

UCAV

UNMANNED COMBAT AIR VEHICLES

DRIVING PROGRESS TOWARDS
WEAPONISED UNMANNED
AERIAL SYSTEMS

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22nd – 23rd June 2009 | Le Meridien Piccadilly, London, UK

What's New for 2009?

- **Sense & Avoid:** Improve the reliance and effectiveness of collision avoidance systems
- **Weaponisation:** Seek enhanced aerial capability through new combat-capable concepts
- **Integration:** Enable unmanned operations in non-segregated airspace
- **Airworthiness:** Overcome inhibitors to military UAV integration
- **Opportunities:** Understand requirements of international UAV & UCAV programmes

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CONFIRMED SPEAKERS INCLUDE:

Rear Admiral (Ret'd) Timothy R. Beard, Navy UCAS Deputy Program Director, **Northrop Grumman**

Philippe Koffi, Director UCAV Programme, UAS Office, **French Defence Procurement Agency**

Wg. Cdr. Brian James, DEC Deep Target Attack, **UK MoD**

Lt. Col. David W. Heideman, Chief Multinational Doctrine Branch Unmanned Systems, Lemay Center for Doctrine Development and Education, **US Air Force**

Dwayne Heinsma, Director, Naval Air Warfare Center Weapons Division, Unmanned Systems, NAVAIR, **US Navy**

Lt. Col. Luca Comini, Surveillance and Reconnaissance Section Chief, Plans and Policy Division, **Italian Air Force**

Capt. James Spears, Senior Instructor, Canadian Forces Forward Air Control Cell, **Canadian Forces**

Scott Winship, VP & Navy UCAS Program Director, **Northrop Grumman**

Col. Maciej Mroczkowski, Head of Section, **WAT Military University**

Dr. Plamen Angelov, Senior Lecturer & Director Intelligent and Robotic Systems Programme, **Lancaster University**

Walter Storz, Director, WTD 61, **Bundeswehr**

Wolfgang Steiger, Flight Test Division Leader, WTD 61, **Bundeswehr**

Bernd Korn, Head of Pilot Assistance, **German Aerospace Laboratory (DLR)**

Michel Selier, UAV Sense & Avoid Programme Manager, **NLR**

Gerard Mardine, Leader UAS Operations Sub Group, WG73, **EUROCAE**

Dr. Joel Hayward, Dean of the Royal Air Force College, **Kings College London**

Chris Granville-White, **CBE**

Conference Day One: Monday 22nd June 2009

08:30 Coffee & Registration

09.00 Chairman's Welcome & Introductory Remarks
Chris Granville-White CBE

09.10 US Navy UCAS Program: Delivering a Transformational Multi-Mission UCAV

- UCAV Program Status
- Autonomous Aerial Refuelling

Scott Winship, VP & Navy UCAS Program Director, *Northrop Grumman*

Rear Admiral (Ret'd) Timothy R. Beard, Navy UCAS Deputy Program Director, *Northrop Grumman*

09.50 Doctrinal Implications of Unmanned Aerial Systems

- Discuss what UAV doctrine can, and cannot, do for operators
- Evaluate the vulnerability that an over-reliance on UAVs could pose for coalition operations
- Provide integration solutions for joint and coalition force UAV assets

Lt. Col. David W. Heideman, Chief Multinational Doctrine Branch Unmanned Systems, Lemay Center for Doctrine Development and Education, *US Air Force*

10.30 Networking Coffee Break

11.00 Development & Integration of Weapons across Tactical UAV Platforms

- Missile requirements for weaponised tactical UAVs
- Update from trials
- Future plans and opportunities

Dwayne Heinsma, Director, Naval Air Warfare Center Weapons Division, Unmanned Systems, NAVAIR, *US Navy*

11.40 Italian Air Force UAS Operational Experience and Vision for the Future

- Addressing the technological and operational challenges
- Addressing the perspectives for UAS in the Italian Air Force
- Italian Air Force UAV vision for the future

Lt. Col. Luca Comini, Surveillance and Reconnaissance Section Chief, Plans and Policy Division, *Italian Air Force*

12.20 Networking Lunch

13.40 Supporting Forward Air Control (FAC) Training with Unmanned Systems: Opportunities & Challenges

- Role of UAVs in Close Air Support missions
- Utilising unmanned aerial assets in FAC training
- Results to date and future outlook

Capt. James Spears, Senior Instructor, Canadian Forces Forward Air Control Cell, *Canadian Forces*

14.20 New Concepts, New Capabilities: Dense Mini-UCAV Swarms Armed With Precision Ammunition

- From combat-capable platforms to network-centric UCAV swarms
- Precise weapons delivery: Overcoming new sensory challenges
- Requirements for autonomous, precise, dynamic 3D orientation

Col. Maciej Mroczkowski, Head of Section, *WAT Military University*

15.00 Networking Coffee Break

15.30 New Approaches to Passive Tracking Targets with Unpredictable Trajectories

- Overcoming the challenges of providing focussed lethality on UAVs
- Availability and design of precision weapons
- Case study: Countering IED threats

Dr. Plamen Angelov, Senior Lecturer & Director Intelligent and Robotic Systems Programme, *Lancaster University*

16.10 Roundtable Discussion: UAV Weaponisation

Standardisation for Manufacturers & Operators

- Requirements across a coalition
- Standardisation challenges
- Potential for interoperability

16.50 Chairman's Summary and Close of Day One

Conference Day Two: Tuesday 23rd June 2009

09.00 Chairman's Welcome & Introductory Remarks
Chris Granville-White CBE

09.10 UCAV Capability within French Ministry of Defence

- Current experiences of UAV operations
- Outlining future opportunities and focus
- Evaluating UCAVs as a future platform

Philippe Koffi, Director UCAV Programme, UAS Office, *French Defence Procurement Agency*

09.50 Successfully Integrating UAVs alongside Manned Military Aircraft

- Examining tactics, techniques and procedures for UAV integration
- Demonstrating safe and reliable capability in operational environments
- Implications of UCAV integration

Wg. Cdr. Brian James, DEC Deep Target Attack, *UK MoD*

10.30 Networking Coffee Break

11.00 Preparing for EuroHawk: German UAV Military Airworthiness & Certification

- Lessons learned from UAV airworthiness
- WTD 61 involvement in the international UAV integration discussion
- EuroHawk: Future challenges & opportunities

Walter Storz, Director, WTD 61, *Bundeswehr*
Wolfgang Steiger, Flight Test Division Leader, WTD 61, *Bundeswehr*

11:40 Advancing Sense & Avoid: Contributions of Germany's WASLA-HALE Project

- Meeting the challenges of the pilot's sense and avoid mechanism
- Target detection and tracking
- Conflict detection and generation of resolution advisories

Bernd Korn, Head of Pilot Assistance, *German Aerospace Laboratory (DLR)*

12:20 Networking Lunch

13:40 Avoiding Aerial Collision: Detect & Avoid for Netherlands MoD

- Taking a pragmatic approach to sense and avoid: Flight tests and trial results
- Addressing human computer interface and situational awareness challenges
- Analysis of requirements for future progress

Michel Selier, UAV Sense & Avoid Programme Manager, *NLR*

14:20 Harmonised Specifications for European Military Authorities: How Soon a Reality?

- Military UAV operation in European airspace: Barriers to be overcome
- Who should pioneer cooperation between authorities and operators?
- What impact will UCAV have?

15:00 Networking Break

15:30 How Can UAVs Operate to an Equivalent Level of Safety (ELOS) to that of Manned Aircraft?

- Understanding the problem: What an inability to detect, sense and avoid airborne hazards means for future UAV development
- What does ELOS mean? Interpretations of operators, developers and regulators
- What systems requirements does it create?

Gerard Mardine, Leader UAS Operations Sub Group, WG73, *EUROCAE*

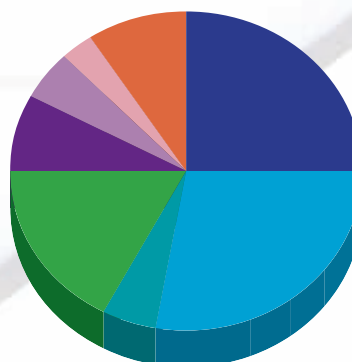
16:10 UAVs and UCAVs: Legal and Ethical Dimensions

- The Challenges of Full Automation
- Public Perceptions of Warrior Codes
- The Disappearance of "Targets of Opportunity"

Dr Joel Hayward, Dean of the Royal Air Force College and Head of Air Power Studies, *King's College London*

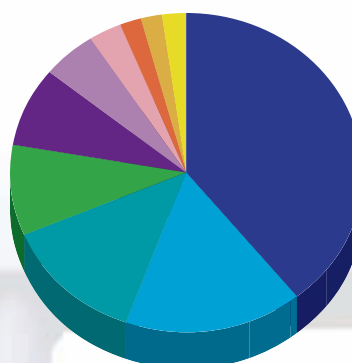
16:50 Chairman's Closing Remarks & Close of Conference

Top Attendees Job Profile



- 25% Business Development Manager
- 28% UAV Project/Programme Manager
- 5% Advanced Systems Engineer
- 17% Systems Integration Engineers
- 8% Technical Manager
- 5% Requirements Manager
- 3% UCAV Programme Lead
- 9% Systems Engineer

Where do Delegates Attend From?



- 39% United Kingdom
- 16% France
- 13% Germany
- 9% Sweden
- 8% United States
- 5% Italy
- 3% Israel
- 2% Russia
- 2% Switzerland
- 2% Canada

1 in 4

past UCAV delegates tell us they actively follow-up with solution providers they meet at the event

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