defense, it has a budget of 230 million euros, of which more than half comes from commercial contracts. As a state expert, ONERA prepares tomorrow's defense, meets future aerospace challenges, and contributes to the competitiveness of the aerospace industry. It is an expert in all of the disciplines and technologies of the field. All major civil and military aerospace programs in France and Europe have some of ONERA's DNA: Ariane, Airbus, Falcon, Rafale, missiles, helicopters, engines, radars, etc. Recognized internationally and often receiving awards, its researchers train many doctoral students.

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