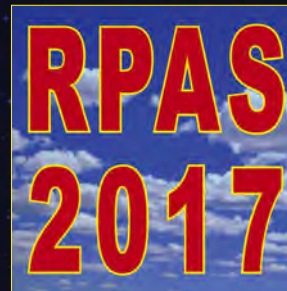




19<sup>th</sup> ANNUAL  
INTERNATIONAL CONFERENCE



# REMOTELY PILOTED AIRCRAFT SYSTEMS

## POLICY, REGULATORY & INNOVATION FORUM

VENUE, LOCATION & DATE

Royal Military  
Academy  
8 Hobbema straat  
Brussels, Belgium  
13 & 14 June 2017

ORGANIZED BY



BLYENBURGH & CO  
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## CONFERENCE PROGRAMME

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# RPAS 2017 - Conference Programme

## DAY 1 - TUESDAY 13 JUNE 2017 - MORNING

- Session 1 **National Drone Initiatives**
- 01 09.00-09.15 **Review of the Current RPAS Situation in Japan**  
Kakuya Iwata - Japan UAS Industrial Development Association (JUIDA), Japan
- 02 09.15-09.30 **The Spanish RPAS Commission - The Increase in Operational Domains & Compliance Matters**  
Guillermo Morato Lara - AESA, Spain  
(On behalf of «The Spanish RPAS Commission»)
- 03 09.30-09.45 **What Civilian Drone Professionals are Waiting for the Short and Middle Terms**  
Stéphane Morelli - Fédération Professionnelle du Drone Civil (FPDC), France
- 04 09.45-10.00 **The Public-Private Drones Roadmap of the Netherlands**  
Ingrid Michon-Derkzen - Ministry of Infrastructure and the Environment, The Netherlands
- 10.00-10.15 ♦ Interactive Panel Discussion  
10.15-11.00 ♦ Refreshment Break

- Session 2 **Policy & Regulations**
- 05 11.00-11.30 **Development of the Future European Rules on Unmanned Aircraft**  
Koen de Vos - European Commission DG Mobility & Transport (MOVE), EU
- 06 11.30-11.45 **Regulation: The State of Play & Way Forward**  
Antonio Marchetto - European Aviation Safety Agency (EASA), EU
- 11.45-12.00 ♦ Interactive Panel Discussion  
12.00-13.30 ♦ Lunch in cafeteria of the Royal Military Academy

## DAY 1 - TUESDAY 13 JUNE 2017 - AFTERNOON

- Session 3 **ATM & U-Space**
- 07 13.30-13.45 **JARUS: The Current State of Play & Priorities**  
Yves Morier - European Aviation Safety Agency (EASA), EU (on behalf of JARUS)
- 08 13.45-14.00 **U-Space - The State of Play**  
Alain Siebert - Single European Sky ATM Research Joint Undertaking (SJU), EU
- 09 14.00-14.15 **EU-China Aviation Partnership Project (TBC)**  
Antonio Marchetto - European Aviation Safety Agency (EASA), EU
- 10 14.15-14.30 **RPAS ATM CONOPS**  
Dominique Colin - EUROCONTROL, Belgium
- 11 14.30-14.45 **Strategy to Support U-Space Deployment**  
Cristiano Baldoni - ENAV, Italy
- 14.45-15.00 ♦ Interactive Panel Discussion  
15.00-16.00 ♦ Refreshment Break

- Session 4 **UTM & U-Space**
- 12 16.00-16.15 **U-Space Considerations & Experimentation**  
Thilo Vogt - Deutsche Flugsicherung (DFS), Germany
- 13 16.15-16.30 **RPAS Regulations & UTM in China**  
Liu Hao - Beihang University [Beijing University of Aeronautics & Astronautics (BUAA)], China
- 14 16.30-16.45 **U-Space Considerations & Views**  
Mark Palmer, Thales ATM, France
- 15 16.45-17.00 **UTM Systems - A Global View**  
Marc Kegelaers - UniFly, Belgium
- 16 17.00-17.15 **UTM Architecture & Roadmap**  
Marc Kegelaers - UniFly, Belgium  
(on behalf of Global UTM Association, International)
- 17.15-17.30 ♦ Interactive Panel Discussion  
17.30-19.00 ♦ Drinks in the bar of the Royal Military Academy

**Sponsored by Unifly, Belgium**

## DAY 2 - WEDNESDAY 14 JUNE 2017 - MORNING

- Session 5 **Applications**
- 17 09.00-09.15 **Inspection of Power Grid Components - End-user Requirements & Drone Limitations**  
Uwe Meinberg - Brandenburg Technical University, Germany
- 18 09.15-09.30 **RPAS in Private Security: Responding to Threats, Seizing Opportunities**  
Catherine Piana - Co-Federation of European Security Services (CoESS), Belgium
- 19 09.30-09.45 **UAS for Agriculture: New Frontiers for Youth Entrepreneurship in Africa**  
Giacomo Rambaldi - Technical Centre for Agricultural & Rural Cooperation (CTA), The Netherlands
- 20 09.45-10.00 **Using RPAS at Airports: A New Reality**  
Robert Jonker - Clear Flight Solutions, The Netherlands
- 10.00-10.15 ♦ Interactive Panel Discussion  
10.15-11.00 ♦ Refreshment Break

- Session 6 **National Status & Initiatives**
- 21 11.00-11.15 **SUA Operations & Proficiency in the UK - Now and Under EASA + introduction of the UK NDIAG**  
Matthew Lee - ARPAS-UK, UK + On behalf of NDIAG
- 22 11.15-11.30 **DroneRules: An Awareness Tool for Germany**  
Oliver Heinrich - BHO Legal, Germany  
(on behalf of the DroneRules.EU consortium)
- 23 11.30-11.45 **Perspectives and ATM Impact of Detect And Avoid Integration in Tactical and MALE RPAS**  
Eduardo Filippone - CIRA, Italy
- 11.45-12.00 ♦ Interactive Panel Discussion  
12.00-13.30 ♦ Lunch in cafeteria of the Royal Military Academy

## DAY 2 - WEDNESDAY 14 JUNE 2017 - AFTERNOON

- Session 7 **Applications & Innovation**
- 24 13.30-13.45 **Patroller, A Multi-mission RPAS Focused on Military and Homeland Security Missions**  
Paul Vassy - Safran Electronics & Defence, France
- 25 13.45-14.00 **Satellite Navigation for Drones**  
S. Mangoni & C. Senatore, EuroUSC-Italia, Italy  
(on behalf of the REAL Consortium)
- 26 14.00-14.15 **Registration & Flight Authorization: Safety Before Complexity in a Step-by-step Approach of UTM**  
Georg Schöne - Colibrex (LS telcom), Germany
- 27 14.15-14.30 **Establishing an Internal RPAS Flight Organization**  
Paul Tobias - ESG Elektroniksystem- und Logistik, Germany
- 28 14.30-14.45 **Drone Zone Austria - Design of a Web Portal for Safe Drone Mission Planning**  
Prof Gernot Paulus - Carinthia University of Applied Sciences, Austria
- 14.30-14.45 ♦ Interactive Panel Discussion  
14.45-15.45 ♦ Refreshment Break

- Session 8 **Innovation**
- 29 15.45-16.00 **RPAS: Safety Conformity Assessment & Regulators Requirements**  
Julian Gallego - Alter Technology TÜV Nord, Spain
- 30 16.00-16.15 **RPAS & Communication Infrastructure**  
Alexis Martin - Access Partnership, UK
- 31 16.15-16.30 **DroneRules.EU: Project Status Update**  
Norbert Frischauf - SpaceTec Partners, Belgium  
(on behalf of the DroneRules Consortium)  
Ulrich Hoffmann - Lufthansa Technik, Germany  
(in process of joining DroneRules Consortium)
- 16.30-16.45 ♦ Interactive Panel Discussion  
16.45-17.00 ♦ Closing Remarks + End of Conference

## PRESENTING ORGANIZATIONS & THEIR AFFILIATIONS

### Access Partnership, United Kingdom

- Communication experts
- ▶ Member of UVS International

### AERPAS, Spain

- National RPAS association
- ▶ Member of UVS International

### AESA, Spain

- National Aviation Authority
- ▶ Spanish RPAS Commission
- ▶ Member of JARUS
- ▶ Member of the ICAO RPAS Panel

### Alter Technology TÜV Nord, Spain

- Procurement, engineering & testing services
- ▶ Member of AERPAS

### ARPAS-UK, United Kingdom

- National RPAS association
- ▶ Member of National Drone Industry Action Group (NDIAG)
- ▶ Member of UVS International

### Beijing University of Aeronautics & Astronautics, China

- Academic institution
- ▶ Member of GUTMA
- ▶ Member of JARUS
- ▶ Member of ICAO RPAS Panel

### Blyenburgh & Co, France

- RPAS-related consultancy, publishing & event organizing
- ▶ Member of DroneRules.EU Consortium
- ▶ Member of SkyOpener Consortium
- ▶ Member of UVS International

### Brandenburg University of Technology (B-TU), Germany

- Academic institution
- ▶ Member of CURPAS
- ▶ Member of UAV-DACH
- ▶ Member of UVS International

### BHO Legal, Germany

- High technology & aviation law experts
- ▶ Member of UAV-DACH
- ▶ Member of European Drone Lawyers Network
- ▶ Member of DroneRules.EU Consortium
- ▶ Member of UVS International

### Carinthia University of Applied Sciences, Austria

- Academic institution

### Italian Aerospace Research Centre (CIRA), Italy

- National Research Organisation

### Clear Flight Solutions, The Netherlands

- Design, production of & supply of services with RPAS
- ▶ Member of DARPAS
- ▶ Member of UVS International

### Colibrex, Germany

- Design & production of airborne radio frequency measurement instruments + RPAS registration & authorisation management tool.
- ▶ Member of GUTMA
- ▶ Member of UVS International

### Confederation of European Security Services (CoESS), Europe

- EU association representing the private security industry

### Civil Use of RPAS (CURPAS), Germany

- National RPAS association
- ▶ Member of UVS International

### Depart. for Business, Energy & Industrial Strategy (BEIS), UK

- National governmental entity; initiator of the UK National Drone Industry Action Group (NDIAG)

### Deutsche Flugsicherung (DFS), Germany

- National Air Navigation Service Provider (ANSP)
- ▶ Member of the SESAR's U-Space Working Group
- ▶ Member of GUTMA

### DGAC, France (for reference only)

- Nat. Aviation Authority & Air Navigation Service Provider
- ▶ Member of JARUS
- ▶ Member of the ICAO RPAS Panel
- ▶ Member of the SESAR's U-Space Working Group

### DroneRules.EU Consortium, European Union

- Consortium funded by the Executive Agency for Small & Medium-sized Enterprises (EASME) of the European Commission within the context of the COSME Programme

### Dutch Drone Platform, The Netherlands

- National test range co-operation initiative

### ENAV, Italy

- National Air Navigation Service Provider (ANSP)
- ▶ Member of the SESAR's U-Space Working Group

### ESG Elektroniksystem- und Logistik, Germany

- Design & production of electronic systems & software
- ▶ Member of UVS International

### EUROCONTROL, International

- Inter-governmental organisation committed to air traffic management & the safety of air navigation.
- ▶ Member of the SESAR's U-Space Working Group
- ▶ Member of JARUS
- ▶ Member of the ICAO RPAS Panel

### European Aviation Safety Agency (EASA), European Union

- European Union Agency
- ▶ Member of JARUS
- ▶ Member of the ICAO RPAS Panel

### European Commission (EC), European Union

- Directorate General for Internal Market, Industry, Entrepreneurship & SMEs (GROWTH)
- Directorate General for Mobility & Transport (MOVE)

### EuroUSC-Italia, Italy

- Qualified Entity
- ▶ Member of UVS International

### Fédération Professionnelle du Drone Civil (FPDC), France

- National RPAS association
- ▶ Member of the French Civil Drone Council
- ▶ Member of UVS International

### Global UTM Association (GUTMA), Switzerland

- International association registered in Switzerland
- ▶ Member of the SESAR's U-Space Working Group

### Japan UAS Industrial Development Association (JUIDA), Japan

- National RPAS association
- ▶ Member of UVS International

### Joint Authorities for Rulemaking on Unmanned Systems (JARUS)

- International group of cooperating national aviation authorities

### Lufthansa Technik, Germany

- Internationally licensed aviation-related service provider & creator of an initiative to minimize risks in unmanned aviation
- ▶ *In the process of becoming a DroneRules.EU consortium member*
- ▶ Member of UAV DACH

## Ministry of Infrastructure & The Environment, The Netherlands

- National governmental entity leading the national public/private drone roadmap initiative
- ▶ Member of the SESAR's U-Space Working Group

## National Drone Industry Action Group (NDIAG), United Kingdom

- National public/private initiative overseen by the Department for Business, Energy & Industry Strategy

## REAL Consortium, European Union

- GSA-sponsored consortium, aiming at developing navigation systems for relatively small drones, to improve the accuracy & integrity of satellite navigation by exploiting the signals provided by EGNOS

## Safran Electronics & Defence, France

- Design & production of RPAS & associated electronics
- ▶ Member of the Conseil pour les drones civils

## Single European Sky ATM Research Joint Undertaking (SESAR JU), EU

- EU public/private partnership managing the development of the Single European Sky Air Traffic Management Research Programme
- ▶ Member of the SESAR's U-Space Working Group

## Space Tec Partners, Belgium

- Programme management company
- ▶ Member of the DroneRules.EU consortium

## Spanish RPAS Commission, Spain

- National public/private initiative overseen by AESA

## Technical Centre for Agricultural & Rural Cooperation ACP-EU (CTA), The Netherlands

- Joint international institution of African, Caribbean & Pacific (PAC) Group of States & EU involved in activities related to the deployment of RPAS in agriculture

## Thales - ATM Business Line, France

- Design & production of ATM & UTM systems

## UAV-DACH, Germany (for reference only)

- National RPAS association
- ▶ Member of UVS International

## UniFly, Belgium

- Design & manufacture of UTM systems
- ▶ Member of the SESAR's U-Space Working Group
- ▶ Member of GUTMA
- ▶ Member of UVS International

## UVS International, International

- European & International RPAS association
- ▶ Member of the ICAO RPAS Panel
- ▶ Member of the ICAO «Space Learning» Group
- ▶ Member of EASA's General Aviation Sectorial Committee
- ▶ Member of EASA's RMT.023 Drone Expert Group
- ▶ Member of the SESAR's U-Space Working Group

## SPEAKERS FROM

● Austria	1
● Belgium	3
● China	1
● France	3
● Germany	5
● Italy	2
● Japan	1
● Netherlands	3
● Spain	2
● Switzerland	1
● UK	3
National Aviation Authority	
- AESA, Spain	1
Air Navigation Service Provider (ANSP)	
- DFS, Germany	1
- ENAV, Italy	1
European Union Institution:	
- EC DG GROWTH	1
- EC MOVE	1
European Union Agency:	
- EASA	2
- SESAR JU	1
Regional Association:	
- CoESS	1
International Association:	
- GUTMA	1
International & Inter-governmental Organization:	
- CTA	1
- EUROCONTROL	1
- JARUS	1
National Public/Private Initiatives:	China
	Japan
	Netherlands
	Spain
	UK
National Associations	France
	UK

## SPEAKER CATEGORIES

- Academia
- Air Navigation Service Provider (ANSP)
- Civil Drone Council (National Public/Private Partnership)
- Consulting Company
- Developer / Manufacturer (ATM, Detect & Avoid, electronics, RPAS, RPAS registration & autorisation tool, software, UTM)
- Engineering & testing services
- European Commission
- European Consortium
- European Union Agency
- Inter-governmental Organization
- International Association
- International Organisation
- Joint International Institution
- Law Firm
- National Association
- National Aviation Authority
- National Ministry
- National Public/Private Partnership (Civil Drone Council)
- National Research Organization
- Regional Association
- RPAS Operator
- Service Supplier
- Test Range

**Peter van Blijenburgh**  
**Blyenburgh & Co, France**  
**UVS International, The Netherlands**



**Bio Data** Peter van Blijenburgh, a Dutch national, was born in The Netherlands (1948) and resides in Paris, France (since 1976). He is the CEO of Blyenburgh & Co, a French strategic consultancy company & publisher. Mr. Van Blijenburgh is the founder of EuroUVS (1997), which became UVS International in 2000. He is currently in his 10<sup>th</sup> two year mandate as president of UVS International ([www.uvs-international.org](http://www.uvs-international.org)), a non-profit association registered in The Netherlands and operating out of offices in Paris, France, which represents more than 5000 companies (manufacturers & operators) & organizations involved with RPAS/drones in 35 countries. He has instigated the creation of 14 national RPAS/drone associations, and has been the instigator of and/or participant in multiple initiatives related to RPAS/drone regulations & standards. He is the founder of the International RPAS Coordination Council, which federates 32 associations in 29 countries. He is the editor of "RPAS: The Global Perspective", the well-respected annual RPAS/drone reference publication and is also the creator of [www.rpas-regulations.com](http://www.rpas-regulations.com), the world's only web site totally dedicated to RPAS/drone regulations, which monitors 267 countries & overseas territories, as well as [www.uvs-info.com](http://www.uvs-info.com) (a generic RPAS/drone information source), a data base of internationally registered patents relative to RPAS/drones (at system & sub-system level) & the architect of the related promotional web site ([www.uas-patents.org](http://www.uas-patents.org)). Mr. Van Blijenburgh has been implicated with RPAS/drones since 1987 & has supplied advisory services to corporate & governmental entities in Europe, the Middle East, and Far East & USA. He is a member of the ICAO RPAS Panel, the EC's RPAS Roadmap Implementation Coordination Group, EASA's General Aviation Sectorial Committee, EASA's RMT.023 Drone Expert Group, SESAR's U-Space Working Group, the DroneRules consortium ([www.DroneRules.eu](http://www.DroneRules.eu)), the SkyOpener consortium ([www.SkyOpener.eu](http://www.SkyOpener.eu)), as well as various corporate & academic advisory committees.

DAY 1 - TUESDAY 13 JUNE 2017 - MORNING

Session 1 **NATIONAL CIVIL DRONE INITIATIVES**

01 09.00-09.15 **Review of the Current RPAS Situation in Japan**  
**Kakuya Iwata**  
**Japan UAS Industrial Development Association (JUIDA), Japan**



**Bio Data** Kakuya Iwata is senior researcher at the National Institute of Advanced Industrial Technology & Science (AIST). He studied Gallium Nitride semiconductors (1998) at the University of Osaka, Japan and Zinc Oxide semiconductors (1998-2004) in AIST. Now he belongs to the robotics research group at AIST and has been studying aerial robotics since 2004. A cargo UAS prototype was produced and accomplished its first flight in 2005, and was presented at AIAA InfoTech in 2007. He moved to the Ministry of Economy, Trade and Industry (METI) and established the Robot Safety Center (RSC) as a test center for ISO13482. Since July 2014, he is a member of the Japan UAS Industrial Development Association (JUIDA) where he is currently working on drones.

**Abstract** Recently, we have large numbers of small RPAS activities and regulatory discussions in Japan. Corresponding working group meetings concerning safety and efficiency in terms of economic growth in Japan are held with the JUIDA's involvement. Especially, the risk based categorization and education system of small RPAS is important for safe and efficient use of commercial small RPAS. This presentation will indicate JUIDA's recent activities in Japan and summarize where we are today and what we should have planned for the future.

02 09.15-09.30 **The Spanish RPAS Commission - The Increase in Operational Domains & Compliance Matters**  
**Guillermo Morato Lara**  
**AESA, Spain (On behalf of «The Spanish RPAS Commission»)**



**Bio Data** Guillermo Morato Lara holds master's degrees in Aeronautical Engineering, Physical Sciences and Law and Diplomas in Business Administration and Finances. He works at AESA (Sp. NAA) in the development of RPAS regulation. Previously has been responsible of training and qualification in AESA, manager of Engineering and Projects at Target Tecnologia, Applus Norcontrol and as Director of Business Unit at Ineco, responsible for the support contract for the expansion of Barajas airport and Joint Venture manager for "AT UTE Barajas Plan", overseeing a team of more than 100 engineers. He has participated, among other, in international studies, airport development, independent consultant, advisor and evaluator expert for incidents and accidents, compliance with airport regulations.

**Abstract** Presents the objectives, structure and components of the Spanish Advisory Commission on RPAS, including the treatment of Upcoming Requirements and the treatment of new operational Domains leading to full use of the U-Space/UTM and the evolution of the Spanish regulation. Presents the Objectives relevant to the development of Operational Scenarios, Risk Evaluation, Training Requirements, as well as AMC and GM for the use in the conformance control and infringements.

03 09.30-09.45 **What Civilian Drone Professionals are Waiting for the Short and Middle Terms**

**Stéphane Morelli**

**Fédération Professionnelle du Drone Civil (FPDC), France**



**Bio Data** Stéphane Morelli graduated from Ecole Spéciale Militaire de Saint-Cyr and Ecole Nationale Supérieure de Techniques Avancées. He has retired from the French Army in 2011, after a career dedicated to leadership and military technology. From 2007 to 2009, he commanded the tactical RPAS regiment of the French Army. In 2009, he was assigned as Intelligence and RPAS expert for future programs of the Army. In 2012, he founded Azur Drones, a RPAS civil operator specialized in Energy, Building, Industry and Security sectors. Azur Drones has already performed several missions for major companies of these sectors. In 2013, Stéphane Morelli co-created the FPDC, the French RPAS users association, of which he is President. The FPDC is member of the French Civil Drone Council. Stéphane Morelli is a non-executive member of the UVS International Board of Directors.

**Abstract** The involvement of civilian drone professionals in the work on the future European regulations revealed the difficulty of the authorities to identify the challenges of using drones as innovative tools. These innovative tools require innovative regulations to make the drones accomplish missions that are currently not possible, but which will be crucial in the evolution of the market. FPDC, in cooperation with other European professional associations, wishes to integrate tomorrow's drone in the regulatory thinking, which would allow to anticipate the design, realization and use of drones, allowing to significantly develop the economy of this new market. This ambition is that of hundreds of SMEs in Europe who want to take advantage of the ongoing debates at EASA to consolidate their investments and make their efforts grow.

04 09.45-10.00 **The Public-Private Drones Roadmap of the Netherlands**

**Ingrid Michon-Derkzen**

**Ministry of Infrastructure and the Environment , The Netherlands**



Ministry of Infrastructure and the Environment



**Bio Data** Ingrid Michon studied law and started in 2001 her career in the national government. She worked as a policy officer and a project manager, in the fields of safety and security. In 2015, she started as a manager at the civil aviation department of the ministry of Infrastructure and the Environment. Her focus is on public-private cooperation and facilitating innovation. Ingrid is 40 years old, lives in The Hague and is mother of three.

**Abstract** RPAS appear at a higher pace than the airspace is able to accommodate. The capabilities of and applications for drones appear unlimited. Innovation is required, both for the technology of the drone as for the management of all these drones in the airspace. Ingrid Michon will present the view and ambition of the Netherlands regulator.

10.00-10.15 ♦ Interactive Panel Discussion

10.15-11.00 ♦ Refreshment Break

Session 2 **POLICY & REGULATIONS**

05 11.00-11.30 **Development of the Future European Rules on Unmanned Aircraft - EASA Basic Regulation, NPA on Open & Specific Drone Categories, U-Space, Informal Expert Group on Drones**

**Koen de Vos**

**European Commission DG Mobility & Transport (MOVE), EU**



**Bio Data** Koen de Vos (Belgian, born on 21 March 1962) studied law (1985) and economics (1987) at the University of Leuven, Belgium. He started his career at the centre for development studies of the University of Antwerp (1988-89) and at the higher institute for labour studies of the University of Leuven (1990-93). He joined the services of the European Commission in 1993 to work on social and employment issues in the Coal and Steel industries and on Social Dialogue. He moved to the Transport Directorate-General in 2002 to join the Single European Sky team, working in the field of air traffic management to prepare the second Single European Sky package. Since September 2009, he has assumed responsibilities in the field of aviation safety and environment where he is currently working on drones.

**Abstract** On 7 December 2015 a proposal for a regulation of the European Parliament and of the European Council on common rules in the field of civil aviation was published by the European Commission (European Aviation Package). This initiative is part of the 2015 European Commission's 'Aviation Strategy to Enhance the Competitiveness of the EU Aviation Sector'. Its objective is to prepare the EU aviation safety regulatory framework for the challenges of the next ten to fifteen years and thus to continue to ensure safe, secure & environmentally friendly air transport for passengers and the general public. This initiative builds on over twelve years of experience in the implementation of Regulation (EC) No 216/2008 & its predecessor. This proposal must also be seen in the context of the Commission priorities of fostering jobs & growth, developing the internal market and strengthening Europe's role as a global actor. This initiative aims at contributing to a competitive European aviation industry and aeronautical manufacturing, which generates high value-jobs and drives technological innovation. It will create an effective regulatory framework for the integration of new business models & emerging technologies. In particular this initiative proposes to create a Union framework

for the safe integration of RPA into the European airspace. This presentation will highlight the major points pertaining to RPAS and will explain the way forward. It will take into account EASA's recently published NPA on the «open» & «specific» categories, the notion of U-Space & the U-Space Blue print produced by SESAR's U-Space Working Group, and the constitution & objective of the «Informal Expert Group on Drones».

06 11.30-11.45 **Regulation: The State of Play & Way Forward**  
**The EASA NPA on Open and Specific Category**  
**Antonio Marchetto**  
**European Aviation Safety Agency (EASA), EU**



**Bio Data** As EASA RPAS Technologies Expert Antonio Marchetto is involved on regulatory as well as certification activities in the civil unmanned aircrafts domain. He has been particularly engaged in the process leading to the publication of the Agency's technical opinion on a regulatory framework for the operation of unmanned aircrafts. Before joining the Agency he worked for several years in the military unmanned aircraft domain being deeply involved in the nEUROn program and, previously, in the UAV demonstrator program Sky-X. He formerly carried out systems design, development and certification activities for several other programs, such as the C27-J airlifter and the Eurofighter. He holds a degree in Electronics Engineering from the Turin Polytechnic and a Master in Technology Management from the Stetson School of Business and Economics of Mercer University, Atlanta.

**Abstract** The presentation will give an update about EASA regulatory activities on unmanned aircraft, focusing specifically on the content of the recently published NPA on the open and specific unmanned aircraft categories. A view will be provided on other ongoing and planned rulemaking tasks. The presentation will also update the status and provide links with other EASA activities on unmanned aircraft, with particular reference to international co-operations.

- 11.45-12.00 ♦ Interactive Panel Discussion
- 12.00-13.30 ♦ Lunch in cafeteria of the Royal Military Academy

DAY 1 - TUESDAY 13 JUNE 2017 - AFTERNOON

Session 3 **ATM & U-SPACE**

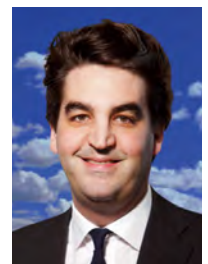
07 13.30-13.45 **JARUS: The Current State of Play & Priorities**  
**Yves Morier**  
**European Aviation Safety Agency (EASA), EU**  
**(on behalf of Joint Authorities for Rulemaking on Unmanned Systems (JARUS))**



**Bio Data** Yves Morier was born 1956, is married, and has two daughters. Graduated from the French Civil Aviation Academy (ENAC: école nationale de l'aviation civile) in 1978 as an Air Transport Engineer. After his military service, he became deputy-head of a regional office of the French Civil Aviation Authority (DGAC) (1979-1985) and then joined the DGAC's airworthiness, operations & licencing rulemaking office (1985-1991). From 1991 to 2004, he was Regulations Director at the Joint Aviation Authorities (JAA). He joined EASA in 2004, as Head of the Department Product Safety in the Rulemaking Directorate and moved to the Safety Information & Reporting Department in the Executive Directorate in 2010. He was head of the Professional & Organisational Development (2013-2014) and head of the General Aviation & Drones Department in the Certification Directorate (2014-2016). Since Sept. 2016, he is full time coordinator for drone activities at EASA, and principal advisor to the Director of Flight Standards. In March 2017, he was elected as chairman of JARUS by the members of JARUS.

**Abstract** JARUS has been working on developing harmonised regulatory proposals for States to use. This presentation will provide an overview of the JARUS organisation and its working groups. It will provide an overview of its working programme and deliverables like CS-LURS, FCL, RLP concept, AMC 1309 and the SORA which is undergoing consultation. The presentation will further expand on its relationship with industry through the Stakeholder Consultation Body (SCB). Attention will be brought to other deliverables like OPS for Cat A&B, design objectives for Cat C operations. RPAS C2 link CONOPS and RPAS Operational Categorisation.

08 13.45-14.00 **U-Space - The State of Play**  
**Alain Siebert**  
**Single European Sky ATM Research (SESAR) Joint Undertaking (JU) (SJU), EU**



**Bio Data** Alain Siebert is responsible for all economical and master planning aspects of the SESAR Joint Undertaking. In this position he is also responsible for corporate risk management, performance, SESAR demonstration activities and the relationship with EASA, National Authorities and civil airspace users. Prior to joining the SESAR Joint Undertaking Alain started his career as a Management Trainee at Air France and later joined SAS Group as Executive Assistant to the Chief Financial Officer. He was later promoted Manager for Strategic Development

& Head of Fuel Conservation under the responsibility of the Chief Operating Officer. Alain holds a MSc in Management and was educated at the Toulouse Business School and the London School of Economics.

**Abstract** The presentation will focus on presenting the state of play from a technology perspective and the on-going actions from the SJU to deliver a clear vision for the safe integration of drones in the European sky by October 2017 (including U-Space).

09 14.00-14.15 **EU-China Aviation Partnership Project**

**Antonio Marchetto**  
**European Aviation Safety Agency (EASA), EU**



**Bio Data** As EASA RPAS Technologies Expert Antonio Marchetto is involved on regulatory as well as certification activities in the civil unmanned aircrafts domain. He has been particularly engaged in the process leading to the publication of the Agency's technical opinion on a regulatory framework for the operation of unmanned aircrafts. Before joining the Agency he worked for several years in the military unmanned aircraft domain being deeply involved in the nEUROn program and, previously, in the UAV demonstrator program Sky-X. He formerly carried out systems design, development and certification activities for several other programs, such as the C27-J airlifter and the Eurofighter. He holds a degree in Electronics Engineering from the Turin Polytechnic and a Master in Technology Management from the Stetson School of Business and Economics of Mercer University, Atlanta.

**Abstract** Beginning, both authorities and industries have been involved, with the objective of developing industrial and economic cooperation, as well as aviation safety. The success of this initial phase led to the creation of the EU-China Civil Aviation Cooperation Project (EUCCAP, 2010-14) to deepen mutual cooperation and understanding. Now the EU-China Aviation Partnership Project (EU-China APP) aims to take this cooperation to the next level through the development of a mutually beneficial partnership. At the heart of the EU-China APP is the call for closer cooperation between the EU and China at an official and authority level and the linking of technical cooperation with policy dialogue. This is reflected in the project's objective of strengthening the economic partnership between the EU and China in the civil aviation domain.

The project incorporates the idea of a close cooperation between EASA and various European project partners to bring best European aviation expertise to the project. Likewise on the Chinese side, the project will interact with several Chinese Stakeholders, coordinated by CAAC. The European and Chinese aviation authorities, CAAC and EASA, directly implement activities together, in close cooperation with their partners. This new approach focuses on activities of mutual interest. In particular, eight areas of cooperation have been defined: Regulatory dialogue on safety; General Aviation; ATM/ANS and Airports; Airworthiness; Environmental Protection; Economic Policy & Regulation; Aviation Safety & Security; Legislation and law enforcement. The project website (<https://www.eu-china-app.org/>) provides further information.

Within the context of the EU-China Aviation Partnership Project, the first UAS workshop between EASA and CAAC took place in Beijing, China on 3 March 2017 and attracted 150 representatives from the sector. The event provided a platform to exchange on UAS-related regulatory developments, support tools for aircraft tracking and oversight, as well as innovative ideas from industry for future drone applications.

10 14.15-14.30 **RPAS ATM CONOPS**

**Dominique Colin**  
**EUROCONTROL, Belgium**



**Bio Data** Retired Colonel from the French air force after 25 years of service, Mr Dominique COLIN has an extensive and comprehensive knowledge and experience of the military aircraft operations, strategic planning, the joint procurement constraints and the airworthiness requirements for State aircraft. Dominique COLIN is today an internationally recognized expert in RPAS. He chaired EUROCAE WG73 SG3 «C3 Link» and JARUS WG5 «C2 Link», now involved in JARUS WG7 to provide expertise in the JARUS CONOPS and supporting EDA and SJU in RPAS related studies. He is also the rapporteur of the ICAO RPAS Panel WG2 «C2 Link» and the co-author of the EUROCONTROL RPAS ATM CONOPS.

**Abstract** Unmanned Aircraft Systems (UAS), more specifically Remotely Piloted Aircraft Systems (RPAS), are increasingly becoming a part of our day to day lives. The vast range of possible uses is creating a new industry with a large economic potential. The technological developments are being developed at a much faster pace than that for manned aviation. The challenge lies in integrating the worlds of manned and unmanned aircraft in a safe and efficient way as both types of aircraft will use the same airspace. As most regulations have been put in place as a reaction to market developments, harmonisation has not been achieved and this also affects the ATM perspective. This document, the EUROCONTROL RPAS Concept of Operations (CONOPS), describes the operations of RPAS in European Airspace that are capable of meeting the requirements set per airspace classification including Very Low Level (VLL) operations. The CONOPS is presented from an air traffic management (ATM) perspective and is fully complementary to the EASA CONOPS. Full implementation of this CONOPS is targeted after 2023, when the set of documents, rules and technologies will enable seamless and safe integration of RPAS into ATM.



11 14.30-14.45 **Strategy to Support U-Space Deployment**

**Cristiano Baldoni**  
ENAV, Italy



**Bio Data** Currently appointed as Head of Communication Navigation Surveillance Meteo and ICT Security Organisational Unit, he's responsible for the implementation of ENAV Investment Plan related to CNS and operational ground communication network (ICT) infrastructure for ATM in Italy. The investment rate in such domains is about 40M€-50M€/year. With a degree in Aeronautical Engineering, after few years spent in the European Space Agency, he entered ENAV in 2002 at managerial level. In ENAV, he has been involved in most of the processes for the definition of the Company strategies and its policies for the business development and ATM services improvement, inter alia contributing to the preparation of the Company Strategic business plan, the yearly investment plans and the European convergence plans; advising the Top Management on important opportunities such as the ENAV involvement in the SESAR initiative from its very beginning (end of 2003) and securing its commitment. Since 2004, he was responsible for ENAV participation in the SESAR Programme. The Definition phase successfully closed in 2008 with the delivery of the ATM Master Plan, celebrated in Rome. Then, after conducting the negotiation phase for ENAV accession to the SESAR Joint Undertaking, the Public-Private company that has been mandated by the European Commission to develop the ATM Master Plan, he coordinated the overall ENAV contribution and represented ENAV in the governance bodies of the SESAR JU.

**Abstract** ENAV is interested to address the following items in the presentation:  
a) ENAV's opinion on U-Space and ENAV's experimental/testing/deployment activities in this domain;  
b) What ENAV considers the overall priorities that should be dealt with at European level;  
c) The importance of defining "standard scenarios" for the "specific category" of RPAS operations relative to the shaping of U-Space.

ENAV signed an agreement with Italian Civil Aviation Authority – ENAC (03.08.2017):

- To identify the enablers for ensuring safe VLL operations with UAS, and providing relevant UAS traffic management services.
- To deploy an infrastructure aimed at providing UAS traffic management services which also meet the ENAC regulatory requirements.

The market pushes to have easier access to the airspace for BVLOS operations. Principles for unblocking the potentiality in the different applications have been identified: risk based, performance based, experiment based. BVLOS Scenario detailed operational and technological hypothesis of work, describing essential requirements in different situations (not populated vs urban). These hypothesis will be used for the demonstration campaign involving several stakeholders, pioneers in Italy of BVLOS operations in VLL airspace and main input to derive standard scenario to be used for regulations. Main objectives are:

- Demonstrate an incremental acceptance for BVLOS operations in Italy.
- Assess the readiness of technologies which may mitigate the risk of BVLOS operations
- Develop suitable regulations for this operations.

ENAV is creating a NEWCO with industrial partners for the realization of the UTM services. ENAV actively participates to the international working groups and fora (e.g. U-Space SJU, GUTMA, EUROCAE WG-105, CANSO) providing its know-how and perspective (operational, technical, organizational and business view points). ENAV consider really important to facilitate BVLOS operations taking advantage of mature technologies and other mitigation means; it is as well important to distinguish between short terms and long terms elements/solutions, having clear in mind an European/Global harmonized deployment roadmap.

14.45-15.00 ♦ Interactive Panel Discussion

15.00-16.00 ♦ Refreshment Break

Session 4 **UTM & U-SPACE**

12 16.00-16.15 **UTM Exploration: Testing Mobile Connectivity for Integrating UAS**

**Thilo Vogt**  
Deutsche Flugsicherung (DFS), Germany



**Bio Data** Thilo Vogt is Head of Corporate Strategy at DFS. Before joining DFS in 2007 Thilo held different management positions in the banking, manufacturing and utility industry. Thilo has more than 20 years of experience in the field of corporate development, mergers & acquisitions, auditing and controlling. He grew up in South America and graduated in Business Administration at the Hochschule Bremen in Germany and holds a degree in Finance and Accounting from Leeds Beckett University in the UK.

**Abstract** The presentation outlines DFS' activities with it's partners, such as Deutsche Telekom, on testing mobile connectivity and on UTM development for integrating UAS in the lower airspace. U-Space will not only require innovative UTM software and high quality data, but also calls for the establishment of new processes and ways for the interaction between the parties involved.

13 16.15-16.30 **RPAS Regulations & UTM in China**

**Liu Hao**  
**Beijing University of Aeronautics & Astronautics, China**



**Bio Data** Secretary General of UAS Commission of Chinese Society of Aeronautics and Astronautics (CSAA); Board member of the Global UTM Association; ICAO Instructor on the remotely piloted aircraft system (RPAS); Advisor to the RPASP of ICAO; Co-Chair of Concept of Operation Working Group and the Operation Group of the Joint Authorities for Rulemaking on Unmanned System (JARUS); Member of the ICAO/UNOOSA Space Learning Group; Deputy Director of State ATM Law and Education Experts Working Group; Managing Editor of the Journal of International and Comparative Law; Board Editor of the Aviation and Space Journal, Bologna University, Italy; Foreign Research Fellow of Korea Legislation Research Institute. Education: China University of Political Science and Law, Ph.D. of Law.

**Abstract** This presentation will give an overview of the current regulatory situation in China and will explain the UTM systems currently in operation in China, as well as the lessons learned.

14 16.30-16.45 **U-Space Considerations & Views**

**Mark Palmer**  
**Thales - ATM Business Line, France**

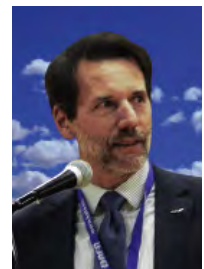


**Bio Data** Mark Palmer is currently the Innovation Director for Thales Air Traffic Management Business Line. He is leading the innovation across 8 Sites and 7 Countries. Before this role Mark has served as the head of the joint avionics and air traffic management innovation lab and as the technical director for air traffic management in Australia for Thales. Early in his career Mark worked as a software engineer on many projects including the Hawk Leadin Fighter avionics software for BAE Systems.

**Abstract** UAS are perceived as a threat by law enforcement authorities, a concern for airspace and population safety by civilian authorities, while the requests for UAS operations are growing at an incredible rate both in volume and in patterns. On top of this situation, we observe from one country to another different regulations, processes, contexts and even different societal acceptance maturities. By presenting Thales UTM Solutions, Mark will demonstrate that industries can bring solutions to the community and contribute to enable efficient, safe and secure UAS traffic management. Mark will conclude on what the community should do to make a significant step forward.

15 16.45-17.00 **UTM Systems - A Global View**

**Marc Kegelaers**  
**UniFly, Belgium**



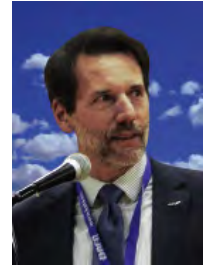
**Bio Data** Marc Kegelaers is currently co-owner and CEO of Unify - a company that has created the next generation Air Traffic Control software to manage drone traffic, and he is a member of the GUTMA Board of Directors. He holds a Master's degree in Electronic Engineering and a Master's Degree in Business Administration. He also has an EASA CPL and is an experienced Flight Instructor. After a successful international career as an entrepreneur in the Telecommunication Industry, Marc got involved in aviation 15 years ago. The last 10 years, he served as the Chief Executive Officer and Accountable manager of BAFA - and made it the leading flight school in Belgium. Marc got involved in unmanned aviation four years ago when he decided to start a Remote Pilot License training at BAFA. This is also the period when BAFA co-founded BeUAS. Marc joined Unify as shareholder and CEO. In addition, Marc is currently a board member of the Chamber of Commerce in Antwerp (VOKA) and serves as a boardmember of the VLOC (Flemish Aviation Training Center).

**Abstract** The need for UTM systems is becoming apparent. Industry reports show that the drone industry will only be able to evolve and grow if complex Drone Traffic Managements systems can be put in place. The economic importance of the Drone industry is high. Over the last few months international high level conferences have been held on the "Unmanned Traffic Management" topic all over the world, seeking to kick-start the development of UTM systems as well as the design and implementation of comprehensive drone legislation. Research programs have been and are being initiated to develop technology that can be used in future UTM architectures, both in Europe and abroad. Because of it's Global reach as a leading provider of UTM software technology, Unify is uniquely positioned to give an overview on how things are evolving in the world and how the European U-space initiative compares to other UTM programs. We will also provide

- \* Feedback from live demonstrations and tests using Unify's software – demonstrations that seek to show the state of technology
- \* Information about how ANSPs are using Unify's software to ensure safe co-habitation of drones and manned aviation.

The last section of the presentation will focus on the need of creating industry standards for interoperability, both from an operational point of view (Conops), as from a technology point of view.

16 17.00-17.15 **UTM Architecture & Roadmap**  
**Marc Kegelaers**  
**Global UTM Association, International**



Bio Data See above

Abstract The talk is a presentation of the Global UTM Association's «UTM Architecture» white paper. It will highlight the necessary next steps for creating globally interoperable UTM systems and will discuss ongoing European initiatives, with a focus on U-Space.

17.15-17.30 ♦ Interactive Panel Discussion  
17.30-19.00 ♦ Drinks in the bar of the Royal Military Academy  
**Sponsored by Unifly, Belgium**

DAY 2 - WEDNESDAY 14 JUNE 2017 - MORNING

Session 5 **APPLICATIONS**

17 09.00-09.15 **Inspection of Power Grid Components - End-user Requirements & Drone Limitations**  
**Prof. Dr.-Ing. Uwe Meinberg**  
**Brandenburg Technical University, Germany**



Bio Data Prof. Dr.-Ing. Uwe Meinberg, Head of Chair «Industrial Information Systems» at the Brandenburg University of Technology and managing director of a consulting company, is active more than 30 years in the field of «logistics and IT» and can experience from about 400 dedicated projects (including 2014 Winter Olympic Games). Out of one of these projects, which dealt with the security in critical infrastructures (airports), the intensive study of unmanned aerial systems has evolved in the context of logistics and other application scenarios since of 2009. Currently, the topics «Mission Planning», «Mission Evaluation (Big Data)», «Design and Dimensioning of UAS-based Distribution Systems» and thus directly connected «Exact/Precise Flights and Landings» are subject of industrial projects and research activities. Recently the competence centre «CURPAS (Civil Use of Remotely Piloted Aircraft Systems)» in the capital region was implemented under the direction of Prof. Meinberg. At present Prof. Meinberg is responsible for initiating a Technology- and Test Center for drones and mixed air traffic.

Abstract This presentation provides a compact overview of requirements in respect of fully automated inspections of grid components, formulated by grid-operators. Examples from real projects will show, where the integration of drones into the end-user's business processes can already be successful and where not.

18 09.15-09.30 **RPAS in Private Security: Responding to Threats, Seizing Opportunities**  
**Catherine Piana**  
**Co-Federation of European Security Services (CoESS), Belgium**



Bio Data Since August 2014, Catherine Piana is the Director General of CoESS, which acts as the voice of the private security industry in Brussels vis-à-vis European institutions and other key stakeholders in Europe & beyond. She coordinates the industry's position, acts as the organisation's spokesperson for all matters of interest to private security, including Critical Infrastructure Protection, the Insider Threat, the future regulation on RPAS, and many more. She coordinated the publication of the CoESS successive papers & presentations on RPAS since the publication of EASA's Technical Opinion. Since June 2016, Catherine is also the Director General of ASSA-I (Aviation Security Services Association-International). Catherine chairs CEN TC 439 on "Private Security Services" and, as such, coordinates the industry's standards with the aim to support the highest quality standards, in particular in areas of Critical Infrastructure. She also serves as an expert representing Belgium within ISO TC 292 "Security in Resilience". Catherine previously served as Director General of the European Vending Association (1997-2013), CEO of the Worldwide Vending Associations (2008-2012) and PR Adviser of the Secretary General of EuroCommerce (1990-1997). She holds a Masters Degree in Translation (English-Italian-French), an MBA, and is a Master Practitioner in Neurolinguistic Programming (NLP), and a certified trainer. She communicates in 6 languages (French, English, Italian, Spanish, German and Dutch).

Abstract RPAS represent an interesting and useful addition to the range of technological means and equipment in use by private security services. The use of RPAS and other unmanned vehicles are also consistent with the new paradigm in private security, the so-called "New Security Company", whereby security agents & technology are combined into "security solutions", with a view to optimizing the service to clients, and provide enhanced security. The Private Security Industry provides an increasing range of services to both private and public clients. CoESS therefore argues that private security, whilst being a commercial activity, serves a key purpose in protecting people & assets, and should therefore be treated differently from other types of commercial services. The Private Security Industry sees opportunities in three types of activities with unmanned aircraft:

- Supporting guards in their missions, making them less dangerous & more efficient, using fully automated drones to carry out security missions;

- Tracking, tracing, monitoring & responding to alerts related to drones, in the same way as the industry already tracks land vehicles, in coordination and cooperation with air control agencies;
  - Detecting & preventing the ill use of RPAS, whether unintentional, intentional or malicious – subject to rules & regulations creating a legal basis for this type of response and the ensuing liability as a result of the latter.
- This presentation aims to facilitate the EU and national decision-makers' and stakeholders' understanding of the needs of private security companies that wish to operate drones, and will be illustrated with a few concrete scenarios.

19 09.30-09.45 **UAS for Agriculture: New Frontiers for Youth Entrepreneurship in Africa**

**Giacomo Rambaldi**  
**Technical Centre for Agricultural & Rural Cooperation ACP-EU (CTA), The Netherlands**



**Bio Data** Giacomo Rambaldi is Sr. Programme Coordinator ICTs at the Technical Centre for Agricultural & Rural Cooperation ACP-EU (CTA) in Wageningen, Netherlands. He has 34 years of professional experience in Africa, Latin America, Asia, the Pacific and the Caribbean where he worked for various international organizations including FAO and the Asian Development Bank and on projects funded by the Italian Aid to Development and the European Commission. He holds a degree in agricultural sciences from the State University of Milan, Italy. At present he is coordinating CTA's global project on ICT4Ag and a stream of activities related to the deployment of drone technology in agriculture. Giacomo has been leading Web2.0 and Social Media capacity building activities at CTA and earned worldwide recognition for his work as recipient of the 2013 WSIS Project Prize in the category e-agriculture. He also leads activities in the domain of participatory GIS. One of his projects earned CTA the 2007 World Summit Award in the category e-culture. In collaboration with other members of the ICT4Ag team, Giacomo animates large thematic Communities of Practice which underpin CTA work on ICT4Ag.

**Abstract** Unmanned Aircraft Systems (UAS) offer exciting opportunities for crops, livestock, fisheries, forests and other natural resources. In Africa small-scale farming needs to become more productive, sustainable and profitable. UAS services can help make this possible by bringing some of the tools of precision farming to smallholder producers, as well as medium and large scale agricultural enterprises. UAS services are provided by entrepreneurs who invest in the equipment, learn the skills to use it, help analyse the data and interpret the findings. UAS can also help increase returns to farmers and create knowledge-intensive employment opportunities in rural areas, offering educated youth an alternative to migrating to the cities. CTA, has recognised these opportunities and has initiated a series of activities including training, networking and support to acquisition of equipment so that new UAS providers can service farmers and farmers' organisations within their respective countries.

20 09.45-10.00 **Using RPAS at Airports: A New Reality**  
**Robert Jonker**  
**Clear Flight Solutions, The Netherlands**



**Bio Data** Robert Jonker, co-founder of Clear Flight Solutions, studied Industrial Design at the Design Academy in Eindhoven, The Netherlands. After his studies he worked in product design and product engineering for companies like the Nederlandse Spoorwegen (Dutch National Railways) and Crisp & Wilson a design agency based in London UK. Afterwards Robert started his own design agency de Heller Design. Together with two colleagues he started working on the development of flapping wing systems out of curiosity to see if copying bird flight is possible. This resulted in the establishment of Clear Flight Solutions in 2012. Robert is a member of the UVS International Board of Directors.

**Abstract** Clear Flight Solutions of the Netherlands, together with their Canadian partner Aerium Analytics, have started to perform a range of drone (bird deterrent) applications at Edmonton International Airport (EIA). EIA is Canada's fifth-busiest airport measured by passenger traffic and the largest major Canadian airport by land area. Historically, EIA has been an early-adopter of promising technologies that can add economic value. EIA also houses the Alberta Aerospace and Technology Center ("AATC"). Since 2015, the AATC has been focused on the development and attraction of Aerospace and Technology companies to Alberta. EIA has taken this ambitious step to showcase to the world that the integration of RPAS services into airport operations is a new reality.

- 10.00-10.15 ♦ Interactive Panel Discussion  
 10.15-11.00 ♦ Refreshment Break

21 11.00-11.15 **SUA Operations and Proficiency in the UK & Introduction to UK's Drone Industry Action Group**  
**Matthew Lee**  
**ARPAS-UK, United Kingdom**



**Bio Data** Matthew Lee is an aviation professional with 10+ years of experience as a pilot in the UK's leading airlines. He has transitioned his skills to the unmanned environment where he is both an operator and a founding Director at one of the UK's leading SUA training companies. Matthew has a wealth of regulatory knowledge on the UK landscape, he puts this to good use as the Standards Director for ARPAS-UK, the UK's trade body for RPAS which currently has over 500 companies in its membership. Matthew holds a degree in Mechanical Engineering, an EASA ATPL (A320 and B747 ratings), UK Permission for Commercial Operations 0-20 kg and UK CAA National Qualified Entity status.

**Abstract** This presentation will cover established Permission for Commercial Operations system in the UK, its uptake and operational uses and how ARPAS-UK would like to see standards and safety maintained with the transition to EASA regulation. In addition, an introduction of the newly formed UK National Drone Industry Action Group will be supplied (background, role, objectives, participants, actions).

22 11.15-11.30 **DroneRules: An Awareness Tool for Germany**  
**Oliver Heinrich**  
**BHO Legal, Germany**  
**(on behalf of the DroneRules.EU Consortium)**



**Bio Data** Oliver Heinrich is co-founder and partner of BHO Legal. The law firm is a consortium member of the "Drone.Rules.eu" EU funded project. Oliver advises national and international public entities and corporations on legal aspects in high technology projects. Prior to working as an attorney, Oliver was project manager for the European Satellite Navigation System Galileo at the German Aerospace Centre, DLR e.V. and legal manager of the consortium bidding for the Galileo concession. Oliver is a member of the Board of Directors of UVS International.

**Abstract** Following the latest amendments on regulations for flying drones in Germany, in force as of early April 2017, the presentation starts out by providing a brief overview of the new situation and then focusses on an awareness tool developed in the scope of the DroneRules.eu project. The tool provides a simple to use decision-guideline about the regulatory regime for drone users in Germany. Users will no longer be required to find their way through the complex rules and regulations having to determine the rules applicable to them. Instead it will guide them on a step-by-step process through the rules, keeping a focus on what is relevant for their individual case and leaving out, what is not. At the end of the process, the user will have a good understanding about the arrangements he/she needs to undertake for legal operation. Depending on the implementation process achieved at the time, the presentation will also provide a live demonstration of the tool.

23 11.30-11.45 **Perspectives and ATM Impact of Detect And Avoid Integration in Tactical and MALE RPAS**  
**Eduardo Filippone**  
**CIRA, Italy**



**Bio Data** Edoardo Filippone graduated cum laude as an Electronics Engineer in 1989. Since 1990 he is research engineer at CIRA, in the Flight System Department, involved with modelling, control of aircraft & space vehicles, trajectory optimization, flying quality analyses, and flight safety and human factors engineering topics. Since 2009, he has involved with ATM department research activities, and is currently head of the Air Traffic Management Lab. He has participated in European research projects, both within ESA and EC Framework Programs, and in SESAR WP\_E exploratory research activities. He recently has been involved in several relevant RPAS related funded projects, such as ICONUS (Initial CONOPS for UAS Integration in SESAR) and in particular he coordinated the project RAID, one of the nine co-financed by the SESAR JU under the RPAS Integration Demo projects. In 2016, he contributed to the study DASA-Detect and Avoid State of the Art, entrusted by EDA. He is currently involved in the SESAR2020 PJ10.05 project on the IFR integration of RPAS in the non-segregated airspace.

**Abstract** The introduction of Remotely Piloted Aircraft Systems (RPAS) in non-segregated airspace over the European territory is a major objective for the European States, and a clear path through the evolving regulatory framework has to be identified at the European level. The Warsaw declaration supports the need for technology and standards development and urges "industry to develop open standard to support performance based regulation". The Riga Declaration further provides principles to guide the evolution of this regulatory framework, one of them being the development of technologies and standards for the full integration of RPAS in European airspace. Detect and Avoid (DAA) is one of these capabilities, as clearly stated by the European Commission, SESAR-JU and EASA. Several initiatives have been undertaken in order to define the required DAA performance objectives and to develop enabling technologies, as well as to demonstrate their level of maturity, like MIDCAS and the Demo Projects of the SESAR RPAS program. Besides the relevant achievements of these initiatives, the DAA technology has not yet reached the required level of maturity to

allow operations in non-segregated airspace. In this paper, a strong focus has been devoted to DAA solutions, suitable for dual use in Tactical and Medium Altitude Long Endurance RPAS (MTOW > 150kg) that operate in controlled airspace under IFR. Based on an assessment of the key DAA projects developed within and outside Europe, this paper describes the key technologies proposed for DAA systems and identifies the most promising technical solutions for the short and long term. The scenarios for RPAS ATM integration in the Air Traffic System and airspace classes are discussed, so to perform a qualitative analysis of the potential impact of the most promising DAA solutions on ATM. Finally, some recommendations for the way forward are drawn.

- 11.45-12.00 ♦ Interactive Panel Discussion  
 12.00-13.30 ♦ Lunch in cafeteria of the Royal Military Academy

DAY 2 - WEDNESDAY 14 JUNE 2017 - AFTERNOON

Session 7 APPLICATIONS & INNOVATION

24 13.30-13.45 **Patroller, A Multi-mission RPAS Focused on Military and Homeland Security Missions**

**Paul Vassy**  
**Safran Electronics & Defence, France**



**Bio Data** After graduating in Aerospace Engineering (SUPAERO), Paul Vassy has occupied several positions on UAV projects including Chief Engineer on the SDTI program (French version of the tactical RPAS SPERWER), project manager on retrofit of Mirage F1 and senior program manager of electronic equipment development programs for commercial aircraft applications including FADECS. Since 2016, Paul is in charge of Marketing & Sales of RPAS at Safran Electronics & Defense, promoting the export of Patroller RPAS.

**Abstract** Offering simultaneously an RPAS tactical features allowing flexible and reduced cost operations, a compliance to the highest standards of safety for integration in the air space as well as a multirole capability is a matter of making the right design choice from the beginning. This presentation of Patroller RPAS shows how this challenge has been handled.

25 13.45-14.00 **Satellite Navigation for Drones**

- Sara Mangoni
  - Costantino Senatore
- EuroUSC-Italia, Italy (On behalf of the REAL Consortium)**



**Bio Data** Sara Mangoni started working in 2014 for Deepblue, a research and consulting society which deals with human factors for safety in the field of transport, co-operating in the project AIRVET. The job involved conducting investigations aimed at the analysis and implementation of curricula for people working in the aerospace industry, the dissemination of the scientific results of studies and the organization of events and conferences for the promotion of the project. In August 2014 she trained as an intern in the UK at EuroUSC International, based in Rickmansworth, London. The two-month internship was aimed at learning the way of organizing the course to obtain the BNUC-S™ certificate for pilots of unmanned aircraft. Since October 2014 she has been working as Business Support Administrator at EuroUSC Italia. The job involves carrying out several tasks, including office management, as invoicing and business accounting, but also business relations management, including marketing and communication. She is responsible for the organization of training courses for pilots (BNUC-S Courses) and the Education Courses (SAPR AIR and SAPR SIC). In 2016 she attended the Course on Financial Administration of European Projects at Europacube Innovation Business School and she is currently responsible for the budget planning and accountancy of the European Projects which EuroUSC Italia is involved in. She is participating to several European projects, e.g. REAL (for the EGNOS Adoption in Aviation, GSA/EEX.0030/2015), TRAWA (a Pilot Project on defence research for the Standardization of Remotely Piloted Aircraft System Detect and Avoid) and DREAMS (an H2020 Project on drone information management).

**Bio Data** Lieutenant Colonel of the Italian Air Force, retired in December 2016 after 36 years of service. Background as Air Traffic Controller, TWR, GCA, RADAR APPROACH and AREA ratings. Employed in Villafranca airbase, Roma, Padova and Brindisi military AREA Air Traffic Control centers. "On job instructor", assessor, examiner, inspector and auditor in the ATC matters. In 1996, employed in the national Airspace Management Cell (ITAF/ENAV body) and in 1998 responsible of Airspace Coordination Unit (ITAF/ENAC/ENAV body). Since 2003 to 2007 chief of Planning Office in RAAV (ITAF ATC Academy). In 2006-2007 seconded "on call" ENAC and working in the team involved in the ENAV first Air Navigation Service Provider certification. Between 2008 and 2011 "fully" seconded ENAC in the Air Traffic Management domain and carried out many audit to national civil Air Navigation Service Providers. In the ENAC period, involved in many programs included PBN and "Helo IFR low level routes" and in the production of national ATM Circulars. Back to Air Force, from 2011 to 2016 employed in General Air Staff, chief of Airspace Regulatory section, fully involved in the strategic airspace management and civil-military coordination. In that time, representing Italy in the MilHaG - Military Harmonization Group



(EUROCONTROL group) and attending the BlueMed CMCC (Civil Military Coordination Committee). Heavily involved at national and international level in the RPAs matters since 2004, attended ITAF, NATO and EDA RPAS groups (e.g. NATO RAI IPT, OWG and AGS groups) and involved into the developing of the concept of operations for the Global Hawk UAS from the Sigonella airbase in Sicily. In the end, in 2015-2016, attended the RPAS EuroMALE working group. In January 2017, he started working with EuroUSSC-Italia.

**Abstract** According to EASA rules, to navigate under IFR, the aircraft shall be provided with certain information and achieve a certain performance. In other words it is not necessary that the aircraft be equipped with specific navigation receivers on the basis of the Performance Based Navigation (PBN) concept. Traditionally, manned aviation flies along ATS routes or flight instrument procedures published in aeronautical Information Publications (AIP). This is already not totally true in the case of aerial work or low level helicopter operations in class G airspace, where such routes seldom exist. Also drones fly often at Very Low Level (VLL) in uncontrolled airspace G and below the coverage of traditional radio-navigation aids. Most of them use GPS positioning and timing. But we know that the integrity of GPS is not always guaranteed. Project REAL, sponsored by the GSA, aims at developing navigation systems, suitable for relatively small drones, to improve the accuracy and integrity of satellite navigation by exploiting the signals provided by EGNSO, one of the few pan-European air navigation services already certified by EASA. In particular, REAL will test instrument navigation supported by EGNOS for two typical missions for which drones are suitable: low level firefighting and transport of urgent medicines or medical samples. The project concerns the feasibility, benefits and safety of an EGNOS based solution, including instrument approach and landing. Using the system of European Technical Standard Orders (ETSO) the navigation system may be certified, even if the airworthiness of the entire UAS is not certified. Qatar rule UAS.OPB.100 already covers such a possibility.

26 14.00-14.15 **Registration & Flight Authorization: Safety Before Complexity in a Step-by-step Approach of UTM**

**Georg Schöne**  
**Colibrex (LS telcom), Germany**



**Bio Data** Georg Schöne is a radio communications expert with more than 25 years of experience in fixed, mobile and broadcast radio communications industry, frequency spectrum management, monitoring, software architecture and development. He is holder of a PhD (Dr.-Ing.) in Microwave Technologies from the Institute for Microwave Technologies of the University of Karlsruhe/Germany (Now: KIT). In 1992 he founded together with Dr. Manfred Leberherz the L&S Hochfrequenztechnik GmbH (the later LS telcom AG) and started the development of software based radio network planning tools and the frequency spectrum management system SPECTRA. Since 2000 he is Member of the Board in the position as CTO of the meanwhile formed LS telcom AG. He is responsible for research and strategic development; human resources and business development. In parallel Georg is also Managing Director of the Colibrex GmbH, a 100% subsidiary of LS telcom which is involved in the RPAS/Drone industry. As specialized drone operator Colibrex is offering airborne radio frequency measurement services worldwide. Based on the longstanding expertise of LS telcom towards dynamic databases and licensing processes, Colibrex has also invested ahead of the curve and recently launched Drone-Flight-Check, a drone registration and authorization management database & app. During his career Georg was heading or co-managing personally software implementation projects in more than 25 countries. Georg is frequently acting as a lecturer for dedicated subjects around the fields of activities of LS telcom and Colibrex; he is also contributing papers to international workshops and conferences. Since 2002 he is member of the advisory board to the International Master School of the University for Applied Science in Offenburg, Germany.

**Abstract** With the irresistible boom of drones for both recreational and professional use, concepts for regulating drone operations and the announced implication of some ANSPs in drone traffic management shake industry and regulatory bodies. The call for standardized UTM systems is absolutely justified, but a rapid implementation of such systems is subject to many question marks and hurdles not yet solved. Among the most critical issues we can list the implementation of a low-cost and standardized Drone-tracker, the reliability of connectivity in all the intended airspace, the definition of a geo-fencing format, cyber-security, etc. All in all the complexity of a full UTM system should not be underestimated. On the other hand the risk in terms of safety is already present, and some recent regulatory rules taken individually in some countries are not really sufficient. In general our impression is that UTM is very much seen from an aeronautical perspective and that public and homeland security might not receive enough consideration. However, a few concrete measures based on ready-to-implement tools could already offer a better level of safety and prepare the completion of a global UTM. The purpose of this paper is to explain how the registration of all drone users and an intelligent system of flight authorization can efficiently be implemented. Such a system can and shall also integrate a dynamic management of no-drone-zones. Clear that the ultimate targets will be to embed automatic geo-fencing and tracking of drones in a UTM system, but why not starting with more simple tools enabling the users to request for flight approvals and preventing them to fly (at a dedicated time) in unauthorized areas ? Examples of such a processing will be presented, based on the Drone-Flight-Check solution developed by Colibrex and LS telcom.

27 14.15-14.30 **Establishing a Company-Internal RPAS Flight Organization**

**Paul Tobias**

**ESG Elektroniksystem- und Logistik, Germany**



**Bio Data**

Tobias Paul is project manager at ESG within the experimental systems department. He is the responsible programme manager for the unmanned flying mission avionics testbed UMAT. In addition, he has a long years lasting and ongoing relationship to manned-unmanned teaming topics. During the last years, he was responsible for projects with respect to mission management, increase of UA autonomy, and communication also. Tobias Paul has a background as electrical engineer with a focus on control theory and robotics and is certified as PMI project management professional (PMP). He has been involved with the following projects: UMAT / Unmanned Mission Avionics Test Bed; CRoW / Cognitive Rotorcraft Wingman; FCAS / Future Combat Air System; Verbund Hubschrauber – abgesetzte Sensorplattform / Manned-Unmanned Teaming; ETAP TDP5.1 Multi-UCAV Mission Planning, Command and Control.

**Abstract**

In close cooperation with the German Bundeswehr, ESG has modified an UMS Skeldar R-350 UAS to offer a testbed for in-flight evaluation of payloads and avionics. The UMAT programme started in 2009 and flights are performed since 2011. At the time, no comprehensive regulation was in place regarding the operation of RPAS of that size. Nevertheless, for ESG safe flight operations are very important. Consequently, it established the ESG RPAS Flight Organisation, which was based on the former JAR OPS 3: Commercial Air Transportation, but tailored to the specific demands of RPAS. The presentation introduces the UMAT UAS and the corresponding operational use case, and will present the established Flight Organisation, including organisational structure and Operational Manuals. Finally, lessons learned and best practices are presented. The presentation closes with an outlook to our activities regarding the upcoming Specific Category, including SORA.

28 14.30-14.45 **Drone Zone Austria - Design of a Web Portal for Safe Drone**

**Mission Planning**

**Prof Gernot Paulus**

**Carinthia University of Applied Sciences, Austria**



**Bio Data**

Gernot Paulus holds a PhD from the University of Salzburg in Austria and has been appointed Professor for Geoinformation at the Department for Geoinformation and Environmental Technologies at Carinthia University of Applied Sciences in Villach, Austria in 2002. One of his major research interests is the integration of small RPAS and different sensors for high resolution data capture and multidimensional spatio-temporal analysis and visualization. He has been awarded a Fulbright research grant at San Diego State University in 2016.

**Abstract**

The major goal of this exploratory project "Drone Zone Austria" is to design a web portal as innovative contribution to air traffic management by safe drone mission planning. The web portal will provide a map-based representation of the legally defined 4 areas of operation for professional and recreational drone missions in Austria. Furthermore, it will include a flight plan safety check incorporating documentation functionality based on the requirements defined in the legal operation approval. In Austria these 4 areas of operation are defined as (I) undeveloped, (II) uninhabited, (III) populated and (IV) densely populated in narrative form, but without a clear precise spatial map- based delineation. Common used data sources like Google Maps, Google Earth or Bing Maps have no legal reliability and actuality, but are used as main spatial information for Remotely Piloted Aircraft Systems mission planning. The key foundation of the web portal is a geospatial "Drone Zone Model" derived from available and up-to-date high quality "trusted" geodata sources (e.g. address locations, road network, aviation control zones), which are provided by the Austrian public administration and the Austrian Aviation Control as a result of the Open Government Data Initiative and the European INSPIRE Geodata Infrastructure directive. RPAS mission planning is a spatial task that needs high quality, accurate and up-to-date situational awareness information about the area of interest for safe planning and operation. Currently, no solutions respectively tools providing all necessary information needed for spatial RPAS mission planning exist – neither in Austria nor on the international level. The expected results are intended to provide the foundation for a comprehensive joint international R&D proposal for designing an adaptable and unified "Drone Zone Europe" web portal in order to support unified, "one-stop-shop" safe spatial drone mission planning throughout Europe. This project is funded by the National Austrian Aviation research program "Take Off".

14.45-15.00 ♦ Interactive Panel Discussion

15.00-15.45 ♦ Refreshment Break



29 15.45-16.00 **RPAS Safety Conformity Assessment & Regulators Requirements**

**Julian Gallego**  
**Alter Technology TÜV Nord, Spain**



**Bio Data** Julian Gallego is Equipment & Certification Commercial Manager at Alter Technology TÜV Nord. He graduated as Aeronautical Engineer from the Universidad Politécnica de Madrid, Spain and holds a master degree in International Relations and Foreign Trade. He has extensive executive and management experience as international Director in Aviation, Defence, Security, Railway, Traffic and Public Transport sectors, with international experience in German, Spanish and Swiss Multinational Groups, in positions of Business Development, Global Accounts and International Project Management. In addition, he is Professor Master development and testing of UAS at Universidad Internacional de Andalucía. (UNIA), Collaborator Master in RPAS Universidad de Huelva (UHU), Chairman of CTN 028/SC 02 UAS “Unmanned Aeronautical Systems Committee, Member of ISO/TC 20/SC 16 Unmanned aircraft systems — Part 2: Product systems Committee, Chairman of CEN-CENELEC Workshop on “EGNOS enabled labelling and SDK validation”, Member of CTN 203/SC 79 - Alarms Systems Committee, Member of CTN 23/SC 03 and GT1 - Systems for automatic fire detection Committee, Member of CTN 199/SC 05 - Variable message panels for Traffic Committee, Member of Commissions and Workgroups in: AERPAS (Spanish RPAS Association); PESI (Spanish Technology Platform of Industrial Safety); TEDAE (Spanish Association of Defence Technology, Aeronautics and Space Administration); AES (Spanish Association of Security Companies); CERTALARM (European Association of Certification Entities).

**Abstract** RPAS-related standard issues (incl. product safety) with references to the EUROCONTROL CONOPS; EASA's NPA (published in May 2017); conclusions drawn from of the EUROCONTROL workshop this week & the EC U-Space workshop on 20 April 2017. The speaker also touches on RPA registration, remote pilot certification, RPAS operator certification; UTM/U-Space, RPAS standards (including product safety standards), the necessary priorities and how they should be dealt with. Furthermore, the following will be indicated: priorities relative to standards that should be dealt with at European level; expectations of the JARUS deliverables; the importance of defining “standard scenarios” for the “specific category” of RPAS operations relative to the shaping of U-Space.

30 16.00-16.15 **RPAS & Communication Infrastructure**

**Alexis Martin**  
**Access Partnership, UK**



**Bio Data** As Director, Technical Advisory and Market Access, Alexis provides support to telecom clients and ensures existing and ground-breaking technologies benefit from rapid and consistent access to the relevant spectrum. Before joining Access Partnership, Alexis was the Asset Manager for the Astra satellite fleet at SES in Luxembourg, where he also served in the Strategy and Market Intelligence group. He is a graduate engineer from Telecom SudParis, with a year of specialising in space telecommunications systems at ISAE-SUPAERO, and began his career in the early 2000s as a Spectrum Engineer at Airbus. Alexis also holds a Corporate Finance Certificate in Mergers & Acquisitions from the Jack Welch College of Business in Luxembourg. He works in French and English.

**Abstract** The need and importance of communication infrastructure which can provide broadband connectivity to users in underserved or remote areas are rapidly increasing. Addressing this challenge will necessitate the deployment of cost-efficient and flexible infrastructure. Recent improvements in aerial platforms, lithium batteries, lightweight composite materials, and solar technology are creating the potential for realizable, telecommunications services on board aircraft. Recent test deployments have demonstrated the ability of such platforms to provide connectivity with minimal ground-level infrastructure and maintenance. Closing the digital divide and complementing the existing infrastructure, these systems will also have a role to play in the future 5G ecosystem.

31 16.15-16.30 **DroneRules: Project Status Update**

- **Norbert Frischauf**  
**SpaceTec Partners, Belgium**  
**(On behalf of the DroneRules Consortium)**
- **Ulrich Hoffmann**  
**Lufthansa Technik, Germany**  
*(in the process of becoming a DroneRules Consortium member)*



**Bio Data** Norbert Frischauf is a senior technologist with strong expertise in space. He started his consulting career at Booz Allen Hamilton's space practice advising satellite operators, European institutions and value added services providers. His technical expertise was built during his years at CERN, the European Commission's Joint Research Centre and the European Space Agency. Outside of his duties at SpaceTec, Norbert hosts a scientific talk show on Austrian/German/Swiss TV and is a leading member in various associations, such as the Austrian Space Forum (OEFW) and the International Academy of Astronautics (IAA). He studied Technical Physics and Astronomy in Vienna, Austria.

**Bio Data** Ulrich Hoffmann has been working for Lufthansa Technik for eight years, first in Sales where he coordinated the group-wide sales activities within the Maintenance Repair and Overhaul company towards the inside and the outside. In 2015, he became a man of the first minute in the Corporate Innovation Management & Product Development department, developing new, innovative business models and promoting the innovation culture within the company. In his latest project he is developing and realizing business models in the field of UAV from the perspective of a technical services provide together with his team.

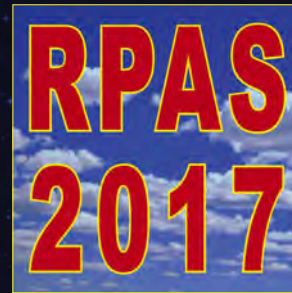


**Abstract** The DronesRules.EU COSME co-funded project is building a comprehensive and high quality online presence in order to create THE reference web portal in the European Union (EU) (+ Norway and Switzerland). The aim being to increase awareness and to facilitate understanding of the legal environment and constraints in relation with light RPAS operations (safety, privacy and data protection, insurance, etc.), with a focus on non-commercial operators (incl. hobbyists). The project will also facilitate access to the European market for commercial operators intending to use RPAS in their home country, or in other EU countries, and showcase the opportunities for economic and job market growth that RPAS represent for entrepreneurs and Small & Medium-sized Enterprises (SMEs). Over the last few months the DroneRules.eu project has undergone significant developments, producing new tools, information and National Regulatory Profiles designed to give a legislation overview of European member states. This conference presents the opportunity to give a full rundown on the status of the project and how the updates aim to positively affect different users and member states (and Norway and Switzerland). The speaker will present these new aspects and also what still lies ahead.

16.30-16.45 ♦ Interactive Panel Discussion  
16.45-17.00 ♦ Closing Remarks + End of Conference



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