RPAS integration into controlled Airspace

ASDA Research Tournament Round 1

SESAR Innodays 2015
RPAS in the news yesterday (1/2)

• Amazon unveils Hybrid UAVs Prime Air
RPAS in the news yesterday (1/2)

- Amazon unveils Hybrid UAVs Prime Air
RPAS in the news yesterday (2/2)

- Xavier Fron’s keynote, RPAS slide:
  - Wide variety:
    - From Toys to high-end aircraft
  - Challenges and opportunities:
    - Integration or segregation (question)
    - Mass market (lot of money, opportunity)
    - R/F Spectrum (already scarce, needs new bands/protocols)

- Flight Centric approach might become default for all a/c due to the high number
Remotely Piloted Aircraft Systems (RPAS or UAVs)

- UAVs, UAS, now RPAS: small and large, light and heavy, fast and slow

- Pose, and so far more than manned vehicles, a risk to other vehicles

- Technology runs ahead of rulemaking

- Many possible applications in civil airspace
Recent RPAS research examples

• Recent RPAS papers in ATM Seminar:
  – “Maintaining Separation with an airliner in non-segregated airspace” (lateral) – Univ of Catalonia/Eurocontrol
  – “Vertical thresholds in RPAS-manned a/c separation” (vertical TCAS-like) – NASA LaRC, NASA Ames (Class E airspace)
  – “Interoperability of vertical and horizontal resolution manoeuvres” – MIT Lincoln Labs
  – Metropolis – Airspace design: structure or nor structure for extreme capacities –(RPAS/PAVs) - TU Delft, NLR, ENAC, DLR

• A lot of focus on one-on-one resolution manoeuvres
Question 1:  
- Who is responsible in case of a collision of an RPAS/UAV with e.g. an airliner?  
  A) Manufacturer  
  B) Remote Pilot  
  C) Airline pilot  
  D) Air Traffic Controller  
  E) Authority who allowed RPAS into airspace  
  F) That depends…..  (on what?)
Question 2:

• Are RPAS/UAV more likely to collide and/or crash?
  
  – And if so, why?

  – How to solve it?
Two teams, four players

- Martina Ragosta
  Deep Blue
  (Human Factors)

- Jose Janvier Ramasco
  Institute for Cross-Disciplinary Physics and Complex Systems
  (Complexity Science)

- Giuseppe Contissa,
  EU Institute
  (Legal)

- Alan Ross Groskreutz,
  CRIDA
  (Safety)

Referee: Jacco Hoekstra, TU Delft (ATM)