

Palaiseau, December 11, 2023

PRESS RELEASE

ONERA's adaptive optics to equip one of the largest American telescopes

On November 28, 2023, as part of an international consortium led by Macquarie University in Sydney, ONERA and its partners won a US National Science Foundation (NSF) tender worth over \$10 million to design and build a laser-assisted tomographic adaptive optics (AO) system for the Gemini North telescope.

ONERA the French Aerospace Lab, the Marseille Astrophysics Laboratory, the Observatoire de Haute Provence, the SME ALPAO and the start-up "Space ODT" have begun designing and building the new generation of adaptive optics for one of the world's largest and most powerful astronomical telescopes: Gemini North, 8.1 m in diameter and located at an altitude of over 4,000 m on the Mauna Kea volcano in Hawaii.

This instrument, GNAO (for Gemini North Adaptive Optics), will incorporate the very latest scientific and technological innovations in the field of AO. It will enable the telescope to free itself from the deleterious effects of atmospheric turbulence and reach its diffraction limit (and therefore its ultimate performance) over almost the entire sky. GNAO is due to be installed on the telescope by the end of 2028, with scientific operations starting before the end of the decade.

Combined with the GIRMOS (Gemini Infrared Multi-Object Spectrograph) scientific instrument, GNAO will open up a wide range of new observational capabilities, including the ability to target distant galaxies to study their formation and evolution, all the way back to the early universe where galaxies were first formed. It will also enable astronomers to better understand the physics of star formation in the Milky Way.

This success, achieved in a highly competitive international environment, is the culmination of more than 30 years of unique ONERA expertise in Adaptive Optics, which for many years has made our teams world leaders in this field.

Bruno Sainjon, CEO of ONERA, commented: "This American choice of French expertise to equip one of their most important telescopes is a source of great pride for ONERA scientists. It proves the maturity of adaptive optics and demonstrates the relevance of several decades of investment by ONERA and their colleagues at LAM and OHP in this innovative and unique technology with dual applications. But above all, it is recognition of the excellence and importance of French aerospace research, at the very highest level worldwide."

About ONERA, the French Aerospace Lab

ONERA, a key player in aerospace research, employs around 2,000 people. Under the supervision of the French Ministry of the Armed Forces, it has a budget of 289 million euros (2023), more than half of which comes from commercial contracts. As a government expert, ONERA prepares the defense of tomorrow, meets the aeronautical and space challenges of the future, and contributes to the competitiveness of the aerospace industry. It masters all the disciplines and technologies in the field. All the major civil and military aerospace programs in France and Europe bear part of ONERA's DNA: Ariane, Airbus, Falcon, Rafale, missiles, helicopters, engines, radars... Internationally recognized and often awarded, its researchers train many doctoral students.

<http://www.onera.fr/en>



Press contacts ONERA ::

Guillaume Belan

Media Relations Manager

Guillaume.belan@onera.fr

Tél: +33 1 80 38 68 54 / +33 6 77 43 18 66