

MET enhanced ATFCM

Summary

Adverse weather conditions are the first cause of traffic delay: the European Network Manager reported 7.9 million minutes of weather delay in 2018, when en-route represented 25% of delayed air traffic.

Forecasting weather hazards with 1-hour horizon and its extension to 3-hours horizon are currently covered by aeronautical existing forecast products, while strong unreliability on meteorological (MET) products can be observed beyond this period. The air traffic control declares the ability to absorb the expected traffic with 6 hours of anticipation, therefore it is necessary to have accurate and high-precision meteorological data for a better decision-making. Expected benefits are an increase of the safety level and an improvement of the overall ATM system performance thanks to a more precise departure slot allocation (Calculated Take-Off Times or CTOTs).

DSNA Services and MetSafe are addressing the “Thematic challenge 3: Efficient provision and use of meteorological information in ATM” with the design and validation of a R&D convection product dedicated to enhanced ATFCM, with the **6 hours’ time-horizon as a target**.

Two complementary domains of expertise are combined through this MET enhanced ATFCM (Air Traffic Flow and Capacity Management) project. DSNA Services, the coordinator, brings its high experience on air traffic control operations, concept design and operational validation. As a MET expert, MetSafe will master the model-based convection product design and technical validation activities.

The research plan is based on a pragmatic and agile approach:

- Step 1: Operational context description and analysis
- Step 2: Model-based convection product definition
- Step 3: Algorithm and SWIM webservice design
- Step 4: Technical and operational validation

Findings of this project will contribute to SESAR initiatives related to MET and SWIM development.

Beyond the MET enhanced ATFCM R&D project, there is an opportunity to evolve towards an industrial and operational product. This may be achieved with its integration into ATC systems or on-board solutions.



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