

## Shared announcement

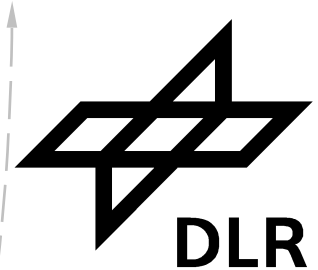
### Antares H3 – Lange and DLR develop second generation fuel-cell powered aircraft

Lange Research Aircraft is developing the Antares H3 together with the German Aerospace Center (DLR). The Antares H3 is a higher performance successor to the Antares DLR-H2, the world's first piloted aircraft capable of performing a complete flight powered by fuel-cells only. The Antares H3 will set new benchmarks in the areas of range and endurance. The project started in August 2010. The first flight is scheduled to take place in 2011.

Technically, the new aircraft is based upon the Antares 20E as well as the fuel cell powered Antares DLR-H2. The Lange Aviation Antares 20E is a self-launching motorglider with electrical propulsion, which has been in series production since 2004. The fuel cells use hydrogen as fuel. The hydrogen is transformed into electrical energy in a direct and non-combustive electrochemical reaction with oxygen taken from the surrounding air. The only reaction product emitted is water. The aircraft flies CO<sub>2</sub> neutrally, if the hydrogen is created using regenerative energy.

### 6000 Kilometer range using fuel-cells

In 2010 the project partners tested how fuel cells perform in aviation, using the flying test-bed, the Antares DLR-H2. During one of these tests, an altitude record of 2560 m (8400 ft) was set. The Antares H3 will demonstrate significantly increased performance: The developers



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plan to achieve a range of up to 6000 km (3200 Nm), and an endurance of more than 50h. For the Antares H2, these values were respectively 700 km (405 Nm) and 5 hours. The aircraft will have a wingspan of 23 m ((75 ft), a maximum takeoff weight of 1.25 metric tons (2760 lb), and it will carry payloads of up to 200 kg (440 lb). The aircraft will use four external pods to house fuel cells and fuel.

● “The fuel cell powered Antares flies CO<sub>2</sub>-neutral, and it emits significantly less noise than other comparable motorgliders. It represents a new milestone in the area of highly efficient, emission free energy transformation“, says Dr. Josef Kallo, who is responsible for electrochemical systems at the DLR, institute for technical thermodynamics. „We will continue to expand our partnership with Lange Research Aircraft in the following three years“, Mr. Kallo adds. The institute, which is located in Stuttgart, will assemble the modular fuel-cell system, and perform the scientific evaluation. Lange Research Aircraft GmbH is responsible for the overall integration, and for operating the aircraft. The project is supported by the German Federal Ministry of Transport, Building and Urban Development in the framework of the “Nationale Innovationsprogramm Wasserstoff- und Brennstoffzellentechnologie“ (NIP).

● “The efficiency, dynamics and endurance of the Antares sets new benchmarks in the area of aerial systems. This opens up for completely new applications“, explains Axel Lange, CEO of Lange Research Aircraft GmbH. The optimized flight qualities and the simple handling allows the Antares to fly both piloted and, at a later point in the development, unmanned. As an unmanned aerial vehicle, the Antares H3 could perform numerous tasks, for example earth observation and surveying.

As a first cooperative step towards a series product, the developers at Lange and DLR have set their sights on the maiden flight. The first flight of the Antares H3 planned to take place in 2011.

## The project partners

Lange Research Aircraft GmbH is a High-Tech Technology enterprise which cooperates closely with Lange Aviation GmbH. Lange Aviation GmbH was founded in 1996, and employs more than 30 employees. The company develops, builds and distributes motorgliders and gliders. In 2009 the company, in cooperation with DLR, developed the Antares DLR-H2, the world's first aircraft capable of performing a complete flight on fuel-cell power alone.

The German Aerospace Center, DLR, researches innovative energy supply systems for aviation. The Institute for Technical Thermodynamics was responsible for the fuel-cell system for the Antares DLR-H2. Furthermore, the DLR is developing fuel-cell systems intended to replace the current generation of Auxiliary Power Units (APU) in airliners (Airbus A320).

