GLOBAL MARKET REPORT

2017-2018

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Defence iQ
a division of IQPC

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MARKET OVERVIEW

This year has been a sobering reminder of our enduring need for early warning and aerial intelligence. In the Middle East, coalition-backed Iraqi forces have begun to liberate Mosul, Raqqa and parts of northern Kirkuk as the operational tempo has increased. Airborne ISR capabilities have been a vital resource in providing ground forces with situational awareness, whilst commanders have been working hard to de-conflict what has become an increasingly congested airspace in order to commit air strikes. To put this into context, from August 2014 to January 2017, the United States and coalition members conducted approximately 17,000 air strikes over ISIS territory; there is no question that these operations could not have been executed effectively without the use of coalition ISR assets.

Towards the Asia Pacific, North Korea has demonstrated its commitment to becoming a nuclear power in full force, with recent tests of ICBMs suggesting that they are much closer to achieving this aim than once thought. Stringent monitoring of activities over the Korean peninsula and analysis of their public discourse is more important that ever as we look to deter and placate irrational regimes. Meanwhile, NATO's eye in the sky remains firmly fixed on Russian military activity in the east, and their recent Zapad-2017 exercise gives NATO ample food for thought as they look ahead to their next bi-annual Summit in the summer of 2018. As all of these cases demonstrate, Air Forces around the world continue to be put under tremendous pressure as the requirements for intelligence increase. Satisfying this need means that nations are investing in the sustainment of existing airborne ISR and C2 assets to ensure they are equipped to detect, deter and defeat out adversaries.

Meanwhile, whilst acquisition largely focuses on confronting the challenges of today, many government R&D agencies as well as industry are beginning to prepare for the fight of tomorrow. The acknowledgement that our technological dominance is waning makes this preparation all the more vital, and a comprehensive vision of the future operating environment will dictate how we shape requirements and implement new capabilities. Much of future thinking orients towards operations in non-physical domains, such as space, cyber, and the electromagnetic spectrum and there is increasing investment into capabilities that will secure our dominance in these spaces for the future. Nevertheless, our growing reliance on space-based and cyber capabilities in particular has become a significant vulnerability and air forces will need to look to secure these assets from hostile actors.

Beyond the acquisition of new technology, many developing nations are investing in the preservation of legacy fleets to ensure that they remain operationally relevant for the future. Perpetual budgetary restraints and antiquated acquisition processes means that life cycle management and sustainment will become more important than ever, with a growing trend towards the adoption of more plug and play, open architecture systems that give room for upgrades in the future.

MARKET OVERVIEW (c’td)

This is easier said than done, however, and will require major changes in institutional thinking as well as new relationships with commercial industry.

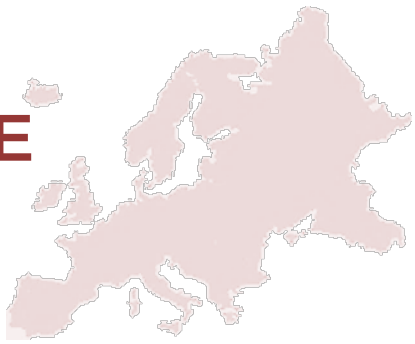
Against this backdrop, Defence IQ is proud to release its annual Global Market Holdings Report for the Airborne C2ISR community. The report offers insight into current and emerging requirements and recent operational deployments of airborne ISR and C2 battle management assets, illustrating the shape and scope of the conversation at the 5th annual Airborne ISR & C2 Battle Management conference, taking place in London on 13-15 March 2018. The conference will feature military presentations from the UK, US, Canada, France, Germany, The Netherlands, Turkey, Jordan, Israel, Pakistan, the EU and NATO, as well as a range of industry leading presentations.

KEY REQUIREMENTS

ACTIVE PROGRAMMES & EMERGING ACQUISITIONS

ACTIVE PROGRAMMES AND EMERGING REQUIREMENTS

NATO & EUROPE



NATO

- NATO launched the Alliance Future Surveillance and Control (AFSC) initiative at the Warsaw Summit in 2016, in a bid to replace the current Airborne Warning & Control System (AWACS) fleet NATO is operating, consisting of 16 Boeing E-3A aircraft and due to retire around 2025.

During that Summit, the NATO Alliance also committed to extend the life of the E-3 fleet until 2035 through it s modernisation, after which lifetime extensions are no longer practical.

The AFSC initiative is looking at new technologies and exploring potential combinations of interconnected air, ground, space or unmanned systems to gather and share information, in order to focus on procuring new systems, rather than new aircraft. The aim of the initiative is to avoid any capability gap in 2035 when the E-3 fleet becomes no longer operable, by having new systems ready and in place for NATO to use.

DENMARK

- Northrop Grumman will provide LITENING Advanced Targeting System pods for the Royal Danish Air Force's fleet of F-16 aircraft, in a bid to enhance its ISR and target identification and location capabilities.

FRANCE

- Thales will provide French Forces up to 210 mini reconnaissance Spy'Ranger UAVs in 2018. Up to 70 mini-UAVs reconnaissance systems will be available to the forces from 2018, consisting of three mini-UAVs, a ground segment and the associated technical support.

NATO & EUROPE

FRANCE (c'td)

- Boeing was awarded a contract of more than $38 million to complete the mid-life upgrade of the French Air Force's fleet of four E-3F AWACs through recurring and non-recurring engineering services.

Work will be performed in Oklahoma City and is planned to be completed by July 16, 2022.

- An MQ-9A unmanned aerial vehicle (UAV) of the Armée de l'Air completed its first flight in French airspace on the 4th July.

Currently, six aircraft are operational with ED 1/33. By 2019, the squadron will have 12 aircraft.

- Airbus Helicopters and DCNS have joined forces to design the future tactical component of France's Système de Drones Aériens de la Marine (SDAM – Naval Aerial UAV System) programme. The two companies announced their teaming agreement on 19th October.

The UAV is designated VSR700.

GERMANY

- Germany became the third operator of the Triton UAV system with a three-vehicle commitment, which will serve in the Signals Intelligence (SIGINT) role and will enter service in 2025.

This follows the failed bid to get the EURO Hawk. Germany has been without a true SIGINT platform since the retirement of the Breguet Atlantic aircraft fleet in 2010.

- The Bundeswehr has declared its forward-deployed Heron 1 surveillance unmanned aerial vehicles fully operational in Mali.

The current contract runs until February 2018.

ITALY

- The first of two Gulfstream G-550 conformal AEW delivered by Israel Aerospace Industries to the Italian Air Force in December 2016 entered service in March. The second one should be delivered in 2017, as part of a defence agreement signed by the Italy and Israel in 2012. It is unclear if the second aircraft has been delivered.

NATO & EUROPE

THE NETHERLANDS

- The eight Lockheed Martin F-35As ordered by the Dutch Parliament for the Royal Netherlands Air Force in March 2015 will be delivered in 2019 and are the official replacement for the F-16.

The current programme for the Netherlands is for up to 37 aircraft; two Dutch jets flying four Dutch pilots and several maintainers have completed training.

NORWAY

- Norway has bought five Boeing P-8A Poseidon maritime patrol aircraft in a bid to strengthen its defence capabilities. They are expected to be delivered in 2022 and 2023 and will replace six aging P-3 Orions and three Jet Falcons.

POLAND

- Poland is currently holding talks with industry in order to acquire Plomykówka (Barn Owl) aerial signals intelligence aircraft and Rybitwa (Tern) maritime patrol and anti-submarine warfare aircraft.

The Armament Inspectorate plans to speed up the process that was originally planned in 2023-2030, aiming at increasing the country's deterrence capability.

RUSSIA

- It was announced on November 20th that the first prototype A-100 AWACS aircraft, based on the upgraded Ilyushin Il-76MD-90A airframe, has undergone its maiden flight out of the Taganrog Aviation Scientific and Technical Complex located near the Sea of Azov.

It comes three years after Russian's TASS news agency announced the arrival of the first Il-76MD-90A airframe at the TANKT facility for conversion into A-100 AWACS and six years after the disclosure of the plan.

NATO & EUROPE

UNITED KINGDOM

- Despite a praised £178 billion equipment plan, the Royal Air Force will have to retire one of the five Sentinel R1 ground surveillance aircraft in the coming years after failing to extend its service to 2021.

Under a contract with Raytheon UK, the Shadow R1 fleet operated by the Royal Air Force is to receive a major upgrade. Five of the type are currently being used and the UK government has committed to adding a further three as part of its 2015 Strategic Defence and Security Review.

- The UK will receive its first Boeing Poseidon P-8A maritime patrol aircraft in 2019.

The UK will purchase in total nine of this aircraft that will be based in Scotland in a bid to enlarge its overseas defence network and especially in the North Atlantic.

- The third and final L3 Technologies RC-135V/W Airseeker ISR aircraft entered service on September 28th. They will be operational soon in manned ISR operations over Iraq and Syria.

The first two aircraft were delivered in 2013 and 2015, replacing the already retired BAE Systems' Nimrod R1 electronic intelligence-gathering platform.

Although they are owned by the UK, the Airseekers are managed in service by a joint U.S./UK team based at L3 Technologies' site in Texas.

- The UK bought three KC-135R aircraft for conversion to RC-135W River Joint standard under the Airseeker project for £634 million. They are expected to remain in service in the Royal Air Force (RAF) until 2045.

The first RC-135W was delivered ahead of schedule in November 2013, the second in September 2015 and the last in June 2017.

The type has been used to support British and allied operations in the Middle East and Northern Iraq among others.

- The United Kingdom Ministry of Defence (MOD) is to begin Phase 2 of the Rotary Wing Unmanned Air System, Capability Concept Demonstrator (RWUAS CCD) programme.

NATO & EUROPE

The project aims to develop technologies and procedure for future unmanned rotary-wing and vertical take-off and landing (VTOL) aircraft. Phase 2 will complete research and development (R&D) activity begun under the RWUAS CCD Phase 1 between 2013 and 2015 and draw upon the results of the Unmanned Warrior demonstrations last year.

RWUAS CCD Phase 2 comprises a two-year, £8m investment in R&D. The MOD will partner with Leonardo Helicopters to use the SW-4 Rotary Wing Unmanned Air Vehicle (RUAV) Solo demonstrator.

NORTH AMERICA

CANADA

- The Government of Canada has purchased 16 C295 aircraft from Airbus Defence & Space.

- Israel Aerospace Industries has been awarded a contract by Airbus Defence & Space to supply ELM 2022A maritime patrol advanced surveillance sensors on the aircraft.

- The Canadian Senate is advising that Canada's space assets be reclassified as critical national infrastructure. As such, we may well see investment into smaller constellations of satellites and cyber threat intelligence systems to protect these assets in the future.

- CAE Defense and Security is working with the Canadian government to test its new lightweight magnetic anomaly detector called MAD-XR (extended role) on the Royal Canadian Air Force's submarine-hunting Lockheed CP-140 Aurora.

CAE officials say MAD-XR "meets and exceeds" the performance of the company's legacy ASQ-508 MAD, but the sensor is 18-times lighter.

UNITED STATES

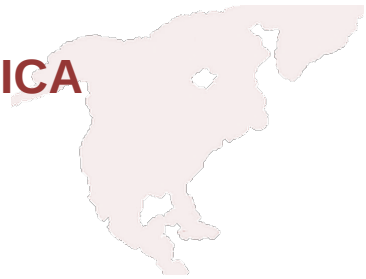
- The Air Force plans to procure 17 next-generation JSTARS for the Air Force's Joint surveillance Target Attack Radar System recapitalisation programme aircraft may be cancelled, as the service has started to look for alternatives.

Technological, operational and budgetary considerations could lead to a number of possible outcomes.

- Despite improvements in quality control, Northrop Grumman is still having trouble moving the U.S. Air Force's E-8C JSTARS out of its depot, impacting aircraft availability.

Over the past year, around six planes have been there at a single time, due to an increasing difficulty to maintain them after decades of operations.

NORTH AMERICA



UNITED STATES (c'td)

- Drone Aviation Holding Corp. has received an order from an American Defence department for its soldier-operated, recently upgraded, multi-mission capable tactical Winch Aerostat Small Platform (WASP).

It features support for advanced ISR equipment, including the simultaneous use of communications and daylight and thermal payloads. The company expects to deliver it during the fourth quarter of 2017.

- The first operational MQ-4C Triton unmanned system made by Northrop Grumman has been delivered to the U.S. Navy, with the second scheduled to arrive later this year.

The Navy has plans future to deploy the MQ-4C Triton to NAS Mayport, Florida, NAS Sigonella, Italy and the Middle East.

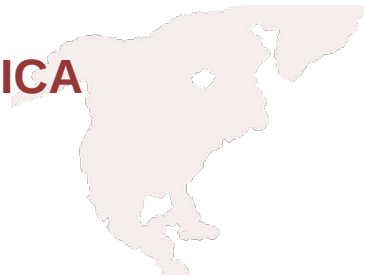
- The U.S. Navy's IRST21 sensor systems in use on the F/A-18E/F fleet will be upgraded by Lockheed Martin through a Block II contract worth $100 million.

The company will develop advanced software, perform hardware upgrades and deliver prototypes to enhance the sensors' detection, tracking and ranging capabilities in radar-denied environments.

- SpaceX has postponed indefinitely the launch of a classified government payload known under the codename *Zuma*, of a military spacecraft supplied by Northrop Grumman and thrown into orbit by a Falcom 9 rocket at Cape Canaveral Air Force Station's Landing Zone 1.

This postponement is due to a potential commonality with an issue found on a different mission's fairing and the company decided to take more time to review the data.

NORTH AMERICA



UNITED STATES (c'td)

- Through the Algorithm Warfare Initiative, the U.S. Air Force is pursuing its efforts to improve its ability to consume ISR data in real time through the use of AI as part of Secretary of Defense Bob Work's Third Offset Strategy.

- The U.S. Navy and Northrop Grumman are working together to procure next-generation software for its latest E-2D Advanced Hawkeye surveillance planes, designed to help integrate advanced radar, data communication and drone control capabilities to detect and intercept cruise missile launches.

They are currently exploring software support options for the aircraft in anticipation of the transition to full-rate production.

- The U.S. Air Force has ordered six more A-29 Super Tucano aircraft from Sierra Nevada Corporation and its partner Embraer Defence & Security, for its Afghanistan Programme, bringing to 26 the total number of aircraft supplied to the Programme.

The A-29 conducts among others aerial reconnaissance during operations in Afghanistan.

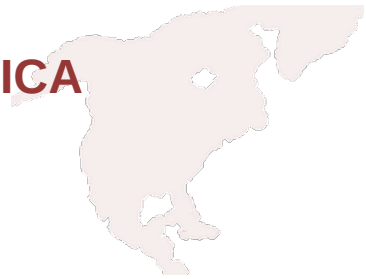
The production of these six new aircrafts is to start immediately.

- After months of legal disputes, the U.S. Air Force's Compass Call crossdeck programme, called EC-X, is going ahead to modernise its inventory of EC-130H Compass Call aircraft.

The most controversial part of the acquisition process is that the systems integrator chosen for the contract, L3 Technologies, has the decision power over the airframe, in this case Gulfstream's G550 Airborne Early Warning aircraft.

This is the element fought by both Boeing and Bombardier, as they believed it should be left for the government to avoid any injustice in the competition to win the contract.

NORTH AMERICA



UNITED STATES (c'td)

- The U.S. will release a few RFP throughout 2018, for contracts awarded in 2018/2019:

➢ Targeting & Geospatial-Intelligence Application Transformation: re-platforming of legacy applications and refactoring them to be cloud-native; green-fielding of some legacy applications; on-boarding commercial SaaS; net-new application development. The RFP is due to be released in January 2018, for a contract award in July 2018 with a period of performance planned to last until 2021.

➢ DCGS Agile Requirements Multiple Award (DARMA) Contract: providing the necessary software applications and upgrades to enable the DCGS mission to process, exploit and disseminate on an Open Architecture. A draft RFP is due to be released on December 17th, with the complete version released in February/March 2018. The contract will be awarded in June 2018 with a period of performance due to last until June 2023.

➢ Block 40/45 Performance-based Logistics: providing direct mission support for the sustainment of Block 40/45 enterprise of 24 aircraft on ground systems and trainers; it will mostly consist of hardware maintenance and DMS/obsolescence mitigation. The draft RFP release will be on December 17th, with a complete version released in June 2018. The contract will be awarded in June 2019 with a period of performance planned to last until June 2024.

➢ Automatic Dependent Surveillance Broadcast (ADS-B) Out and Mode 5 Acceleration: procuring the necessary hardware and software; determine technical feasibility, approach and risks to integrate ADS-B Out and Mode 5 capabilities with APX-119-0531 into the legacy AWACS non-DRAGON E-3s. the RFP will be released in July 2018, with a contract awarded in 2019. The period of performance is scheduled to last until 2025.

LATIN AMERICA & THE CARRIBBEAN

BRAZIL

- The Brazilian Air Force has unveiled a plan to drive its Strategic Space Systems Programme (Programa Estratégico de Sistemas Espaciais: PESE) to establish a group of various satellites to address requirements for communications, imagery, mapping, remote sensing; signal processing and associated command-and-control infrastructure, among others.

The final users of the services include the armed forces, homeland security personnel and civilian organisations.

The programme will likely see investments of circa USD 2.5 billion over the next nine years.

- A Geostationary Defence and Communications Satellite (SGDC in its Portuguese acronym) has been launched in May for the Brazilian Armed Forces to use. It allows government and military communications to be made securely while expanding broadband service offerings in the country's most remote regions.

The SGDC has been produced through the partnership between the Ministry of Defence and the Ministry of Science, Technology, Innovation and Communications. It represented an investment of circa $850 million.

The SGDC is expected to expand the military's capacity to conduct missions such as Operations Ágata and Ostium, aid joint operations in regions along the country's land borders and during rescue operations on the high seas, as well as controlling Brazilian airspace. There are talks to test linking the satellite with command-and-control networks, to enable a better communications and data networks for the military's coordination.

The requirements for a second SGDC are being drafted and it is unclear when they will be released.

SUB-SAHARAN AFRICA

NIGERIA

- The U.S. State Department has cleared a proposed $593 million sale of 12 Sierra Nevada Corporation A-29 Super Tucano close air support aircraft to Nigeria.

The contract includes all associated training, spare parts, aviation and ground support equipment, as well as hangar; facilities and infrastructure required to support the program, along with the delivery of the aircraft.

Low intensity conflict and general air policing still require the country to maintain air assets and platforms such as the A-29 delivers low operating costs with effective ISR.

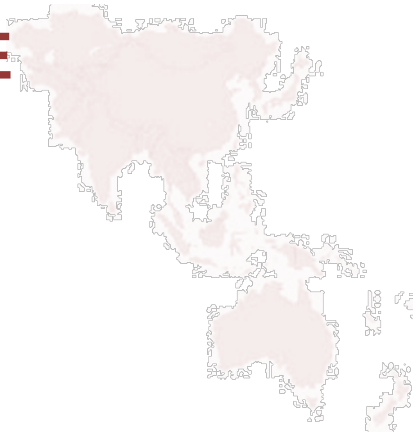
SOMALIA

- The U.S. will provide an UAV surveillance system to the African Union Mission in Somalia.

A four-week UK-led ISR training, involving a U.S. Air Force instructor, concluded on August 25th in Mogadishu and was conducted to prepare for the arrival of the system.

The timeline for the deployment of the system remains unknown, as the contracting process is ongoing and in its final phase.

ASIA & THE PACIFIC



AFGHANISTAN

- Insitu has been awarded a $19.6 million delivery order for five ScanEagle UAVs, along with their support equipment, operators, spare parts, site activation services and management for their operation.

The project is due to be completed in April 2018.

- Orbital ATK has been awarded a potential $69.4 million by the U.S. Air Force to provide AC-208 Combat Caravan armed ISR aircraft to Afghanistan's Air Force to conduct counterinsurgency and ISR missions.

The works, conducted in Fort Worth, Texas, are scheduled to end in November 2018.

AUSTRALIA

- The Australian government approved the acquisition of 12 P-8A maritime patrol aircraft, with an additional three undergoing the Government Defence acquisition approval process.

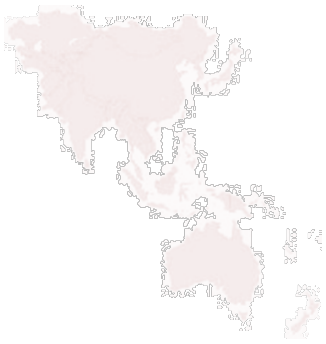
The first aircraft arrived in Canberra in November 2016, with the remaining 11 due to be delivered by March 2020.

- The Royal Australian Navy has signed a contract in December 2016 with Austria's Schiebel Group to provide its Camcopter S-100 unmanned helicopter and three years of logistic support.

The two other contenders for this contract were the UMS Skeldar V-200 and the Northrop Grumman MQ-8C Fire Scout.

- General Atomics Aeronautical Systems Inc (GA-ASI) and Israel Aerospace Industries (IAI) are competing to win the contract for Australia's requirement for an armed, medium-altitude long-endurance (MALE) UAV, under Project Air 7003 Phase 1.

ASIA & THE PACIFIC



AUSTRALIA (c'td)

The two models in competition are:
A variant of General Atomics' certifiable Predator B platform, currently under development for Britain's Protector Program and due to enter service around 2020.
IAI's Heron TP MALE UAV

The contract could be worth between $1 billion and $2 billion in the next two decades, according to government figures.

The new procurement will replace the unarmed IAI Heron 1 system acquired by the Royal Australian Air Force in late 2009 and used in Afghanistan. It retired in August, after coming back to Australia in 2014.

- The U.S. State Department has approved a possible Foreign Military Sale to the Government of Australia for five Gulfstream 550 aircraft, with Airborne ISR and Electronic Warfare mission systems.

The total estimated program cost is $1.3 billion and includes GPS capability, secure communications, aircraft defensive systems, spares and associated equipment and support from the U.S. Government and contractor.

CHINA

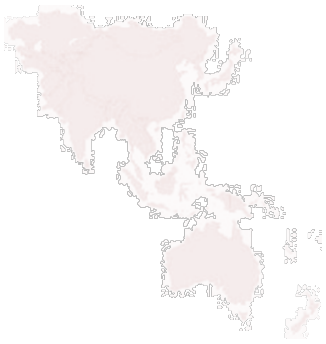
The series production version of the CH-5- or CaliHong (Rainbow) 5 – unmanned aerial vehicle (UAV) performed its maiden flight in north China's Hebei Province on July 14th.

INDIA

- India is looking to acquire seven aircraft for the Indian Air Force with signals intelligence and communication-jamming capabilities, in a move to own more airborne electronic intelligence.

A request for information was sent to various foreign original equipment manufacturers. A formal request for proposal will likely follow in mid-2018, with a tentative product delivery planned 24 months from the date the contract is signed.

ASIA & THE PACIFIC



Israel Aerospace Industries and Bengaluru-based Dynamatic Technologies and Elcom Systems are partnering to produce, assemble and support the procurement wanted by the Indian Defence Ministry of 5,000 UAVs for $3 billion over the next ten years.

Currently, the defence forces operate Israeli-made Searcher Mark I and II, Heron and Herop UAVS and the Indian-made Nishant.

- The U.S. State Department has cleared the sale of 22 General Atomics' unarmed MQ-9B predator Guardian drones to India, worth USD two to three billion.

- It was announced during Aero India 2017 that India and Russia have signed a contract for the supply of A-50EI early warning and control aircraft, however the number required remains unknown.

- India's defence ministry has released a request for information for a tri-service requirement for up to 150 medium-altitude, long endurance (MALE) unmanned air vehicles.

An initial acquisition should total 100 air vehicles and sensor payloads, plus 50 ground control stations (GCS) and associated equipment, to be produced in India. These totals could eventually increase to 150 and 75 respectively.

Roles will include supporting artillery targeting, combat search and rescue, coastal/maritime patrol, urban security, infrastructure protection and disaster management.

INDONESIA

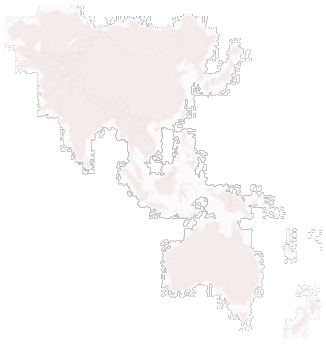
- Indonesia received and completed acceptance tests of UMS Skeldar's V-200 rotary-wing UAV, becoming the first customer of the company to do so.

The aircraft is suited for a wide range of applications, such as reconnaissance, identification, target acquisition and electronic warfare.

JAPAN

- Japan has successfully launched the first of the three planned military communications satellites, named Kirameki-2 from the Tanegashima Space Center in Kagoshima Prefecture in January.

ASIA & THE PACIFIC



JAPAN (c'td)

The first planned, named Kirameki-1 was due to be launched in July 2016 but was damaged during its transport to Europe's Guiana Space Center spaceport in South America; it is now scheduled to be launched in March 2018 at the earliest and could be delayed by up to two years, as the satellite is currently undergoing repairs on sensitive antennas.

This programme aims at providing the military with quadruple broadband capacity and unifies a fractured and saturated communications network. It will allow military units to communicate directly with each other on a high-speed and high-capacity network.

The total cost of the three satellites is believed to be USD$2.48 billion.

MALAYSIA

- The Malaysian Government approved in its 2018 budget the procurement of four maritime patrol aircraft (MPA) for the Royal Malaysian Air Force, with more batches that could follow on.

The potential candidates for this requirement are:

- Airbus Defence & Space's C295
- Leonardo's ATR-72MP
- Boeing's P-8 Poseidon
- Indonesia's own CN235

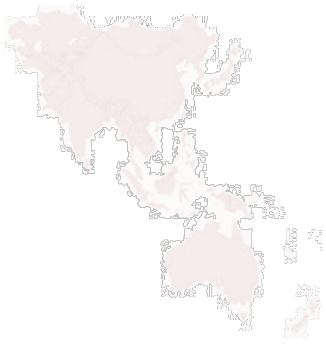
NEW ZEALAND

- New Zealand's Ministry of Defence issued a request for information in 2016 to support the procurement of maritime patrol aircraft to meet the requirement for a future air surveillance capability, in a bid to replace its ageing fleet of its six Lockheed Martin P-3K2 Orion MPAs, that have been in service for decades.

The known contenders are:

- Saab's Swordfish Platform
- Boeing's P-8A Poseidon, in a sale cleared by the U.S.
- Leonardo's C-27J maritime patrol variant
- Japanese Kawasaki Heavy Industries' P-1 maritime patrol aircraft

ASIA & THE PACIFIC



NEW ZEALAND (c'td)

- Cubic subsidiary GATR Technologies was awarded a foreign military sales contract to provide satellite communication solutions for the New Zealand Defence Force (NZDF) to supply 2.4m inflatable satellite antennas along with supporting hardware, spares and new equipment training.

This contract comes under the Network Enabled Army programme, that seeks to enhance NZDF's battlefield C4ISR sensor systems and advancing communication capabilities for future deployments.

PHILIPPINES

- The U.S. donated two new, single-engine Cessna-208B Grand Caravan surveillance planes to the Philippine Air Force to boost capabilities to patrol maritime borders.

The whole ISR package built into the planes costs $30 million; they can operate for hours at an altitude of 7,600 meters (25,000 feet) and have a range of 1,852 kilometers.

- Boeing subsidiary Insitu Inc. has been awarded more than $7 million contract to procure six ScanEagle UAVs to boost the Philippines' ISR capability.

The contract includes the support equipment, training, site activation, technical services and data for the government of Philippines.

SOUTH KOREA

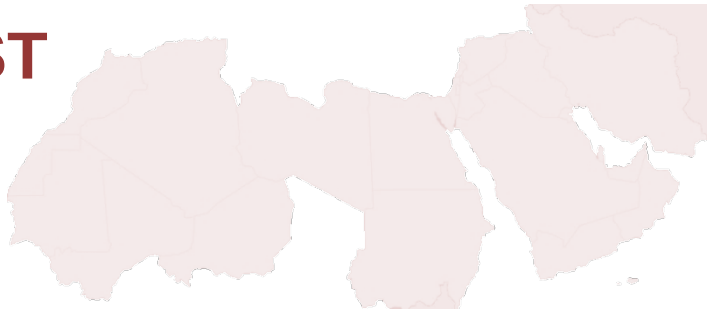
- The Korean Air Force will receive two RQ-4 Global Hawk UAVs next year under a 2014 contract with the United States, with two more planned to arrive in 2019.

This delivery aligns with the creation of the first Korean ISR unit in December.

- According to the Korean *The Dong*-A *Ilbo* newspaper, the U.S. is considering selling the E-8 aircraft Joint Surveillance Target Attack Radar (JSTAR) System currently operated by the 116th ACW, to South Korea.

The latter officially requested the JSTAR system during a Security Consultative Meeting with the U.S. last month.

MIDDLE EAST & NORTH AFRICA



IRAQ

- The Iraqi government has bought six ScanEagle unmanned aircraft systems from Boeing subsidiary Insitu Inc for $7.7 million under the Foreign Military Sales programme.

The contract includes related support equipment, technical services, training, site activation and data.

ISRAEL

- The Israeli Air Force has announced in August 2017 that its upgraded Elbit Systems Hermes-900 “Kochav” UAV is fully operational, after a lengthy series of tests conducted by the flight-test squadron.

The main objective of the upgrade was to double the size, carrying capacity, flight time and flight range capability of the aircraft. Other upgrades were carried on its communication systems, modes of operation and maintenance methods.

JORDAN

- Iomax has been awarded a $11.2 million contract to modernise and provide maintenance services for four Air Tractor aircraft, operated by Jordan.

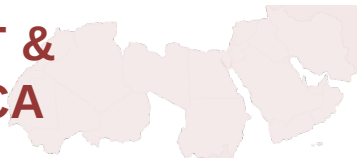
It is unclear which version of the aircraft the contract is for, as Jordan was gifted with six armed version of the Air Tractor by the UAE, itself supplied by Iomax and also received four unarmed version of it, converted for ISR missions and supplied by L3.

MOROCCO

- Morocco has successfully launched the 50-centimeter-resolution Mohammed VI-A ISR satellite.

It was built by Thales Alenia Space and Airbus Defence and Space and is the first of the two identical spacecraft manufactured under a 2014 contract with a total value of circa $500 million.

MIDDLE EAST & NORTH AFRICA



SAUDI ARABIA

- Saudi Arabia has expressed interest in General Atomics Aeronautical Systems' Predator A-ISR (the improved Predator XP), the unarmed ISR-configured UAV approved for export. No deal has been made yet.

- The RSAF publicly unveiled its recently acquired armed CH-4 UAV for the first time on 25th January 2017. The CH-4 is believed to have entered RSAF service last year.

- China's state-run Xinhua news agency news agency revealed on the 28th February 2017 that the country had secured the largest overseas order in the history of Chinese UAV foreign military sales. Reports indicate that it is Saudi Arabia.

The deal, said to be worth £10bn, is reported to be for 300 of the latest Wing Loong II armed variants, the first prototype of which made its maiden flight on 27th February 2017.

- Saudi Arabia's King Abdulaziz City for Science and Technology announced on the 16th March 2017 that it had signed an agreement with CASC for local production of Chinese UAVs.

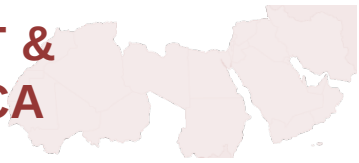
Reports suggest that it will be CH-4 UAVs that are involved and that they will be produced for both military and civilian roles.

TURKEY

- The European Space Centre has launched in December 2016 the Göktürk-1, a satellite serving as an ISR asset for the Turkish Armed Forces and designed and manufactured by Leonardo and Thales.

- Turkey has started the prototype development and production phase of its first indigenously developed communications satellite named TÜRKSAT-6A, currently valued at $170 million. It is envisaged to carry 20KU-band and two X-band transponders, in a bid to enhance communications for its military.

MIDDLE EAST & NORTH AFRICA



TURKEY

It was announced during a meeting hosted by the Minister of Science, Industry and Technology Faruk Özlü, Minister of Transport, Maritime Affairs and Communications Ahmet Arslan and joined by the Turkish Scientific and Technology Research Council (TÜBİTAK), Turkish Aerospace Industries (TAI), Aselsan and CTECH.

TAI is responsible for designing and manufacturing the satellite's structural properties, harness, thermal control, chemical propulsion subsystems and mechanical ground support equipment. TÜBİTAK is in charge of the on-board data-handling software, command and control suite and the satellite assemble, integration and testing.

The programme formally began in December 2014. The satellite's qualification tests are scheduled to start in 2018, with a launch planned for 2020. It is due to be in orbit for 15 years.

UAE

- Two Bombardier Global 6000 business jets currently undergoing conversion will in the future provide a significant new surveillance capability for the UAEAF&AD. No specific details of their mission have been revealed, but it is believed they will be used in the electronic intelligence and signals intelligence roles. They are known as Global Eyes.

On 10th May 2017, Saab announced that the UAE had ordered a third Global Eye.

- The first RQ-1E Predator XP UAV was delivered to the UAE in February 2017. The order was announced in February 2015 and although it has not been revealed how many are being procured, it is reported that ten are involved in the deal.

FIXED & ROTARY-WING AIRCRAFT HOLDINGS

GLOBAL MANNED ISR AND AEW AIRCRAFT

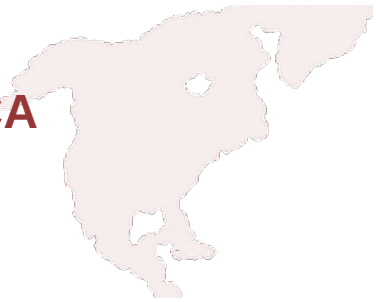
HOLDINGS AND ACTIVE ORDERS

NATO & EUROPE

COUNTRY	AEW	RECONNAISSANCE
NATO	• 16 707 (E-3A)	
BULGARIA		• 1 An-30
FRANCE	• 4 707 (E-3F)	• King Air 350 – 2 ordered
GERMANY		• 2 Dornier 228/NG
GREECE	• 4 ERJ-145	
ITALY	• Gulfstream G550 – 2 ordered • 4 AW101	• 1 Gulfstream III
NETHERLANDS		• 1 Learjet 36
ROMANIA		• 2 An-30
RUSSIA	• 14 Il-76 (A50) • 3 Ka-31	• 5 An-12 • 1 An-26 • 14 An-30 • 25 Il-20/22 • 1 Il 76 • 1 Tu-134
SLOVAKIA		• 1 L-410
SWEDEN	• 3 Saab 340	
UKRAINE		• 3 An-30
UNITED KINGDOM	• 6 707 (E-3D) • 8 Sea King ASaC7	• 3 BN-2 • 5 Global Express (Sentinel R1) • 5 King Air 350 (Shadow R1) • 11 BN-2

HOLDINGS AND ACTIVE ORDERS

NORTH AMERICA



COUNTRY	AEW	RECONNAISSANCE
UNITED STATES	• 30 707 (E-3B/C/G) • 74 E-2C/D – 26+24 ordered • Gulfstream G550 – 1 ordered	• 1 707 • 16 707 (E-8C) • 2 757 (C-32B) • 21 Beechjet T1A • 5 Dash 8 (E-9A) • 1 DHC-6 • 4 Falcon 20 (HU-25) • 35 King Air 350 (MC-12W) • 22 Merlin IV/Metro (RC-26B) • 1 OC-135B • 17 PC-12 (U-28A/B) • 27 U-2S • 89 King Air 200/300/350 (MC/RC-12) • 4 King Air 350 • 2 Learjet 35/36 • 1 Merlin IV/Metro (C-26D)

HOLDINGS AND ACTIVE ORDERS

LATIN AMERICA & THE CARRIBBEAN

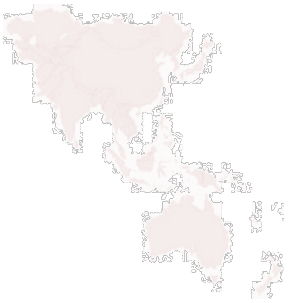
COUNTRY	AEW	RECONNAISSANCE
ARGENTINA		• 3 DA42
BRAZIL	• 5 ERJ-145	• 3 EMB-110 • 3 ERJ-145 • 6 Learjet 35
CHILE	• 1 707	
COLOMBIA		• 6 Cessna 208 • 1 Merlin IV
MEXICO	• 1 ERJ-145	• 2 Citation I • 1 King Air 350 • 3 Merlin IV/Met

SUB-SAHARAN AFRICA

COUNTRY	AEW	RECONNAISSANCE
GHANA		• 2 DA42
KENYA		• 1 Cessna 208
NIGER		• 2 Cessna 208 • 2 DA42
TANZANIA		• 1 SB7L-360
GHANA		• 2 DA42

HOLDINGS AND ACTIVE ORDERS

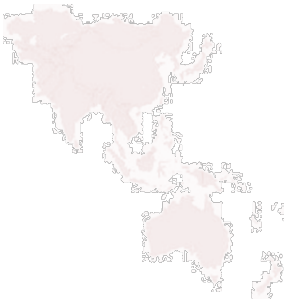
ASIA & THE PACIFIC



COUNTRY	AEW	RECONNAISSANCE
AUSTRALIA	• 6 737 (E-7A)	
CHINA	• 1 Il-76 (A50I) • 4 Il-76 (KJ 2000) • 15 Y-8 (KJ-200) • 9 Ka-31 • 1 Z-18	• 5 Challenger 870 • 8 Y-8
INDIA	• ERJ-145 – 1 ordered • 3 active Il-76 (A50E) – 2 ordered • 14 Ka-31	• 1 707 • 2 G100/1125 Astra
JAPAN	• 4 767 • 13 E-2C/D – 2+2 ordered	• 4 Learjet 36 • 4 OP-3C
SINGAPORE	• 4 Gulfstream G550	
SOUTH KOREA	• 4 737	• 8 Hawker 800
TAIWAN	• 6 E-2K	
THAILAND	• 2 Saab 340	• P180 – 1 ordered
AUSTRALIA	• 6 737 (E-7A)	
CHINA	• 1 Il-76 (A50I) • 4 Il-76 (KJ 2000) • 15 Y-8 (KJ-200) • 9 Ka-31 • 1 Z-18	• 5 Challenger 870 • 8 Y-8

HOLDINGS AND ACTIVE ORDERS

ASIA & THE PACIFIC



COUNTRY	AEW	RECONNAISSANCE
INDIA	• ERJ-145 – 1 ordered • 3 active Il-76 (A50E) – 2 ordered • 14 Ka-31	• 1 707 • 2 G100/1125 Astra
JAPAN	• 4 767 • 13 E-2C/D – 2+2 ordered	• 4 Learjet 36 • 4 OP-3C
SINGAPORE	• 4 Gulfstream G550	

HOLDINGS AND ACTIVE ORDERS

MIDDLE EAST & NORTH AFRICA

COUNTRY	AEW	RECONNAISSANCE
ALGERIA		• 6 Beech 1900
EGYPT	• 7 E-2C	
IRAQ		• 3 Cessna 208 • 7 CH2000 • 6 King Air 350 – 1 ordered • 2 SB7L-360
ISRAEL	• 1 707	• 25 King Air 200
JORDAN		• 4 AT-802
PAKISTAN	• 4 Saab 2000 • 4 Y-8 (ZDK-03)	• 2 King Air 350 • 1 Hawker 850
QATAR	• 737 – 3 ordered	
SAUDI ARABIA	• 6 707 (E-3A) • 2 Saab 2000	
TURKEY	• 4 737	
UAE	• Global 6000 – 2 ordered • 2 Saab 340	• 1 Cessna 208 • 3 DHC-6 • 2 S2R Archangel – 22 ordered

UAS HOLDINGS

GLOBAL UNMANNED ISR AND C2BM AIRCRAFT

HOLDINGS AND ACTIVE ORDERS

NATO & EUROPE

NATO	• **20 Falco** • **12 Shadow 200** • **5 RQ-4 Global Hawk on order – IOC 2017-2018**

COUNTRY	UAS
ARMENIA	15 Krunk (Army)
BELARUS	Grif-100
BELGIUM	12 B-Hunter – 1 more in store
BULGARIA	Yastreb-2S
CROATIA	• Hermes 450 • Skylark I
CZECH REPUBLIC	Raven
DENMARK	• Raven-B • Sperwer • Aerovironment UAVs on order
FINLAND	• 11 ADS-95 Ranger (Army)
FRANCE	• Heron TP • 6 MQ-9A Reaper - 3 on order + 3 more required • 14 Patrollers on order for delivery by 2019 (Army) • 24 Sperwer II (Army) • Skylark I • 4 Harfang
GEORGIA	Hermes 450

HOLDINGS AND ACTIVE ORDERS

NATO & EUROPE

COUNTRY	UAS
GERMANY	• 3 Heron I • 3-5 Heron TPs to be leased from 2018 • 43 KZ0 (Army • 85 LUNA (Army) • Aladin • Mikado • Camcopter (Navy) • MQ-4C Triton on order for 2025 delivery
GREECE	4 Sperwer (Army)
HUNGARY	Skylark I
IRELAND	Orbiter
ITALY	• 5 MQ-1B Predator • 9 MQ-9B Reaper • 6 P.1HH Hammerhead • Raven-B • 1 Camcopter S-100 (Navy) • Scan Eagle (Navy)
LITHUANIA	Scan Eagle
NETHERLANDS	• Scan Eagle • Raven • Sperwer • Skylark I • Aerostar • Aladin • Raven B • Puma AE • Wasp AE
NORWAY	Aladin

HOLDINGS AND ACTIVE ORDERS

NATO & EUROPE

COUNTRY	UAS
POLAND	• Scan Eagle • 12 Orbiter • 2 Heron on loan • Skylark I • Aerostar • Flyeye (Mini-Army)
ROMANIA	• Shadow 600 • Scan Eagle
RUSSIA	• Searcher II • I-View • Bird Eye 400 • Tu-143 Reys (Army) • Tu-243 Reys/Reys D (Army) • Tu-300 Korshun (Army) • BLA-07 • Pchela-1 (Army) • Pchela-2 (Army)
SERBIA	Orbiter
SPAIN	• RQ-11B Raven • 3 SIVA • 2 Searcher Mk.II-J (PASI) (Army) • 4 Searcher III (Army) • 4 MQ-9 Reaper on order
SWEDEN	• Sperwer • 8 Shadow 200 • 12 Puma AE/Wasp + 18 on option (Army)
SWITZERLAND	• 16 Ranger • Hermes 900 - 6 on order for delivery by 2020

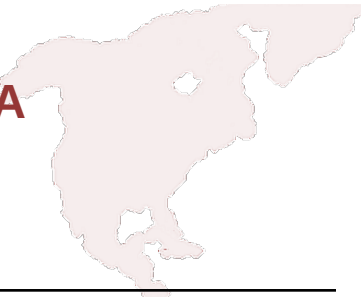
HOLDINGS AND ACTIVE ORDERS

NATO & EUROPE

COUNTRY	UAS
UK	• 8 Watchkeeper – 21+ in store • Hermes 450 - 10 on loan • 10 MQ-9A Reaper • Certifiable Predator B (Protectors) – 20+ to be ordered • T-Hawk - 18 were operated in Afghanistan • Desert Hawk III - 239 were operated in Afghanistan • Raven B • 324 Black Hornet (Micro UAV) – 64 were operated in Afghanistan • Scan Eagle (Navy) - to be retired by end 2017
UKRAINE	24 RQ-11B Raven

HOLDINGS AND ACTIVE ORDERS

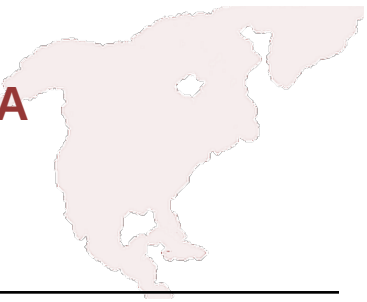
NORTH AMERICA



COUNTRY	UAS
CANADA	• 3 Heron • Sperwer • Skylark I & II (Army) • Scan Eagle • RQ-21A Blackjack - 5 on order for delivery in 2017
U.S.A.	Army • 105 MQ-1C Gray Eagle - 167 planned • 1,272 RQ-11 Raven • I-Gnat ER • MQ-5B Hunter • 236 RQ-7B Shadow • RQ-16 • RQ-20 Puma • Wasp – requirement of 22,000 Navy • MQ-4C Triton - 70 planned; 4 funded so far • 2 Heron • 168 MQ-8B Fire Scout • 16 MQ-8C Fire Scout - 50 planned • 372 RQ-16 T-Hawk • Scan Eagle • 15 RQ-21A Blackjack • 35 RQ-2B Pioneer

HOLDINGS AND ACTIVE ORDERS

NORTH AMERICA



COUNTRY	UAS
U.S.A.	Air Force • 55 RQ-4 A/B Global Hawk - 34 active • 145 MQ-1B Predator, including 35 reserve • 108 RQ-11B Raven • 442 Wasp • Scan Eagle • 233 MQ-9B Reaper, including 35 reserve – 323 planned • Circa 10 RQ-170 Sentinel Special Operations Command • Camcopter • RQ-21 Integrator • Puma • 12 MQ-1C Gray Eagle • 15 XPV-1 Tern • 14 XPV-2 Mako • 28 CQ-10 Snowgoose Marines • RQ-11B Raven • 31 RQ-7B Shadow • K-Max • Wasp III • Scan Eagle • RQ-20A Puma on order • 100 BQM-147 Exdrone

HOLDINGS AND ACTIVE ORDERS

LATIN AMERICA & THE CARRIBBEAN

COUNTRY	UAS
ARGENTINA	Yarara
BRAZIL	• 15 Heron • 4 Hermes 450 – more on order • 1 Hermes 900 • FT-100 Horus
CHILE	3 Hermes 900
COLOMBIA	• 6 Hermes 450 • 2 Hermes 900 • Scan Eagle • Iris • Bravo (Navy) • Terraco (Navy)
ECUADOR	• 2 Heron (Navy) • 3 Searcher II (Navy)
MEXICO	• 3 Hermes 450 • 3 Heron • 2 Hermes 900 (Federal Police) • Skylark 1 • Orbiter • 5 S4 Ehecatl + 10 (Federal Police) • 2 Dominator XP (Federal Ministerial Police
URUGUAY	1 Charrua (Army)
VENEZUELA	• Arpia • Gavilan

HOLDINGS AND ACTIVE ORDERS

SUB-SAHARAN AFRICA

COUNTRY	UAS
ANGOLA	Aerostar
CAMEROON	Scan Eagle - on order
KENYA	Scan Eagle - on order
NIGERIA	• Indigenous Gulma TUAV • CH-3A • Aerostar (non-operational) • Mugin 300 • Raven
SOUTH AFRICA	• Up to 4 Vulture • Seeker II

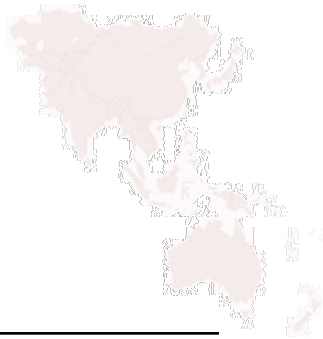
HOLDINGS AND ACTIVE ORDERS

ASIA & THE PACIFIC

COUNTRY	UAS
AFGHANISTAN	65 Scan Eagle on order for delivery by mid-2018
AUSTRALIA	• 8 Heron • Raven • Skylark I • 15 RQ-7B Shadow 200(Special Operations Command)
AZERBAIJAN	• Heron • 3 Aerostar (Army) • 4 Aerostar (Air Force)
CHINA	• 1 Vulture • Cloud Shadow - Note: many indigenous designs operated and under development: BZK-005 (Army); BZK-009 (Reported - Army); BZK-006 (Army); BZK-007 (Army); BZK-008 (Army) • Harpy (Army) • 4+ Gongji-1
INDIA	• 13 Heron (9 Air Force + 4 Navy) • Searcher II (some Air Force + 6 Navy) • 100+ Rustom I&II • Heron TP - 10 on order (Air Force) • Nishant 13 (Army) • 12 Searcher Mk. I/II (Army)
INDONESIA	Searcher
JAPAN	3 RQ-4 Block 30 Global Hawk on order

HOLDINGS AND ACTIVE ORDERS

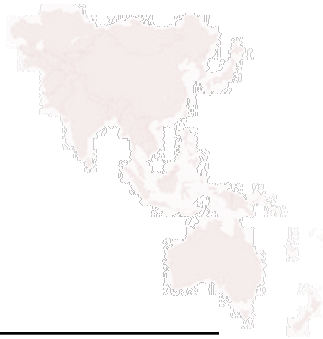
ASIA & THE PACIFIC



COUNTRY	UAS
MALAYSIA	• Scan Eagle; • Aludra
MYANMAR	CH-3
NORTH KOREA	• Pchela-1 (Shmel) (reported) • Unidentified indigenous type
PAKISTAN	• Falco; Shahpar (Army) • CH-3 Burraq • Luna X-2000 • Scan Eagle on order • Bravo (Army); Jasoos (Army) • Vector (Army) •
PHILIPPINES	2 Blue Horizon II
SINGAPORE	• 8 Heron 1 • 9+ Hermes 450 • 20 Searcher II • Aerostar • Scan Eagle • Skylark (Army)
SOUTH KOREA	• Global Hawk - 4 on order • 3 Searcher • Skylark II • 100 Harpy • Night Intruder

HOLDINGS AND ACTIVE ORDERS

ASIA & THE PACIFIC



COUNTRY	UAS
SRI LANKA	• 2 Searcher Mk.II • Blue Horizon II • 1 Seeker (Army)
TAIWAN	Mastiff III (Army)
THAILAND	• Searcher (Army) • Searcher II (Army) • Aerostar
TURKMENISTAN	• Falco • CH-3 • WJ-600

HOLDINGS AND ACTIVE ORDERS

MIDDLE EAST & NORTH AFRICA

COUNTRY	UAS
ALGERIA	Seeker II
EGYPT	• Patroller - on order • CH-4 • R4E-50 Skyeye (Army) • ASN-209 (Army) • 2 Camcopter (Navy) • R4E-50 Skyeye • Teledyne-Ryan 324 Scarab
IRAN	• H-110 • Fotros • Shahed 129 (Army) • Yasir • Mohajer 3/4 (Army) • Mohajer 2 (Army) • Ababil (Army)
IRAQ	• 4+ Rainbow CH-4B • Scan Eagle - on order
ISRAEL	• Heron (Shoval) • Heron TP • RQ-5A Hunter • Aerostar • Hermes 450 • Hermes 900 Kochav • Skylark I • 22+ Searcher Mk. II (22+ 22+ in store) • Harpy
JORDAN	• Camcopter • Falco
LEBANON	• Raven • 4 Scan Eagle • 8 Mohajer 4 (Army)

HOLDINGS AND ACTIVE ORDERS

MIDDLE EAST & NORTH AFRICA

COUNTRY	UAS
MOROCCO	R4E-50 Skyeye (Army)
QATAR	10 Bayraktar
SAUDI ARABIA	• Falco • CH-4 • 300 Wing Loong II (300) • 3 Al Nawras • Gongji-1 (reported)
SYRIA	• Mohajer 3/4 (Army) • Ababil
TUNISIA	Scan Eagle

Holdings information: S. Philpott

AIRBORNE ISR & C2 BATTLE MANAGEMENT

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Detect, Deter, Defeat: Preserving Decision-Making Advantage in the Information Age

NATO and its global partners and allies are preparing to gather once again for the annual Airborne ISR & C2 Battle Management conference, one of the world's most prestigious strategic defence conferences.

The 5th annual conference will be shaped around the changing character of war in the information age, acknowledging that the current state of geopolitical entropy induced from both non-state actors and near-peer adversaries presents the airborne community with a broad and diverse range of new and enduring challenges and threats. Against this backdrop, information will be critical to maintaining decision-making dominance across multiple domains and, indeed, will play a significant factor in both strategic deterrence and engagement of our enemies.

As we look ahead to the next NATO Summit in the summer of 2018, the conference will ask how the alliance and its allies are developing a framework to confront these challenges, reshaping C2ISR CONOPS and maintain decision-making advantage in a complex world.

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- **Lieutenant General Gina M Grosso**, Deputy Chief of Staff for Manpower, Personnel and Services, **Headquarters U.S. Air Force**
- **Air Marshal Ricardo Cesar Mangrich**, Commander, Operation Ostium, **Brazilian Air Force**
- **Air Vice Marshal Christina Elliot**, Chief of Staff Personnel and Air Secretary, **RAF**
- **Major General Yousef Al-Huneiti**, Chief of the Air Staff, **Jordanian Air Force**
- **Colonel Kenji Monami**, Chief Planning Section, Weapon System Program Division, Air Staff Office, **Japanese Ministry of Defense**
- **François Rivasseau**, Special Envoy for Space and Head of Security Policy and Space Division, **European External Action Service**

AGENDA

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London, United Kingdom

29-31 May 2018
London, United Kingdom

September 2018
Rome, Italy

6-8 November 2018
Washington, D.C.