

Airbus will build ESA's Ariel exoplanet satellite

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The European Space Agency (ESA) and Airbus have signed a contract to move forward with the design and construction of the Atmospheric Remote-sensing Infrared Exoplanet Large-survey (Ariel). Work on the Ariel payload module by the Ariel Mission Consortium is already well underway and the two teams will be working closely together to deliver the mission for launch in 2029.

Ariel will study the composition of exoplanets, how they formed and how they evolve, by surveying a diverse sample of about 1000 planets outside our solar system, known as exoplanets, simultaneously in visible and infrared wavelengths.

It is the first mission dedicated to measuring the chemical composition and thermal structures of exoplanets, linking them to the host star's environment. This will fill a significant gap in our knowledge of how the planet's chemistry is linked to the environment where it formed, or if and how the type of host star drives the physics and chemistry of the planet's evolution.

"With this milestone for the Ariel mission we celebrate the continuation of the outstanding relationship with our industry partners to keep Europe at the forefront of excellence in the field of exoplanet research well into the next decade and beyond," says Günther Hasinger, ESA's Director of Science.

The contract was celebrated between the two parties with a small ceremony at ESA headquarters in Paris on 6 December.

Airbus will lead the European industrial consortium building the satellite bus. The Toulouse facility in France will be the main site for designing, manufacturing and integrating the spacecraft elements, while Airbus Stevenage in the UK will lead the engineering of the avionics, radio frequency communication and electrical design of the platform.

"Airbus has extensive experience of leading ground-breaking science missions, including Juice, Gaia, Solar Orbiter, Lisa Pathfinder and Cheops, on which we are building for ESA's latest science mission, Ariel," said Jean-Marc Nasr, head of Space Systems at Airbus.

The mission's payload module, which includes a one metre-class cryogenic telescope and associated science instruments, is provided by the [Ariel Mission Consortium](#). The consortium comprises more than 50 institutes from 17 European countries. NASA also contributes to the payload. In 2021 the Consortium completed ten reviews covering each of the payload subsystems to ensure that the teams understand what needs to be built and that the preliminary designs for each part are feasible and, crucially, will work together correctly.

"The international Ariel Mission Consortium been making fantastic progress with the payload. We are looking forward to working closely with Airbus to ensure the payload

works perfectly on board the spacecraft. Together we will be enabling amazing new discoveries about planets beyond our Solar System” said Paul Eccleston, Ariel Mission Consortium Project Manager and RAL Space Chief Engineer.

The spacecraft is anticipated to launch on ESA’s new Ariane 6, together with the Comet Interceptor mission. It will operate from orbit around the second Lagrange point (L2), 1.5 million kilometres directly ‘behind’ Earth as viewed from the Sun, on an initial four year mission. Thanks to its very stable thermal and mechanical design, the spacecraft will be able to carry out long term observations of the exoplanet systems for a durations of between 10 hours and up to 3 days.