



Stratospheric Operations: The European perspective

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SESAR Joint Undertaking

Drone Enable #3

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Founding Members



What's the problem?

- New stakeholders / operators
- New vehicle types
- Hugely varied vehicle performance
- Unknown network impact
- Unknown performance requirements
- New services
- New airspace division/classification/concept?
- New flight rules?
- New separation-provision concepts and criteria?
- High degrees of digitalization and automation

Lessons 1 (U-Space)

- A set of *new services* relying on a high level of *digitalisation and automation* of functions and specific procedures designed to support safe, efficient and secure access to airspace for **large numbers of drones**.
- An *enabling framework to facilitate any kind of routine mission*, from the inspection of infrastructure or delivery of goods to more complex future applications such as **urban air mobility**.
- Concept is similar to the CTMS Conops:
 - Collaborative
 - Competitive
 - Service-based

Lessons 2 (RPAS)

- Allowing RPAS to fly safely among manned aircraft will not be achieved in a ‘Big Bang’
- An iterative approach is being adopted:
 - *Accommodation*
 - *Integration*
- In order to truly ‘*integrate*’ we need a step-wise approach, understanding and addressing the needs of many new vehicle types with potentially very different needs
- This will require ‘*accommodating*’ new users until the whole ATM system is ready to evolve as one environment
- CTMS will need to work smoothly with the existing ATM environment

Airspace in Europe



ACCs in Europe.

European airspace architecture

Current architecture



- Moving from highly-fragmented to seamless and resilient operations
- Moving from ACC-centric services and infrastructure to a service-based architecture



Single European Airspace System



SESAR Activities

- Airspace Architecture Study Transition Plan published – the foundation for future SESAR research
- U-space research continues – but we are a long way from a finalised concept, never mind implementation
- New Exploratory Research Call now being evaluated, including a project to define a new Conops for ‘Higher Airspace Operations’ in Europe



Conclusions

- Stratospheric operations are *here, and demand is growing*
- The variety of new users is staggering, which introduces *significant challenges*
- *Detailed research and development is needed* to devise solutions, including into innovative proposals like the CTMS Conops
- Introducing such new operators and stakeholders mirrors the U-space (UTM) revolution, and lessons can be learned and applied from that experience, but *U-space (UTM) is still in development* and the concept needs *substantial evaluation* for applicability in the Stratospheric context
- All *current and new operators and stakeholders need early involvement*, in particular those new to aviation and existing service providers, in order to achieve a consensual solution
- An *iterative approach*, as adopted for RPAS integration, allows for accommodating new users while work continues on defining the model for full integration
- Europe requires *global regulatory provisions* to enable development of a *pan-European approach* to managing stratospheric operations



Stratospheric Operations: The European Perspective

Thank you very much
for your attention!

For more information: <https://sesarju.eu/>



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