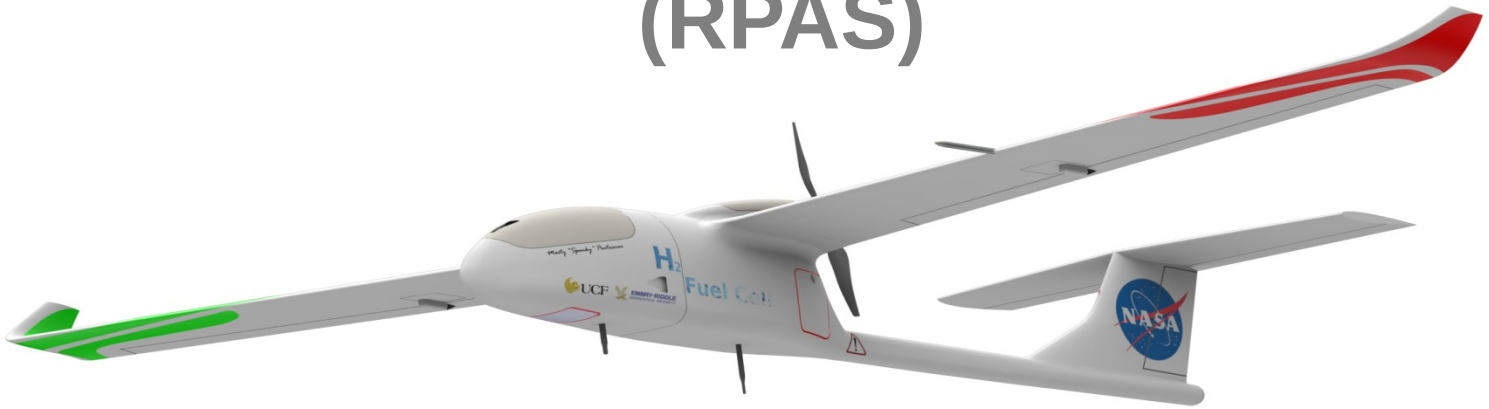
Remotely Piloted Aircraft Systems (RPAS)



Regional Officer

ICAO NAM-CAR Regional Office

Mexico, April, 2016

Problem statement

- Number of large Remotely Piloted Aircraft (RPA) particularly State operating in non-segregated airspace is increasing steadily
- Number of incidents involving unmanned aircraft with the traditional manned aviation are escalating to an alarming stage
- The expansion of recreational use of Unmanned aircraft by non-aviation persons is becoming one of the most significant hazards to manned aviation

Background

- ICAO initiated work on unmanned aircraft systems in 2007 when the ANC decided during its 175th Session in April 2007 to establish the Unmanned Aircraft Systems Study Group (UASSG). The UASSG served as the ICAO focal point for all UAS related issues until it was superseded by the Remotely Piloted Aircraft Systems Panel (RPASP) in 2014

Background

- Eighteen of the 19 Annexes will be amended to accommodate RPAS/UAS requirements. (Annex 5 — *Units of Measurement to be Used in Air and Ground Operations* will not be affected.)

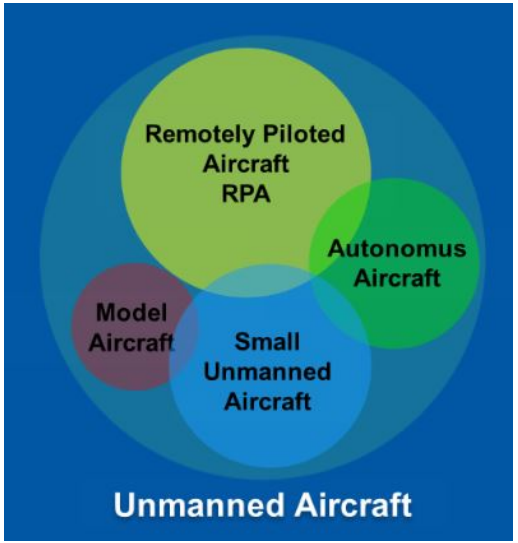
Two important points

- Unmanned aircraft are aircraft whether remotely piloted, automatic, autonomous or somewhere in between.

- Performance-based Standards provide greatest freedom of choice, allowing the most appropriate solution to be considered; however prescriptive Standards are sometimes required (e.g. frequency spectrum)

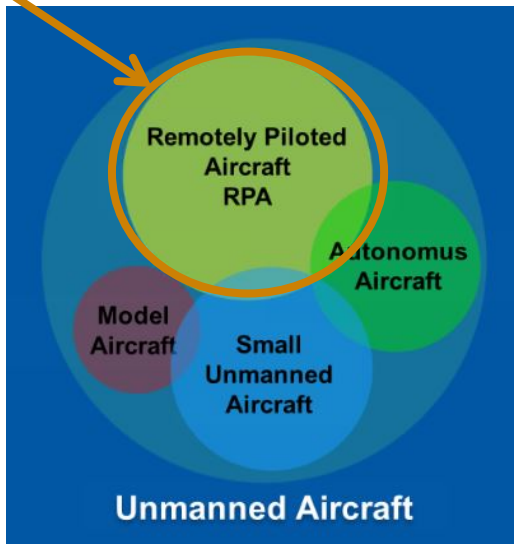
Unmanned aircraft (UA)

- Any powered or unpowered aircraft that is flown without a pilot onboard. These aircraft may operate autonomously or with a remote pilot. UA include:



Remotely Piloted Aircraft

- Part of unmanned aircraft
- Two characteristics:
  - Airspace/aerodrome integration requires control
  - Control — in real time — provided by a licensed remote pilot



ICAO Focus

- International IFR operations
- Global interoperability
- Priority to initiate international operations
  - Certificate of airworthiness
  - RPAS operator certificate
  - Remote pilot license
- National Authority Focus: Domestic operations, which may differ significantly from int'l ops

RPASP - Objective and scope

- Develop Standards and Recommended Practices (SARPs), procedures and guidance to facilitate safe, secure and efficient integration of remotely piloted aircraft (RPA) into non-segregated airspace and aerodromes

- Maintain the existing level of safety for manned aviation

- Priority is instrument flight rules (IFR) operation in controlled airspace

RPASP Structure:

- Composed by six working groups with experts in:
  - airworthiness
  - telecommunications for command and control (C2) and air traffic control
  - detect and avoid (DAA)
  - personnel licensing - 2018 adoption
  - RPAS operations
  - air traffic management
  - human performance
- Members: 23 States and 11 international organizations
- Observers: 3 States and 5 international organizations

Interdependencies

- Other air navigation expert groups are involved in RPAS/UAS topics such as accident investigation, communications, flight recorders, frequency spectrum, surveillance and safety management.
- Additional ICAO groups:

Aviation Security (AVESC) Panel - addresses the unlawful usage of RPAS and identifies security threats for which the RPAS Panel must proposed technical and procedural mitigations.

Legal Committee - The Legal Committee is studying new implications arising from international operation of unmanned aircraft.

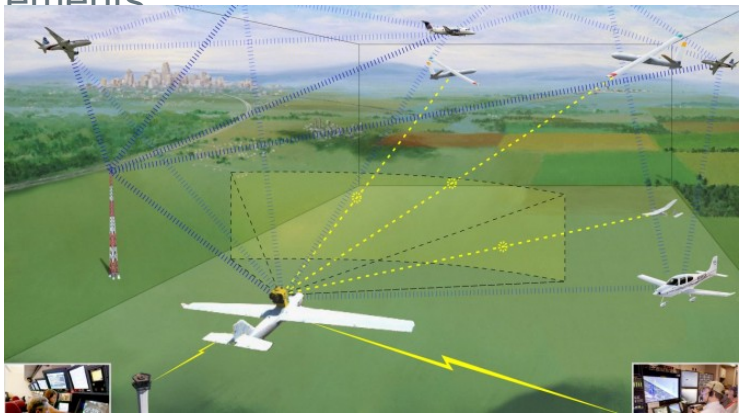
Committee on Aviation Environmental Protection (CAEP) - The CAEP Technical Committee is currently reviewing the status of RPA noise certification.

Challenges ahead

- Requirements for full ATM system integration
  - Equipment
    - Communication
    - Navigation
    - Surveillance
  - Certification
  - Licencing

Challenges ahead

- Requirements for full ATM system integration
  - UA to be accommodated if cannot meet requirements
  - RPA can be integrated
    - Airspace/aerodrome integration
    - Certification as manned aircraft



Challenges ahead

- RPAS Integration into the ATM system
  - RPA are obliged to comply with the Annex 2 right-of-way rules of other aircraft (manned or unmanned).
  - difficult for ATCOs, pilots of manned aircraft and other remote pilots to acquire visual contact with the RPA due to low conspicuity.

There is no “one size fits all”

- Type of operations may or may not require State approval
- Approvals may vary from State to State based on local parameters

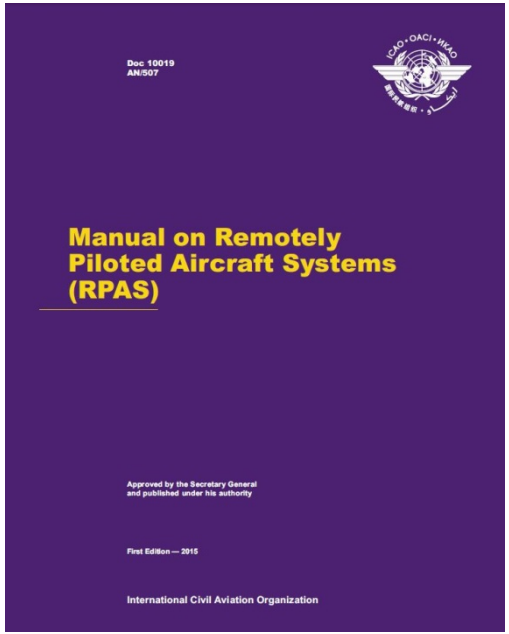
Military vs. Civil

- Should be treated in a comparable manner
- Meet the same kind of operational capability

The way forward

- Development of SARPs is underway
- ICAO formed an advisory group to share best practices regarding small UAS operations
- ICAO HQ will start conducting regional RPAS workshops in 2Q, 2016
- States are encouraged to establish and adopt performance based procedures to properly regulate
- Need to establish a constant information exchange between States, industry and other stakeholders

Guidance material and resources



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