



# USAR TL MEETING 2014

RPAS and their challenges



## Some Definitions

- UAV: unmanned aerial vehicle
- UAS: unmanned aerial system
- RPAS: remotely piloted aerial system
- SUA : small unmanned aircraft
- SUSA: small unmanned surveillance aircraft
- MALE: medium altitude long endurance
- HALE: high altitude long endurance
- CAA : Civil Aviation Authority
- ....



## Common (wrong) arguments & perceptions

- They are only small (<7-20Kg)
- Same size/weight as a large bird
- They don't go fast
- They don't fly in the same airspace as big aircraft

Aviation Rules are, historically, written in blood





# Americas



Hurricane Katrina, Bay of St Louis, USA (2005) SR-530 Mudslide, Oso, Washington, USA (2014)

Source: Center for Robot-Assisted Search and Rescue (CRASAR), Texas A&M University

Murphy, R. R. (2014). Disaster Robotics. MIT Press, Cambridge, MA.



# Asia



LuShan earthquake, China, April 2013





# Europe



Balkan Floods, 2014





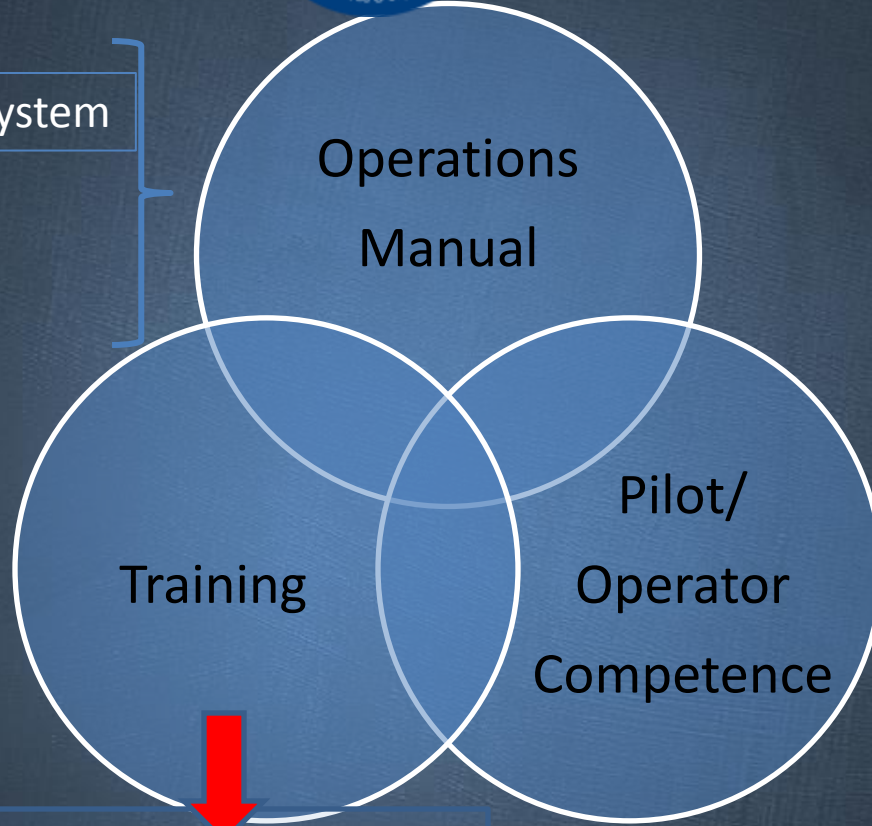
Intro & Terminology

Use Cases

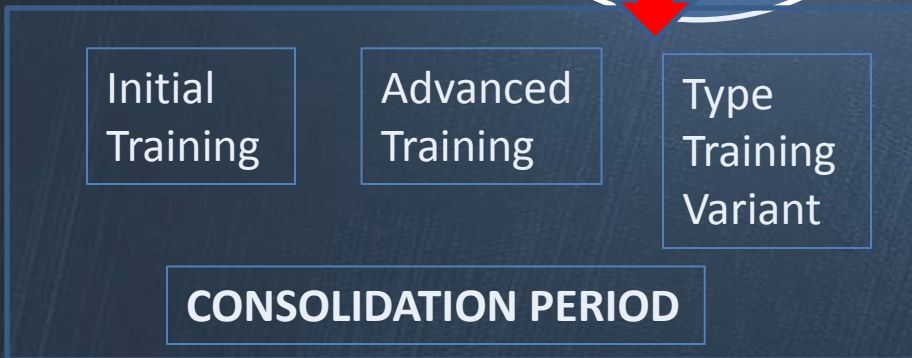
RPAS Procedures

INSARAG Involvement

- Security Management System
- SOP + Checklist
- Limits



- CAA
- Procedures
- Aviation
- Process
- Assess (who)
- Perishable skills



➔ "Airmanship"





# OPERATIONS MANUALS (OM)-Why?

- CAA regulations (Cfr UK CAA IN-2014/115)
  - Guidance; engage stakeholders
- Safety during operations
  - Limitations to operations (what can/cannot be done)
- Forward planning
- Risk Management → methodology
- Knowledge sharing (turnover Opr/Staff)
- Efficiency (! Not a paperwork mountain!) → OM backed up by professional aviation processes and practice (including language terminology)





# Pilot/Operator's competences

- Certificate of Competence (who – authority?)
  - Initial, advanced, specific?
- Type of training (you must tailor your flight training to reflect the specific skills required)
- Scenarios → developments → simple to complex
- Continuation Training & Currency
  - Perishable skills
  - Supervision of Flying – routine checks
  - Re-Currency( 30 days/ 180+ days?)
  - Re-certification – (annual, by whom?)



# INSARAG-role: Questions to be answered

- Lessons learned from “off shore companies”
- RPAS System User Manual (key part to OM)
- How does our operation reflect our target “market”
- Do we use the same language? → misunderstanding = source of aviation incidents!!!
- Training: mandatory training or relevant competency? USAR specific training requirements?
- RPAS Servicing and Maintenance (accountability, responsibility, quality insurance) → “airworthiness”





# INSARAG-role: Questions to be answered

- Airworthiness

- Monitor defects, record and log flight data
- Technical log of all maintenance
- System maintained up to date at all times
- Maintenance is carried out correctly to schedule

**Independent  
Verification !?**



# INSARAG-role: Questions to be answered

- Regulations (Fit to operate within the rules)
  - Aviation and Industry rules → are we compliant?
  - **Who** will be carrying out flight Ops? Are they current, fit to operate and have the correct qualification? #-man operations?
  - **What** is the nature of our flight Ops? Within the rules, SOP, Trg,...?
  - **How** have we planned our flying activity? Have we prepared a Method Statement, Risk Assessment and Safety Plan appropriate to support this activity? Does NDMA know our “bottom lines”?
  - **Where** are you operating? Within regulatory tolerances?
  - **When**? Time of day, weather window, airspace and other traffic?





# Conclusions

- Many questions, few answers
- Standard approaches and procedures are required to:
  - Define a common level of required pilot competencies
  - Define common training standards and practices
  - Define common operational procedures, ensuring safe operations
  - Ensure team and data interoperability on the field