



RPAS integration into controlled Airspace

ASDA Research Tournament Round 1

SESAR Innodays 2015



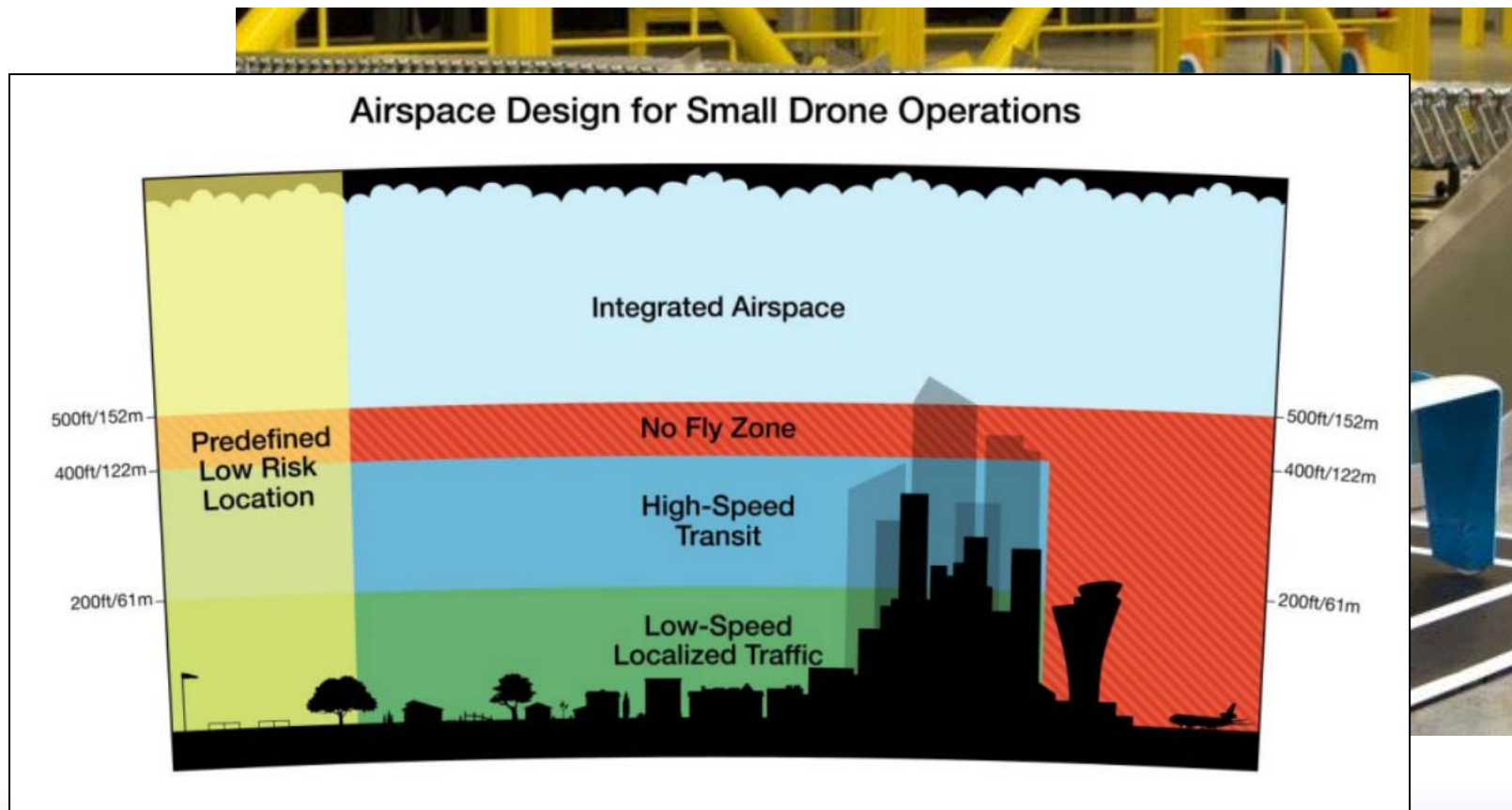
~~RPAS~~ in the news yesterday (1/2) UAVs

- Amazon unveils Hybrid UAVs Prime Air



UAVs ~~RPAS~~ in the news yesterday (1/2)

- Amazon unveils Hybrid UAVs Prime Air

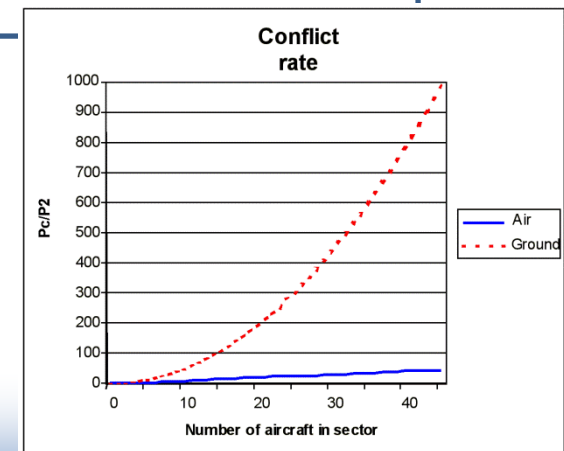


~~RPAS~~ in the news yesterday (2/2) UAVs

- 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

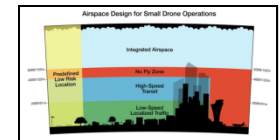


Remotely Piloted Aircraft Systems (RPAS or UAVs)

- 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 no 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



Ferrari



- 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)