

WEDNESDAY 16TH - THURSDAY 17TH NOVEMBER

UNMANNED AIRCRAFT SYSTEMS 2011



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- **HEAR** future UAS plans in the UK straight from S01 ISTAR
- **RECEIVE** exclusive feedback from Operation Unified Protector in Libya
- **LISTEN** to the latest research and debate from the world's leading civilian unmanned experts
- **DISCOVER** how the development of the NATO AGS system is progressing directly from the NAGSMA agency
- **LEARN** about the current training programme for the RAVEN (SPERWER) and the future programme for the Scan Eagle and how this translates into your own procurement decisions
- **GET BRIEFED** on how NASA are using UAVs for research purposes
- **RELIVE** first hand experiences, accomplishments and operations from Afghanistan in briefings delivered directly from the Canadian and British Forces

PLUS, BOOK ONTO OUR PRE-CONFERENCE, FULLY INTERACTIVE WORKSHOPS

Tuesday 15th November

Workshop A: 09.30-12.30

The Triple Use of Acoustic Vector Sensors in UAV's

Hosted By: **Microflown Technologies**

Workshop B: 09.30-12.30

Current Trends in UAS Training and Simulation

Hosted By: **Simlat**

Workshop C: 14.00-17.00

Rotary Wing Applications: Command And Control Cockpit Systems, Sensors And Test & Evaluation

Hosted By: **A2tech**

ESTEEMED CHAIRMAN:



Major General Kenneth Israel (Rtd), Former Director of the Defense Airborne Reconnaissance Office (DARO) & Vice President Of Business Development at Lockheed Martin Integrated Systems and Solutions

KEYNOTE ADDRESS:



Major General Stephen D. Schmidt, Commander, Airborne Early and Control Force Command, NATO

HIGHLIGHTS FROM THE SPEAKER PANEL:



Colonel David Evans, ISTAR Capability Branch, British Army



Bogdan Horvat, Executive Officer, NAGSMA



Colonel Bill Morris, Director, A3 United States Army*



Lieutenant Colonel Frits Müller, Chief of UAS Flight Safety, Royal Netherlands Army



Lieutenant Colonel Guy Armstrong, Project Manager UAV Systems, Canadian Forces



Lieutenant Commander Gerry Corbett, Directorate of Airspace Policy, Civil Aviation Authority UK



Captain Tom Kalkhoven, UAS Operations, Royal Netherlands Army



Chris Naftel, Global Hawk Project Manager, NASA Dryden Flight Research Center



Daniel Newman, Vulture Program Manager, DARPA*



Dr. Thomas Richardson, Faculty of Engineering, Bristol University



John Moreland, General Secretary, Unmanned Aerial Vehicle Systems Association



Debojit Sarkar, Unmanned Vehicle System and Smart Weapons Expert, India

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08.30-08.50
REGISTRATION & COFFEE

08.50-09.00



CHAIRMAN'S OPENING REMARKS:
Major General Kenneth Israel, Former Director of the **Defense Airborne Reconnaissance Office (DARO)** & Vice President Of Business Development at **Lockheed Martin Integrated Systems and Solutions**

SESSION 1: FUTURE PLATFORM ACQUISITION & SOLUTIONS

09.00-09.40

OPENING HOST NATION ADDRESS: Future UAS Plans in the UK

- Platform development progress- Taranis, Mantis, Zephyr and Mercator
- Getting the tactical vs, HALE/MALE balance right
- Planning for future theatres and conflicts
- Force percentage and the use of UAV



Colonel David Evans, ISTAR,
British Army

09.40-10.20

The NATO AGS Program: Update and the Road Ahead

- NATO AGS as a critical component of the Alliance's response to threats to peace, now and in the future
- Providing persistent surveillance over wide areas from high-altitude, long-endurance, unmanned air platforms
- Overview of the Multi-Platform Radar Technology Insertion Program
- The new AESA block capability



Bogdan Horvat, Executive Officer,
NAGSMA

10.20-10.50

MORNING COFFEE

SESSION 2: OPERATIONAL FEEDBACK

10.50-11.30

KEYNOTE ADDRESS: The Libya Conflict- Feedback from Operation Unified Protector

- Using UAVs to monitor ceasefires
- How enhanced ISTAR capability has improved the safety of Libyans
- UCAV deployment
- Enforcing no-fly zones and airborne early warning



Major General Stephen D. Schmidt, Commander, Airborne Early and Control Force Command, **NATO**

11.30-12.10

The End of An Era in Afghanistan: Accomplishments and Operational Feedback from the Canadian Perspective

- Accomplishments and achievements
- A review of requirements post-Afghanistan
- Notable operations
- Future capability and skills learned in-theatre



Lieutenant Colonel Guy Armstrong, Project Manager UAV Systems, **Canadian Forces**

12.10-12.50

On the Frontline: Afghan Predator Ops

- Flight hours and rate of engagement
- What pitfalls and challenges are prevailing in-theatre
- Feeding experience back into the development loop
- Application of UAV in future theatres



Operational Commander, ISTAR SO1,
British Army

12.50-13.50

NETWORKING LUNCH

SESSION 3: PROGRAMMES, RESEARCH AND DEVELOPMENT

13.50-14.30

NASA Global Hawk - Opening New Frontiers for Earth Science Research

- Two of NASA's five Global Hawk aircraft are supporting science research
- NASA has completed 5 science missions covering Arctic, Pacific, Gulf of Mexico, and Atlantic regions
- Additional capabilities are under development, such as a portable ground station
- Deployed operations will begin in 2012 at Wallops Island, VA



Chris Naftel, Global Hawk Project Manager,
NASA Dryden Flight Research Center

14.30-15.10

Full Spectrum Awareness in Conventional and Unconventional Warfare

- Strategic stakes of spectrum awareness in the field
- Predictive awareness for mission planning
- Opportunities and challenges for terrestrial and space coordination
- UAVs in support of mission denial



Guido Baraglia, Manager of Business Development,
Integral Systems Europe

15.10-15.40

AFTERNOON TEA

15.40-16.20

ASTRAEA AAAR and In-flight Refuelling for UAVs

- The new Relative Motion Robotics centre at the Faculty of Engineering
- Developing an autonomous engagement solution for in-flight refuelling
- Autonomous refuelling as a key component of future UAV operations
- Advanced composite manufacturing capability



Dr. Thomas Richardson, Faculty of Engineering,
Bristol University

16.20-17.00

Making the Most of Airborne SATCOM

- Integrating Airborne SATCOM into core networks
- Expanding the reach of Airborne SATCOM to tactical assets
- Delivering Airborne SATCOM affordably – the role of a managed service



Andy Hide, Head of Future Programmes, Secure Satcom Systems Business Development,
Astrium Services

17.00-17.40

The Insurer's Perspective of UAV Operations

- What are the prevalent risks and issues associated with the insuring of unmanned systems?
- Underwriting criteria
- Providing insurance for new applications of UAVs
- Maintaining awareness whilst supporting developing applications of UAVs



Adam Piper, Partner,
Windsor Partners

17.40-17.50

CHAIRMAN'S CLOSING REMARKS AND END OF CONFERENCE DAY ONE

17.50-19.20



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08.30-08.50
REGISTRATION & COFFEE

08.50-09.00

CHAIRMAN'S OPENING REMARKS:
Major General Kenneth Israel, Former Director of the **Defense Airborne Reconnaissance Office (DARO)** & Vice President Of Business Development at **Lockheed Martin Integrated Systems and Solutions**

SESSION 4: CIVILIAN COOPERATION, SEGREGATED AIRSPACE AND SAFETY

09.00-09.40

Unmanned Aircraft System Operations in UK Airspace and the CAP 722: A Year On


- Highlighting safety requirements in terms of airworthiness and operational standards
- Assisting those who are involved in the development of UAS to identify
- Identification of the route to certification and ensuring that the required standards and practices are met by all UAS operators
- Drawing together independent civil and military guidance so as to establish best practice for all UAS activities

 **Lieutenant Commander Gerry Corbett**, Directorate of Airspace Policy, **Civil Aviation Authority UK**

09.40-10.20

Predator Aircraft Series Status Report: Military and Civil Missions

- Setting Landmarks: Accumulating more than 1,300,000 flight hours (or more than 30,000 hours/month)
- Supporting NATO ground forces 24/7 in military & peace-keeping missions
- Remaining actively engaged in civilian uses of UAS: Disaster Relief; Border Protection; Maritime Surveillance
- An introduction to and 2-year review of the Predator C/Avenger


 **Stephen May**, Manager of International Strategic Development, **GA-ASI UK**

10.20-10.50 **MORNING COFFEE**

10.50-11.30

Fusing Acoustic Signals and Optical Signals

- An introduction to 'hear and avoid'
- Utilising highly autonomous UAVs with local signal processing capabilities
- Reducing requirements for data links
- Automated landing solutions

 **John Bremner**, Business Development Manager, **MicroFlown**

SESSION 5: UNMANNED AERIAL VEHICLE SYSTEMS ASSOCIATION SESSION

11.30-12.10

Interactive Panel Session: Challenging Public Perceptions of UAV Operations

As the use of UAVs in theatre continues to increase, perception is becoming increasingly important in the battle to win hearts and minds. Are we in danger of the public relating unmanned operations purely toUCAVs? Is there a lack of education surrounding the civilian, peacekeeping, security and environmental applications of UAVs? Most UAVs carry ISR payloads, so how can we stop the public hysteria surrounding UAV operations in the 21st Century?

Chaired by:

 **John Moreland**, General Secretary, **Unmanned Aerial Vehicle Systems Association**

Panellists:

Bogdan Horvat, Executive Officer, **NAGSMA**
Dr. Thomas Richardson, Faculty of Engineering, **Bristol University**
Major General Kenneth Israel
Colin Burbidge, Head of Information Services, **Unmanned Aerial Vehicle Systems Association**

12.10-13.10 **NETWORKING LUNCH**

SESSION 6: TRAINING & SIMULATION

13.10-13.50

Implementation of the (European Military) Aviation Requirements of UAS

- Implementation of the MAR-OPS / FCL and MAR-66/147/145- what does this consist of?
- Military Aviation Requirements (MAR), Operations
- Manual and Maintenance Exposition
- Airspace deconfliction

 **Lieutenant Colonel Frits Müller**, Chief of UAS Flight Safety, **Royal Netherlands Army**

13.50-14.30

The Current Training Programme for the RAVEN MUAS and the Future Programme for the ScanEagle/Integrator

- Current training challenges and future solutions
- Pilot selection and securing live flying time
- How training for the RAVEN has set standards for future programmes
- Current and future operations within NLD airspace
- Why the ScanEagle: capabilities and changes to the training regime

 **Captain Tom Kalkhoven**, UAS Operations, **Royal Netherlands Army**


14.30-15.00 **AFTERNOON TEA**

SESSION 7: UAV APPLICATIONS

15.00-15.40

Shadow Warriors of the Next Generation- Deploying Unmanned Aerial Systems for Protecting Convoys


- NATO's Central Asian and Pakistani supply lines: The associated costs and challenges
- Securing Unit, Large and Exclusive Convoys
- Utilising acoustic gunshot detectors, EO/IR imaging sensors, and synthetic aperture radar
- Mobile ground control stations

 **Debojit Sarkar**, Unmanned Vehicle System and Smart Weapons Expert, **India**

15.40-16.20

The Evolving Role of Unmanned Systems: Thinking Differently

- Attributes of national power in the past
- Speed/stealth/precision
- Today's threats and subsequent requirements
- Adding 4 new attributes: affordability, adaptability, persistence and visualization analytics

 **Major General Kenneth Israel**, Former Director of the **Defense Airborne Reconnaissance Office (DARO)** & Vice President Of Business Development at **Lockheed Martin Integrated Systems and Solutions**

16.20-16.30

CHAIRMAN'S CLOSING REMARKS AND CLOSE OF CONFERENCE

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PRE-CONFERENCE WORKSHOPS

Tuesday 15th November

WORKSHOP A 09.30-12.30

THE TRIPLE USE OF ACOUSTIC VECTOR SENSORS IN UAV'S

HOSTED BY:



Workshop discussions:

- The working principle of acoustic vector sensors
- The use of ISR and the concept of UAV VAUDEO
- Hear & Avoid
- Developing automated take off and landing

Early 2011, acoustic vector sensors were deployed on UAV's, creating a flying weapon location radar detecting mortars. Strong synergies with optical sensors were demonstrated. An acoustic vector sensor can steer a narrow field of view camera in to a certain direction, but the acoustic directionality can also be used to retrieve locally stored optical data captured with a fish eye type of camera, dramatically improving the effectiveness of airborne optical surveillance.

WORKSHOP B 09.30-12.30

CURRENT TRENDS IN UAS TRAINING AND SIMULATION

HOSTED BY:



The workshop shall review traditional and novel UAS training schemes, discuss test cases and provide insight to technical and business aspects. Attendees shall have the chance to raise questions and thoughts for an open discussion. The second part of the workshop shall be dedicated to hands-on work with UAS training systems focused on various aspects of operation, types of training, different platforms, and more. Cutting edge systems shall be available for the attendees to operate and experience.

WORKSHOP C 14.00-17.00

ROTARY WING APPLICATIONS: COMMAND AND CONTROL COCKPIT SYSTEMS, SENSORS AND TEST & EVALUATION

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Advanced Aviation Technology (A2Tech) will be hosting a fully interactive workshop demonstrating the leading rotary-wing UAV in their fleet, command & control and sensor technology, and the latest developments in test & evaluation systems. Whilst exploring A2Tech's own technology, their experts will be encouraging discussion of the applications of rotary-wing unmanned platforms: Where and when are they more useful than fixed-wing craft? What are the limitations of rotary-wing UAVs? Which technologies can transcend the civil-military boundaries in the marketplace? Sign on to this workshop to discover more about the functionality of rotary-wing UAVs for both civilian and military applications, the next generation of command and control, and the cutting edge of 21st century aerospace test and evaluation.

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The **Microflown** is the world's first and only MEMS technology based sensor that can measure the acoustic particle velocity. By measuring the temperature difference in the cross section of two extremely thin platinum wires placed in parallel, this extremely fast mass flow sensor is capable of monitoring the movement of air particles. Any sound field is described completely by both the (scalar) value sound pressure and the (vector) value acoustic particle velocity. Understandably, acoustic testing becomes much easier if both acoustic quantities can be measured. Applications - Microflown Technologies offers superior applications such as: fast and broad banded panel noise contribution analysis (portable) near field acoustic camera's sound source triangulation techniques in the acoustic far field in situ determination of acoustic properties of materials non contact vibration measurements / modal analysis micro-pore leak testing.



Integral Systems is a leading provider of ground station hardware and software products, and integrated data processing and situational awareness solutions for both satellite and airborne platforms. Our products include telemetry and data processing, IF and data recorders, ultra high efficiency SSPAs, network management tools, remote site monitor and control, and signal monitoring solutions with interference detection and geolocation capabilities. Satcom signal monitoring and geolocation are also available as part of our service offer using our own infrastructure. In addition, we deliver integrated ground systems, including fully automated state-of-the-art unmanned telemetry and data acquisition sites as well as web based situational solutions. We will be happy to acquaint you with our COTS, low cost, flexible ground station capabilities and our expertise in satellite/terrestrial interference detection.

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