

# MQ-9B Completes European Demo

THE GENERAL Atomics Aeronautical Systems Inc (GA-ASI) MQ-9B SkyGuardian recently concluded a series of capability demonstrations from Larissa Air Base in Greece, hosted by the Hellenic Air Force and Hellenic Coast Guard.

An audience of undisclosed "European military and civilian representatives" witnessed the flights. The demo was held specifically to showcase the company's maritime surveillance and civil airspace integration capabilities, according to GA-ASI.

One of these technologies was the MQ-9's detect and avoid (DAA) system, which enables the aircraft to deconflict from other air traffic. This technology consists of an air-to-air radar integrated with traffic alert and collision avoidance and automatic dependent surveillance-broadcast systems. It is designed to not only let an MQ-9 fly safely in civil airspace

but also detect air traffic that is not actively transmitting its position.

The Greek demonstration additionally involved the MQ-9's multi-mode and maritime surface-search radars and a high-definition/full-motion-video optical and infrared sensor. The latter suite enables the detection and identification of large and small surface vessels in all weathers at long ranges, 360° around the aircraft, in real time.

A Raytheon SeaVue surface-search radar provided continuous tracking of maritime targets, and an Inverse synthetic aperture radar mode enabled the classification of vessels beyond optical sensor range.

For the demo, GA-ASI worked with the satcom services specialist SES, whose network of 70 satellites in geostationary orbit provided connectivity that enabled the MQ-9 to



The MQ-9 took part in ten days of demonstrations in Greece. GA-ASI

operate securely with a high-capacity data link. This made possible the real-time transmission of sensor data from the aircraft, extending the MQ-9's effective operational range beyond line-of-sight data links.

An unnamed HAF official was quoted by GA-ASI as saying: "The advanced capabilities of these

aircraft are striking. Through the ten days of demonstrations, the country of Greece has seen the value of MQ-9s for maritime patrol and European Economic Zone monitoring, border surveillance, support for search and rescue efforts, and overwatch of forest fire response efforts."

# Falco Xplorer Makes First Flight



The Falco Xplorer undertook its initial 60-minute flight from Trapani Air Base in Sicily. Leonardo

LEONARDO HAS test-flown the Falco Xplorer, starting a campaign that will assess and certify the latest Falco UAV variant against NATO's STANAG 4671 airworthiness standard.

The manufacturer announced the Falco Xplorer at last year's Paris Air Show. The aircraft is designed to offer "persistent, multi-sensor strategic surveillance to military and civil customers." It can be procured as

either an integrated system or a fully managed information-superiority service flown and operated by the company.

Previous Falco variants have been used by the UN and Frontex, the European border and coastguard agency. Leonardo said the latest model "draws on feedback from these and other Falco customers" and "is an affordable and potent

option for intelligence, surveillance and reconnaissance".

The Xplorer has a 2,866lb (1,300kg) maximum take-off weight (MTOW), a 771lb (350kg) payload, 24 hours of endurance and an operational ceiling of 24,000ft (7,315m). Its sensors will include Leonardo's Gabbiano T-80 multi-mode surveillance radar, the SAGE electronic intelligence system, an automatic identification system for

maritime missions, an electro-optical turret and an optional hyperspectral sensor for monitoring pollution and agricultural development. Leonardo stated that an open system architecture enables third-party sensors to be integrated.

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**ENGINE TESTS** have been completed on the Sierra Technical Services, Inc 5th Generation Aerial Target (5GAT) demonstrator, which will be used for air-to-air and surface-to-air weapons evaluation, pilot training and ground forces training when translated into production as the Next Generation Aerial Target. The demonstrator's first flight is scheduled to take place early in 2020.

**INDONESIAN AEROSPACE** has rolled out an indigenous medium-altitude long-endurance UAV called the Elang Hitam. The system has been designed for counterterrorism, anti-piracy and illegal logging and fishing missions. Two prototypes are being manufactured for flight and ground testing. An initial type certificate is planned by the end of 2021 and military certification in 2023.

# AFRL Concludes Ultra LEAP Tests

THE US Air Force Research Laboratory (AFRL) has completed initial flight tests of the Ultra Long Endurance Aircraft Platform (Ultra LEAP). Trials at Dugway Proving Ground in Utah began in February 2019 and concluded with a two-and-a-half-day test flight in December.

Ultra LEAP is described by the AFRL as a "high-performance, cost-effective, sport-class commercial airframe converted to a fully automated system with autonomous take-off and landing capabilities" and a "customisable suite of intelligence, surveillance and reconnaissance (ISR) tools".

Dr Alok Das, AFRL senior scientist and the CRI director, claimed the recent flight is "a significant milestone in solving the tyranny of distance problem for ISR systems." Subsequent tests are intended to demonstrate increased levels of flight endurance.

The AFRL said Ultra LEAP features "anti-jam GPS and full



The Ultra LEAP system could be ready for operational fielding this year. USAF Research Laboratory

global operational access via a satellite-based command and control and [a] high-rate ISR data link".

The aircraft went from concept to first flight within ten months and

uses many off-the-shelf components, which the AFRL said "significantly reduced the cost to manufacture and provide logistical spares". The agency believes this approach "will

dramatically shift the ISR cost-performance curve", with the high level of automation also reducing operator training and support requirements.

# Unmanned R-22 Cargo Helicopter

DEVELOPER UAVOS has converted a Robinson R-22 helicopter into an unmanned platform designed for cargo delivery and disaster relief.

The company said the R-22 gives several specific advantages, including a 400lb (180kg) payload, six-hour endurance and the ability to operate in poor weather in both land and maritime environments, at night and in high winds.

A statement said: "Failure to deliver vital equipment under austere operating conditions and timelines can incur substantial fiscal costs, making [the] all-weather capabilities particularly valuable. This also opens new possibilities for safely and efficiently transporting goods in a variety of industries."

Using the R-22 will also enable a 'pop-up' distribution centre to be established at an operating location, the company said, where handlers can unload freight from a large cargo aircraft and load it into the helicopter.

Aliaksei Stratsilatau, CEO of UAVOS, commented: "The cargo companies only make money when



The unmanned R-22 will provide high-lift cargo capability, reports UAVOS. UAVOS Inc

that cargo gets to its destination, and our R-22 is their guarantee at any time, and any weather conditions, which makes it a very attractive prospect."

The unmanned R-22 will undertake fully automatic take-offs and landings and operate in an area as small as 161sq ft (15m<sup>2</sup>). Its maximum take-off (MTOW)

weight will be 1,400lb (635kg), it will offer an 88lb (40kg) payload, an 86kts (160km/h) maximum cruise speed and 550nm (1,020km) range.

**THE SCHIEBEL** Camcopter S-100 supported emergency disaster response efforts in Malaysia early in the new year chemical waste was dumped in the Kim River last year. The S-100's FLIR Systems Star SAFIRE 380-HDC was used to analyse and scan the polluted water and adjacent land, providing situational information regarding the affected area.

**THE EHANG** 216 system flew autonomously in the US early in the New Year, as the Chinese developer looks to set up autonomous air vehicles in the country. The flight took place in Raleigh, North Carolina. EHang is now working to gain approval to transport cargo autonomously along short routes in urban areas.