SESAR JOINT UNDERTAKING

9th SESAR Innovation Days

MET enhanced ATFCM

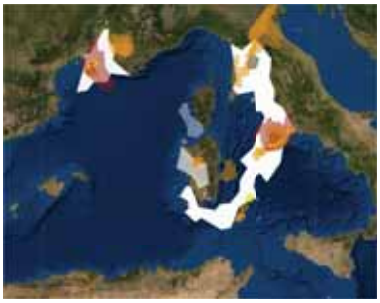
R&D convection tool

6 hours time-horizon convection product

Because adverse weather conditions are the first cause of traffic delays *(7,9 million minutes of weather delays in 2018, source: European Network Manager)*, an **accurate** and **high-precision convection forecast** with **6 hours of anticipation** is studied by **France Aviation Civile Services** and **MetSafe** with the support of the **DSNA Reims Center**

Expected benefits

- Improvement of the **ATFCM decision-making process**
- Increase of the **safety level**
- Improvement of the overall **ATM system performance**



Convection product (white polygons)
Observed satellite convection and lightning detection

Project objectives

- Identify **MET needs for ATFCM**
- Develop a **MET product for convection** with **confidence index** (multi model / multi parameters)
- Deliver it as a **SWIM web service** for OPS validation
- Iterative **agile methodology**
- Benefit of early **SWIM implementation**
- Kick-off : May 2019 (12 months activities)

Operational context

- **Feedback from DSNA Reims ACC**: limitation of nowcast capabilities, lack of convection product forecast >1h, product fit for decision making, impact qualification, SWIM as a vector for fast integration into ATC tools
- **Supported by cross-border Weather trials** in the summer of 2020

Convection model identification

- **Standard parameters**: CAPE-Convection Available Potential Energy / LI-Lifted Index / CIN-Convective Inhibition / SHR-Storm Relative Helicity / SDI-Supercell Detection Index
- **High level noticeable parameters**: precipitable water, convective cloud cover, infraRed satellite simulated forecast, significant weather
- **Multi-models from global to regional**: GFS NOAA, ICON GFS, AROME MF

SWIM delivery

- 4me project opportunity
- Access to the ATC OPS room
- WFS2.0 compliant with AIRM
- Forecast +24h / Step +1h
- Introduction of a confidence index
- Early technical integration into MetSafe IHM display

Different models to determine a confidence index

This project has received funding from the SESAR ENGAGE Network under the European Union's Horizon 2020 research and innovation programme under grant agreement No 783287. The opinions expressed herein reflect the authors' view only. Under no circumstances shall the SESAR Joint Undertaking be responsible for any use that may be made of the information contained herein.

France Aviation Civile Services – gladys.mercan@dsnaservices.com / DSNA – gerald.regniaud@aviation-civile.gouv.fr / MetSafe – kamel.rebai@metsafeatm.com

2 – 6 December 2019
Athens, Greece

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