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# RPAS CivOps 2020 EUROPEAN CIVIL RPAS OPERATORS & OPERATIONS FORUM

**Harmonizing National Approaches  
To EU Regulation Implementation**

The Hague, The Netherlands

14 & 15 January 2020

CONFERENCE PROGRAMME  
*(Unabridged Edition)*

ORGANIZED BY



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# RPAS CivOps 2020 - Conference Programme

## DAY 1 - TUESDAY 14 JANUARY 2020 - MORNING

### SESSION 1 - OPERATIONS

- 0 08.00-08.45 **Delegate Sign In**  
 00 08.45-08.50 **Opening Words - Peter van Blijenburgh**  
 01 08.50-09.00 **Welcome Speech - Speaker** <sup>(TBA)</sup>  
 02 09.00-09.15 **Collection & analysis of data on UAS operations**  
 Lennaert Speijker - Netherlands Aerospace  
 Centre (NLR), The Netherlands  
 03 09.15-09.30 **RPAS potential for EU border surveillance**  
 Zdravko Kolev - FRONTEX European Border and  
 Coast Guard Agency  
 04 09.30-09.45 **Compliant & safe drone operations for a  
 connected world**  
 Karim Cosslett - Thales UK, Soarizon, UK  
 05 09.45-10.00 **Standards: A key enabler for the development  
 of the drone market**  
 Séverine Charmant - Direction Générale de  
 l'Aviation Civile (DGAC) - DTA, France  
 06 10.00-10.15 **Drone legislation adapted to disasters**  
 Lt Vendelin Clicques - International Emergency  
 Drone Organisation  
 10.15-10.30 Audience Questions **15 minutes**  
 10.30-11.00 Break **30 minutes**

### SESSION 2 - PILOT TRAINING & QUALIFICATION

- 07 11.00-11.15 **Overview of the drone pilot training &  
 qualification process in France**  
 Erwin George - ENGIE, France  
 08 11.15-11.30 **Should UAS pilots be certified ?**  
 Matthieu Gérard - DeltaCopter, Belgium  
 09 11.30-11.45 **Towards EU drone pilot licenses - Some practical  
 considerations**  
 Joost Vreeken - Netherlands Aerospace Centre  
 (NLR), The Netherlands  
 10 11.45-12.00 **eDrone - Creating new competences &  
 opportunities through specialized training**  
 Augustin Lupu - UVS Romania, Romania [on behalf  
 of the eDrone consortium (FR, IT, PL, RO)]  
 11 12.00-12.15 **Resources, methodology and contents of an  
 open category remote pilot online course**  
 Antonio Mota - Zangano, Spain  
 12 12.15-12.30 **Exploring the borders - Examination eX:plained**  
 Lisette Heijma - eX:plain, The Netherlands  
 12.30-12.45 Audience Questions **15 minutes**  
 12.45-14.00 Lunch **75 minutes**

## DAY 1 - TUESDAY 14 JANUARY 2020 - AFTERNOON

### SESSION 3 - ECONOMIC & SOCIETAL BENEFITS

- 13 14.00-14.15 **Rijkswaterstaat & Drones**  
 - Nancy Scheijven - Rijkswaterstaat, The Netherlands  
 - Ariea Vermeulen - Rijkswaterstaat, The Netherlands  
 14 14.15-14.30 **RPAS maritime surveillance services - Experience  
 after multiple deployments**  
 Olaf Trieschmann - European Maritime Safety Agency  
 15 14.30-14.45 **Autonomous drone operations**  
 Niels Klink, Mapture, The Netherlands  
 16 14.45-15.00 **The future of insurance for connected drone fleets**  
 Thomas Wilson - Flock Cover, United Kingdom  
 17 15.00-15.15 **Drones and Natura2000**  
 Roland van der Vliet - Bureau Waardenburg, The  
 Netherlands  
 18 15.15-15.30 **Drones in the Railway Environment**  
 Jeroen van den Tweel - ProRail, The Netherlands  
 15.30-15.45 Audience Questions **15 minutes**  
 15.45-16.30 Break **55 minutes**

### SESSION 4 - TEST RANGES

- 19a 16.30-16.40 **The current situation in Belgium relative to  
 pilot training & anticipated developments**  
 Patrick Mascart - ID2MOVE, Belgium  
 19b 16.40-16.50 **International standards as bridges between  
 testing and training facilities**

- 20 16.50-17.05 **Patrick Mascart - ID2MOVE, Belgium  
 ICAReS Test Range Report**  
 Rob van Nieuwland - DARPAS, The Netherlands  
 (on behalf of the ICAReS consortium)  
 21 17.05-17.20 **Enabling Experimental BVLOS Operations on  
 Dutch Test Ranges - Reality or Illusion**  
 Rudy Muller - RPAS Services, The Netherlands  
 22 17.20-17.35 **Joint effort to develop experimental zones  
 within the European framework**  
 Rob Nispeling - Aviолanda Aerospace, The Netherlands  
 (on behalf of Dutch Drone Centre Aviолanda)  
 17.35-17.50 Audience Questions **15 minutes**  
 18.00-19.00 Open Bar + Hot & Cold Snacks **60 minutes**  
 Sponsor  **● Speech by Jaco Stremler - DG Aviation, Ministry  
 of Infrastructure & Water Management**  
**● Franco-Dutch Document Remittance**  
**● Awards Ceremony**

## DAY 2 - WEDNESDAY 15 JANUARY 2020 - MORNING

### SESSION 5 - ICAReS CLUSTER

- 23 08.45-09.00 **ICAReS Cluster**  
 Sven Willemssen - Municipality of Woensdrecht,  
 The Netherlands (on behalf of ICAReS consortium)  
 24 09.00-09.15 **Mapping & Surveying - Reflections on current  
 & future applications in the water & infra sector**  
 Jarno de Jong, Geo Infra, The Netherlands  
 25 09.15-09.30 **Drone technique in educational programmes**  
 François Coppens - Zuidwesthoek College, The  
 Netherlands  
 26 09.30-09.45 **BVLOS Experiments in Woensdrecht**  
 Rudy Muller - on behalf of Wiebe Logghe,  
 REWIN, The Netherlands  
 27 09.45-10.00 **ICAReS Strategy & Actions Plans**  
 Rob van Nieuwland - DARPAS, The Netherlands  
 (on behalf of the ICAReS consortium)  
 10.00-10.15 Audience Questions **15 minutes**  
 10.15-11.00 Break **45 minutes**

### SESSION 6 - SORA

- 28 11.00-11.15 **Drone REGIM WG1.1: First Deliverable**  
 Stéphane Morelli - Azur Drones, France (on behalf  
 of Drone REGIM WG1.1)  
 29 11.15-11.30 **Automated SORA Tool**  
 Stephan van Vuren - AirHub, The Netherlands  
 30 11.30-11.45 **Road to SORA V2.0 and Beyond. Modularity  
 and real use case illustration**  
 Eric Gaillard - Star Engineering, France  
 31 11.45-12.00 **The use of SORA for the preparation of BVLOS  
 flight operations**  
 Nicolas Sonnet - Aeromapper, France  
 32 12.00-12.15 **Public acceptance of UAS: Address it, or risk a  
 serious hit**  
 Thorsten Indra - AerialCam Services, Germany  
 12.15-12.30 Audience Questions **15 minutes**  
 12.30-14.00 Lunch **90 minutes**

## DAY 2 - WEDNESDAY 15 JANUARY 2020 - AFTERNOON

### SESSION 7 - U-SPACE: THE EU APPROACH

- 33 14.00-14.10 **The challenge of coordinating national approaches**  
 Philip Butterworth-Hayes - Unmanned Airspace, UK  
 14.10-15.00 **Panel discussion on U-Space with 6 panelists:**  
 a) Daniel Garcia-Monteaavaro Vizcaino - ENAIRE, Spain  
 b) Nicolas Marcou, DGAC-DISAC, France  
 c) Hendrik-Jan van der Gucht - skeyes, Belgium  
 d) Ron van de Leijgraaf - Ministry of Infrastructure & Water  
 Management, The Netherlands  
 15.00-15.15 Audience Questions **15 minutes**  
 15.15-16.00 Break **45 minutes**

### SESSION 8 - EU REGULATION IMPLEMENTATION

- 34 16.00-16.15 **Cooperation of EU member states on implement-  
 ing the EU regulations**

35	16.15-16.30	Ron van de Leijgraaf - Ministry of Infrastructure & Water Management, The Netherlands	
		<b>The Spanish approach to the implementation of the EU regulation</b>	
36	16.30-16.45	Diego Fernández Varela - AESA, Spain	
		<b>Transiting to European regulation on UAS : challenges and solutions</b>	
37	16.45-17.00	Nicolas Marcou - Direction Générale de l'Aviation Civile (DGAC) - DSAC, France	
		<b>The Belgian implementation approach</b>	
38	17.00-17.15	Kris Clarysse - Federal Public Service Mobility & Transport, Belgium	
		<b>The German Implementation approach</b>	
39	17.15-17.30	Raimund Kamp - Federal Ministry of Transport & Digital Infrastructure, Germany	
		<b>The Dutch approach to zoning – Societal embracement of drones</b>	
		Petra Syaifoel - Ministry of Infrastructure & Water Management, The Netherlands	
	17.30-17.45	Audience Questions	<b>15 minutes</b>
	17.45-17.55	Closing Words	<b>10 minutes</b>

## Presenting Organisations & Affiliations

### AerialCam Services, Germany

- Drone operator & drone-related consultancy
- ▶ Member of: ● UVS International
- ✦ Participant: ● Drone REGIM

### Aeromapper, France

- Drone & sub-system manufacturer & drone operator

### Agencia Estatal De Seguridad Aerea (AESA), Spain

- National Aviation Authority
- ▶ Member of: ● Spanish RPAS Commission
- ICAO RPAS Panel
- JARUS
- EU regulation implementation coordination group
- ✦ Participant: ● Drone REGIM

### AirHub, The Netherlands

- Drone-related regulatory consultancy
- ▶ Member of: ● Dutch national public/private drone initiative
- UVS International
- ✦ Participant: ● Drone REGIM

### Atechsys, France

- Drone & sub-system manufacturer & drone operator, test range operator
- ▶ Member of: ● French Civil Drone Council
- UVS International
- ✦ Participant: ● Drone REGIM

### Aviolanda, The Netherlands

- Drone test range operator
- ▶ Member of: ● ICAREs Consortium
- Dutch Drone Group

### AW Drones Consortium, Europe

- EU Horizon 2020 funded Research & Innovation Programme

### Azur Drones, France

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

### Blyenburgh & Co, France

- RPAS-related consultancy, publishing & event organizer
- ▶ Member of: ● AW-Drones & various EC co-funded consortia
- UVS International
- ✦ Participant: ● Drone REGIM

### Bureau Waardenburg, The Netherlands

- Research and advice consultancy in the fields of ecology, nature, the environment and landscape design

### Civil Drone High Level Consultation Group, The Netherlands

- National public/private drone initiative

### 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

- ✦ Participant: ● Drone REGIM

### DeltaCopter, Belgium

- RPAS Flight School
- ▶ Member of: ● Belgian Civil Drone Council
- UVS International

- ✦ Participant: ● Drone REGIM

### 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), France

### - Direction de la Sécurité de l'Aviation Civile (DSAC)

### - Direction du Transport Aérien (DTA)

- Air Navigation Service Provider
- ▶ Member of: ● French Civil Drone Council
- ICAO RPAS Panel
- JARUS
- EU regulation implementation coordination group
- SESAR's U-Space Working Group
- SJU co-funded CORUS, PODIUM & USIS consortia

### Dutch Certified RPAS Operators (DCRO), The Netherlands

- National RPAS operators association
- ▶ Member of: ● Dutch national public/private drone initiative

### eduDrone Consortium, Greece/Italy, Poland/Romania

- Project, co-funded by the Erasmus+ Programme of the EU, aiming to help people learn about drones and prepare themselves for the future. It supports the implementation of Industry 4.0 by developing drone-related learning tools for Vocational Education & Training (VET)

### 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
- UVS International

- ✦ Participant: ● Drone REGIM

### European Maritime Safety Agency (EMSA), European Union

- EU agency providing technical assistance & support to the EC & Member States in the development & implementation of EU legislation on maritime safety, pollution by ships, maritime security. It has also has operational tasks in the field of oil pollution response, vessel monitoring, long range identification & tracking of vessels.

### eX:plain, The Netherlands

- Vocational assessment & certification testing research
- ▶ Member of: ● UVS International
- ✦ Participant: ● Drone REGIM

### Federal Public Service Mobility & Transport, Germany

- National Aviation Authority
- ▶ Member of: ● Belgian Civil Drone Council
- EU regulation implementation coordination group

### Flock Cover, United Kingdom

- Start-up insurance supplier

### FRONTEX - European Border and Coast Guard Agency

- EU agency

### Geo Infra, The Netherlands

- Drone operator
- ▶ Member of: ● UVS International
- ✦ Participant: ● Drone REGIM

### 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.

### ID2MOVE, Belgium

- Incubator for autonomous systems
- ▶ Member of: ● Belgian Civil Drone Council
- UVS International

- ✦ Participant: ● Drone REGIM

### 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

### International Emergency Drone Organisation

- Non-profit association federating emergency responders (police & fire fighters) from 35 countries
- ▶ Member of: ● UVS International
- ✦ Participant: ● Drone REGIM

### Mapture, The Netherlands

- Drone & sub-system manufacturer & drone operator

### Ministry of Infrastructure & Water Management, The Netherlands

- National Aviation Authority
- ▶ Member of: ● ICAO RPAS Panel
  - JARUS
  - EU regulation implementation coordination group
  - Dutch national public/private drone initiative
- ✦ Participant: ● Drone REGIM

### Ministry of Transport & Digital Infrastructure, Germany

- Federal governmental entity
- ▶ Member of: ● JARUS
  - German Civil Drone Council
  - EU regulation implementation coordination group

### Municipality of Woensdrecht, The Netherlands

- Municipality
- ▶ Member of: ● ICAREs consortium

### National Aviation Authority (NAA) Regulation Implementation Coordination Group, EU

- Group of NAAs (AT, BE, DE, ES, FR, IT, LU, NL, PL, UK) endeavoring to coordinate their national approaches to the implementation of the EU drone regulation.

### Netherlands Aerospace Centre (NLR), The Netherlands

- Research organisation, drone-related consultancy, test range operator, RPAS operator
- ▶ Member of: ● Dutch national public/private drone initiative
  - Various EC-funded drone-related consortia
  - UVS International
- ✦ Participant: ● Drone REGIM

### ProRail, The Netherlands

- Independent organisation managing the Dutch railroad network

### REWIN, The Netherlands

- Regional economic development organisation
- ▶ Member of: ● ICAREs consortium

### Rijswaterstaat, The Netherlands

- Directorate-General for Public Works & Water Management, responsible for the design, construction, management & maintenance of infrastructure facilities. Drone operator.
- ✦ Participant: ● Drone REGIM

### RPAS Services, The Netherlands

- Drone operator & drone-related consulting services
- ▶ Member of: ● UVS International
- ✦ Participant: ● Drone REGIM

### skeyes, Belgium

- Air navigation service provider
- ▶ Member of: ● Belgian Civil Drone Council
  - UVS International
- ✦ Participant: ● Drone REGIM

### Spanish Drone Commission (SDC), Spain

- National public/private partnership overseen by AESA

### Star Engineering, France

- Specialized consulting company
- ▶ Member of: ● UVS International
- ✦ Participant: ● Drone REGIM

### Thales UK Ltd, United Kingdom

- Design, development & commercialisation of SOARIZON aeronautical information system for drone operators

### Unmanned Aviation, UK

- Specialised press & consulting
- ✦ Participant: ● Drone REGIM

### UVS International, International

- International RPAS association
- ▶ Member of: ● ICAO RPAS Panel
  - ICAO «Space Learning» Group

- OECD's Drone Working 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
- ✦ Initiator: ● Drone REGIM

### UVS Romania, Romania

- National RPAS association
- ▶ Member of: ● EU/Erasmus co-financed EduDrone Consortium
  - UVS International
- ✦ Participant: ● Drone REGIM

### Zangano, Spain

- Drone-related regulatory consultancy
- ▶ Member of: ● Spanish Drone Commission
  - UVS International
- ✦ Participant: ● Drone REGIM

### Zuidwesthoek College, The Netherlands

- Secondary school
- ✦ Participant: ● Drone REGIM

### SPEAKER & PANELIST ORIGINS

● Belgium	4
● EU Agency	2
● France	8
● Germany	2
● International Association	2
● Netherlands	21
● Romania	1
● Spain	3
● UK	3

### QUANTITY OF PRESENTATIONS

14 Jan. 2020	4 Plenary Sessions	22 Presentations
15 Jan. 2020	3 Plenary Sessions 1 Plenary Panel Session	16 Presentations 4 Panelists
<b>Total</b>		<b>39 Presentations 4 Panelists</b>

### SPEAKER & PANELIST CATEGORIES

● Academia	3
● Aeronautical Service Provider	3
● Air Navigation Service Provider	4
● Consulting Company	10
● Drone REGIM	31
● Energy Supplier	2
● European Union (EU) Agency	2
● EU-funded Consortium	6
● Flight School	6
● Insurance supplier	1
● International Association	2
● Municipality	1
● National RPAS Association	4
● National Aviation Authority	10
● National Governmental Agency	4
● Railway network operator	1
● Regional development organisation	1
● Research Organisation	5
● RPAS Manufacturer	2
● RPAS Operator	18
● Test Range	6

Note: A speaker/panelist can fall in more than one category

Conference Chair

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



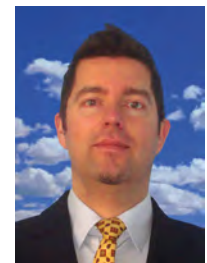
**Bio Data** Peter van Blijenburgh, a Dutch national, was born in The Netherlands (1948) and resides in Paris, France (since 1976). He is the CEO of Blyenburgh & Co, a French strategic consultancy company & publisher. Mr. Van Blijenburgh is the founder of EuroUVS (1997), which became UVS International in 2000. On 31 December 2019, he completed his 12th two year mandate as president of UVS International ([www.uvs-international.org](http://www.uvs-international.org)), a non-profit association registered in The Netherlands and operating out of offices in Paris, France, which represents more than 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 national drone 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](http://www.rpas-regulations.com), the world's largest web site dedicated to drone regulations, as well as [www.rps-info.com](http://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: Experts Board of the Horizon 2020 funded FOCUS project (2017-now); European Commission's U-Space Working Group (2017-now); European Commission's Expert Group on Drones (2017-now); European UAS Standards Coordination Group (2017-now); European U-Space Demonstrator Network (2018-now); Advisory Board of the European Commission co-funded «[DroneRules PRO](http://DroneRules.PRO)» project (2017-2019); European Commission co-funded «AW-Drones» consortium (2018-2020) ([www.aw-drones.eu](http://www.aw-drones.eu)); as well as various corporate & academic advisory committees. In 2019, based on the «Madrid Declaration», he instigated and organized UVS International's [Drone REGulation Implementation \(REGIM\) initiative](http://Drone.REGulation.Implementation.REGIM.initiative).

DAY 1 - TUESDAY 14 JANUARY 2020 - MORNING

SESSION 1

- 0 08.00-08.45 **Delegate Sign In**
- 00 08.45-08.50 **Opening Words - Peter van Blijenburgh**
- 01 08.50-09.00 **Welcome Speech**  
**Ties van Zanten - Ministry of Infrastructure & Water Management, The Netherlands**
- 02 09.00-09.15 **Collection & analysis of data on UAS operations**  
**Lennaert Speijker - Netherlands Aerospace Centre (NLR), The Netherlands**

**Bio Data 1** Lennaert is Senior Consultant at NLR's Safety Institute. He is also Operations Manager for Future Sky Safety (FSS), the EU co-funded research programme in the field of aviation safety, which develops new tools and new approaches to aeronautics safety. FSS includes projects on solutions for runway excursions, total system risk assessment, resolving organizational accidents, human performance envelope and mitigating risk of fire, smoke and fumes. Since 2008, he supports the Dutch CAA with research for policy making on UAS safety and operations and e.g. manages the Project 'Safety data for RPAS'. The aim is to set up a data collection scheme, enabling analysis of collected operational and safety data. In 2019, he joined Europe's Collaborative Analysis Group (CAG) on Air Traffic Management (ATM). Before that, for more than 3 years, he participated in ICAO's RPAS Panel (both as advisor to the Dutch CAA and as rapporteur of the RPASP/SMP Joint Task Force (JTF) on RPAS Safety Management). This JTF develops safety management-related provisions to facilitate safe integration of RPAS into non-segregated airspace and aerodromes. Within a multi-year (2007-2012) cooperation agreement between FAA and the Dutch CAA, he managed a safety research project on RPAS, focusing on safety aspects related to Detect and Avoid and Command and Control. He was Coordinator of the EC Project ASCOS (Aviation Safety and Certification of new Operations and Systems) (2012 – 2015), realising a novel approach for certification/ approval of changes in aviation. New methods/tools for safety based design and continuous safety monitoring have been developed. He obtained his PhD at in 2007, with a dissertation on risk-based decision support for new air traffic operations with reduced aircraft separation. He has some flight experience on various light aircraft types.



**Abstract** Unmanned Aircraft System (UAS) operations have been growing over the last years. UAS are more often used for tasks such as surveillance, aerial work, inspections and agricultural purposes. The growth of drone operations brings new challenges with regard to safety assurance. However, there is a lack of information on UAS operations. The problem is recognized but so far little steps have been taken to systematically collect and analyse operational and safety data of UAS operations. In view of the above, the Netherlands Ministry of Infrastructure and Water Management (IenW) has initiated research to support the collection and analysis of operational and safety data for RPAS. The study is being carried out in the Programme Knowledge for Policy Making on Drones of the Netherlands Aerospace Centre (NLR) for IenW. The first phase of the study includes the realisation and testing of an initial 'Drone Operational Repository for Safety'. This enables data collection

from UAS operators and integration into an operational database. With this database, a variety of (statistical) analyses can be performed, both operational and safety related. The outcome can be fed back to authorities and operator(s) to improve their safety management. This presentation addresses the selection of Key Performance Indicators to characterise UAS operations. This concerns Safety Performance Indicators (SPIs) for assessing the safety performance of service providers in the UAS sector as well operational indicators characterizing the operations. The latter concerns keeping track of the fleet composition of operators, operational environment, categories of operations, collecting data on the flights performed (flight hours) and maintenance. The research prototype platform for collection and analysis of UAS data is described, including the main requirements, functionalities, design, architecture, data sources and inputs, and user dashboards. Different use cases for the data platform illustrate how potential users (authorities, qualified entities, UAS operators, research institutes, ...) can potentially use it in their daily work.

03 09.15-09.30 **RPAS potential for EU border surveillance**  
**Zdravko Kolev - FRONTEX European Border and Coast Guard Agency**



**Bio Data** Zdravko Kolev joined Frontex as Senior Research Officer in 2007. His experience includes twenty-five years service in various positions with the Bulgarian Air Defence, Navy and Border Police. His background has always been connected with operational assessment of technologies relevant to border control and surveillance. He has a Master of Science in engineering in radar technology from the Bulgarian Military Air-Defence University. His area of interest at Frontex covers the agency's activities related to Remotely Piloted Aircraft System potential for border surveillance. His experience includes also 900 hours of RPAS operational trials. In 2010 RPAS International presented him with the Catherine Fargeon Award.

**Abstract** In recent years the potential of RPA technology for civilian and law enforcement use has been recognized in areas such as environmental monitoring (monitoring of fires, floods); wildlife monitoring (monitoring of endangered species such as whales); agriculture (surveying crops), as well as traffic control and border surveillance. Up to now there is limited experience with the actual deployment of Remotely Piloted Aircraft System (RPAS) in support of border surveillance. This technology is of particular interest for Frontex and EU Member states for improving the capacity to detect and track small and unseaworthy vessels, which are being used on a regular basis for irregular migration and cross-border crime (e.g. drug smuggling). The use of such vessels has multiplied the death toll of migrants drowning when trying to reach EU shores. For border surveillance operations RPAS technology might offer great potential by improving the aerial surveillance capacity resulting in more lives saved. However, to realise its potential and in order for end-users to consider the use of remotely piloted aircraft, the critical issue of operating RPAS in normal airspace urgently needs to be resolved. Three categories of RPAS are recognized by Frontex and the border guard community having potential for border surveillance and patrol support. These are small tactical drones at land borders; vertical take-off and landing RPA for deployment from vessels; and bigger RPAS, in principle for maritime surveillance. Frontex conducts pilot activities to assess the cost-efficiency of RPAS in a number of operational scenarios, focusing on maritime surveillance, gradually on land surveillance; a trial of 900 hours is being performed covering areas in the Eastern and Central Mediterranean Sea. The positive results obtained in the different pilot programmes will likely lead to Frontex acquiring its own RPAS capacities

04 09.30-09.45 **Compliant & safe drone operations for a connected world**  
**Karim Cosslett - Thales UK, Soarizon, UK**



**SOARIZON®**  
By Thales



**Bio Data** Karim Cosslett has a FE in Sciences, Royal Air Force Defence-based academic studies. He is a former Royal Air Force Officer with over 20 years of senior leadership and management experience, developed and utilised in the public sector and private industry, worldwide. A committed professional with focus on customer-led solution sales, with an enthusiastic dedication and consistent record of success. Comfortable operating at all levels of business, bringing a requirement-led approach, taking the initiative, whilst being at ease with making considered and well-balanced decisions. A proven, diplomatic and effective leader, excelling in driving sales, and achieving company-wide objectives in a commercially collaborative environment.

**Abstract** The potential of drones to contribute to society is overwhelming, ranging from traffic management, improved health care, more streamlined logistics, better delivery experiences, new ways to transport goods and services and a significant impact on safety and communication. Drones can also play a role in improving safety in civilian environments, for example confirming the presence of fire, confirming evacuation processes, monitoring the danger area and people flow, whilst simultaneously providing accurate, live-feed situational awareness to first responders and emergency services, anywhere in the world. The potential for fire department efficiencies in monitoring vast areas under threat is but one use case where drones can fundamentally change methodology and mitigate the effects of major disasters. It is a sector that has expanded in value from \$40m in 2014 to \$1 billion this year, according to Forbes. As these use cases become harder to ignore, the widespread adoption of drones may be closer than we think. Karim Cosslett, Head of Growth for SOARIZON® by Thales is available to discuss the benefits and challenges of drones and touch on why it is key for regulation to catch up to enable a framework for such transformational technology to thrive in order to fully support the shifting needs of modern society. SOARIZON is a drone management platform that allows operators to plan and execute safe and compliant drone missions anywhere in the world. It combines best in class mapping capabilities with

risk management, live airspace data and NOTAMs, as well as weather data to enable drone pilots to plan missions end-to-end within a single platform. Crucially, for both larger and smaller organisations deploying drones, SOARIZON enables pilots to allocate work and collaborate on missions. Enterprises can access trusted operators who, in turn, use it to scale-up their operation, so that they are best positioned to support an industry on the brink of massive expansion. Visit [www.soarizon.io](http://www.soarizon.io) to discover more.

05 09.45-10.00 **Standards: A key enabler for the development of the drone market**  
**Séverine Charmant - Direction Générale de l'Aviation Civile**  
**(DGAC) - DTA, France**

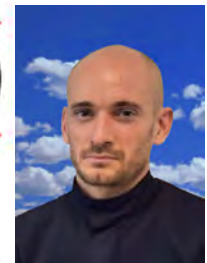


**Bio Data** After a degree in Public Affairs, Severine joined the international cooperation department of the French Civil Aviation Authority (DGAC) which aims to develop collaboration and provide assistance in the field of safety. Then, she worked for one year as a project manager at DSN Services, a consulting company created by DGAC. In 2018, she joined the Aeronautic industry department (DGAC) as Project manager and secretary general for the Civil drones council, which aims to pursue and accelerate the development of the drones sector through dialogue between the main industry players and coordinating the efforts to remove the operational, technological, economic and regulatory barriers.

**Abstract** Standardisation is a key issue for the development of the European drone market. It concerns all categories of operation that are defined in the European regulation. In Europe, ASD-Stan is working on standards that will be required to obtain a "CE" marking, which will be needed to conduct operation within the "Open" category. Standards development work encounters many difficulties: a) Lack of representativeness of drones/component manufacturers in the standards making bodies. Because of this, the technical aspects of the standards making efforts cannot be addressed; b) Lack of technical resources/studies: some standards represent a technical challenge, which makes it hard to write standards; c) Lack of working force in general. Due to these problems, the development of the European standards is considerably late, and significantly lagging behind the United States of America. Much remains to be done and it is important for the European countries to work together to tackle forthcoming projects, such as standards for the specific category, or U-Space/UAS traffic management. This presentation aims to describe :

- The importance of the involvement of the national authority to push the standards making work forward;
- The state of play of the ASD-Stan work (WG advances detailed);
- Probable issue for the European CE marking standards with schedule;
- The next steps for European standards (specific category);
- ISO developing standards without Europe;
- New steps for international standards.

06 10.00-10.15 **Drone legislation adpted to disasters**  
**Lt Vendelin Clicques - International Emergency Drone Organisation**



**Bio Data** Lt. Vendelin CLICQUES, is the president of IEDO. He obtained a Master's degree & an Engineering degree in Aeronautical Maintenance. He has been in active duty for 8 years as full-time French fire officer. He is working for the Service Départemental d'Incendie et de Secours des Yvelines (SDIS 78) near Paris. Drone project head & drone team leader in his fire service since 2019. Former drone team leader & founder in the fire department of SDIS 91, drone trainer since 2015. He has published several articles on public safety & emergency drones, about drone legislation, drone tactical uses, aerial intelligence and human factors and the cognitive approach of the drone pilot. French National Drone Federation regional head for 1 year in 2017. He was an official contributor to the EENA drone project for 1 year in 2018. He founded IEDO in 2018.

**Abstract** The presentation will address the need for an adapted & shared legislation for drone first responders in Europe. Disasters in all European countries are the same, a flood is still a flood, a wildfire is still a wildfire, an industrial accident is still an industrial accident whatever the country, whatever the language or culture. That's precisely why first responders (fire and police) need a specific drone legislation with special exemptions. But the challenge is not to start from the EU drone legislation, but to start from the operational need, what is needed by first responders to fly safely and effectively to save lives anytime and anywhere?

10.15-10.30 **Audience Questions - 15 minutes**  
 10.30-11.00 **Break - 30 minutes**

SESSION 2

07 11.00-11.15 **Overview of the Pilot Training & Qualification Process in France**  
**Erwin George - ENGIE, France**



**Bio Data** Erwin George has an engineer diploma in Industrial Energetics and a PhD in Energetics (missile propulsion) from ONERA. Since 2006, he is a research Engineer at ENGIE, and is in charge of the Fluid Dynamics modelling Team. In early 2014, he founded ENGIE Drone Lab and is responsible for drone R&D contacts at ENGIE Drone Lab (internal and external developments). In addition, he is the co-leader of two French Civil Drone Council Working Groups: Test Ranges (CT2) & Pilot

Training (CT4) and its GT1 (International Issues). He is a former member of Fédération Professionnelle de Drone Civil (FPDC) and was its Pilot Training coordinator during 5 years. His 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 aerobatics (French & World Championship), vice-world champion in 2017. RC pilot (airplane (aerobatics), glider (slope flights) and multi-rotors) since 1991.

**Abstract** In this presentation an explanation will be given on how France approached the issue of drone pilot training and qualification, based on and taking into account the work performed by the French Civil Drone Council in this area. Furthermore, the speaker will explain the willingness of the French pilot training community to contribute to the creation of a harmonized EU approach, as is being prepared within the Drone REGIM initiative, and the necessity of EU cooperation in this area.

08 11.15-11.30 **Should UAS pilots be certified ?  
Matthieu Gérard - DeltaCopter, Belgium**



**Bio Data** Matthieu Gérard is the CEO of DeltaCopter. He is also a certified UAS operator, instructor, director of the Belgian Drone School, founder of Drone-Protex and Drone-Trips, Drone REGIM Focus Group and Working Group Leader for UVS International. As a young, but proactive CEO, he focuses on the development of a safe and profitable environment for UAS operations across Europe.

**Abstract** An interactive presentation where the speaker and the audience will exchange insights, and explore the question of UAS pilot certification through a small set of easy questions. The answers will be compared to the usual position of the authorities, and statistics collected from flight schools across Europe.

09 11.30-11.45 **Towards EU drone pilot licenses - Some practical considerations  
Joost Vreeken - Netherlands Aerospace Centre (NLR), The Netherlands**



**Bio Data** Joost is active in the areas of regulation, certification and safety for manned helicopters and Remotely Piloted Aircraft Systems as project manager and R&D engineer at NLR. He graduated in 2007 as Bachelor of Engineering in aviation and concluded a one year Aviation Management Honours Programme at the Amsterdam University of Applied Sciences. He joined The Royal Netherlands Aerospace Centre - NLR in 2008 and has since been working on manned helicopter and Remotely Piloted Aircraft System matters within his field of expertise (regulation, certification and safety). He's the Safety and Quality Compliance Manager within NLR's RPAS operator organisation, registered drone training facility and technical assessment body.

**Abstract** With the publication of Commission Implementing Regulation (EU) 2019/947 of 24 May 2019 on the rules and procedures for the operation of unmanned aircraft, today's regulatory fragmentation should come to an end. Especially as with the publication of the first Acceptable Means of Compliance and Guidance Material to this regulation and to Part-UAS, the interpretations of some of these rules are deepened. However, do they to the extent in which regulatory fragmentation is indeed ended? This subject is deepened with a focus on EU drone pilot licenses. Taking the current training criteria for The Netherlands as an example this is translated to how this may evolve under the new EU regulation. It also identifies some of the practical implications associated with the Responsibilities of the UAS operator in the Specific Category (UAS.SPEC.050). As the 'specific' category may cover a wide range of UAS operations with different levels of risk, this article requires the UAS operator to identify the competency required for the remote pilot. This highlights the notion, that in order to actually end today's regulatory fragmentation, regulatory harmonisation is not only needed at the highest regulatory bodies, but at all levels including authorities, operators and other service providers, such as training organisations. At these levels, the impact of diversification in operation (as is the intention with an operation centric approach) is most profound. This makes the harmonisation of the interpretation of the regulations by authorities and competent third parties essential to ensure a level playing field throughout all EU Member States while maintaining the benefits of an operational centric approach.

10 11.45-12.00 **eduDrone - Creating new competences & opportunities  
through specialized training  
Augustin Lupu - UVS Romania, Romania  
[on behalf of the eduDrone consortium (FR, IT, PL, RO)]**



**Bio Data** RPAS Experience: a) integration engineer for multinational private companies, since 2008: testing different LRUs for unmanned vehicles integration, QA and production supervising; b) field support for deployed UAs - technical support (maintenance and repairs for UAs subassemblies), training and documentation specialist. Relevant knowledge for UAS domain: a) engineer degree in automation, computers and movement control; b) materials knowledge and processing experience; c) practical electronics knowledge and experience; d) programming knowledge and experience - C, .NET, web (html, java, php), python; e) video processing and CAD/CAM knowledge; f) media and publication experience (currently chief editor for the Romanian unmanned magazine DRONELE.RO)

**Abstract** The eDrone project, co-financed by EU's Erasmus +, aims at defining a learning environment in the field of Unmanned Aircraft Systems. The main objective of the eDrone project is to provide higher education institutions in the Partner Countries with effective and efficient instruments to setup Offices for Education for Drones (OED), for the transferring of all the above mentioned knowledges to professionals of each Partner Country. Moreover, the project aims at realizing an innovative ICT-based infrastructure employing



enhanced technologies and methodologies allowing all the Partner Countries to create a network for sharing educational contents and databases to professionals. The Programme Countries will transfer their know-how and expertise for the achievement of the eDrone objectives by training the future teachers of the OED and by supporting them in the first edition of the OED. The Programme Countries are Romania, Italy, Poland, France, and the Partner Countries are Moldova, Belarus, Armenia, Georgia.

11 12.00-12.15 **Resources, methodology and contents of an open category remote pilot online course**  
**Antonio Mota - Zangano, Spain**



**Bio Data** Aeronautical Engineer and founding president of the Aerosolutions Group, dedicated to training, consulting and engineering for manned and unmanned aviation. Managing Director of Zángano, company specialized in services for the unmanned aviation. Managing Director of Beefly, one of the leading drone operators in Spain. Member of the EASA (European Safety Agency) expert groups for the regulation of U-Space and drone operations in certified category. Member of the Advisory Committee of AESA (Spanish Safety Agency). He teaches the subject «Integration of drones in the airspace» in the Master RPAS of the University of Huelva and is a visiting professor in the UAS Master of the Polytechnic University of Valencia. He leads the WG1.3 Flight School & Examination Qualification group of the UVS International Drone REGIM initiative.

**Abstract** Article 8 of UE Regulation 2019-947 - «Rules and procedures for the competency of remote pilots» establishes the requirement that any person willing to operate an unmanned aircraft with a weight of more than 250 gr must complete an online training course covering the following contents: (1) air safety; (2) airspace restrictions; (3) aviation regulation; (4) human performance limitations; (5) operational procedures; (6) UAS general knowledge; (7) privacy and data protection; (8) insurance; and (9) security. AMC1 UAS.OPEN.020(4)(b) and UAS.OPEN.040(3) UAS operations in subcategories A1 and A3 further develops the elements and concepts which shall be included in the referred to course. These courses shall be followed by an examination performed by a Member State or an organisation recognized by such Member State (MS), including 40 multiple-choice questions distributed appropriately across the different subjects. The presentation analyzes the methodology which shall be used when developing such online training, the pedagogical aspects of the course, and the functional characteristics to ensure that the learning objectives are achieved, taking into account the broad spectrum of potential students, ranging from young or unexperienced people, to more professional drone remote pilots. The necessity of harmonization (flight school designation, online training quality criteria, examination, certificates/licenses & mutual recognition) between different MS is essential, if we want to ensure a level playing field in this area across Europe.

12 12.15-12.30 **Exploring the borders - Examination eX:plained**  
**Lisette Heijma - eX:plain, The Netherlands**



**Bio Data** Lisette Heijma has spent her professional life in the educational sector as a coordinator, manager and examination specialist for vocational education. She has experience working as a member of an exam committee, exam construction and assessing exam questions. In 2019 she joined eX:plain, exchanging vocational education for sector-driven examination. With her experience she works to advise and assist professional partners on how to design a reliable examination system.

**Abstract** When working in high-risk sectors there is usually no margin of error. Co-workers and society at large rely on professionals in high-risk industries to know exactly how to do their job. These professionals need to be closely and reliably monitored to help them do their work to the best of their potential. Securing a profession safely and reliably requires the consolidation of the requirements of all the stakeholders. eX:plain has gained experience in creating such a European system to test and ascertain professional knowledge and skills. Their experience with high-risk safety systems - such as the society for Safety, Environment and Health Contractors (VCA); the medical-scientific professions (EMVO); and the Dutch public safety officers (ExTH) - provides insights in how to reliably ensure professionalism in high risk industries such as construction, electromechanics, petrochemistry, medical science and security services. During her presentation, Lisette Heijma will outline what examination systems like these look like and how these could serve the European system for drone piloting.

12.30-12.45 **Audience Questions - 15 minutes**  
 12.45-14.00 **Lunch - 75 minutes**

**DAY 1 - TUESDAY 14 JANUARY 2020 - AFTERNOON**

**SESSION 3**

13 14.00-14.15 **Rijkswaterstaat & Drones**  
**Nancy Scheijven & Ariea Vermeulen - Rijkswaterstaat, The Netherlands**



Rijkswaterstaat  
 Ministry of Infrastructure  
 and Water Management



**Bio Data** Since September 2017, Nancy Scheijven is director Ship Traffic and Water Management at the Rijkswaterstaat Traffic and Water Management Department, and CEO Drones. Rijkswaterstaat is the Directorate-General for Public Works & Water Management. As director she is responsible for the service of approximately 450 locks and bridges in the principal waterways of the Netherlands. In addition, she is responsible for accompanying shipping on the principal waterway network

that takes place from the traffic posts, but also from Rijkswaterstaat patrol boats. She is “owner” of the Water Management centrum from where the water quality and quantity is monitored, in cooperation with the water boards. Prior to this, she was director of network management at Rijkswaterstaat and was responsible for the management and maintenance of assets (locks, bridges, tunnels, principal shipping routes & waterways, and the main road network in the province of Noord Holland, one of the regions covered by Rijkswaterstaat (West Nederland Noord). After her career with Ordina, as amongst others management consultant in the field of management change, Nancy changed over to a government job as controller at the Ministry of Education, Culture & Science. Thereafter, she contributed, as unit head Advice and deputy director Personnel & Organisation, to the creation of the managing board concern support at the same ministry. In 2010, she stepped over from policy to an executive position, when she became director of Personnel Communication & Law with the corporate department of Rijkswaterstaat. Nancy business administration in Eindhoven, and subsequently International Management at the economic faculty of the University of Maastricht in the Netherlands.

Bio Data 2

Ariëna Vermeulen graduated as chemical engineer at the Rotterdam University of Applied sciences. She worked as an environmental consultant for 10 years. Since 2002, she has been working for Rijkswaterstaat as advisor, teamleader or programmanager on different subjects: sustainable building, shipping, safety, collaboration between governmental organizations and since 2019 coordinator for drones at Rijkswaterstaat.

Abstract

For inspections and infrastructure we always want to be able to use drones safely if this offers added value with regard to safety, efficiency, accessibility and/or costs. We developed a guideline for stakeholders to make sure we all benefit from these values. In addition, with the use of drones for incident management we save lives, reduce costs and limit the damage to the environment. We compare our old way of working with the new way and give you a look at our future roadmap.



14 14.15-14.30

**RPAS maritime surveillance services - Experience after multiple deployments**

**Olaf Trieschmann - European Maritime Safety Agency, EU**



Bio Data

Olaf Trieschmann is currently with the European Maritime Safety Agency (EMSA), where he is coordinating the development of remote piloted aircraft systems for maritime surveillance. Previously he was 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 (Global Monitoring of the Environment and Security) “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 require an effective maritime domain awareness. The European Maritime Safety Agency (EMSA) already provides comprehensive maritime domain information derived from satellites and vessels to the European Member States and EU Agencies. In the framework of the European Coast Guard Functions, EMSA is complementing its maritime information services with Remote Piloted Aircraft Systems (RPAS). RPAS allow with their long endurance covering large areas for detection of objects and can stay on spot for investigation of certain objects in detail. EMSA has contracted multiple RPAS for multi-purpose services comprising of fixed wing and rotary systems, ranging from light multi-copters to helicopters and fixed wing systems of 150kg to 250kg to large fixed wing RPAS of 1200kg MTOM. All systems are equipped with EO/IR cameras and AIS. The fixed wing systems include maritime radar, distress signal receivers and are operated through SATCOM to enable beyond radio line-of-sight far range operations. For measuring the sulphur content in the fuel of vessels, the helicopters are equipped with dedicated gas sensors. The presentation will show the RPAS available under the contracts and their capabilities. EMSA started its activities with RPAS in 2016 and up to now services have been provided to six European Member States, and the EU Agencies Frontex and EFCA. Multiple oil recovery vessels are now equipped with RPAS system. The EMSA RPAS services can help paving the way for future civil maritime RPAS operations. The experience gained so far will be discussed during the presentation. Three main topics will be addressed: the transition from military to civil operations, the process and needs in getting the permit to fly and the integration into the airspace, and the infrastructure to be setup for civil operations.

15 14.30-14.45

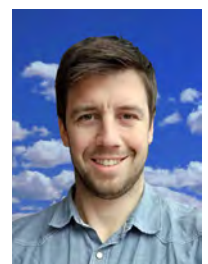
**Autonomous drone operations**

**Niels Klink - Mapture, The Netherlands**



Bio Data

Niels Klink is a mechanical and electrical product developer. He started building drones for aerial photography and filming in 2012. Since 2016 he has worked on several commercial drone products. As a co-founder, he started the company Mapture.ai in 2018. Mapture.ai builds drone-in-a-box systems with off-the-shelf drones from DJI and Parrot. As flight operations and safety manager, Niels is committed to bringing a safe and reliable product on the market.

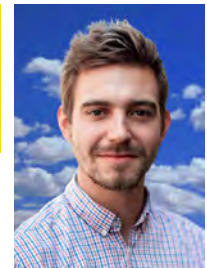


Abstract

Many drone operations are already mostly automated. Press start and the drone performs

the mission. If we also automate the charging, protect it from weather and connect it to the internet, the pilot no longer needs to be there. The drone could be operated from the office, or even without any human interaction. Similar to other BVLOS operations, airspace management will be essential for safe operations in a shared airspace. The drone-in-a-box concept is not expected to replace human pilots, except for the boring and repetitive tasks. Instead, it enables a variety of new applications.

16 14.45-15.00 **The future of insurance for connected drone fleets**  
**Thomas Wilson - Flock Cover, United Kingdom**



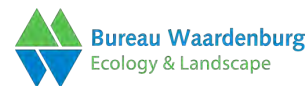
Bio Data

Tommy Wilson is the Drone Partnerships Manager at Flock, where he oversees the global partner network expansion. Prior to Flock, Tommy was Senior Project Director across a variety of B2B conference portfolios, driving innovation in the automotive, smart city and connected insurance spaces. Tommy has since joined the Flock team to deliver on their vision: to make the world a safer, smarter place.

Abstract

The rapid emergence of connected and autonomous drones brings with it a range of unprecedented opportunities, both economically and for social good. However, this novel technology has also given rise to a broad range of new and complex risks, which drone operators sometimes struggle to understand, and which insurers struggle to price. The application of traditional insurance pricing methods in the drone industry has led to many drone operators and enterprises paying substantially more for their insurance than their risk actually requires. This opaque 'one-size-fits-all' approach means that proactive risk mitigation is not incentivised or rewarded by insurers, despite the likelihood of fewer claims. Thankfully, the rise of flying robots has coincided with the rise of Big Data. When used intelligently, Big Data can be harnessed to quantify, intelligently price, and mitigate drone flight risks in real-time. As such, insurance is more transparent, with fairer pricing tailored to individual risk profiles. What's more, rich data insights can enable drone operators to fly safer, and be rewarded for doing so. This new alternative to traditional insurance is known as an 'exposure-based' approach. This white paper will detail this innovative approach, with the case studies serving to illustrate how the benefits of 'exposure-based' insurance are already being realised by drone operators throughout the industry, from SMEs all the way up to world-leading drone enterprises.

17 15.00-15.15 **Drones and Natura2000**  
**Roland van der Vliet - Bureau Waardenburg, The Netherlands**



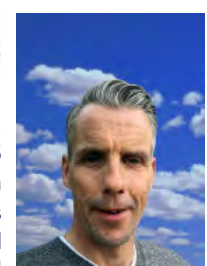
Bio Data

Roland received his Master's degree in landscape ecology in 1994 at Utrecht University, the Netherlands. After several years of work elsewhere, Roland returned to the university (department of Environmental Sciences) to work on a bird-related PhD, successfully defended in 2013. He currently works as a bird ecologist at Bureau Waardenburg, specialised in evaluating effects of wind farms, power lines and aviation on bird and bat populations during environmental impacts and other large-scale assessments in the Netherlands. The effects of drones on wildlife have recently emerged as a hot topic in many studies in the Netherlands. Roland published several papers in international and national journals on landscape ecology and ornithology, including assessment studies of wind farms and power lines on wildlife (papers downloadable through [www.researchgate.net](http://www.researchgate.net)).

Abstract

More than 160 Natura 2000 areas have been designated in the Netherlands to protect specific species and their natural habitat. Regularly performed activities in these areas are regulated by means of a management plan while activities that are rare require a permit under the Nature Protection Act. Flying with drones is an activity that has not been dealt with in most management plans and thus requires a permit, depending on the projected impact. Practice shows however that managers of Natura 2000 areas have a very different approach to the admission of drones in the areas. To establish a comparable approach between managers, a study was carried out involving a literature review to establish both effects of drones on wildlife as well as opportunities to monitor and research wildlife. The study produced 223 relevant publications. Most studies focused on research into vegetation, birds and mammals but reptiles, fish and insects were also researched. Topics varied from counting numbers of individuals, to recording bird sound and sampling insects or parasites. Rotor drones were used in 56% of the studies. They were more often used in bird studies. In research into vegetation and mammals both rotor and fixed-wing drones were used. Gaps in knowledge were identified for effects of drones on bats. Further research is also desired for specific effect distances on species groups. Establishing a database with data on flight height and distance combined with duration and frequency of disturbance per species may lead to better understanding of any negative effects. Because noise is at least partly responsible for creating disturbance, the development of quieter drones is beneficiary for monitoring and research of wildlife.

18 15.15-15.30 **Drones in the Railway environment**  
**Jeroen van den Tweel - ProRail, The Netherlands**



Bio Data

Jeroen van den Tweel (1965) graduated from the Universities of Nijmegen (the Netherlands) and Kent (United Kingdom) in 1994 with a degree in Law. He specialized in Transport and Air & Space law. He joined the railway industry in 1995 and successively worked at the Dutch railway regulator Railned, the high speed train operating company Thalys and the infrastructure manager Railinfrabeheer, which was transformed into ProRail in 2003. He worked in different roles and areas since then and currently holds the position of Program Manager Security. Jeroen is a member of several

European groups and from 2010 until 2015 he chaired the CEN/TC 256/SC1- Working Group 39 which in 2016 produced the norm «Railway applications - Track/Safety protection on the track during work». Jeroen lives in Gouda, the Netherlands, has three sons and in his spare time competes in triathlons and marathons.

**Abstract** What are the use cases for drones in the railways? What are the risks involved in drone operations (for the railways and for drones)? How do we tackle the challenges which the new EU rules & regulations present? This presentation will offers answers to these questions.

15.30-15.45 **Audience Questions** - 20 minutes  
 15.45-16.30 **Break** - 60 minutes

**SESSION 4**

19a 16.30-16.40 **The current situation in Belgium relative to pilot training & anticipated developments**  
**Patrick Mascart - ID2MOVE, Belgium**



**Bio Data** As a Business Developer in the Drone related world, Patrick Mascart is a consultant for several private and public companies, including local governments. Former President of the Belgian Drone Federation and actual local chairman of the WUAVF in Belgium. Since 2018, he is the Manager of ID2MOVE, the new incubator for Autonomous Systems from the Brussels University in Wallonia. Patrick is also a drone pilot and an instructor, recognised by the Belgian Civil Aviation Authority.

**Abstract** In 2016, Belgium adopted legislation regulating the use of drones. The drone pilot license granted by the Belgian aeronautical administration is considered as a reference in Europe. This presentation investigates how this license is granted and, in the light of past challenges, how this process can be improved.

19b 16.40-16.50 **International standards as bridges between testing and training facilities**  
**Patrick Mascart - ID2MOVE, Belgium**

**Abstract** The establishment of UAS test centers by the Member States makes a lot of sense, today even more than ever. In order to be able to guarantee the industrial companies that the UAS that have been successfully tested will be recognized by the respective aeronautical administrations, a series of European standards should be put in place. A future European label?

20 16.50-17.05 **ICAReS Test Range Report**  
**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** After a very short intro of ICAReS, one of the projects focus points is brought to the attention. To create innovation the drone sector needs a place to experiment. Many stakeholders are new to the business and new to the regulators. Therefore we need to gain experience with these new systems in a safe and controlled environment, where extra measures are taken to avoid calamities when something unexpectedly happens when doing new things or using new equipment. First, ICAReS took up the task to do a thorough survey on what is already out there. This provides the community with a great overview of the available 20 T&D-sites in the four ICAReS countries with all their currently known features. Next, ICAReS investigated the needs of potential users of those sites. These relate both to types of flight, more than is allowed outside the test areas, and equipment available for making the trials safer and easier to perform. In the presentation we will zoom in on the different needs for testing and demonstrating. Also we made an inventory of the desired requirements for a site and the basic facilities. Finally, the presentation will focus on what we want to achieve in the Drone REGIM Working Group 1.7 on Safety Rules for T&D-sites.

21 17.05-17.20 **Enabling Experimental BVLOS Operations on Dutch Test Ranges - Reality or Illusion**  
**Rudy Muller - RPAS Services, The Netherlands**



**Bio Data** Rudy Muller holds a Bachelor of Science Degree in Electronics and IT, has 30 years background in electronics, Industrial automation and IT and 20+ years background in General Aviation. He founded RPAS Services in 2015, providing services to different market segments using unmanned aircraft technology. RPAS Services holds a RPAS Operator Certificate in The Netherlands with multiple exemptions and also holds a Belgium Remote Pilot License. Rudy Muller also founded uAvionix Europe B.V., representing innovative avionics for unmanned & Urban Air Mobility aircraft and General Aviation from uAvionix Corp., USA. Rudy Muller is also Co-Founder and Board Member of Dutch Drone Centre Aviolanda located on Military Airbase Woensdrecht in The Netherlands.

**Abstract** Operators, manufacturers of UAS and sensors, as well as public organizations, have been struggling for many years in order to be able to test innovative solutions and operational procedures. This included new developments with un-certified RPAS, Pilots without a valid pilot license and different scenarios for payload applications. The legislation was very restrictive and it was hard for the legislator to provide changes in legislation or exemptions based on this rule-based legislation. A lot of innovations left the country and the RPAS sector way behind the developments in other countries. For some time now, legislators have managed to support the sector with exemptions applying the new EU regulation, even before implemented in the member states and that was giving hope. With the support of the ICAREs project, we started a new challenge. Based on the EU legislation, we started to execute a SORA and draft procedures for BVLOS experiments in a protected environment of a civil RPAS test range on the military airbase Woensdrecht in The Netherlands. What is the status of this processes? Is the possibility to execute BVLOS experiments become a reality?

22 17.20-17.35 **Joint effort to develop experimental zones within the European framework**  
**Rob Nispeling - Aviolanda Aerospace, The Netherlands**  
**(on behalf of Dutch Drone Centre Aviolanda)**



**Bio Data** Rob Nispeling is currently Manager Commercial & Development Aviolanda Aerospace and Chairman Dutch Drone Centre Aviolanda. He has built up extensive business experience in aviation, airport and port management. Rob holds a Master in Logistics Management (Rotterdam). His skills include: Market research and analysis, logistics and transportation, airport and area development, feasibility analysis, bringing teams/staff together. Good analyst and creative problem solver, likes to go outside the box to come up with practical solutions. Self-confident, enjoys presenting and pitching, from floor to board-room level. Experienced project manager and team lead. Proven track record in international business development. Rob started his career at Amsterdam Airport Schiphol in 1989 as business development manager, both for passenger traffic, as well as for cargo. Ultimately as Director Cargo (2003), he was responsible for the commercial activities for cargo on behalf of Schiphol Group. In 2005 he changed modalities, becoming a manager at Port of Rotterdam, within the containers and logistics team. As a member of the negotiation team for Maasvlakte 2, he co-wrote the commercial lease contract for this major expansion project. From 2010 on, Rob has been self-employed. Since 2014 he has been connected to Aviolanda Aerospace, building the aviation MRO cluster and developing new areas of expertise, such as composite repair, helicopter maintenance and drone development. From 2015 Rob started to work on accommodating drones and putting a drone proposition together, joining other test and demo locations in the Netherlands. From 2017, drone activities at Woensdrecht Airport (NL) are managed by Dutch Drone Centre Aviolanda, a foundation chaired by Rob and run by drone professionals. From 2019 a new accommodation for drone development is available to users in addition to controlled airspace around the airport.

**Abstract** Within the European framework, the need for creating experimental zones has been indicated. For existing and future test and demonstration sites, it is important to jointly develop a safety and operating model, which is practical, effective and creates a level playing field. In the Netherlands, the existing test & demonstration sites have bundled their efforts in the Dutch Drone Platform. To engage with the Netherlands government and international organisations, we invest our time in reviewing and propagating as one voice of the industry sector. On behalf of one of the members, Dutch Drone Centre Aviolanda, Rob Nispeling will take you through the status of drone testing in the Netherlands, the road map which lies ahead and their involvement in Drone REGIM.

17.35-17.50 **Audience Questions - 15 minutes**

18.00-19.00 **Open Bar + Hot & Cold Snacks - 60 minutes**

- **Speech by Jaco Stremler**  
**Director General Aviation**  
**Ministry of Infrastructure & Water Management**
- **Franco-Dutch Document Remittance**
- **Awards Ceremony**

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SESSION 5

23 08.45-09.00 **ICAReS Programme Overview & Results**  
**Sven Willemssen - Municipality of Woensdrecht,**  
**The Netherlands**  
**(on behalf of ICAReS consortium)**



**Bio Data** Sven Willemssen (B.Sc), has worked for the municipality of Woensdrecht for almost 17 years. He studied at the International Agriculture College of Larenstein and majored in Tropical Forestry, as well as Western Nature and Forestry Conservation. After working for the Ministry of Defense as nature conservationist, he was employed at the municipality of Woensdrecht. At the municipality he developed himself as an all-round employee with knowledge on public green, nature, infrastructure, subsidies, procurement policies and international projects. For the last five years, he has been the project manager for Aviolanda Aerospace, a sustainable rural development program for aerospace maintenance in the region of airbase Woensdrecht.

**Abstract** At the end of 2016, 11 partners in the 2 seas area began to work on the ICAReS Project to tackle the common challenges set by them. The 2 Seas area had challenges regarding innovation and environment, like to strengthen innovation by more R&D and exploitation opportunities, climate adaptation, preservation biodiversity and natural resources. Agriculture, nature and water are 3 major sectors in the 2 Seas area. Just these sectors face these challenges and need innovations to tackle. More use and development of Remote Sensing and data processing will create solutions to face these challenges and will also improve efficiency of these sectors. Obstacles to use RS are: lack of knowledge/awareness of the possibilities of RS, RS-SMEs are not fully aware of the role they can play, a lack of suitable test/demo locations and unclear policy on legislation on the use of drones for Remote Sensing. Challenges are: aggregation of sector demands, translation to Remote Sensing-SMEs and knowledge institutes, sites for demonstrating (new) Remote Sensing-applications, harmonization of legislation/regulations and a structure (durable cluster) to work together on these issues. After 3 years the ICAReS project will come to an end in February 2020. It is time to look back at the results that have been achieved.

24 09.00-09.15 **Drone Mapping & Surveying - Reflections on current & future applications in the water & infrastructure sector**  
**Jarno de Jong, Geo Infra, The Netherlands**  
**(on behalf of INTERREG-ICAReS)**



**Bio Data** Jarno de Jong has been technical manager at Geo Infra B.V. since 2009, and has in this role supervised all drone related activity within the company. In 2009 the interest for UAS applications in the sector arose, as a result Geo Infra has worked with UAS since 2011. Jarno de Jong has been involved in multiple research projects, among which UAS Maintenance Valley Woensdrecht 2012 - 2014, and ICAReS 2016 - 2020

**Abstract** Since 2011, the general process of preparing a flight, flying the UA and finishing up by processing the data has not changed drastically. However, the available results after processing have increased in quality and applicability. Point clouds, orthographic photo's, surfaces, DEM and conventional surveying methods are easily integrated and CAD & GIS compliant. There are numerous examples of such applications. Regulation has developed alongside; from general RC Aeroplane regulation up to 2013, prohibition on commercial use between 2013 and 2015 to constantly developing national regulation based on certificates since 2015. During the transitional period between 2013 and 2015, the process of getting a flying permit was often complicated and was subjected to many changes. First a permit per project was necessary, later certificates for the company were available. The European regulation has arrived, harmonisation is on the way, but it is still a complex process, because of the regulation complexity. Because of many advantages, the sector is still growing, and so are the different sorts of applications.

25 09.15-09.30 **Drone technique in educational programmes**  
**François Coppens - Zuidwesthoek College, The Netherlands**



**Bio Data** Francois Coppens is coordinator of the drone education programme at the Zuidwesthoek College & RPA-L holder. From the late nineties up to two thousand and nine he worked as a technical sales manager and advisor in the automotive sector specialized in alarm systems. In 2009, he started working as a technical educator at the ZuidWestHoek College, where he specialized himself in sign, 3D drawing and CNC technology. Two and a half years ago a start was made with using drones in the education programme. This year, the Zuidwest College became the official organisation to write the education programme "Drones" for all technical high schools in the Netherlands.

**Abstract** This presentation will explain how are drones implemented as a tool within the technical education programme in the Netherlands. In addition, it will highlight how students are taught in the use of drones and regulations, so they become a valuable asset for companies in the near future. It will also be explained how the exams are regulated within the education system so that students can obtain their drone pilot licence.

26 09.30-09.45 **BVLOS Experiments in Woensdrecht**  
**Wiebe Logghe - REWIN, The Netherlands**



**Bio Data** Wiebe Logghe is a parttime projectmanager at the regional development authority REWIN West-Brabant but has his main job as an airline pilot at one of the legacy carriers. He did his flight training in Arizona and the Netherlands through the KLM Flight Academy just after he completed his master's degree in Strategic Management and Bachelor's degree in International Business. At REWIN he is responsible for the ICAReS project, which is about Remote Sensing. Remote Sensing and its application in agriculture is the main focus for REWIN.

**Abstract** Aviolanda Woensdrecht in the Southwest part of the Netherlands is developing itself as a hotspot for drone testing and experimentation. The INTERREG 2 Seas project ICAReS supports this ambition and is an accelerator for the development of a drone test center. Through ICAReS the network of drone operators and manufacturers has been expanded. Drone operators as well as drone manufacturers stress the fact that flying 'Beyond Visual Line of Sight' (BVLOS) is an integral aspect for the success of drone implementation in the Netherlands. Although this is widely recognized, it is not yet allowed in Dutch airspace. For that reason ICAReS has focused its efforts into getting approval for BVLOS flying in a test environment at Woensdrecht.

27 09.45-10.00 **ICAReS Strategy & Actions Plans**  
**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** What was the outcome of the (potential) users community according to barriers for starting to use drones for their businesses. One main issue was legislation and regulations. So the ICAReS partners set up a task force group on this topic and started to collect information, participated in various formal meetings on regulations (current & new EU), working groups of EASA. Together with UVS International, who already was looking to organising a kind of European civil drone council, an overall strategy for the harmonization of legislation and regulations was developed. This resulted in the launch of the Drone REGIM initiative. This project will be elaborated upon. The main goal in the near future is working together as an international community of small drone businesses, government related organisations, knowledge institutes and other stake holders, to advice and propose ways to implement the EU-drone legislation in a similar way in the EU Member States. We not only envision a common action plan, but we also looked to ways on how to get this work (partially) financed. This all should lead to a drone community working together to create a level playing field within Europe, which will contribute to making drone related businesses flourish.

10.00-10.15 **Audience Questions** - 15 minutes

10.15-11.00 **Break** - 45 minutes

SESSION 6

28 11.00-11.15 **Drone REGIM WG1.1: First Deliverable**  
**Stéphane Morelli - Azur Drones, France**  
**(on behalf of Drone REGIM WG1.1)**



**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 and military technology. From 2007 to 2009, he commanded the tactical Drones regiment of the French Army. In 2009, he was assigned as Intelligence and Drones expert for future programs of the Army. In 2012, he founded Azur Drones, a civil drone manufacturer specialized in the Security and Defense sectors. Azur Drones has developed and sells the Skeyetech system, dedicated to the highly automated surveillance of the sensitive sites. Azur Drones is very actively working with the national (DGAC) and international (EASA, JARUS) authorities to change the drone regulation and develop the market. In 2013, Stéphane Morelli co-created the Fédération Professionnelle du Drone Civil, the French drones users association, of which he was president from 2015 to 2017. He is a member of the Board of Directors of UVS International.

**Abstract** SORA (Specific Assessment Risk Analysis) is now published by EASA as an acceptable mean of compliance of the future European Regulation. This method is new and needs to be well understood by its future users: the drone operators. Within the framework of the DRONE REGIM initiative, WG 1.1 has started in the last three months of 2019 to identify the key points, which need to be taught to these users. This assessment is still ongoing, for the SORA is only starting to be applied, and will need some adjustments.

29 11.15-11.30 **Automated SORA Tool**  
**Stephan van Vuren - AirHub, The Netherlands**



**Bio Data** At AirHub we develop innovative consultancy and software solutions that enable the safe, legal and efficient integration of drones (UAS) into our society. The AirHub Drone Operations Management platform provides all the solutions drone operators need for their pre-flight, in-flight and post-flight requirements. The AirHub platform includes accurate airspace and weather data, flight planning, aircraft command and control, UTM connectivity fleet management and more. As a former Airline Pilot and Drone Consultant Stephan is specialized in: a) Specific Operations Risk Assessment (SORA); b) Operations Beyond Visual Line Of Sight (BVLOS); c) European and International drone legislation; d) UAS Operations Manuals and Safety Management; e) Unmanned Traffic Management (UTM); f) Urban Air Mobility (UAM). Visit [www.airhub.app](http://www.airhub.app) for more information.

**Abstract** The Specific Operations Risk Assessment (SORA) is the proposed risk analyses methodology accepted by EASA to perform operations in the Specific Category under the new European UAS regulations. To complete a comprehensive risk analyses operators require detailed knowledge about the SORA, this is however a challenge for many operators. Therefore AirHub has developed an online tool that fully automates the SORA process and provides operators with a detailed report of the Operational Safety Objectives that result from this analysis. In this presentation Stephan van Vuren will give a demonstration of the online SORA tool.

30 11.30-11.45 **Road to SORA V2.0 and Beyond.**  
**Modularity and real use case illustration**  
**Eric Gaillard - Star Engineering, France**



**Bio Data** Eric Gaillard (France, born on 16 December 1965) studied micro processor 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. In July 2018, he joined Star Engineering, a French Research Center 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. Drone Business Unit Manager and Technical Responsible with Star Engineering, He is now in charge to explore complex drone operations, providing the tools, techniques and enhancements of the SORA methodology, 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** SORA V2.0 (Specific Operation Risk Assessment), the most recent edition of the guidance and evaluation of the safety risks involved with the operation of Unmanned Aircraft Systems (UAS) in SPECIFIC Category, was published in 2019 by JARUS. Is SORA Methodology too simple or too complex, too restrictive or too permissive? In broad terms, SORA methodology establishes a common process that can be used to identify, qualitatively assess, and manage the safety risk posed by UAS when preparing the safety case required for regulatory approval to conduct complex types of operations. In short, it is the de facto standard for evaluating the potential risks of a proposed UAS operation in SPECIFIC Category, which means that it could be really helpful in providing guidelines to shape your application. The current regulations are being set as a reaction to market development. There will be a need to create a scalable way to anticipate the integration of new emerging technologies and new UAS operations. The modular approach of the SORA Methodology is the key to solve this issue on-line with an effective regulatory framework. It allows tailoring of the risk assessment of an operation to ensure the best options for mitigation means and thus reducing a risk to an acceptable level and assuring the required aspects are captured with confidence. The hope is that SORA approach remains as simple and flexible as possible. If it is accessible and put into practice by the majority of actors and is 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 through a real and field experience, how to use it and deploy it and the way forward sharing this idea with the different key actors.



31 11.45-12.00 **The use of SORA for the preparation of BVLOS flight operations**  
**Nicolas Sonnet - Aeromapper, France**



**Bio Data** Nicolas Sonnet is currently a Managing Director at Aeromapper, a company which designs, builds and operates medium range UAVs for industrial applications. He is in charge of flight safety and management of flight operations of low weight (less than 2 kg) beyond line of sight UAVs. He graduated in Aerospace engineering from IPSA (Institut Polytechnique des Sciences Avancées, Paris) in 2010 and he specialized in flight dynamics and flight control at Cranfield University. He holds a private pilot licence with 450 hours of flight, and has more than 600 hours of BVLOS UAV experience. He started his career in the UAS business in 2012, after spending two years working in manned aerial works. With operations performed In Europe, Africa, South America and in the Caribbean, totaling more than 2000 hours of flight, the Aeromapper team has a hands-on insight of the risks and risk management methods associated with beyond visual line of sight UAs operations.

**Abstract** SORA (Specific Operations Risk Assessment) is a method that sets out a holistic approach to assessing the risks of both an operation and the drone system performing it. This method will be the cornerstone of the «specific» category safety framework of the EASA regulation on UAS systems. The «specific» category will, among other things, deal with beyond visual line of sight flights outside of populated areas. Beyond visual line of sight operations are performed without direct visual contact by the pilot of the aircraft because of either a long distance from the UA or because of obstacles. Beyond line of sight flight is a very interesting feature allowing the productivity for mapping and security applications to be increased greatly and is obviously paramount for many logistic applications. Also, many safety questions raised by this type of operations will help pave the way to full autonomy in UAS. With over 2000 flying hours of experience of BVLOS operations we will look into the specific safety issues and challenges of this type of missions, including interaction with other airspace users and ground risk issues. We will focus on the SORA methodology and the lessons learned of our first use of it for a commercial BVLOS flight.

32 12.00-12.15 **Public acceptance of UAS: Address it, or risk a serious hit**  
**Thorsten Indra - AerialCam Services, Germany**



**Bio Data** Thorsten Indra / Aerialcam.services has been providing multicopter piloting using highly specialized UAS - primarily for industrial inspections of radio antennas on large broadcast towers, and wind turbine blades, across Europe and in the US, since 2015. Systematic data gathering is accomplished in the context of big picture thinking & in combination with economical understanding. Another special focus is workflow optimization & the development of safe and efficient procedures, as well as thorough revision of operation manuals. Certain technical understanding has also aided in optical sensor integration projects, customization & building UAS, as well as understanding communication & software integration. Test flying and configuration have been other areas of involvement. Research & contributions to the development of technical solutions as well as consulting are other fields of expertise. An interest in technical trends, airspace integration as well as staying abreast & being involved in regulatory developments helps to stay on the bleeding edge of the UAV industry. A 30+ year background in innovative action watersport & outdoor photography around the world in challenging environments, dealing with a wide variety of clients and media, as well as 250+ hours spent in low-flying helicopters, serves as a helpful base to draw experience from and allows for creative cross pollination.

**Abstract** With the broader view of a lateral thinker, and a combination of both practical insights as well as a high-level perspective, this talk offers some thoughts on the criticality of public acceptance regarding the use of drones. It attempts to highlight core issues people have, outline the stakeholder groups, and suggest some angles on what might be done to allow drones to thrive. It is meant to stimulate looking outside of silos and embark on a broader information campaign, so that UAS can gain the place of social acceptance that they deserve.

12.15-12.30 **Audience Questions - 15 minutes**

12.30-14.00 **Lunch - 90 minutes**

DAY 2 - WEDNESDAY 15 JANUARY 2019 - AFTERNOON

SESSION 7

33 14.00-14.10 **The challenge of coordinating national approaches**  
**Philip Butterworth-Hayes - Unmanned Airspace, UK**



**Bio Data** Philip Butterworth-Hayes is a consultant & communications specialist working in the aerospace & defence sectors. He is currently the editor and publisher of EUROCONTROL's Skyway publication ([www.eurocontrol.int/content/skyway](http://www.eurocontrol.int/content/skyway)), the editor & publisher of [www.unmannedairspace.info](http://www.unmannedairspace.info) & [www.urbanairmobilitynews.com](http://www.urbanairmobilitynews.com) and is working as a strategic communication strategist with two inter-governmental air traffic management organisations. For more than 30 years Philip has specialised in delivering highly complex technical and industrial aerospace information and advice to a wide number of government and industry clients. His background includes posts as the director of communications

and strategy at the Civil Aviation Navigation Organization (CANSO) in Amsterdam, the launch editor of the European Defence Agency's European Defence Matters, the Manager of Jane's Air Transport Division and lead consultant for Jane's Information Group on civil aviation consultancy studies, founding editor of Jane's Aircraft Component Manufacturers, Jane's World Airlines and Jane's Airport Review, a former editor of Interavia Aerospace Review, Airports International, Jane's Defence Industries, Jane's Military Aircraft and several unmanned air system publications. He has been an aviation consultant to BBC Television and Time-Life books. In 2007 he left CANSO to concentrate on developing aerospace consultancy and market report company PMI Media Ltd. Over the next two years he developed the Aviation Supply Chain Intelligence database, to map global trends in aerospace manufacturing and in 2017 launched Unmanned Airspace, a news, analysis and consultancy service focused on the global UTM industry.

Abstract

Remote identification of drone flights by competing UAS traffic management (UTM) service suppliers via ASTM data-sharing protocols are not yet operational reality anywhere in Europe, and many States have yet to form even an outline of a plan for the introduction of foundation U-Space services. A high-level country-by-country analysis of U-Space implementation plans in Europe will be delivered, along with a high-level view of the timetable for U-Space implementation proposed by EASA. These different approaches to implementing U-Space present a series of challenges for air navigation service providers and stakeholders, who are either forging ahead with U-Space concepts and technologies ahead of the timetable for agreeing regulations and standards - or are still waiting at the starting line.

### 34 14.10-15.00 **PANEL DISCUSSION ON U-SPACE WITH 5 PANELISTS**

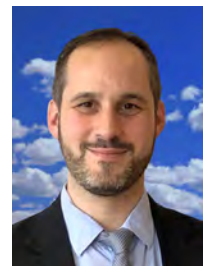
#### **Daniel Garcia-Monteavaro Vizcaino - ENAIRE, Spain**



Bio Data

Head of Drone Business Development Department. Polytechnic University of Madrid, Aeronautical Engineer. Systems Engineer with 17 years of experience as Navigation Project Manager in nav 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.

#### **Nicolas Marcou - DGAC, France**



Bio Data

Nicolas Marcou is UAS Programme Manager at the Direction de la sécurité de l'Aviation civile (DSAC), the French national supervisory authority, in charge of aviation safety regulation and oversight. He works closely with national and international authorities (SGDSN, EASA, SJU, European Commission, etc.) on all topics related to the safe and secure development of drone operations: regulation, training, airworthiness, airspace integration, safety promotion, security, etc. Mr Marcou followed a formal training in engineering and management at the Ecole Nationale de l'Aviation Civile (ENAC), where he also obtained a Private Pilot License. He started his career at the CENA, the former ATM R&D centre of the DSN, the French Air navigation services provider. He then moved to the BEA, the French accident investigation board, where he worked in the management of the investigation department and worked on several cases, such as the Hudson River accident in 2009. Later on, he pursued his career at the DSAC, as head of the airport certification and oversight division. His previous position was deputy head of Paris air navigation services for Paris ACC.

#### **Hendrik-Jan van der Gucht - skeyes, Belgium**



Bio Data

Hendrik-Jan Van Der Gucht is Innovation Manager at skeyes (previously known as Belgocontrol), the Belgian Air Navigation Services Provider (ANSP). After graduating as Civil Engineer at the Royal Military Academy in 2003, he performed a number of operational and management functions within the Belgian Air Force prior to moving to skeyes in 2010. He joined the management team of skeyes in 2014 as Head of Public Affairs, responsible for the company's participation in the SES ATM Research programme and the establishment of several national and international strategic partnerships. Since 2018, following the successful completion of an MBA at Vlerick Business School, he is leading skeyes' team dealing with radical and transformational innovation studies and projects, which includes preparing the organisation to take up a role as Unmanned Traffic Management (UTM) service provider.

#### **Ron van de Leijgraaf - Ministry of Infrastructure & Water Management, The Netherlands**



Ministry of Infrastructure and Water Management



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, he urged EASA to start developing detailed European drones regulations.

15.00-15.15 **Audience Questions** - 15 minutes  
 15.15-16.00 **Break** - 45 minutes

### SESSION 8

35 16.00-16.15 **Cooperation of EU member states on implementing the EU regulations**  
**Ron van de Leijgraaf - Ministry of Infrastructure & Water Management, The Netherlands**



Ministry of Infrastructure and Water Management



Bio Data  
 Abstract

See above.

On July 1, 2019 the first European drone regulation entered into force. It will be applicable from July 1, 2020. During this year, the member states are working hard to finish the implementation in the national legal system. The objective is a harmonised regulation at the European level. This means that the interpretation and implementation by member states should be as equal as possible. After the CivOps 2019 conference in Madrid, The Netherlands took the initiative to meet with a number of member states to discuss and harmonise implementation issues with the EU regulation. During 2019 the group grew with a few more member states and other states have shown interest to join as well. Not only member states are participating, but EASA participates as well, since they are eager to help member states with the implementation and they are keen on learning what the actual issues are that member states are struggling with. At the moment Austria, Belgium, EASA, France, Germany, Italy, Luxembourg, Spain, UK and The Netherlands participate. Poland will join at the next meeting. The Benelux secretariat is supporting this group with logistics and a secretary. The presentation will focus on the functioning of the group and the topics it will address.

36 16.15-16.30 **Spanish approach to the implementation of the EU drone regulation**  
**Diego Fernández Varela - AESA, Spain**



Bio Data

Diego Fernández Varela, an aeronautical engineer from the Technical University of Madrid and a certificated advanced remote pilot in Spain, started his career as a professional trainee in the European Aviation Safety Agency (EASA). As part of the EASA Drone Team, he contributed to the development of the upcoming European UAS Regulation, participating in the large number of discussions held with the different UAS stakeholders at EU level. After finishing this experience in Cologne, Diego immediately started working for the UAS Division of the Spanish Aviation Safety and Security Agency (AESA) in Madrid. Since then, he has carried out a number of inspections as a qualified UAS operations inspector and has taken part in numerous international working groups in the framework of EASA, the European Commission and JARUS, ranging from the 'standard scenarios' to the U-Space regulatory framework and the 'certified' category. He is currently coordinating the implementation of the European UAS Regulation at Spanish national level through the development of a devoted Royal Decree.

Abstract

Overview of the activities carried out by AESA and other official departments to prepare for the new European Regulatory Framework on UAS. Topics:

- a) Overview of the Spanish approach to the implementation of the EU drone regulation
- b) How zoning is being dealt with in Spain
- c) Reflections on VLL BVLOS flight operations

37 16.30-16.45 **Transiting to European regulation on UAS : Challenges and solutions**  
**Nicolas Marcou - Direction Générale de l'Aviation Civile (DGAC), France**



Bio Data

Nicolas Marcou is UAS Programme Manager at the Direction de la sécurité de l'Aviation civile (DSAC), the French national supervisory authority, in charge of aviation safety regulation and oversight. He works closely with national and international authorities (SGDSN, EASA, SJU, European Commission, etc.) on all topics related to the safe and secure development of drone operations: regulation, training, airworthiness, airspace integration, safety promotion, security, etc. Mr Marcou followed a formal training in engineering and management at the Ecole Nationale de l'Aviation Civile (ENAC), where he also obtained a Private Pilot License. He started his career at the CENA, the former ATM R&D centre of the DSNA, the French Air navigation services provider. He then moved to the BEA, the French accident investigation board, where he worked in the management of the investigation department and worked on several cases, such as the Hudson River accident in 2009. Later on, he pursued his career at the DSAC, as head of the airport certification and oversight division. His previous position was deputy head of Paris air navigation services for Paris ACC.

Abstract

This presentation aims at describing the main challenges that have to be addressed by a National Safety Authority in order to ensure compliance with the new European regulation, as well as some proposed solutions. It will cover several topics, such as training, registration, public information, airspace management, etc.

38 16.45-17.00 **The Belgian implementation approach**  
**Kris Clarysse - Federal Public Service Mobility & Transport, Belgium**



**Bio Data** Kris Clarysse is Deputy Director-general at the Belgian Civil Aviation Authority since January 2016. He joined the Belgian Civil Aviation Authority in 2001 as an Engineer and Project manager for the certification of Belgian airports. In 2007 he became head of the Airports department. He holds a master degree in electronics engineering and a private pilot license. Among his responsibilities are strategic and international affairs, the supervision of air navigation services and drones. He has represented the Belgian Civil Aviation Authority in various international fora and is chairman of the Belgian Civil Drone Council.

**Abstract** This presentation aims at describing the status of the implementation of the new European Regulation on drones in Belgium. Also the main challenges and proposed solutions will be addressed.

39 17.00-17.15 **The German Implementation approach**  
**Raimund Kamp (TBC) - Federal Ministry of Transport & Digital Infrastructure, Germany**



**Bio Data** 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.

**Abstract** This presentation aims at describing some of the challenges that have to be addressed by a National Safety Authority in order to ensure compliance with the new European drone regulation.

40 17.15-17.30 **The Dutch approach to zoning - Societal embracement of drones**  
**Petra Syaifoel - Ministry of Infrastructure & Water Management, The Netherlands**



**Bio Data** Petra graduated from the University of Leiden in Italian Language and Literature. She has worked for over 20 years at the Ministry of Transport in The Netherlands and has worked in different modes of transport. For almost 6 years now, she has been involved with the development of drone regulation, both at the national and international level. She participated in several expert groups at EASA, in the ICAO RPAS Panel and is an active member of JARUS for Operations and Licensing. She established the rules for licensing in the Dutch regulation for remote pilots in 2015. She was also responsible for the modification of the national regulation for model aircraft. At this moment she is responsible, amongst others, for developing harmonized regulations for drones in the Dutch Caribbean and for implementing the geographical zones under the European Drone Regulation.

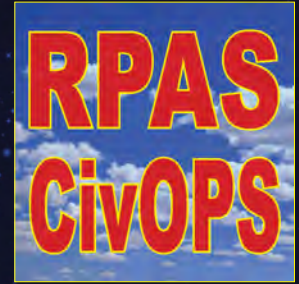
**Abstract** The first European drone regulation will be applicable from July 1, 2020. Member states are working hard to finish the implementation in the national legal system. One of the implementation issues that needs to be addressed is the creation of zones where drones can fly under different conditions. Since drones usually fly at a low altitude, people are experiencing different issues with the operation of drones, like for instance noise issues and privacy issues, not just a feeling of unsafety. Within The Netherlands it was decided that zoning should be addressed from the issues and they should not just be based on safety issues. With a public participation strategy and plan we are reaching out to the general public to help us identify these issues and see if we can address some of these issues through zoning. We are convinced that this approach will help with the societal acceptance and embracement of drone operations. The presentation will address this approach, the plan we have developed and the results we have achieved so far.

17.30-17.45 **Audience Questions** - 15 minutes  
17.45-17.55 **Closing Words** - 10 minutes



8<sup>th</sup> ANNUAL EDITION

# RPAS CivOPS 2020



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