

# Optimizing trajectories over the 4DWeatherCube





Summary - SES Awards 2016

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# The 4 high level objectives of the ATM Master plan

- Increase **airspace capacity** 
- Reduce flight **environmental impact** 
- Improve flight safety 
- Improve cost efficiency 

# Unique Partnership

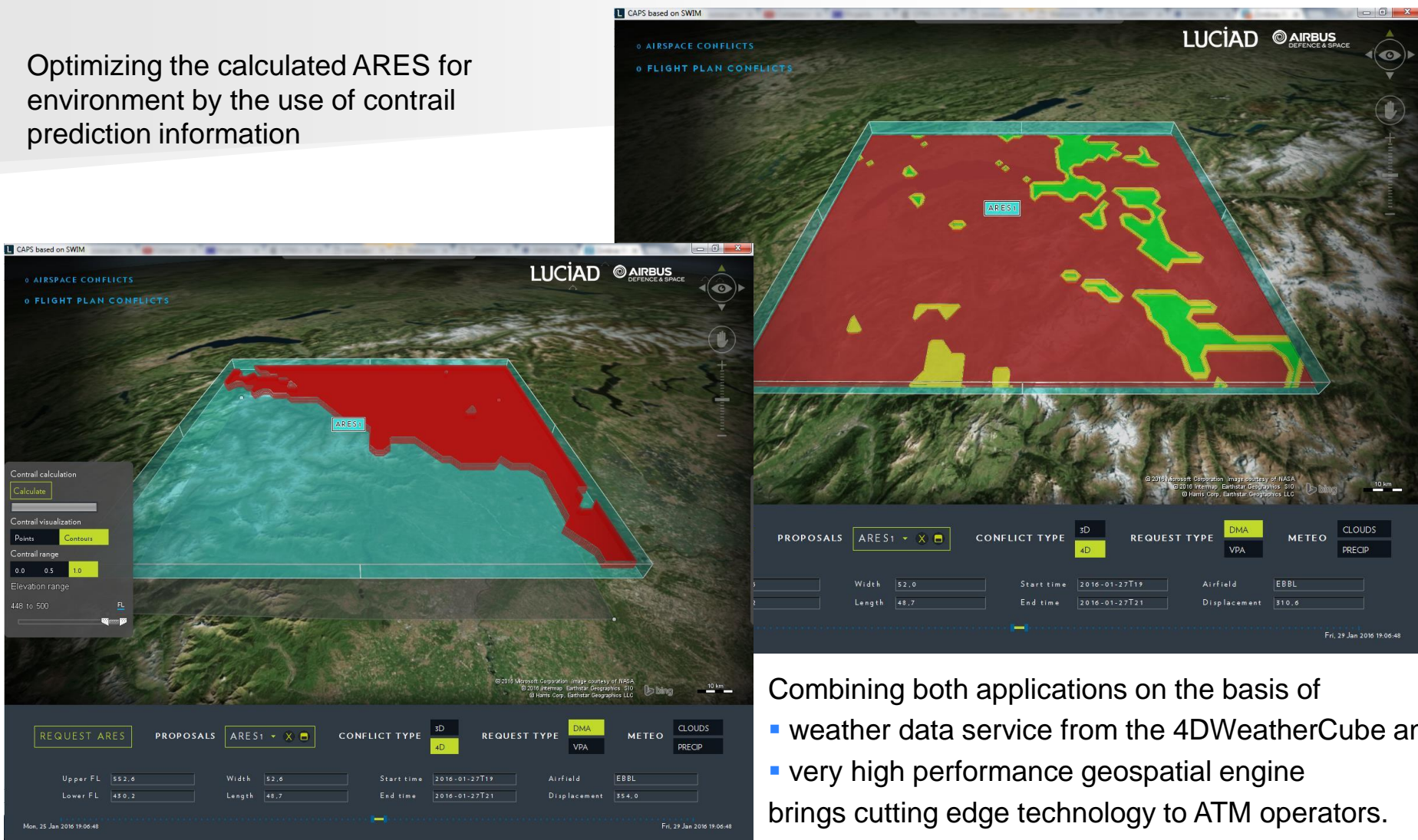
- Multidisciplinary team to take a new approach on the topic
  - EUMETNET provides MET expertise and 4DWeatherCube solution – 3 MET services involved under EUMETNET aegis
    -   
  - Airbus Defence and Space / Luciad address ATM high level objectives in their solution
    - Optimization of the SES by combining 4D trajectory, meteorological information and airspace reservation (ARES) planning
    - Reduction of air traffic impact on the environment

# From service to application

- Optimizing trajectories over the 4DWeatherCube is based on two products:
  - CAPS : Collaborative Airspace Provision Service-Application
    - CAPS based on SWIM searches for a reservable airspace, optimally suiting the Airspace Users' needs.
    - On-the-fly calculated conflict detection to assist users in proposal of ARES with minimal impact onto the network
  - ConSa : Contrail Service for Aviation
    - ConSA calculates probable forming of contrails on given weather conditions provided there are flights in those areas.
- 4DWxCube services used: Temperature, Relative Humidity and Hazardous Weather

# Optimizing trajectories over the 4DWeatherCube solution

Optimizing the calculated ARES for environment by the use of contrail prediction information



Combining both applications on the basis of

- weather data service from the 4DWeatherCube and
- very high performance geospatial engine

brings cutting edge technology to ATM operators.

# Video demonstration

- <https://vimeo.com/153516896>





# Conclusion

- One tool addressing ATFCM, ATM and MET issue
- MET-ATM integration and technical solution have been validated
- Dealing with new partners opens new horizons and business opportunities
- Next steps are moving to operations and business development

# Way forward

- On going work between partners to improve and promote the solution
- Airbus Defence and Space / Luciad:
  - Evaluation of other SWIM services – could they add reasonable information and/or functionality to CAPS based on SWIM?
  - Evaluation of enhancement by adding stereoscopic 3D view
  - World ATM Congress 2016
- EUMETNET
  - SWIM Global Demo 2016
  - Operational in Sesar Deployment Manager
  - Keep integrating and promoting new MET products
  - SESAR MET workshop in 2016 for the whole meteorological community