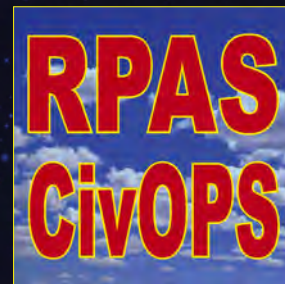




7th ANNUAL
INTERNATIONAL CONFERENCE



REMOTELY
PILOTED
AIRCRAFT
SYSTEMS

EUROPEAN
CIVIL RPAS
OPERATORS & OPERATIONS FORUM

MADRID, SPAIN

23 & 24 January 2019

CONFERENCE PROGRAMME
Unabridged Edition

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RPAS CivOps 2019 - European Civil RPAS Operators & Operations Forum

DAY 1 - WEDNESDAY 23 JANUARY 2019 - MORNING

SESSION 1

- 0 08.00-09.00 **Delegate Sign In**
00 09.00-09.05 **Opening Words**
01 09.05-09.15 **Welcome Keynote Speech**
Isabel Maestre, Director General - AESA, Spain
02 09.15-09.30 **Spanish Drone Commission (SDC): Introduction & Activities**
Marta Lestau - AESA, Spain
Juan José Sola Banasco - AESA, Spain
03 09.30-09.40 **Airworthiness Requirements for RPAS**
Cristina Cuerno-Rejado - Universidad Politécnica de Madrid (UPM), Spain
On behalf of SDC Group 1: Technology & Security
04 09.40-09.50 **Operational Requirements for New Scenarios**
Gregorio Peraleda - AESA, Spain
On behalf of SDC Subgroup 2.5
05 09.50-10.00 **Spanish RPAS Sector Support & Promotion**
Félix Herrero - AESA, Spain - On behalf of SDC Group 3
10.00-10.20 Panel Discussion - **20 Minutes**
10.20-11.10 Break - **50 Minutes**

SESSION 2

- 06 11.10-11.20 **Minimum System Requirements for RPAS**
Anastasio Sanchez - FADA-CATEC, Spain - On behalf of SDC Subgroup 1.2
07 11.20-11.30 **Spanish Regulation of the Use of Radio Spectrum for RPAS**
Santiago Pascual Calviño - Ministry of Economy - Digital Advancement, Spain - On behalf of SDC Subgroup 1.3
08 11.30-11.40 **Process to Implement RPA Regulations in Spain**
Juan Ignacio Rueda - ENAIRE, Spain - On behalf of SCDC Subgroup 2.4
09 11.40-11.50 **U-Space & its Importance for the Development of the Sector: Vision of the Regulator**
Andres Lopez Morales - Ministry of Public Works & Transport, Spain
10 11.50-12.00 **ENAIRE Vision for Spanish U-Space**
Daniel Garcia-Monteavaro Vizcaino - ENAIRE, Spain
12.00-12.30 Panel Discussion - **30 Minutes**
12.30-14.00 Lunch - **90 Minutes**

DAY 1 - WEDNESDAY 23 JANUARY 2019 - AFTERNOON

SESSION 3

- 11 14.00-14.10 **UAS/RPAS Regulation & Implementation**
Koen de Vos, EC DG MOVE, European Union
12 14.10-14.20 **EASA: On-going & Upcoming Activities Relative to Drones, U-Space & Urban Air Mobility**
Yves Morier - EASA, European Union
13 14.20-14.30 **RPAS Maritime Surveillance Services by the European Maritime Safety Agency**
Olaf Trieschmann - European Maritime Safety Agency (EMSA), European Union
14 14.30-14.40 **European Network of U-Space Demonstrators**
Munish Khurana - EUROCONTROL, International
15 14.40-14.50 **CORUS: Activity Updates**
Cristina Barrado - Universitat Politècnica De Catalunya, Spain - On behalf of CORUS consortium
16 14.50-15.00 **Full Speed Ahead for Drone Traffic Integration**
Ludovic Legros - Single European Sky ATM Research Joint Undertaking (SESAR JU), EU
17 15.00-15.10 **Drones in the Transport System: Acceptability & Integration**
Katja Schechtner - Organisation for Economic Cooperation & Development (OECD) - International Transport Forum (ITF)
15.10-15.30 Panel Discussion - **20 Minutes**
15.30-16.30 Break - **60 Minutes**

SESSION 4

- 18 16.30-16.40 **The Evolving UTM at DFS**
Ralf Heidger - Deutsche Flugsicherung (DFS), Germany
19 16.40-16.50 **Traffic Management Solution & Services for the Integration of Autonomous Operations**
Isabel Del Pozo de Poza - Airbus, Spain
20 16.50-17.00 **Keeping Safety in UTM**
Patricia Hervias Vallejo - INDRA, Spain
21 17.00-17.10 **Safety Rules for Test Ranges**
Michael Maes - EuroUSC-BelLux, The Netherlands
22 17.10-17.20 **Test Ranges for UAS: The Challenges**
Erwin V. Lauschner - bavAIRia e.v., Germany
23 17.20-17.30 **Standard Scenarios for RPAS Flight Testing in Segregated Airspace**
Anastasio Sanchez - FADA-CATEC, Spain
17.30-18.00 Panel Discussion - **30 Minutes**
18.00-19.30 **Event Cocktail - Sponsored by Unify, Belgium**

DAY 2 - THURSDAY 24 JANUARY 2019 - MORNING

SESSION 5

- 24 08.45-09.05 **Implementing New Standard Scenarios for Professional Use**
Severine Charmant - Direction Générale de l'Aviation Civile (DGAC), Direction du Transport Aérien (DTA), France
Nicolas Marcou - Direction Générale de l'Aviation Civile (DGAC), Direction de la Sécurité de l'Aviation Civile (DSAC), France
25 09.05-09.15 **Pilot Training & Qualification: The French View**
Erwin George - ENGIE, France - On behalf of the French Civil Drone Council
26 09.15-09.35 **The German National Drone Council - Conclusions After One Year**
Raimund Kamp (Aviation) & Ulrich Reinfried (Digital Innovations) - Federal Ministry of Transport & Digital Infrastructure, Germany
27 09.35-09.45 **TITUS: Introduction & Activities**
Uwe Meinberg - Test, Innovation & Technology Center for Autonomous Unmanned Vehicles (TITUS), Germany
28 09.45-09.55 **Using UAV/ROV and AUV in Port Safety & Security Procedures - Recent Real-Life Experience**
Michael Stein - Stein Maritime Consulting, Germany
09.55-10.15 Panel Discussion - **20 Minutes**
10.15-11.00 Break - **45 Minutes**

SESSION 6

- 29 11.00-11.15 **Implementation of the European Drone Regulation in The Netherlands**
Ron van de Leijgraaf - Ministry of Infrastructure & Water Management, The Netherlands
30 11.15-11.30 **Interoperability & Standardization**
Maarten Bonnema - Inspectie Leefomgeving & Transport (ILT) (CAA), The Netherlands
31 11.30-11.40 **Safe Integration of Drones**
Christiaan Lubbers - Luchtverkeersleiding Nederland (LVNL), The Netherlands
32 11.40-11.50 **Building Communities to Stimulate the Drone Market - Progress of the Interreg-funded ICARes Project**
Rob van Nieuwland - DARPAS, The Netherlands
On behalf of the ICARes Consortium
33 11.50-12.00 **U-Space & The Unify Perspective: A Capability Update**
Marc Kegelaers, Unify, Belgium
12.00-12.20 Panel Discussion - **20 Minutes**
12.20-13.50 Lunch - **90 Minutes**

DAY 2 - THURSDAY 24 JANUARY 2019 - AFTERNOON

SESSION 7

- 34 13.50-14.00 **European UAS Standards Coordination Group**
Sergiu Marsac - EUROCAE, France

- 35 14.00-14.10 **European Harmonized Standards & CE Marking for UAS in the Open Category**
Karim Benmeziene - Bureau de Normalisation de l'Aéronautique et de l'Espace, France - On behalf of ASD STAN
- 36 14.10-14.20 **Product Safety, CE Marking & Other Aspects to Assess Prior to Operation**
Carolina Jimenez - Alter Technology TÜV Nord, Spain
- 37 14.20-14.30 **DroneRules PRO: Online Information & Training Resources for Privacy & GDPR Compliance**
Filippo Marchetti - Trilateral Research & Consulting, United Kingdom
On behalf of the DroneRules.PRO Consortium
- 38 14.30-14.40 **Commercial Operations and Pilot Training: Perspectives from Australia**
David Cole, FlyFreely, Australia
- 39 14.40-14.50 **Helicus Aero Initiative - Medical Transport by UAS**
Mikael Shamim - Helicus, Belgium
- 14.50-15.20 Panel Discussion - **30 Minutes**
15.20-16.00 Break - **40 Minutes**
- SESSION 8**
- 40 16.00-16.10 **Using the SORA Method to Operate our Skyeotech System Without A Remote Pilot**
Stéphane Morelli - Azur Drones, France
- 41 16.10-16.20 **The Rescue Drones Network**
Luca Ricardo Viganotti - Rescue Drones Network, Italy
- 42 16.20-16.30 **Risk Management SORA Methodology: Applied to Drone Swarms**
Eric Gaillard - Star Engineering, France
- 43 16.30-16.40 **Keys for Success in Large Scale Commercial RPAS Operations**
Eli Neeman - Israel Aerospace Industries, Military Aircraft Group, Israel
- 44 16.40-16.50 **Law Brinks Up to European Level - How to Enable Borderless operations?**
Michael Wieland - UAV DACH, Germany
- 45 16.50-17.00 **Drone Information Management Showcase Services in U-Space**
Pablo Sanchez-Escalonilla - Centro de Referencia de Investigación, Desarrollo e Innovación ATM A.I.E. (CRIDA), Spain
- 17.00-17.15 Panel Discussion - **15 Minutes**
17.15-17.30 Closing Words - **15 Minutes**

PRESENTING ORGANISATIONS & AFFILIATIONS

Agencia Estatal De Seguridad Aerea (AESA), Spain

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

Airbus, Spain

- Design & manufacture various types of drones
- Design & manufacture of UTM systems
- ▶ Member of:
 - SESAR co-funded PODIUM Consortium
 - European U-Space Demonstrator Network

Alter Technology TÜV Nord, Spain

- Consultancy services (RPAS-related functional safety, operational safety risk analysis, product safety).

ASD-STAN, European Union

- European standards organisation
- ▶ Member of European UAS Standards Coordination Group

Azur Drones, France

- Drone & sub-system manufacturer & drone operator
- ▶ Member of:
 - French Civil Drone Council
 - UVS International

bavAIRia e.v., Germany

- Bavarian aerospace cluster
- ▶ Member of:
 - UAV DACH
 - German Civil Drone Council

Blyenburgh & Co, France

- RPAS-related consultancy, publishing & event organizer
- ▶ Member of EC co-funded DRONERULES.EU, SKYOPENER & AW-DRONES consortia
- ▶ Member of UVS International

Bureau de Normalisation de l'Aéronautique et de l'Espace, France

- French national normalisation institute

Centro de Referencia de Investigación, Desarrollo e Innovación ATM A.I.E. (CRIDA), Spain

- National governmental entity

Civil Drone Commission, Spain

- National public/private partnership overseen by AESA

Civil Drone Council, Germany

- German national public/private partnership overseen by the Federal Ministry of Transport & Digital Infrastructure

Civil Drone High Level Consultation Group, The Netherlands

- National public/private initiative overseen by ILT

Conseil pour les drones civils (CDC), France

- National public/private partnership overseen by the DGAC

DARPAS, The Netherlands

- National RPAS association
- ▶ Member of:
 - Dutch national public/private drone initiative
 - ICAREs consortium
 - UVS International

Deutsche Flugsicherung (DFS), Germany

- National Air Navigation Service Provider
- ▶ Member of:
 - German Civil Drone Council
 - SESAR co-funded CORUS & USIS consortia
 - European U-Space Demonstrator Network

Direction Générale de l'Aviation Civile (DGAC) - Direction du Transport Aérien (DTA), France

- National Aviation Authority & Air Navigation Service Provider
- ▶ Member of:
 - French Civil Drone Council
 - JARUS
 - ICAO RPAS Panel
 - SESAR's U-Space Working Group
- ▶ Member of SESAR co-funded CORUS, PODIUM & USIS consortia

Direction Générale de l'Aviation Civile (DGAC) - Direction de la Sécurité de l'Aviation Civile (DSAC), France

- Air Navigation Service Provider
- ▶ Member of:
 - French Civil Drone Council
 - JARUS
 - ICAO RPAS Panel
 - SESAR's U-Space Working Group
- ▶ Member of SESAR co-funded CORUS, PODIUM & USIS Consortia

DroneRules.PRO, European Union

- EU (EASME)-funded consortium dedicated to increasing awareness on drone-related regulations, insurance and data protection & privacy

ENAIRe, Spain

- National air navigation service provider
- ▶ Member of Spanish RPAS Commission
- ▶ Member of SESAR co-funded DOMUS & SAFEDRONE consortia

ENGIE, France

- Electricity & gas supplier (RPAS operator)
- ▶ Member of:
 - French Civil Drone Council
 - Fédération Professionnelle du Drone Civil
 - UVS International

EUROCAE, France

- European aviation standards organisation
- ▶ Member of: ● European UAS Standards Coordination Group
 - UVS International

EUROCONTROL, International

- Inter-governmental organisation committed to air traffic management & the safety of air navigation.
- ▶ Member of: ● SESAR's U-Space Working Group
 - JARUS
 - ICAO RPAS Panel
- ▶ Member of SESAR co-funded CORUS & PODIUM consortia
- ▶ Member of European U-Space Demonstrator Network

European Aviation Safety Agency (EASA), European Union

- European Union Agency
- ▶ Member of: ● EC's Informal Expert Group on Drones
 - European UAS Standards Coordination Group
 - JARUS
 - ICAO RPAS Panel
- ▶ Member of European U-Space Demonstrator Network

European Commission (EC), European Union

- Directorate General for Mobility & Transport (MOVE)
- ▶ Member of: ● ICAO RPAS Panel
 - European UAS Standards Coordination Group
- ▶ Member of European U-Space Demonstrator Network

European Maritime Safety Agency (EMSA), European Union

- European Union Agency

EuroUSC-BeNeLux, The Netherlands

- Qualified Entity
- ▶ Member of UVS International

FADA-CATEC, Spain

- RPAS Research Organisation & Test Range
- ▶ Member of: ● Spanish RPAS Commission
 - UVS International
- ▶ Member of SESAR co-funded DOMUS & SAFEDRONE consortia

Helicus, Belgium

- Specialized consulting company & drone operator
- ▶ Member of: ● SESAR co-funded SAFIR Consortium
 - European U-Space Demonstrator Network
 - UVS International

ICAReS Project, Belgium/France/The Netherlands/UK

- Interreg-financed cross border innovation cluster on Remote Sensing applications in agriculture, water, infrastructure & nature management sectors, federating knowledge institutes, SMEs, trade associations, governmental organisations.

INDRA, Spain

- Design & manufacture of UTM systems
- ▶ Member of SESAR co-funded DOMUS & SAFEDRONE consortia
- ▶ Member of Spanish RPAS Commission

Inspectie Leefomgeving en Transport - Directie Luchtvaart, Vergunningverlening (ILT), The Netherlands

- National Aviation Authority - Responsible for granting operator certificates & flight permissions
- ▶ Member of Dutch national public/private drone partnership

Israel Aerospace Industries, Israel

- Design & manufacture of drones
- ▶ Member of EC co-funded AW-DRONES & SESAR co-funded AIRPASS & SAFEDRONE consortia

Luchtverkeersleiding Nederland, The Netherlands

- National air navigation service provider
- ▶ Member of Dutch national public/private drone initiative

Ministry of Economy – Digital Advancement, Spain

- National governmental entity

Ministry of Infrastructure & Water Management, The Netherlands

- National governmental entity

Ministry of Public Works & Transport, Spain

- National governmental entity

Ministry of Transport & Digital Infrastructure, Germany

- Federal governmental entity
- ▶ Member of: ● JARUS
 - German Civil Drone Council

Organisation for Economic Cooperation & Development (OECD) - International Transport Forum, International

- Intergovernmental organisation

Rescue Drones Network, Italy

- Non-profit association federating drone operators in the rescue domaine from various countries

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

- EU agency responsible for ATM-related research
- ▶ Leader of the «U-Space Working Group»
- ▶ Member of European U-Space Demonstrator Network

Star Engineering, France

- Specialized consulting company

Stein Maritime Consulting, Germany

- Specialized consulting company & drone operator

Test, Innovation & Technology Center for Autonomous Unmanned Vehicles (TITUS), Germany

- Regional public/private co-financed research institute

Trilateral Research & Consulting, United Kingdom

- Specialized consulting company
- ▶ Member of EC (EASME) co-funded DRONERULES.EU & DRONERULES.PRO consortia
- ▶ Member of UVS International

UAV DACH, Germany

- National RPAS association
- ▶ Member of: ● German Civil Drone Council
 - UVS International

UniFly, Belgium

- Design & manufacture of UTM systems
- ▶ Member of: ● SESAR's U-Space Working Group
 - GUTMA
 - UVS International
- ▶ Member of European U-Space Demonstrator Network
- ▶ Member of SESAR co-funded CORUS, GOF USPAC, PODIUM, SAFEDRONE, SAFIR, VUTURA, USIS consortia

Universidad Politecnica de Madrid (UPM), Spain

- Academic institution & research organisation
- ▶ Member of Spanish RPAS Commission

Universitat Politècnica De Catalunya, Spain

- Academic institution & research organisation
- ▶ Member of Spanish RPAS Commission

UVS International, International

- International RPAS association
- ▶ Member of: ● ICAO RPAS Panel
 - ICAO «Space Learning» Group
 - EC's Informal Expert Group on Drones
 - EASA's General Aviation Sectorial Committee
 - EASA's RMT.023 Drone Expert Group
 - SESAR's U-Space Working Group
 - European UAS Standards Coordination Group
 - JARUS Stakeholder Consultation Body
 - European U-Space Demonstrator Network
 - OECD's Drone Working Group

Conference Chair

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. Since 1 January 2018, he is in his 11th two year mandate as president of UVS International (www.uvs-international.org), a non-profit association registered in The Netherlands and operating out of offices in Paris, France, which represents more than 4700 companies (manufacturers & operators) & organisations involved with drones in 35 countries. He has instigated the creation of 14 national drone associations, and has been the instigator of and/or participant in multiple initiatives related to drone regulations & standards. He is the founder of the International RPAS Coordination Council, which federates 24 national associations. He is the editor of "RPAS: The Global Perspective", the well-respected annual drone reference publication and is also the creator of www.rpas-regulations.com, the world's largest web site dedicated to drone regulations, as well as www.rps-info.com (a generic drone information source). Mr. Van Blijenburgh has been implicated with drones since 1987 & has supplied advisory services to corporate & governmental entities in Europe, the Middle East, 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 European UAS Standards Coordination Group, the DroneRules consortium (www.DroneRules.eu), the SkyOpener consortium (www.SkyOpener.eu), the AW-Drones consortium, as well as various corporate & academic advisory committees. He recently conducted and published (2018) the first worldwide survey on drone operations (based on inputs from operators in 67 countries).

DAY 1 - WEDNESDAY 23 JANUARY 2019 - MORNING

SESSION 1

0 08.00-09.00 **Delegate Sign In**

00 09.00-09.05 **Opening**

01 09.05-09.15 **Welcome Keynote Speech**
Isabel Maestre, Director General - Agencia Estatal De Seguridad Aerea (AESA), Spain



Bio Data Isabel Maestre is an Aeronautical Engineer graduated from the Polytechnic University of Madrid (UPM) and she has an Executive Master Degree on Public Management by the IE Business School, in Madrid. She began her professional career, between 1992 and 2002, within commercial aviation sector, holding leadership positions in different national airlines on Quality Engineering and as Head of Engineering in the Technical Directorate of Maintenance. After, she joined the Directorate of Airport Projects at INECO, being responsible for various projects on airport management for AENA. Prior to her current position, from 2005 until 2008, she worked at SENASA, as Managing Director of Flight Standards, holding accountability for inspection services, delegated by the former General Directorate of Civil Aviation on the control of safety and airworthiness; and as Director of Training, an unit responsible for the initial training of air traffic controllers.

02 09.15-09.30 **Spanish Drone Commission (SDC): Introduction & Activities**
• **Marta Lestau - AESA, Spain**
• **Juan José Sola Banasco - AESA, Spain**



Bio Data 1 Marta Lestau Sáenz is the Director of Flight Safety since June 2012 at the Spanish Safety and Security State Agency (AESA), assuming competences in the area of aircraft certification, operations and maintenance, and recently RPAS. Regarding air transport, she is also responsible for the issuance of operating licenses, economic supervision and commercial permits. Previously, she was the Director of Civil Aviation Security and User Protection since the establishment of AESA in October 2008, being responsible for the support to the Secretary of State for transport in the coordination and follow-up of the national aviation security programme. She also leads the strategy of the action plan on improving air passenger rights and was in charge of the development and enforcement of air passenger rights. In her duties, she dealt with financial supervision of airlines and air navigation services providers in the framework of the Single European sky. Marta is Aeronautical engineer from the Polytechnic University of Madrid, and holds a Master degree in Leadership and Public Management from the International University Menéndez Pelayo. She has represented Spain as an aviation expert in several international forums at organisations such as European Union, International Civil Aviation Organization (ICAO), EUROCONTROL, European Aviation Safety Agency (EASA) and European Civil Aviation Conference (ECAC).

Bio Data 2 Juan José Sola Banasco is an Aeronautical Engineer M.S., has a Masters in Management, Leadership and Public Affairs from Instituto Nacional de Administraciones Públicas. Madrid (Spain), Master's degree (1500 hours. In addition he is a qualified RPAS pilot (Servicios y Estudios para la Navegación Aérea y la Seguridad Aeronáutica S.A. Madrid, Spain), holding a theoretical and practical certificate. He is currently the Head of Remote Piloted Aircraft Division (RPAS/DRONES) at AESA, In this capacity he is a member of the ICAO RPAS Panel, as well as JARUS. Previous to his position with AESA, he headed an ATS Training Department, worked as an air navigation consultant and an air navigation and airports consultant.



Abstract Introduction of the Spanish Drone Commission, its structure & members), a high level explanation of its activities & conclusions, and the upcoming challenges.

03 09.30-09.40 Airworthiness Requirements for RPAS
Cristina Cuerno-Rejado - Universidad Politécnica de Madrid (UPM), Spain
On behalf of SDC Group 1: Technology & Security



Bio Data Cristina Cuerno-Rejado is a PhD, Aeronautical Engineer and Full Professor of Aerospace Engineering in the Department of Aircraft and Space Vehicles of the School of Aeronautical and Space Engineering (ETSIAE), of Universidad Politécnica de Madrid (UPM). She is also the Director of the Chair «Airbus Group of Aerospace Studies». Since 2010 she has made these tasks compatible with being member of the Board of the Civil Aviation Air Accidents and Incidents Investigation Commission of Spain (CIAIAC - Ministry of Development). In addition, she is a member of the Executive Committee of the RPAS Advisory Commission of AESA, and leader of the Technology and Security Working Group. Her main lines of research and teaching activity are focused on the conceptual design of commercial transport aircraft and unmanned aircraft, having taken part in more than 50 projects and research contracts and having published, among articles, lectures at conferences and books, more than one hundred scientific documents.

Abstract The Spanish Air Safety and Security National Agency (Agencia Estatal de Seguridad Aérea) AESA, as the national civil aviation safety authority, taking into account the needs of civil aviation, has established a RPAS Advisory Commission. This Commission has been created in order to ensure the consideration of the initiatives, the needs, as well as the technical knowledge of the different actors involved in RPAS field with the objective of enhancing the best possible RPAS aviation and associated market. This RPAS Advisory Commission has to serve as a forum for the exchange of opinions and information in support of the development of the RPAS sector. In addition, it has to support the promotion of meetings, congresses, exhibitions, etc. and the participation of the different participants in the Commission in such events. At the same time, the commission has to consolidate the needs, knowledge and availability of the sector for the development of the RPAS sector in order to take advantage of the possibilities it represents for the Spanish economy, as well as acting as technical advisory body and adviser to RPAS for AESA. For reaching those objectives, there have been established three permanent working groups inside the Commission devoted to technology and physical safety (WG1); operations, regulations and use cases (WG2); and support and promotion (WG3). Additionally, and upon demand, temporary working groups and specialized subgroups can be tasked for specific topics. The WG1 mainly has to carry out and coordinate the work related to technology and safety of RPAS carried out by the Commission for the preparation of guides, technical documents and proposals to regulatory bodies at national and international level. For such objectives, it is subdivided into three subgroups, focused on RPAS specifications (WG1.1), minimum safety requirements and system certification (WG1.2), and C3 and cybersecurity (WG1.3). The purpose of this conference is to present the objectives of creation of the RPAS Advisory Commission of AESA and more specifically, the objectives of WG1 as well as the first results obtained that have allowed the publication of a set of AMCs that will allow the correct implementation of the Spanish regulation on RPAS in an orderly and efficient manner.

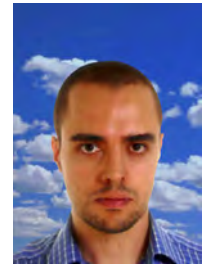
04 09.40-09.50 Operational Requirements for New Scenarios
Gregorio Peraleda - AESA, Spain
On behalf of SDC Group 2: Operations, Regulation & Use



Bio Data Gregorio Peraleda holds a couple of University Degrees: Aeronautical Engineer M.S. and Economics & Business Administration M.S. Gregorio Peraleda started to work as a Project Engineer on the EJ200 engine for the EFA Project in 1988, in SENER, a Spanish engineering company. Then he joined IBERIA, Spanish Airlines, where he worked for 25 years, starting as a Flight Operations Engineer and becoming Fleet Planning Director in the long term. After leaving IBERIA, he joined AESA as a Flight Schools Civil Aviation Inspector and then he moved to the RPAS Department, also as a Civil Aviation Inspector, his current position.

Abstract Overview & update of the activities of the Group 2 of the Spanish RPAS Advisory Commission.

05 09.50-10.00 **Spanish RPAS Sector Support & Promotion**
Félix Herrero - AESA, Spain
On behalf of SDC Group 3: Support & Promotion



Bio Data Aerospace engineering degree. 2 years working in INTA (National Institute of Aerospace Technology), a Public Research Organisation that depends on the Spanish Ministry of Defence. Civil servant of Spanish NAA (AESA) for 12 years, 10 years in airworthiness issues and 2 in RPAS.

Abstract Works developed in Group 3 of the Spanish Drone Commission: RPAS technological observatory, Evaluation of the economic development expectations of the RPAS sector Awareness, and diffusion of RPAS.

10.00-10.20 **Panel Discussion - 20 minutes**
10.20-11.10 **Break - 50 minutes**

SESSION 2

06 11.10-11.20 **Minimum System Requirements for RPAS**
Anastasio Sanchez - FADA-CATEC, Spain
On behalf of SDC Subgroup 1.2



Bio Data Anastasio Sanchez has a MS in Telecommunication Engineering (Technical University of Madrid) and is the head of the ATLAS Flight Test Center. He participated in the design, development and operations of MINISAT 01 (INSA-INTA). Later, he joined Ericsson Spain, working in Operators Support and leading the support to Vodafone Spain as Service Delivery Manager. In 2010, he joined FADA as Head of ATLAS, supporting the design and execution of RPAS/UAS operations for different customers.

Abstract This presentation will briefly explain the work of SGT1.2 within the RPAS Advisory Committee of AESA where the minimum system requirements that have been established. These minimum systems requirements have been created for a set of systems already identified in the current Spanish RPAS regulation but taken into account the SORA methodology and the integrity and assurance levels that are considered in SORA 2.0 version.

07 11.20-11.30 **Spanish Regulation of the Use of Radio Spectrum for RPAS**
Santiago Pascual Calviño - Ministry of Economy – Digital Advancement, Spain
On behalf of SDC Subgroup 1.3



Bio Data As telecommunication engineer, Santiago Pascual has a professional career of more than 30 years that in its beginning was focused on the design of radio and microwave electronics to then open up to other fields: systems engineering, space systems engineering, spectrum engineering with the elaboration of related regulations and management of HW & SW projects. This trajectory has been developed in a great variety of national and foreign centres & organisations. Throughout all these years, the speaker has been able to know the inside of the world of research & development and has learned to appreciate the sharing of work & experience with people from other countries, with other languages & cultures, which is very recommendable for any professional in the ICT field. This experience has also given the speaker the ability to adapt to new environments, while enriching his ICT experience.

Abstract Summary of the work developed by the Subgroup SGT 1.3 of the Spanish Advisory Commission on RPAS. This work focuses on regulatory development in relation to the use of radio spectrum for unmanned aircraft.

08 11.30-11.40 **Process to Implement the RPA Regulations in Spain**
Juan Ignacio Rueda - ENAIRE, Spain
On behalf of SDC Subgroup 2.4



Bio Data Juan Ignacio Rueda Cid, born in Madrid in 1968 (50 years old), graduated in Philology studies in Granada University. He is an air traffic controller since 1991, has developed his professional career in Gran Canaria tower and in the air control centre as instructor and supervisor. In 2010 he left the ops room and begun as Safety manager in Canary Region. Since 2013, he is the Head of the ATM regulatory Department in ENAIRE headquarters. He is member of the RPA committees of ENAIRE, AENA and AESA.

Abstract As the Spanish state began working on the RPA regulations, the main ANSP in Spain, ENAIRE, began adapting existing procedures or making specific ones. The presentation will explain how ENAIRE reaches the challenge. The main procedures are designed in two ways; The first is administrative and the other is operational. On the administrative one, the coordination with the airports, with other ANSP and with the Spanish Security Agency is needed. The second important role in this whole process is the operational coordination, where the affected office evaluates the condition of the operation. The tactical barriers will be established to mitigate the potential risks.

09 11.40-11.50 **U-Space & its Importance for the Development of the Sector: Vision of the Regulator**
Andres Lopez Morales - Ministry of Public Works & Transport, Spain



Bio Data Andres Lopez Morales has bachelor's degree in Aeronautics and Master degree in Industrial Engineering. He has over 18 years of experience always in Aeronautics, mainly in aircraft certification, electromagnetics and strategic analysis. In 2012, he joined the Directorate General of Civil Aviation, carrying out strategic and regulatory development activities, among others, in the area of drones. He has actively participated in the development of the Strategic Plan for the development of the drone sector in Spain, which was presented by the Ministry of Public Works and Transport in March 2018.

Abstract The aim of this presentation is to explain the importance of U-Space implementation for the development of future applications and services in Europe, from the Spanish Regulator point of view. Among others, the presentation will identify the steps taken since the very first projects starting in 2017, analyse their progress, results, identifying the challenges and next steps.

10 11.50-12.00 **ENAIRE Vision for Spanish U-Space**
Daniel Garcia-Monteavaro Vizcaino - ENAIRE, Spain



Bio Data Daniel Garcia-Monteavaro Vizcaino is Head of the Drone Business Development Department. He graduated from Polytechnic University of Madrid as an Aeronautical Engineer.. He is a systems engineer with 17 years of experience as Navigation Project Manager in navigation aids installation & commissioning, and its relationship with Air Operations, PBN and RNAV procedures. Currently he runs the Drones Business Development Department in ENAIRE that is working in other European Projects related to Drone Demonstrators. The Department is involved in regulatory activities and other actions related to the commercial development of UTM/U-Space services for drones, both at the national level, as well as international.

Abstract What are the key requirements for U-Space deployment? What is the role of the ANSPs in enabling U-Space? The ANSP will have a main role in UTM Architecture that will be discussed as well. ENAIRE will present a proposal for Spanish U-Space Architecture based on an Ecosystem Manager as a central DTM, and the U-Space Services Provider (USSP) connected to it. Pros and Cons will be shown to have a further discussion.

12.00-12.30 **Panel Discussion - 30 minutes**
12.30-14.00 **Lunch - 90 minutes**

DAY 1 - WEDNESDAY 23 JANUARY 2019 - AFTERNOON

SESSION 3

11 14.00-14.10 **UAS/RPAS Regulation & Implementation**
Koen de Vos, European Commission (EC) Directorate General Mobility & Transport (MOVE), European Union



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 currently works on drones.

Abstract On 7 December 2015, a proposal for a regulation by the European Parliament & European Council on common rules in the field of civil aviation was published by the European Commission. This initiative was part of the 2015 European Commission's «Aviation Strategy to Enhance the Competitiveness of the EU Aviation Sector». Its objective was 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. It built on over 12 years of experience in the implementation of Regulation (EC) No 216/2008 & its predecessor. It must 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 aimed at contributing to a competitive European aviation industry and aeronautical manufacturing, which generates high value-jobs and drives technological innovation. It was to create an effective regulatory framework for the integration of new business models & emerging technologies. In particular, it proposes to create an EU framework for the safe integration of RPA into the European airspace. This presentation will highlight the major points pertaining to the upcoming RPAS regulation and will explain the way forward, namely its implementation. It will take into account the recently published draft «Drone Implementing Regulations' package (Implementing Act & Delegated Act)», the U-Space Blue print produced by SESAR's U-Space Working Group, and the European U-Space Demonstrator Network.

12 14.10-14.20 **EASA: On-going & Upcoming Activities Relative to Drones, U-Space & Urban Air Mobility**
Yves Morier - European Aviation Safety Agency (EASA), European Union



Bio Data Yves Morier was born 1956, is married, and has two daughters. Graduated from the French Civil Aviation Academy (ENAC: Ecole 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 its members.

Abstract The presentation will provide an update on EASA activities related to UAS and notably on:

- The state of play on the draft implementing act (Operations and registration) and the delegated act (procedures for CE marking and technical requirements) relative to UAS: main discussion points, planning for adoption
- The intended rulemaking tasks: Certified category and U-space
- EASA role in the network of demonstrators
- EASA activities relative to Urban Air Mobility
- Cooperation with other entities.

13 14.20-14.30 **RPAS Maritime Surveillance Services by the European Maritime Safety Agency**
Olaf Trieschmann - European Maritime Safety Agency (EMSA), European Union



Bio Data Olaf Trieschmann is presently with the European Maritime Safety Agency (EMSA), where he as senior officer holds a key role to the development and operation of remote piloted aircraft systems for maritime surveillance. Previously he was from the beginning key in setting up the Agency's earth observation services and the satellite based European oil spill and vessel detection service "CleanSeaNet". He is a senior expert on remote sensing, was founding chairman of EGEMP (European Group of Experts on Satellite Monitoring of Sea-based Oil Pollution), member of the German delegation to the international GEO/GEOSS (Global Earth Observation System of Systems) initiative and member of the GMES (now "COPERNICUS") "Marine Core Service Implementation Group". Dr Trieschmann received his diploma and PhD in Physics from the University Karlsruhe, Germany. He started his professional career in remote sensing of the upper atmosphere in the framework of the ozone hole and global warming research. Since 2000 he is working on aerial monitoring and earth observation systems and in particular in the maritime domain.

Abstract Societal challenges such as maritime pollution, the growth of irregular immigration, illegal fishing, safety of navigation are increasing interest in obtaining effective maritime domain awareness. The European Maritime Safety Agency (EMSA) provides comprehensive maritime domain information to the European Member States and European bodies. Aerial observation bridges the gap between satellite observations, which provide a large coverage but cannot stay on site and vessels which provide detailed information but only for a certain spot. In particular, Remote Piloted Aircraft Systems (RPAS) allow with their long endurance covering large areas for detection of objects and have the ability to stay on spot for investigation of certain objects in detail. EMSA has contracted multiple RPAS multi-purpose services covering a large range of operations. The fixed wing RPAS range from 25kg to 1200kg MTOW and are equipped with sensors including EO/IR, Maritime radar with synthetic aperture radar modes, AIS and distress signal receivers. In order to enable beyond radio line-of-sight far range operations the bigger RPAS operate under SATCOM, for which EMSA has contracted SATCOM services under a new business model suited for RPAS operations. In order to extend the operational range of vessels, EMSA added to its portfolio VTOL RPAS systems, particularly relevant for fishery control. For measuring the sulphur content in the fuel of vessels, VTOL and smaller fixed wing systems are contracted. Finally multi-copter systems operated from vessels support the recovery operations of vessels in case of oil pollutions. These EMSA RPAS services can be seen a precursor for future civil maritime RPAS operations. The presentation will show the RPAS available under the contracts and their capabilities, will give an overview of the operations and the gained experiences in particular during the set-up of services, and will draw conclusions for the future development of RPAS for the maritime domain.

14 14.30-14.40 **European Network of U-Space Demonstrators**
Munish Khurana - EUROCONTROL, International



Bio Data A leader at heart with entrepreneurial passion that has led change in organizations globally to grow their business. He has delivered mission critical services in Europe, USA, Middle East & South Asia. He has led large scale organization transformation projects for OEMs, ANSPs, Tier-1 and Tier 2 suppliers comprising of aligning business and operational aviation strategies, business development, performance improvement, assurance and corporate governance, post-acquisition change management, process design and improvement, program/project management and organizational design initiatives. He has a deep command of improving

maturity of organizations and preparing them to grow their business organically by implementing internal changes and inorganically via mergers and acquisitions. He has proven experience in managing strategy, operations, programs and commercial initiatives in a variety of industry verticals including Aviation, Unmanned Aerial Systems, Telecoms, Education, Defence, Banking, Finance, Retail Petroleum, Automotive, Rail and Medical Devices. He currently works at EUROCONTROL as a Senior Manager Business Development, responsible for developing ATM/Unmanned Traffic Management business with international stakeholders

Abstract Numerous U-Space-related projects are emerging across Europe. Their ambition are far diverse, ranging from mere technology demonstrators up to full-fledged deployments supporting pioneer commercial services, multi-modal transport and public sector applications in for example in emergency services and infrastructure maintenance. This buoyant environment is constantly pushing the limits of technology and operations towards the maturity levels required for business applications. To keep the momentum and attract additional private investment, Commissioner Violeta Bulc launched on 19 Oct 18 the European U-Space Demonstrator Network, as a platform for aggregating such early implementing initiatives across Europe. A support cell to the network has been created that will bundle the regulatory and safety competence of the European Aviation Safety Agency, the R&D management expertise of the SESAR Joint Undertaking and the technical and operational air traffic management expertise of EUROCONTROL. The presentation will explain the objectives of the Network, benefits for organisations to become member, highlight how it works with its members, and how to join it.

15 14.40-14.50 **The U-Space CONOPS of CORUS**
Cristina Barrado, Universitat Politècnica De Catalunya, Spain
On behalf of the CORUS Consortium



Bio Data Dr Cristina Barrado is Computer Science Engineer with a PhD in Computer Architecture for the Universitat Politècnica de Catalunya. Currently she is professor at this university, teaching computer programming, operating systems, avionics, ATM and Big Data. As researcher she has been participating in more than 20 projects. For the last 10 years she is working in the ICARUS research group, designing UAV with distributed payload architectures, proposing noble UAS missions, studying the integration of RPAS in the IFR airspace and currently working within the CORUS consortium to propose the ConOps of the drones flying at the very low level.



Abstract CORUS is an exploratory research project running as part of the SESAR 2020 program. CORUS is developing a Concept of Operations for U-Space. The CORUS consortium are nine organisations; DFS, DLR, DSNA, ENAV, EUROCONTROL, HEMAV, NATS, Unifly and UPC. The project aims to develop a ConOps that is both good quality and is accepted by the community. To this end the project is anchored around three workshops and three releases of the ConOps. This presentation comes shortly before the release of the second version of the ConOps and should offer a glimpse of what is in it. CORUS aim to balance the needs of the drone community with other airspace users and the general public. This presentation should be of interest to all of these groups.

16 14.50-15.00 **Full Speed Ahead for Drone Traffic Integration in Europe**
Ludovic Legros - Single European Sky ATM Research Joint Undertaking (SESAR JU), European Union



Bio Data Ludovic Legros is a EUROCONTROL staff member working at the SESAR Joint Undertaking since 2010 and is currently the SJU Programme Manager responsible for the 19 SESAR projects contributing to the development of U-space. He is closely working with European institutions such as the EASA, the standardization bodies, industry, and the European drone community. In 2017, he was the secretary of the working group in charge of the U-space vision definition and actively contributed to the development of the U-space blueprint and the roadmap for the safe integration of drones into all classes of airspace. In parallel to this, he is responsible for Industrial Research projects in SESAR, dealing with separation management and airborne collision avoidance. Before his work with the drone community, he was in charge of the integration of the rotorcraft and general aviation into the SESAR Programme. In 2007, he obtained his Master in management (CNAM). He has built his project management background on various experiences at EUROCONTROL and other domains such as the finance, the automotive, and health sectors.

Abstract U-space is an enabling framework designed to facilitate any kind of routine mission, in all classes of airspace and all types of environment - even the most congested – while addressing an appropriate interface with manned aviation and air traffic control. When fully deployed, a wide range of drone missions that are currently being restricted will be possible thanks to a sustainable and robust European ecosystem that is globally interoperable. The timing for U-space is critical given the speed at which the market is growing. The aim is to have foundation U-space services in place by 2019. The timing for U-space is critical given the speed at which the market is growing. The aim is to have foundation U-space services in place by 2019. As a first step towards this target date, the SESAR JU launched a series of exploratory projects with funding from the EU's Horizon 2020 budget. Through these projects, we are bringing together established aviation stakeholders, academia and new entrants into the sector as well as stakeholders from other industries, such as those from the mobile communications industry. Together they will blend their expertise to perform extensive research and demonstrations on this exciting new area of air traffic management. Complementing these projects, a series of drone demonstrations will soon get underway at urban and rural locations across Europe, thanks to funding from the SESAR Joint Undertaking within the framework the EU's Connecting Europe Facility

programme. With a co-financing of EUR 9.5 million, the demos aim to illustrate that Europe is on course with its implementation of U-space, an initiative that aims to ensure safe and secure drone traffic management. Together they will aim to show the readiness of U-space services to manage a broad range of drone operations and related services, and their interaction with manned aviation.

17 15.00-15.10 **Drones in the Transport System: Acceptability & Integration**
Katja Schechtner - Organisation for Economic Cooperation & Development (OECD) - International Transport Forum (ITF), International



Bio Data

Katja Schechtner is an urbanist who holds a dual appointment between OECD and MIT to develop new technologies and shape innovative policies to keep cities on the move. Currently she convenes ITF's working group on drones, based on the 2018 publication: «Uncertain skies: Drones in the World of Tomorrow». Previously she worked at the Asian Development Bank implementing transport technology projects across Asia; formulated smart public space strategies for the Inter-American Development Bank in Costa Rica and Argentina; advised the EU Commission on Smart City programs and ran an applied research lab for Dynamic Transportation Systems at the Austrian Institute of Technology. Katja also holds a Visiting Professorship at Technical University Vienna and curates urban tech exhibitions across the globe.

Abstract

The potential impacts of large commercial drone fleets are as yet not fully understood. Assessment of the potential impact on aviation has begun but appraisal is rarely addressed from a cross-sectoral perspective. Freight drones for urban goods deliveries and, eventually, drones for passenger travel, may have both positive impacts (e.g. improved connectivity in remote regions, traffic congestion alleviation, reduced travel times) and negative impacts (e.g. safety, privacy, noise, energy consumption, land use and visual amenity concerns). We explore how some of these impacts could be anticipated and included in appraisal guidelines to support the underlying policy goals of efficient, safe, sustainable and equitable transport. Although surveys have forecast likely public support for the use of drones, widespread introduction will need to be accompanied by regulation to address privacy, environmental, safety and security concerns. Current government regulation of drones tends to be either too restrictive (hampering the development of new designs), or lagging behind (causing reluctance among potential end-users to adopt drone use). Governments must, therefore, be acquainted with developments taking place in the international context of the industry. OECD/ITFs Working Group will explore the rapidly developing concept designs for drones and drone services, questions of acceptability of drone services, and their safe integration within the transport system as a whole. The Working Group will also consider the use of drones for different scales of payloads – both freight and passenger transport – as well as their potential as a support to other modes and aspects of transport, e.g. logistics, monitoring, maintenance and emergency services.

15.10-15.30 **Panel Discussion - 20 minutes**

15.30-16.30 **Break - 60 minutes**

SESSION 4

18 16.30-16.40 **The Evolving UTM at DFS**
Ralf Heidger - Deutsche Flugsicherung (DFS), Germany



DFS Deutsche Flugsicherung



Bio Data

Ralf Heidger studied at Gutenberg-University in Mainz, Germany, joined an AI-Company in Germany as Software engineer, then entered ATC Software Business for a decade. Joined DFS in 2001 and became Head of Software development for the multi-sensor-tracking System PHOENIX plus a number a additional ATM Software Tools developed in the DFS. Moved to the Department VE (= Strategy and Organisation development) in 2016 to join the UAS Issue Management, became responsible for the UTM development management in the DFS. The UTM development is based on a modified PHOENIX for drone tracking along with manned Aviation and a UTM Framework acquired from the UTM market.

Abstract

The presentation explains the UTM architecture, data flow, and functionalities in the UTM System which is evolving in the DFS as a national UTM System. It explains the chosen design decisions, the surveillance and tracking experiments, the results of the experimented use cases together with the Deutsche Telecom DTAG acting as mobile communication service provider and project partner, and the current steps of implementation.

19 16.40-16.50 **Traffic Management Solution & Services for the Integration of Autonomous Operations**
Isabel Del Pozo de Poza - Airbus Helicopters, Spain

AIRBUS



Bio Data

Isabel del Pozo de Poza has over 10 year experience in the ATM field. She started working at Boeing Research & Technology Europe (BR&TE) participating in common initiatives between NextGen and SESAR, supporting the trajectory based operation concept on both ATM modernization programmes. Isabel holds a PhD addressing the "Assessment of Fairness and Equity in Trajectory Based Air Traffic Management". She joined Airbus Helicopters in 2013 where she acted as an Expert and in the field of ATM and Civil Operations and Head of Department for Mission Management. She leads the ATM/UTM roadmap within Airbus and heads the Airspace Management team working on UTM solutions and services to support the integration of autonomous and digital operations in our airspace.

Abstract Airbus is leading various initiatives on autonomous operations in different fields: Urban Air Mobility, RPAS, Drone Services. And still an appropriate operational environment to enable more autonomous and digital operations needs to be defined and agreed among different stakeholders. Key challenges will be the integration in the lower airspace where mainly the non-cooperative traffic is located with limited support of Air Navigation Services. Compared to the upper airspace, the lower airspace will have to become more structured, specially looking at the expected growth in autonomous traffic. Potential review of the airspace classes classification, specially E and G, will be required as well as discussions around some key topics: adaptation of the instrumental flight concepts, delegation of separation provision to the vehicles, what degrees of automation and digitalization are needed both on ground and in the air, how to address spectrum and cybersecurity topics. Questions around the traffic services required for those operations, evolution needed of exiting traffic management concepts and solutions, as well as key technology bricks urgently demanded by airspace users have to find an answer in a very short time.

20 16.50-17.00 **Keeping Safety in UTM**

Patricia Hervias Vallejo - Indra, Spain

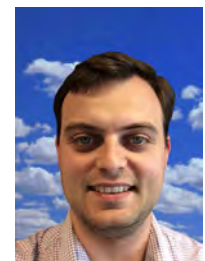


Bio Data Patricia Hervías is an Aeronautical Engineer from Universidad Politécnica de Madrid. From the beginning of her career, she has worked in ATM projects in Indra, first as test engineer and later as systems engineer. After a year of experience in ATM commercial roles, she is now the system engineering head in U-Space & UTM department in Indra, where she is defining Indra UTM Platform and its integration with air traffic management systems, taking advantage of its wide experience in ATM. Indra is a leading company in ATM, with installations in more than 160 countries covering the whole portfolio of products, including surveillance, navigation aids, communications and automation systems.

Abstract U-Space & UTM are the hot topics in drone world right now. In a very traditional and closed world like ATM and airspace use, new actors and companies are entering, opening the market and applications. This is a good way to boost the economy and encourage the use of drones for commercial applications, but keeping the safety and security levels for both airspace users and assets on ground become essential. During the presentation, Indra will expose its vision about U-Space and UTM, applying its wide experience in maintaining safety and security in ATM systems to this new UTM world. The possible architecture will be discussed, making emphasis in different solutions, both in the short and in the medium-long term. This presentation will also highlight the integration between both systems, UTM and ATM, especially in critical zones close to controlled airspace or airports.

21 17.00-17.10 **Safety Rules for Test Ranges**

Michael Maes - EuroUSC-BeneLux, The Netherlands



Bio Data Michael Maes has significant experience in different areas of aviation, both manned and unmanned. Initially this was in ATC and Private jet dispatching in manned aviation, and then as unmanned aviation gathered momentum as RPAS Flight Operations Manager for Gatewing – now Delair, a RPAS manufacturer. In this role, Michael provided assistance to customers worldwide enabling RPAS flights. Now as EuroUSC’s Benelux director, liaising with the National Aviation Authorities, Michael is not only developing EuroUSC business across Europe, but is also responsible for the delivery of pilot qualification examinations, the assessment of unmanned aircraft systems and testing of such systems.

Abstract Based on EuroUSC-Benelux’s experience on various test sites, its conclusion is that safety hasn’t been addressed on the same level at each test site. Inherent to testing is the prerequisite of flexibility, which is not often the case. This presentation addresses the difficulty of combining safety and flexibility while striving for harmonisation amongst all test ranges.

22 17.10-17.20 **Test Ranges for UAS: The Challenges**

Erwin V. Lauschner - bavAIRia e.v., Germany



Bio Data Erwin V. Lauschner is Lieutenant d. Res. of the German Airforce & holds a Master degree in Electrical Engineering from the Technical University of Munich. He started his career as a development engineer at MBB in Ottobrunn, was Project Manager at Siemens in Munich, followed by joining McKinsey as a Senior Associate. He has over 30 years of international industrial experience in consulting, sales, marketing and management at different companies as Steag in Essen, Raychem in Munich, Hilti in Brussels and Kaufering. Since over six years he is back in the aerospace market. Active member in EACP, the European Aerospace Cluster Partnership. In his current position he focuses on UAS activities. He is leading the UAS Forum of bavAIRia, as well as co-leading the WG Application at UAV DACH, and is member of the advisory group to the German National Drone council.

Abstract bavAIRia’s UAS Forum started in 2014 with defining criteria for a test range for UAS. Since then we learned different lessons with sharing existing airfields for testing UAS. Challenges today are flying BVLOS in non-segregated air space. Actual challenges will be discussed and needs will be defined.

23 17.20-17.30 **Standard Scenarios for RPAS Flight Testing in Segregated Airspace**
Anastasio Sanchez - FADA-CATEC, Spain



Bio Data Anastasio Sanchez has a MS in Telecommunication Engineering (Technical University of Madrid) and is the head of the ATLAS Flight Test Center. He participated in the design, development and operations of MINISAT 01 (INSA-INTA). Later, he joined Ericsson Spain, working in Operators Support and leading the support to Vodafone Spain as Service Delivery Manager. In 2010, he joined FADA as Head of ATLAS, supporting the design and execution of RPAS/UAS operations for different customers.

Abstract In a near future, EASA regulation will be made public and standard scenarios are meant to simplify the activities for UAS operators in the Specific category. FADA-cATEC has been working, in collaborating with AESA, in the development of a standard scenario for flight testing with RPAS in segregated airspace applying SORA methodology. This standard scenario will help to simplify the necessary permits to perform flight testing activities in homologated test centres. This presentation will explain in detail the application of SORA to this type of operation and the major requirements that the standard scenario imposes.

17.30-18.00 **Panel Discussion - 30 minutes**

DAY 2 - THURSDAY 24 JANUARY 2019 - MORNING

SESSION 5

24 08.45-09.05 **Implementing New Standard Scenarios for Professional Use**
 • Séverine Charmant - Direction Générale de l'Aviation Civile (DGAC), Direction du Transport Aérien (DTA), France
 • Nicolas Marcou - Direction Générale de l'Aviation Civile (DGAC), Direction de la Sécurité de l'Aviation Civile (DSAC), France



Bio Data 1 After a degree in Public Affairs, Severine joined the international cooperation department of the French Civil Aviation Authority (DGAC), which aims to develop partnerships tailored to the needs expressed by foreign CAAs, to comply with the standards and recommended practices of the ICAO . She then worked for DSN Services, a company created by DGAC and ENAC, in order to export civil aviation services in foreign countries. In November, she joined the aeronautic department, in charge of defining and putting into effect the aeronautical research and development support policy. She is in charge of the secretariat for the French Civil Drones Council.



Bio Data 2 Nicolas Marcou has an engineering educational background: Polytechnique School and national Civil aviation school; he graduated in 2001. Professional background: deputy head of Airport and NASP surveillance department, deputy head of Paris Region NASP.

Abstract France has developed 4 standard scenarios within its national regulation since 2012 (two in visual line of sight, and two beyond visual line of sight). To meet the industry needs, 2 new standard scenarios are currently being developed. The first one allows a light training for UAS flights operated for internal purposes. The second refers to long range operations. These improvements are made possible thanks to a close cooperation between the French Civil aviation authority and the French industry. These new standard scenarios are meant to match with the future EU regulation framework.



25 09.05-09.15 **Pilot Training & Qualification: The French View**
Erwin George - ENGIE, France
On behalf of the French Civil Drone Council



Bio Data Engineer diploma in Industrial Energetics field. PhD in Energetics (missile propulsion) at ONERA. Research Engineer at Engie since 2006, in charge of the Fluid Dynamics modelling Team. Co-founded of Engie Drones Lab early 2014. Drone instructor. Director of Engie Drones & Robotics Lab (internal and external developments). Co-leader on Work Group Test Ranges for CDC (CT2) and also on CT4 (Training) and its GT2 (International Issues). Member of FPDC and Training delegate for FPDC. Aeronautical background since 1995: PPL(A)/SEP 200 hours. PPL(S) - Sailplane Flight Examiner (2000 hours) and pilot of French Glider Aerobatic Team. Competitor in glider aerobatics (French & World Championship - vice-world champion in 2017). RC pilot (airplane (aerobatics), glider (slope flights) and multi-rotors) since 1991.



Abstract Since 2012 France has a drone regulation. Rules are today mainly focused on RPAS conformity, operational scenario, the distance from pilot depending on the scenario, height and weight limits. In 2016, a training decree was supposed to be published, but in the framework of new rules designed to strengthen drone usages (caused by many infractions over nuclear plants) it has been delayed and will be published soon. New incoming rules will concern commercial and leisure activities, drone registration, capacity limitation, geo-fencing, sound and visual signalling. In the training decree that will be published soon, DGAC has identified criteria that the pilot must meet for both theoretical and practical skills. To prove that, the different learning phases must be

recorded in a personal progress booklet. One of the main differences in comparison with other countries is that those requirements are mostly based on operational skills instead of piloting skills. For practical skills four macro-competences are addressed: mission planning, machine preparation, normal and abnormal flight management. The French Civil Drone Council and the French Professional Civil Drone Federation (FPDC) are working together to build a standard evaluation process of the competences in training centres labelled by the FPDC & sponsored by the DGAC. The development of the drone pilot profession is under construction with interaction with other professional branches. This is done with a look at the practical requirements required in the different EU countries, in order to build a common base that could be proposed as a common way forward to EASA, in the context of the upcoming regulation. The presentation will cover these national steps.

26 09.15-09.35 **German National Drone Council – Conclusions After One Year Raimund Kamp (Aviation) & Ulrich Reinfried (Digital Innovations) - Federal Ministry of Transport & Digital Infrastructure, Germany**



Bio Data 1 Raimund Kamp, a trained lawyer, has been working with the Federal Ministry of Transport and Digital Infrastructure since 2003. In this period, he has worked in the department for maritime transportation and as a transport attaché to the United Arab Emirates. Since 2015, his main focus is on German regulations in the field of operations, licensing, airworthiness and safety management. In this regard, he is also a frequent participant to European rulemaking activities. With regard to unmanned aviation, he was involved in the preparation of the new German regulations of unmanned air vehicles and chaired the German aviation authorities' forum on unmanned aviation. He is also involved in the ongoing set-up of the German Civil Drone Council.

Bio Data 2 Ulrich Reinfried studied intercultural business studies, international relations and European studies and started his professional career working for the Federal Foreign Office. In 2008 he changed to the Federal Ministry of Transport and Digital Infrastructure, where he served in the divisions for international relations, satellite navigation and intelligent transport systems (ITS). Currently he works in the division for digital innovations within the department of digital society. Ulrich is experienced in setting up and managing nationwide networks and platforms for innovative technology exchange - be it applications of satellite navigation, intelligent transport systems or 5G technology. Most recently he started supporting the set-up of the German Civil Drone Council.



Abstract The German drone council is still young. However, it has proven to be a helpful tool to draft a national drone strategy and to collect the essence of the German drone community. The presentation will visualize the results of the working groups and of the steering committee. The next step will be to channel the activities of the council into a drone strategy that helps the Federal Ministry of Transport and Digital Infrastructure to lay out a Drone Strategy that caters to safety aspects and the potential of the new technology in a balanced way. Some crucial aspects of the future strategy will be presented.

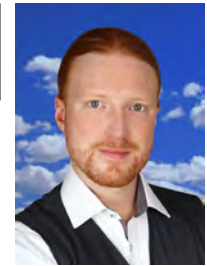
27 09.35-09.45 **TITUS: Introduction & Activities Uwe Meinberg - Test, Innovation & Technology Center for Autonomous Unmanned Vehicles (TITUS), Germany**



Bio Data Prof. Dr.-Ing. Uwe Meinberg, 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 & Dimensioning of UAS-based Distribution Systems» and thus directly connected «Exact/Precise Flights & 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. He is currently responsible for initiating a Technology & Test Centre for drones and mixed air traffic. He is a non-executive member of the UVS International Board of Directors and since December 2018 Director of TITUS GmbH.

Abstract For years we have been discussing the development of UAS with regard to technic, technology, economically relevant use-cases and - of course - necessary regulations for safe operations. Similar discussions have also been held for highly automated respectively autonomous road vehicles. In both cases, we can report acceptable progress. Meanwhile, thoughts are emerging of combining different (autonomous) modes of transport and physically networking them in value-added chains. This has led to the establishment of the technology, innovation and test centre for autonomous unmanned systems (TITUS) in Brandenburg/Germany, whose fields of activities and international positioning are described in this presentation. With strong support from the federal state of Brandenburg, TITUS conducts research and development for highly automated surface vehicles (land, water) and UAS. Highly qualified engineers and high-tech equipment are available to the institute and its partners and clients in order to efficiently achieve synergetic results.

28 09.45-09.55 **Using UAV/ROV and AUV in Port Safety & Security Procedures - Recent Real-Life Experience**
Michael Stein - Stein Maritime Consulting, Germany



Bio Data Michael Stein obtained a vocational education as shipping agent followed by a B.Sc. in Shipping, Trade & Transport (London Metropolitan University) and a M.Sc. in Management with regard to maritime & international logistics (Kühne Logistics University, Hamburg and Center for Maritime Economics & Logistics, Rotterdam). His initial working experiences were gathered in a shipping company a classification society and among consultancy projects in shipping finance and maritime logistics. Michael Stein spend the last 3 years as a team leader in the business development department of a German security company, building up UAV/ROV service structures for the maritime market. Since October 2018 he is self-employed as a consultant for port security, UAV/ROV services and maritime innovations and also has the status of researcher at the Hapag-Lloyd Center for Shipping & Global Logistics (CSGL) in Hamburg. He is also manager of a company conducting UAV inspections of sensible infrastructures and runs the blog maritime-innovation.net, where he combines current and future topics of business and research for the maritime domain.

Abstract The presentation provides a survey of actions undertaken in the year 2018 to integrate drones in standard procedure operations within port facilities to enhance safety and security. The presentation will briefly summarize the legal background of port safety and security and briefly introduce frameworks by Stein (2018) to implement unmanned technologies in these areas. The presentation's orientation is two folded. On the one hand it shows how drones are already used in action for more than one year within sensible infrastructures, while on the other hand current research on future topics and possibilities will be introduced. Among those topics lay the 3D mapping of sensible infrastructures, the combination of drone mapping and human behaviour simulation for evacuation and training, autonomous inspections flights of moving infrastructures, the combination of drone footage and inspection software environments, the creation of pattern recognition algorithms in UAV videos etc. The presentation will shed light on best practice experiences of drone operations under the aspect of current and upcoming regulations. It will, however, respectfully criticize the slow and not uniform attempts of European authorities and regulatory bodies from the perspective of a self-employed German drone pilot. It argues that business growth potentials in Europe are hindered or even put to hold given the ongoing discussions among authorities and the often limited knowledge of the industry. It is the intention of the presenter to have a vital discussion among authorities and operators while also presenting attempts of clearing the path from an operational aspect.

09.55-10.15 **Panel Discussion - 20 minutes**
10.15-11.00 **Break - 45 minutes**

SESSION 6

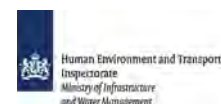
29 11.00-11.15 **Implementation of the European Drone Regulation in The Netherlands**
Ron van de Leijgraaf - Ministry of Infrastructure & Water Management, The Netherlands



Bio Data Ron is a graduate from the Technical University of Delft. He graduated in Electrical Engineering, specialising in avionics. Ron has over 10 years of experience in the development of drone regulation, both at the national and international level. He is the founder and first chairman of JARUS. Furthermore, he has participated in the ICAO UAS Study Group and RPAS Panel since the beginning of 2008. For Eurocontrol he was the lead of the subgroup on small UAS within WG73 on UAS. Later on, he became the working group lead for WG93 on Small UAS. In 2015 he was responsible for publishing the first drone regulations in The Netherlands. During the Dutch presidency of the EU in 2016, he was very active in transferring the competency for drone regulations below 150 kg from the member states to the European Commission by helping to include the drone articles in the new EASA Basic Regulation. In parallel with this, he urged EASA to start developing detailed European drones regulations.

Abstract In the summer of 2019, the new European drone regulations will enter into force. These will replace the national regulations in all European member states. For the implementation of these rules at a national level, a lot of work has to be done. This presentation will show the plan that has been drafted in The Netherlands in order to be ready in time for these new European regulations.

30 11.15-11.30 **Interoperability & Standardization**
Maarten Bonnema - Inspectie Leefomgeving & Transport (ILT) (CAA), The Netherlands



Bio Data Born in 1968, I became interested in aviation at a young age. While my father was working for KLM Airlines, I regularly joined him on trips around the world. My affection for aviation further developed during military service with Air Traffic Control at the Royal Dutch Air Force and after actually taking control of an aircraft for the first time, I knew flying was the thing for me. During the next 25 years, I worked as a pilot for a number of airlines and freighters and throughout my flying career, I have always enjoyed the combination of flying the line with company responsibilities on the ground. Most of these jobs related to the development, implementation & maintenance of Safety Management Systems and Crew

Resource Management Training Programmes. A true team player, I am particularly interested in human factors related to safety & company culture. After thoroughly addressing these issues within a company, they usually offer the largest safety gains. During the financial crises, I joined the realm of unmanned aviation. For the last 3 years I work as a Senior Inspector at the CAA in The Netherlands, finding a challenge in helping to structure and facilitate the safe operation of unmanned aircraft.

Abstract Interoperability is the property that allows for the unrestricted sharing of resources between different systems. Standardization is a framework of agreements to which all relevant parties in an industry or organization must adhere to ensure that all processes associated with the creation of a good or performance of a service are performed within set guidelines. Without standardization, interoperability is impossible. EASA's rightful ambition is to harmonize the implementation of UAS regulation across the EU and to foster a European market for UAS. Not surprisingly, the European Basic Regulation for common rules in civil aviation states that the principal objective is to establish and maintain a high uniform level of civil aviation safety in the EU. The Regulation therefore aims to facilitate, the free movement of goods, persons, services and capital, providing a level playing field for all actors in the internal aviation market, and improve the competitiveness of the EU's aviation industry. From an interoperability and standardization perspective in the field of unmanned aviation, what elements may be identified as essential for the Regulation to reach its objective and what are the benefits of a well-communicated and commonly agreed interpretation of relevant articles? In this lecture, I plead to further increase international cooperation and proactively find solutions for problems as a team, rather than individually just addressing them.

31 11.30-11.40 **Safe Integration of Drones**
Christiaan Lubbers - Luchtverkeersleiding Nederland (LVNL), The Netherlands



Bio Data After receiving his master's degree at Leiden University on the subject of Cognitive Psychology, Christiaan started at Air Traffic Control the Netherlands (LVNL) as a Junior Procedures developer, working on small procedural changes such routes and airspaces. After several years he started within LVNL at the Human Factor's department, where he was able to apply his background in the field of Human Factors Engineering, where he specialised in changes in the TWR/APP environment. Currently he is working as a Procedures Architect, working on projects such as UAS integration. As a private pilot he is keen on integrating UAS safely, without unnecessarily limiting the innovative trend of unmanned applications.

Abstract Integrating UAS within the busy controlled and uncontrolled airspaces provides a huge challenge. LVNL proposes working together with manned and unmanned aviation to find solutions that will make integration safe, within the regulatory framework, and without limiting the positive trend of innovation with unmanned systems. Safe integration demands thorough understanding of the current and expected use of the airspace and the systems that are available. LVNL promotes the use of new systems for planning, surveillance and traffic avoidance, and underlines the importance of the joint development of U-Space. The way forward desires a joint effort of all stakeholders, which requires the right forum and motivation for moving together. It is key to align expectations on who will take the first steps in implementation.

32 11.40-11.50 **Building Communities to Stimulate the Drone Market - Progress of the Interreg-funded ICAReS Project**
Rob van Nieuwland - DARPAS, The Netherlands
On behalf of the ICAReS Consortium



Bio Data Graduated as Technical Physics engineer in 1985 at the Technical University of Delft; End study topic: particle movement in turbulent airflow. Worked at TNO Defence and Security for 23 years as a researcher, project manager, program manager, business developer, account manager in the fields of military aerospace and national security. In 2009 he founded In2Nova to work in the field of aerospace related innovations, mainly focussing on improving the conditions and associational aspects to give unmanned aircraft operations a change to develop. Contributed to project proposals for several innovative RPAS developments in The Netherlands, (recently a EU/Interreg project ICAReS) a.o. to raise a RPAS knowledge centre. As a project manager contributed to the projects 'UAS Maintenance Valley' and '3i' by raising the awareness of the potential of using RPAS at end user level by organising roundtable conferences. Became a non-executive member of UVS international board of directors in 2011. Co-produced two versions of the national UAS-event in The Netherlands. Initiated and founded DARPAS, the Dutch Association for RPAS operators and constructors, in Nov. 2012. Now acting as the president of DARPAS contributing to various meetings with other aerospace communities in The Netherlands, as well as the Dutch government and politicians. Also acts as a DARPAS spokesman for the media.

Abstract "Standing strong together", that was the spirit when starting DARPAS, the Dutch association for professional use of drones, 5 years ago. Practiced in the recent years by contributing to new and adaptation of legislation and by raising awareness and trust about drone use within a diversity of communities, ranging from the airline pilot association to the diverse community of potential users. In the past months we are working to create a national civil drone council. It is constructed by combining and structuring the existing building blocks like formal meetings and consultation structures on Dutch national level. This process is accelerated by the ICAReS project. ICAReS stands for: Innovation Cluster Accelerating Remote Sensing and is an EU Interreg-funded 2Seas programme involving France, England, Belgium & the Netherlands. ICAReS, with its 12 partners is developing a cross border innovation cluster & creating the necessary conditions for innovation in the field of

remote sensing and advanced data communication & processing, based on needs of priority sectors nature, agriculture and water & infrastructure. A sustainable innovation cluster will lead to following benefits: cross border cooperation in these sectors to come to aggregation of demands, accelerating of creation of innovative remote sensing products & services, substantial use of remote sensing & improved business operation in these sectors, clarification of different national legislations and a joint lobby for better regulations to create business opportunities. We will achieve these goals by reaching a large group of interested businesses and (potential) customers and bring them together by organising events as workshops and demonstrations next to creating a common knowledge base. Because legislation, rules and standards no longer exist on a national level after EU-UAS-rules kick in, we need to coordinate amongst the countries when implementing the new approach. Using existing UVS International initiatives, ICAREs contributes to the creation of an international consultative body like an International drone council. To make such a body a reality, we need your contribution.

33 11.50-12.00 **U-Space & The Unify Perspective: A Capability Update**
Marc Kegelaers, Unify, Belgium



Bio Data Marc is CEO and co-owner of Unify Ltd. He holds a Masters's degree in Electronic Engineering and a Master's Degree in Business Administration. He is a Commercial Pilot and Flight Instructor. Marc is a quadri-lingual executive with a formal education in Engineering, Business Administration and Aviation. Started his career in the product management department of a multinational (GTE). Over the years, he has gone through the stages of Product Management, International Sales, Key Account Management, Sales Director, General Manager, Chief Executive and Business Owner in a range of sectors: Network management, IT security, Aviation, Telecommunications. Acquired experience includes: company creation, merger, and acquisition, capital increase, dealing with the investment community and company closure. He joined Unify in 2015 with the objective of making it a lead company in the UTM - space. Marc also serves as the Vice-president of the Global UTM Association.

Abstract Unify is deeply involved in the U-space program We are involved in three of the four «Exploratory Research» projects as well as in 6 of the 10 Very Large Demonstrators, including SAFIR for which we are the project coordinator. In this presentation, we will take an overview of what the content of each project, what capability is being / will be demonstrated.

12.00-12.20 **Panel Discussion - 20 minutes**
 12.20-13.50 **Lunch - 90 minutes**

DAY 2 - THURSDAY 24 JANUARY 2019 - AFTERNOON

SESSION 7

34 13.50-14.00 **European UAS Standards Coordination Group**
Sergiu Marsac - EUROCAE, France



Bio Data Sergiu Marzac has a legal background with 15 years of extensive experience in the civil aviation domain. He started his career at the Civil Aviation Authority of the Republic of Moldova being involved in different policy and rulemaking activities at state level, primarily responsible for the transposition of the EU aviation acquis into the national legal framework. Starting from 2016 he was the CAA coordinator of an EU funded project on the UAS application in different sectors. In April 2017 he joined EUROCAE as a Technical Programme Manager, taking over the EUSCG Secretariat and the coordination of the EUROCAE WG-105 on UAS. Sergiu holds a Master's degree in International Law, a Diploma in Civil Aviation Management and a MBA Aviation.

Abstract The presentation will start by a short introduction to the European UAS Standards Coordination Group highlighting what EUSCG is, why it was created, who participates in this initiative, its main scope, purpose and deliverable. Further on an insight in the structure of the Rolling Development Plan will be provided, describing shortly its structure and why it is a helpful tool for the organisations involved in the UAS activities. A link to the EUSCG website will be made available to inform the participants on how they can have access to the RDP.

35 14.00-14.10 **European Harmonized Standards & CE Marking for UAS in the Open Category**
Karim Benmeziane - Bureau de Normalisation de l'Aéronautique et de l'Espace, France - On behalf of ASD STAN



Bio Data Karim Benmeziane is currently the Technical Director of BNAE, the French Aerospace Standardization Organization. He is currently the secretary of ASD-STAN D5WG8 which is dealing with the development of UAS European standards in the open category. At French level, he's member of the National Council of Civil UAS. Previously, he worked on space systems standards and was also coordinator for EU funded GPSTART project dedicated to the use of GNSS based positioning system for autonomous vehicles which led to the development of the EN 16803 series. He's graduated from the University Pierre et Marie in Mathematics. He also holds a Masters in Business Intelligence and Analytics from EISTI (Ecole Internationale des Sciences du Traitement de l'Information).

Abstract The intent of the presentation is to give an overview of the standardization work done within ASD-STAN on UAS in the Open Category (D5WG8). This overview will explain the articulation of the regulatory framework and the standards developed by ASD-STAN D5WG8, describe the work programme (topics) and work plan (timeline), the articulation between the standards developed and CE marking, and the benefits of CE Marking for the UAS community.

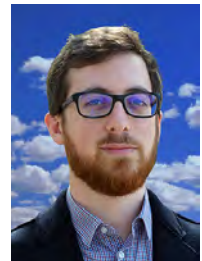
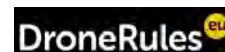
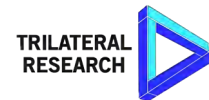
36 14.10-14.20 **Product Safety, CE Marking & Other Aspects to Assess Prior to Operation**
Carolina Jimenez - Alter Technology TÜV Nord, Spain



Bio Data Mechanical Engineer in Renewable Energies & Energetic Efficiency, and M.Sc. in RPAS. Project Manager in ATN. She has solid experience as Technical Manager in Renewable Energies, and Construction Projects. Now she works developing and proposing projects related to the RPAS market and is also in charge of the linked services developed in the company. Collaborator in the Master Remotely Piloted Aircraft Systems (University of Huelva). Currently she is working in the AIRWATCH and HI-RISE projects and collaborates in digitalization & innovation activities, including test planning for on board system based on satellite communications.

Abstract In the last years, the effort of the European Union (E.U) to integrate products belong to the drone sector has become a real challenge because of the quick growth of the offer and demand in this regard. The last regulatory proposal provided by EASA (European Aviation Safety Agency) in December 2017, ratified in the “Opinion 108-01” in the first months of 2018 and included in the last version of the Directive 1139/2018 published by the European Commission few months ago, considers necessary the CE Marking as the mandatory mean to assess and guarantee a safe introduction of drones and associated systems into the E.U. Market. In this concern, from Alter Technology, as expert assessors of conformity for different markets and sectors including aeronautics throughout fixing the CE Mark, we would like to share a conscientious analysis of the implication of this aspect of the future regulatory framework. In first place, the CE Marking procedure will be broken down: from how to identify the European Directives of application until the compilation of the technical dossier to affix the CE Mark. Relevant concepts and aspects will be clarified for a better understanding of its requirement in the new drones’ regulation. Thereupon, a complete analysis of the future regulatory requirements provided by the EASA’s proposal for the CE marking and subcategory label of aerial systems included in the open category will be accompanied by relevant and useful recommendations for different stakeholders, particularly for manufacturers, importers and distributors solving common questions about how to carry on this process, including the necessary tests (to affix the CE Mark and further important tests) for the most common and relevant operational scenarios (maritime surveillance, fire protection...) In addition, SORA methodology aspects for specific category operations will be also analysed including a use case to exemplify this assessment.

37 14.20-14.30 **DroneRules PRO: Online Information & Training Resources for Privacy & GDPR Compliance**
Filippo Marchetti - Trilateral Research & Consulting, United Kingdom
On behalf of the DroneRules.PRO Consortium



Bio Data Filippo Marchetti carries out legal and policy research for the purposes of several EU-funded projects in the fields of data privacy and technology. In addition, he provides regulatory and policy advice on International and European Union law matters, including but not limited to the impact of the General Data Protection Regulation (GDPR) on organisations in the public and private sectors. His areas of expertise include privacy and data protection law and policy, international law, and European Union law. Filippo is an IBITGQ certified EU GDPR Practitioner. He also holds a PhD in International Law and Economics from Bocconi University and a MA in International Relations from the University of Milan.

Abstract Privacy and data protection have been highlighted as risks and negative impacts of drone use. This has also been recognised by policy-makers with the latest version of EASA Draft Regulations clearly highlighting the need for (1) compliance procedures by operators and (2) training and certification by pilots. The DroneRules PRO presentation will focus on providing an overview of how particular online resources can be used to help drone users and manufacturers ensure that their operations comply with privacy and data protection requirements. It will highlight the usefulness of the DroneRules PRO-developed resources and it will explore how they can be incorporated into drone pilot and operator training. To illustrate some of its content, the presentation will also seek to provide some practical guidance to conference listeners about how to apply best practices and contribute to a safer, more GDPR-friendly operations. To encourage stakeholder involvement, the presentation will highlight the project's next steps and opportunities for stakeholders to become involved and join upcoming training sessions by the DroneRules PRO project.

38 14.30-14.40 **Commercial Operations & Pilot Training: Perspectives from Australia**
David Cole, FlyFreely, Australia



Bio Data Dr. David Cole is a certified engineer, business leader and entrepreneur. Upon completing his Bachelor of Mechanical Engineering and Doctor of Philosophy at James Cook University, David has been the Managing Director of several companies working across the mining, agriculture and technology sectors in Australia. Dr. Cole is also a graduate of the Australian Institute of Company Directors. After founding and successfully running a commercial RPAS service provider company David saw a gap in the marketplace for a service that enabled any organisation to start using RPAS themselves while giving regulators tools to manage the rapidly growing number of operators. From this idea FlyFreely was born. Dr. Cole has also been an activate participant in the innovation and startup community in Australia including graduating from a start-up accelerator, raising capital and leading a not-for-profit that supports and mentors other start-ups in regional areas. He firmly believes in the give first principle and is constantly looking for opportunities to collaborate and partner with other like-minded people and organisations.

Abstract Australia has a rich history in RPAS including forming the first dedicated RPAS regulations back in 2002. In this context FlyFreely has been a commercial drone RPAS operator and RPAS training organisation in Australia since 2013 before switching to focusing on building software tools for commercial operators and regulators in 2017. During this time we have seen the RPAS industry undergo very large changes which has challenged both regulators and operators alike. In this presentation we will share our experiences and observations from the commercial industry in Australia over the past 5 years. Particular focus will be paid to our RPAS training and commercial operation experience. This presentation will highlight our lessons learnt, examples of the unintended consequences decision can have on the industry as a whole along with suggestions on pitfalls to avoid as the industry in Europe grows. Finally, the presentation will conclude with an overview of the tools FlyFreely is building to help bridge the gap between commercial operators and regulators.

39 14.40-14.50 **Helicus Aero Initiative - Medical Transport by UAS**
Mikael Shamim - Helicus, Belgium



Bio Data Mikael Shamim (MSc, MBA) combines several international degrees in economics and engineering. As a private pilot (PPL) Mikael has always been into mannded aviation and further build upon this with a drone pilot license (RPL). During seven years he worked as a management consultant (Accenture & Bain) and another ten years in industry (Toyota & Kärcher). He focuses on (re)organization roles within the healthcare sector, first as an executive and then as management consultant. His collaboration within the complex healthcare sector forms the base for the Helicus Aero Initiative that is co-developed with Hospitals and professional medical practitioner groups.

Abstract Helicus operates medical drone based transport solutions. It coordinates a joint development programme across several projects with air traffic control authorities, health care organisations and industrial actors to offer a complete medical transport solution. The Helicus Aero Initiative is a solid consortium of industrial level actors who bring multi-disciplinary competencies and who follow a joint roadmap to provide medical transport by drone. Companies from all disciplines are invited to join to further build their competencies and prepare for the economically important and coming drone age.

14.50-15.20 **Panel Discussion - 30 minutes**
15.20-16.00 **Break - 40 minutes**

SESSION 8

40 16.00-16.10 **Using the SORA Method to Operate our Skeyetech System Without A Remote Pilot**
Stéphane Morelli - Azur Drones, France



Bio Data Stéphane Morelli graduated from Ecole Spéciale Militaire de Saint-Cyr and Ecole Nationale Supérieure de Techniques Avancées. He retired from the French Army in 2011, after a career dedicated to leadership & 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 Army programs. In 2012, he founded Azur Drones, a civil RPAS operator specialized in energy, building, industry & security sectors, for which it performs missions. In 2013, Stéphane Morelli co-created the FPDC, the French RPAS users association, of which he was 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 Skeyetech system has been developed by Azur Drones to provide the security companies with an automated drone system dedicated to the surveillance of sensible sites. This solution is composed of a connected base (for the recharge and the shelter of the drone), a highly automated drone, and the necessary plug-ins with the Video Management Systems operated on the market of Security. This system is today operated in France by several customers without any remote pilot. To get the specific authorization by the French DGAC, Azur Drones has performed a risk analysis directly inspired by the SORA method. This process will be described during the Azur Drones presentation.

41 16.10-16.20 **The Rescue Drones Network**
Luca Ricardo Viganotti - Rescue Drones Network, Italy



Bio Data Luca Ricardo Viganotti studied International Business in Italy and completed the studies in Dublin. He started to work at Hewlett Packard Financial Services as Customer Service in 2004 and made his way in the company reaching his current position of sales manager Global Accounts, as well as covering the position of branch director of Hewlett Packard Financial Services Holding Company Italian branch. He was on the board of directors of the pension fund scheme for Hewlett Packard Enterprise in Italy.

Abstract The purpose of our association outlining the objectives and reporting how we intend to achieve our mission thanks to the support of skilled and experienced people, especially emphasizing the need to implement protocols and change the regulations in place both in Italy and in Europe when it comes to approved rescue missions, proposing Rescue Drones Network as a point of reference for Europe to drive the steps that will lead to the above mentioned changes.

42 16.20-16.30 **Risk Management SORA Methodology: Applied to Drone Swarms**
Eric Gaillard - Star Engineering, France



Bio Data Eric Gaillard (France, born on 16 December 1965) studied microprocessor architecture and robotics (1990) at the University of Valence, France. He started his career in Telecom industry, specifically in GSM Mobile Network, acting as Project Manager and Senior Consultant to define and launch innovative value added services around the world. After 13 years of evangelizing how new technologies and new services may differentiate operators in a strong competitive market, he wanted to explore new horizons. Addressing the space domain as a business manager, he was dedicated to complex satellite projects regarding Assembly, Integration and Tests (AIT). In 2007 He launched a small company as Heads of Operations, providing strong and relevant expertise on electrical architecture and electricity in context, for space and aeronautics, especially regarding new «electrical» challenges generated by the introduction of Carbon Fiber to build civil aircrafts. He joined STAR ENGINEERING in July 2018, a French Research Centre on Safety, Maintenance, Product Engineering and Reliability for aeronautics, following an Advanced Master's Degree in Unmanned Aircraft Systems, Services and Management delivered by the Ecole Nationale de l'Aviation Civile (ENAC) in France. He is now in charge to create a dedicated Drone Business Unit within STAR ENGINEERING with the tools and techniques to understand and embrace the drone global value chain while providing bridges between operators, manufacturers and regulatory authorities, and ensuring the transformation of upcoming challenges into opportunities.

Abstract How to predict the future of the flight regulation for RPAS/UASs, when this future must consider the flight of a multiple of RPAS/UAS? Flight regulation for RPAS/UAS is in the course of evolution, including establishment of new definitions for flights. The risk assessment methodology has been defined for UAS operations, dealing with UAS "SPECIFIC" Category. This has been recommended by JARUS and has been endorsed EASA. The SORA method (Specific Operation Risk Assessment) is a guide that allows tailoring of the risk assessment of an operation to ensure the best options for mitigation means and thus reduce a risk to an acceptable level. The purpose of this presentation is to describe the concept of a modular structure approach to be introduced inside the SORA methodology, improving the assessment. Currently, standard scenarios will help by increasing repeatability, reducing extra work and improve the consistency of risk assessments, due to the use of combined return of experience. But, this is not sufficient to address all operational cases. The current regulations are being put in place as a reaction to market development; there will be a need to create a scalable way to anticipate the integration of new business models and emerging technologies. Using a modular approach, these can be integrated into an effective regulatory framework. The hope is that the SORA approach remains as simple as possible. If it is accessible and put into practice by the majority of actors and able to evolve to face new demonstration or new service operations, it will be the effective option. The presentation will highlight the major points of the proposed solution and explain the way forward sharing this idea with the different regulatory stakeholders. A swarm of drones illustrates such future evolutions; this is the time to create a swarm movement to build strong proposals in term of regulation.

43 16.30-16.40 **Keys for Success in Large Scale Commercial RPAS Operations**
Eli Neeman - Israel Aerospace Industries, Military Aircraft Group, Israel



Bio Data Eli Neeman is an Innovation Leader at IAI and an active member of H2020 AIRPASS Consortium. Eli has a B.Sc. in Electrical Engineering and M.Sc. in Technology Management. He has over 15 years of experience in the telecom and media industries and has fulfilled various roles including Technical Consultant, Product Management and Business Development and has been involved in system engineering, design and implementation of complex solutions and project management. Eli is also an active GA pilot.

Abstract Today, large scale usage of RPAS in commercial operations is almost non existing due to lack of coordination, technology gaps and regulation. To achieve commercial large scale operations, a complete eco-system is required and needs to include at least the following keys for success: Well defined commercially sustainable missions, suitable RPA systems, payloads and data analytics, air space management systems, synchronized

fleet management systems, and supporting regulation. This presentation shall describe the required building blocks, IAI's development roadmap and IAI's participation in current EU R&D programmes funded by SESAR and H2020.

44 16.40-16.50 **European Drone Regulation – Enabling Cross-Border Operations**
Michael Wieland - UAV DACH, Germany



Bio Data Michael Wieland graduated as electrical engineer and has worked as a consultant for more than 20 years. After business school he focused on applying state-of-the-art technologies in emerging industries and managed operations in private equity firms. He holds a private pilot license and has founded a start-up to provide preparatory information for remote pilots. Since 2018, he manages UAV DACH - Unmanned Aviation Association. Representing the association's 200 members, Michael participates in the German Drone Advisory Council, DIN, ASD-STAN and JARUS SCB WG12 (at-large); he also lectures on safe commercial unmanned aviation operations and moderates conferences.

Abstract The European Commission and EASA are finalizing the European drone market regulation. However, the Basic Regulation and upcoming rules will build a framework only. Many details are not clearly defined yet but will be necessary for cross-border and BVLOS flight operations. Currently, Drone Councils, ANSPs, DIN, ASD-STAN, and others are hurrying to finalize their work before EASA rules become effective. UAV DACH is a proponent of transparent, easy and quick procedures for cross-border operations, where each operator shall receive his flight permission from a single CAA, in the language of the country of registration, within an acceptable period of time, while the regulations in the flight operation area shall be coordinated bilaterally between the relevant CAAs. The goal is to simplify European-wide flights for operators, although most flights should not need any permissions at all. In order to harmonize the various national approaches and to build a strong voice for European operators, close cooperation & coordination between the member states is urgently required.

45 16.50-17.00 **Drone Information Management Showcase Services in U-Space**
Pablo Sanchez-Escalonilla - CRIDA - Centro de Referencia de Investigación, Desarrollo e Innovación ATM A.I.E., Spain



Bio Data Pablo Sanchez-Escalonilla is Technical Manager at CRIDA and an ATM systems research expert. He is Aeronautical Engineer with a degree from the Polytechnic University of Madrid. With over 20 years of experience in ATM research, he has been involved in a wide range of research topics, including feasibility and performance assessment through several validation techniques of new ATM operational concepts. He was involved in European ATM R&D projects such as Leonardo, Gate to Gate, SESAR Definition Phase, Episode 3 and SESAR Development Phase. In this latter project, Pablo works as project manager in the area of pre-operational validation of the integrated TMA concept elements. He participates as project manager in the development of advanced ATM decision-making supporting tools such as eTLM (Enhanced Traffic Load Monitoring) and PERSEO (Platform for the Performance Assessment in the Spanish ATM System), and in the engineering activities dealing with the Automated Baggage Handling System in Barcelona Airport (out of the ATM domain). Within the RPAS field, he has been involved in DEMORPAS and ARIADNA live trials, projects addressing the integration of remotely piloted aircraft systems in non-segregated airspace. More recently, since the creation of SESAR U-space, he is taking part on the exploratory research and development of U-space services, including information management solutions, CNS architecture and the operational concept development of the U-space system. He is the Project Coordinator of IMPETUS consortium, aiming at ensuring commercial feasibility of the U-space Information Management needs of drone operations in Very Low-Level airspace. He is also taking part in TERRA U-space project and collaborating with CORUS for the development of the U-space operational concept. His work also encompasses the participation in drone trial demonstrations in the Safedrone and DOMUS projects.

Abstract Within the framework of the service-oriented approach proposed in SESAR U-space, the IMPETUS project addresses the information demand for the integration of drones in very low level airspace. The presentation explores the characterisation of drone information needs for the highly diverse operational scenarios and business models. From the analysis of the stakeholders' inputs and use cases IMPETUS defines a set of high level concepts of information services for drone operations, and it also explores the most relevant challenges for the development of a scalable, cost-efficient and fully automated system to support the entire drone operational lifecycle. A set of crucial services have been selected to be further developed and tested by the IMPETUS consortium. Gaps and challenges are further investigated, proposing technologically and commercially feasible solutions integrating new and emerging information management technologies. The services explored include drone-specific weather provision, drone flight planning management, monitoring and traffic information provision as well as the elaboration of traffic management services for drones. IMPETUS will test these services via specific experiments, to not only address the challenges of these services but foremost to define how these services interact among each other within the context of the global U-space system.

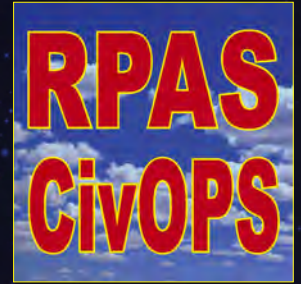
17.00-17.15 **Panel Discussion - 15 minutes**

17.15-17.30 **Closing Words - 15 minutes**



7th ANNUAL EDITION

RPAS CivOps 2019



European Civil RPAS Operators & Operations Forum

SPEAKERS FROM

● Australia	1
● Belgium	2
● European Commission	1
● EU Agencies	3
● EU Co-funded Consortia	5
● EU Standards Organisations	3
● France	5
● Germany	6
● Intergovernmental Organisations	2
● International Association	1
● Israel	1
● Italy	1
● Netherlands	5
● Spain	16
● UK	1

QUANTITY OF PRESENTATIONS

23 January 2019	4 Plenary Sessions	23 Presentations
24 January 2019	4 Plenary Sessions	22 Presentations
Total		45 Presentations

SPEAKER CATEGORIES

● Academia	2
● Air Navigation Service Provider	4
● Civil Drone Council (National)	4
● Consulting Company	6
● Energy Supplier	1
● European Commission	1
● European Union (EU) Agency	3
● EU-funded Consortia	5
● Intergovernmental Organisation	3
● International Association	1
● National RPAS Association	2
● National Aviation Authority	5
● National Governmental Agency	2
● National Ministry	4
● National Public/Private Partnership	4
● Qualified Entity	1
● Regional Promotion Organisation	1
● Research Organisation	2
● RPAS Manufacturer	1
● RPAS Manufacturer/Operator	2
● RPAS Operator	3
● Standards Organisation	3
● Test Range	2
● UTM Developer	4