ATC GLOBAL 2013

RAI Exhibition Centre Amsterdam The Netherlands 12-14 March 2013

For the past 22 years, ATC Global has been committed to serving the global air traffic management community, facilitating business partnerships and knowledge sharing between industry colleagues. It is an international event developed through extensive industry consultation and provides a complete and independent view of the skies and an annual, live platform inclusive of all ATM stakeholders.

With 118 countries registered to attend, including more than 75 air navigation service providers, ATC Global 2013 is the event for ATM professionals looking for the complete picture of the industry and will welcome representatives from all major ATM sectors. The ATC Global Exhibition & Conference & Workshops will take place at the RAI Exhibition Centre in Amsterdam, The Netherlands on 12-14 March 2013. For all relevant information see http://www.atcglobalhub.com/page.cfm

THE RPAS WORKSHOP - INTEGRATING RPAS INTO CIVIL AIRSPACE

In mid 2013, the European Commission's European regulatory roadmap relative to the incremental integration of remotely piloted aircraft systems (RPAS) into the current European civil airspace environment will be published. It will take into account both airworthiness and air traffic management issues. Similar work is going on in other parts of the world. This **free** workshop, organised by UVS International, brings together key regulatory organisations and experts, to discuss the blockers and enablers to the current situation, as well as the way forward.
To attend ATC Global and the RPAS workshop please register online at http://www.atcglobalhub.com/freeregistration

Venue	**RAI Exhibition Centre - Hall 9 - ATC Global Workshop Theatre**
Hour & Date	**10.00-12.45 - 12 March 2013**
Co-chairmen	**Peter van Blyenburgh, UVS International, France**
	Robin Valkenburcht, Ministry of Transport, The Netherlands

Bio data

Peter van Blyenburgh (1948), a Dutch national residing in Paris, France, was born in The Netherlands, educated in Canada, the Netherlands Antilles and The Netherlands, studied in Switzerland (Business Administration) and has held various management positions with a number of industrial and service supplying corporations in the USA, Europe and the Middle East. He has been involved with remotely piloted systems since 1987 and has supplied advisory services in this field to corporate and/or governmental entities in Europe, the Middle & Far East and North America. In 1995 he instigated, and in 1997 founded, the European Unmanned Vehicle Systems Association (EURO UVS), which changed its name to UVS International in January 2004; he is currently in his eighth two-year term as president of this internationally operating non-profit association registered in Den Haag, The Netherlands, which deploys its activities out of offices in Paris, France. As president of UVS International, he is a member of the ICAO UAS Study Group and the European Commission's RPAS Steering Group; he is also standing advisor to EUROCAE WG93 on Light RPAS.
He is the founder and Chief Executive of Blyenburgh & Co (B&C), a company registered in Paris, France, to which the UVS International Board of Directors has contractually entrusted the association's administration, as well as the organisation of its remotely piloted systems-related conferences. B&C is the publisher of the annual Remotely Piloted Aircraft Systems (RPAS) Yearbook (RPAS: The Global Perspective), which has become the international RPAS publication of reference. B&C maintains what is probably the world's largest open source generic RPAS web site, and also supplies services in the field of RPAS-related patent search.

Bio data

Robin Valkenburcht (1971) graduated in Aviation Logistics from Haarlem Business School and started his career as an ATCO trainee at EUROCONTROL. He then worked in several management positions at KLM and the Royal Netherlands Air Force (RNLAF).
For the last ten years he has been working for the Netherlands government, initially as an ANS Inspector and subsequently as an Advisor with CAA-NL, and since 2006 as a Senior Expert Air Traffic Management with the Ministry of Transport. Robin is chairman of the Netherlands PBN and AIM Task Forces and works on airspace management and air navigation services. He has extensive experience in dealing with both ICAO and EUROCONTROL and is the ATM focal point for the Dutch Caribbean. Robin also serves as a Major in the RNLAF reserve.

Session 1: **SETTING THE SCENE**

10:00 – 10:15 **RPAS: Aerial Work – Now & Tomorrow**
Peter van Blyenburgh, UVS International, France

Bio data See above.

Abstract Aerial work (commercial, non-commercial & corporate) using remotely piloted aircraft systems (RPAS) is currently already taking place in a number of countries with varying population densities, such as Australia, Belgium, Canada, France, The Netherlands, Norway, Sweden, and UK. In addition governmental non-military operations are also starting to place, and the military are pushing for access to civil airspace. This presentation will inform on the status regarding current RPAS operations and the relevant rules & regulations, what the future has in store, the impact this has and will have on ATC, and what is being done by the authorities on a national, European and international level to prepare for an incremental integration of RPAS in non-segregated airspace.

10:15 – 10:30 **Use of RPAS in National Mapping – A European Perspective**
Dr. Ing. Michael Cramer, Institute of Photogrammetry, University of Stuttgart, Germany - On behalf of European Spatial Data Research Organisation (EuroSDR)

Bio data Dr. Cramer holds a permanent position as senior lecturer at the Institute for Photogrammetry (ifp), University of Stuttgart. For more than 6 years he also actively participated in the EuroSDR, the European Spatial Data Research organization, where he was responsible for several projects and served as Chair of the EuroSDR Commission I, dedicated to Primary Data Acquisition, Sensors and Geo-referencing. The main focus was the analysis of digital airborne camera systems, covering geometry and radiometric performance, the development of corresponding standards and the investigations on the potential use of RPAS in national mapping. Dr. Cramer received his Diploma Degree in Surveying from University of Stuttgart in 1993. From that, he started as research associate at the Institute of Photogrammetry (ifp). In his first years he was member of the Special Research Group “High Precision Navigation”, investigating the potential of additional sensors for direct geo-referencing of photogrammetric airborne sensors. In 2000, his doctoral thesis on “Accuracy investigation on the use of GPS/inertial data integration in aerial photogrammetry” was submitted at University of Stuttgart. Besides his activity in the EuroSDR organization, Dr. Cramer is also involved in the ISPRS (International Society of Photogrammetry, Remote Sensing and Geo-information) where he currently is co-chairing a working group on Integrated Navigation Systems for Sensor Geo-referencing. In 2009 Dr. Cramer was awarded with the Carl-Pulfrich Award for “recognizing cutting-edge innovations, hard- and software developments and integrated systems design in geodesy, photogrammetry and the Earth sciences”. His current research interests are in the field of digital airborne camera calibration and certification, sensor geo-referencing including RPAS and automatic aerial triangulation.

Abstract The use of Remotely Piloted Airborne Systems (RPAS) is “en vogue” today and RPASs already offer alternatives to traditional manned (civilian) airborne platforms. Following for example the latest developments in RPAS-industry and attending some of the most prominent fairs related to the field of geomatics one easily recognizes that it is RPAS, which is strongly pushed into the civilian market. It really is of interest, if official authorities like National Mapping Agencies (NMAs) are starting to implement the RPASs technology within their specific data acquisition processes – to establish alternatives to their traditional manned photogrammetric survey flights. The European Spatial Data Research organization (EuroSDR), representing European NMAs and research organizations of currently 17 European states, is following UAV developments since fall 2004, where an ongoing activity was created, to continuously update their members on the developments in this technology. As systems consolidated, new impetus was given to more deeply explore the potential RPAS for national mapping. Today first national mapping agencies have already used RPAS based data for first experiments in mapping. Several NMAs are discussing on the future role of this technology within their agencies. This presentation will try to give an overview on the current situation on the use of RPAS in European mapping agencies. Based on the input from some selected NMAs, their expectations on RPAS technology, the fields of use they foresee in their country-specific surroundings and – exemplarily – first experiences with this type of technology will be presented. Even though the use of RPAS in NMAs is still new, substantial technical and operational benefits become obvious already. With that, the presentation will try to give a state-of-the-art report on the current activities and overall acceptance of RPAS technology in European photogrammetric mapping.

Session 2: **THE REGULATORY SITUATION**

10:30 – 10:45 **Initial Operational Approval of RPAS Operators**
Gert Kruiswijk, CAA-NL, The Netherlands

Bio data

Gert Kruiswijk has been with CAA-NL since 1975. His career has taken him from administrative officer and legal advisor via ATS inspector and senior airspace policy advisor to senior inspector. He is specialized in Rules of the Air and safety management and is the focal point in CAA-NL for General Aviation. In RPAS domain he is Advisor to the ICAO UASSG, participant in JARUS OPS and FCL, and assessor of applications for RPAS operations.
The CAA-NL is a part of the Human Environment and Transport Inspectorate (ILT).
ILT promotes safe, sustainable aviation within and above the territory of the Netherlands. It regulates the commercial airlines, aviation industry, general aviation, recreational and sports aviation, training institutions and flight simulators.

Abstract

CAA-NL only permits remote pilots to fly RPAS, if they work in a team of a professional RPAS Operator with a Safety Management System (light). The provisional RPAS operator license gives the right to operate within class 1 (E-) VLOS:
- daylight VFR operations in class G airspace
- within 500 m (E -750) of the pilot or observer
- max 400 ft AGL
- > 150m from build-up area and people

Flight in CTR (class C/D) is only possible with an agreement with ATC. Note: most RPAS flights in the CTR's are in the shadow of obstacles or in a segregated area.

10:45 – 11.00 **Light RPAS: A Concerted International Approach**
Ron van de Leijgraaf, Netherlands Ministry of Transport - On behalf of Joint Authorities for Rulemaking on Unmanned Systems (JARUS)

Bio data

Ron van De Leijgraaf moved from the Dutch Civil Aviation Authorities to the Ministry of Infrastructure and the Environment in early 2012, in order to be able to continue his work on the development and international harmonisation of RPAS regulations. His primary activity at the Ministry is working on RPAS regulations, both national and international. This means that he continues his international activities regarding establishing the international harmonisation on airworthiness regulation with other national aviation authorities, EASA and EUROCONTROL. For this harmonisation, Ron created the authorities coordination group JARUS. This group drafts RPAS regulations and, after consultation with industry and stakeholders, will publish these regulations as recommendations to national aviation authorities. Ron is a member of EUROCAE Working Group 73 and chairman of EUROCAE Working Group 93. Furthermore he is the member, on behalf of The Netherlands, of the ICAO UAS Study Group.
Ron graduated from the Technical University of Delft with a degree in Electrical Engineering and an avionics specialisation. Before joining the Dutch CAA, he worked, amongst others, at the Dutch National Aerospace Laboratory (NLR). Here he worked on the development of flight test instrumentation systems and research on navigation systems and avionics for future ATM applications.

Abstract

According to Article 4.4 of EC Regulation 216/2008 the certification and operational requirements for RPAS with a MTOM below 150kg are the responsibility of the European National Aviation Authorities (NAA). The European Aviation Safety Agency (EASA) is responsible for RPAS with a MTOM larger than 150kg. In theory, this could lead to the development of differing requirements for Light RPAS by each individual NAA. In an attempt to avoid this differentiation CAA-NL initiated an international coordination group called JARUS (Joint Authorities for Rulemaking on Unmanned Systems). This group intends to discuss and harmonise the requirements and limitations for Light RPAS in six different working groups:

1 Operations and FCL	2 Organisational approvals
3 Airworthiness	4 Detect and avoid
5 Command, control and communications	6 System safety ('1309')

The output of the group will consist of draft regulatory proposals accepted by a significant number of European NAAs, as well as EASA and Eurocontrol. At the same time, an effort is being made to harmonise the regulations with a number of non-European Union countries, such as the Australia, Brazil, Canada, Russia, South Africa and the USA. Draft regulations will be consulted with industry and other stakeholders before they are recommended to national aviation authorities for national or regional adaptation. The group is looking into possible dissemination schemes to support the development of a common market. In the past year, the group has redefined its terms of reference, to incorporate the

growing membership and to define more working groups drafting regulations. At the same time, the European region members are looking into facilitating the EU-led regulatory roadmap process.
During the presentation a short overview of the new organisational structure of the group, the work schedule to define a harmonised set of requirements and the new dissemination process will be presented.

11:00 – 11:15 **Panel Discussion**
11:15 – 11.45 **Coffee Break**

12.45 – 12.00 **EC European RPAS Roadmap Initiative**
Jean-Pierre Lentz, European Commission, Directorate General Enterprise & Industry

Bio data Jean-Pierre Lentz is civil engineer. He joined SABCA a Belgian aerospace company, where he first worked on space programmes for the European Space Agency. He led in particular the development of a European space suit. Subsequently, Jean-Pierre became assistant to the head of the company, supporting the cost reduction programme and the re-organisation of the company. He joined the European Commission in 1999 as project officer in the aeronautics unit of Directorate General (DG) Research. Eight years later, Jean-Pierre moved to DG Enterprise & Industry, where he worked on Intellectual Property and Space industrial policy. Since 2 years, Jean-Pierre is part of the team leading the work of the European Commission in the area of remotely piloted aircraft systems (RPAS).

Abstract This presentation will provide an overview of the European Commission's European RPAS Roadmap Initiative, which concerns the incremental integration of RPAS into the European air traffic system from 2016.

Session 3: **STANDARDS**

12.00 – 12.15 **ICAO: Ongoing RPAS Standards Work**
Filippo Tomasello, European Aviation Safety Agency - On behalf of the ICAO UAS Study Group

Bio data Filippo Tomasello was cadet in the Academy of the Italian Air Force in 1969 (…yes; the previous century). After graduating with honours doctor in aeronautical engineering in 1974, he was promoted 1st Lieutenant. Now he is Lieutenant Colonel of the reserve. He then served as flight test engineer in the Italian Air Force until 1984, mainly involved in the multi-national Tornado programme. During this period he had flight experience, including on-board of military prototypes. Subsequently in ENAV, the major Italian Air Navigation Service Provider (ANSP), he was responsible for R&D and for a number of projects for Air Traffic Management (ATM) and Air Navigation Services (ANS), including new radar sites and modernization of automation in Area Control Centres and reorganization of the Italian airspace. Since 1991 he is visiting professor at State University 'Parthenope' in Naples. Member of the ICAO Special Committee on Future Air Navigation Systems (FANS) since 1987, he was rapporteur for development of the standards for data link (VDL Mode 2). Then he chaired the ADS Panel and the Mobile Communications Panel for about 5 years. He joined EUROCONTROL in 2000 as manager for Northern Europe, to harmonise the medium term ATM enhancements plans in the involved States.
In 2005 he joined the European Commission, working on accident investigation, data collection and extension of the competences of the European Aviation Safety Agency (EASA) to ATM, ANS and aerodromes. Since 2007 he is rulemaking official in EASA responsible for a number of projects, spanning from airworthiness, to flight operations, preparation of the ICAO 37th Assembly in 2010, phasing out of halon for environmental reasons, communication services via satellite. Last but not least he is focal point in EASA for RPAS. EASA designated him in different ICAO groups, including the Study Group on UAS, where he was elected co-chair in 2012.

Abstract Having established a Study Group (SG) in 2007 and discussed for Unmanned Aircraft Systems (UAS) at Assembly level in 2010, ICAO started producing regulatory and guidance material for international civil Remotely Piloted Aircraft Systems (RPAS). Annex 13 has been amended in 2010, mandating safety investigations in case of accidents or serious incidents involving UAS. The subsequent Circular 328 gave a blue print of the possible future evolution. A major milestone was achieved in 2012 with adoption of amendments to Annex 7 (registration) and 2 (rules of the air). The purpose of the latter was to facilitate the special authorization per Article 8 of the Chicago Convention, necessary when a civil RPAS operator wants to use its system internationally. This amendment also states that the remote pilot needs a license, the operator a certificate, the RPAS an approval and the Remotely

Piloted Aircraft (RPA) a certificate of airworthiness (CofA). In 2012 the 12th Air Navigation Conference recommended to accelerate the development of standards, to consider the oversight of the command and control data link and to develop a 'roadmap' for RPAS, as part of the Global Air Navigation Plan, to be endorsed by the Assembly in 2013. The UAS SG in January 2013 agreed on the possible scope of the future ICAO SARPs, focused on civil international operations beyond visual line-of-sight (VLOS) and proposed to publish an ICAO Manual on RPAS in 2014. Should this happen it would be the first time in history that an ICAO Manual is published before the standards in the Annexes.
In 2014 ICAO may also organise a world-wide symposium on RPAS, followed by recommendations for the first 'package' of SARPs in 2015. The 'package' should contain as a minimum proposal to amend Annex 1 (pilots), 6 (including aerial work), 8 (airworthiness) and 10 (command and control).

12.15 – 12.30 **EUROCAE: Standards work - Light RPAS**
André Clot, EuroUSC, UK - On behalf of EUROCAE WG93 on Light RPAS

Bio data

André has an extensive and varied background in Aviation covering the last 35 years, initially gaining his Private Pilots License in 1978 and he was commissioned in the RAF in 1979 as a pilot. In 1988 André joined the United Kingdom (UK) Civil Aviation Authority as a Charterd Engineer specialising in safety crtical systems and worked on the UK systems approach to ATM through many research, development and operational projects over a ten year period. This included the development of the Swanwick ATM Centre and culminated in the role of Head of Engineering Strategy and Operations in the UK National Air Traffic Services Limited (NATS). In 1998 he left to form the world's first dedicated Trade Association for RPAS (UAVS Association) and in 2003 incorporated the European Unmanned Systems Centre (EuroUSC). In January 2010, the UK CAA approved EuroUSC, under the EASA Approval of Organisations, as the Qualified Entity for Light RPAS airworthiness and operational assessment in the UK. Its work has now expanded to other European countries where André specialises in systems safety assessment. André was a member of the six strong Joint JAA/Eurocontrol UAV Task Force Steering Committee whose final report was the RPAS starting point for EASA when it was formed in 2004. André is currently the Chairman of the Royal Aeronautical Society RPAS specialist Group (RAeS UASSG) and a member of the EUROCAE WG93 leadership team on Light RPAS.

Abstract

EUROCAE deals exclusively with aviation standardisation (Airborne and Ground Systems and Equipments) and related documents as required for use in the regulation of aviation equipment and systems. The Members of EUROCAE include Equipment and Airframe Manufacturers, Regulators, European and international Civil Aviation Authorities, Air Navigation Service Providers (ANSP), Airlines, Airports and other users. The aim of EUROCAE Working Group WG93 is to provide National Authorities with insight and guidance on the key areas that need to be addressed for the regulation of Remotely Piloted Aircraft Systems (RPAS).
The presentation looks at the various generic Visual Line of Sight (VLOS) scenarios in the context of the application of RPAS to specific operational areas. The airworthiness and operational characteristics of RPAS within these scenarios is highlighted, as is the developing view on what ANSPs will need to address in fully supporting safe VLOS RPAS Operations. Of specific interest is the rapid development of RPAS technology and the tremendous rate of its adoption against the relatively slow development processes that exists for manned aircraft systems and the Air Traffic Management System infrastructure. The close proximity of many VLOS RPAS operations to people, vehicles and structures also challenges many of the normally accepted views upon which aviation safety has been traditionally determined. The emerging RPAS industry is however founded on solid manned aviation safety principles and in Europe especially, is being guided by those who understand the necessary steps towards safe, effective and efficient integration.

12:30 – 12.45 **Panel Discussion & Closing Remarks**