

# WEATHER MANAGEMENT at Network Level

Supporting  
European  
Aviation



## Benefits of a Centralised Network Management

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Safety Forum



NETWORK  
MANAGER

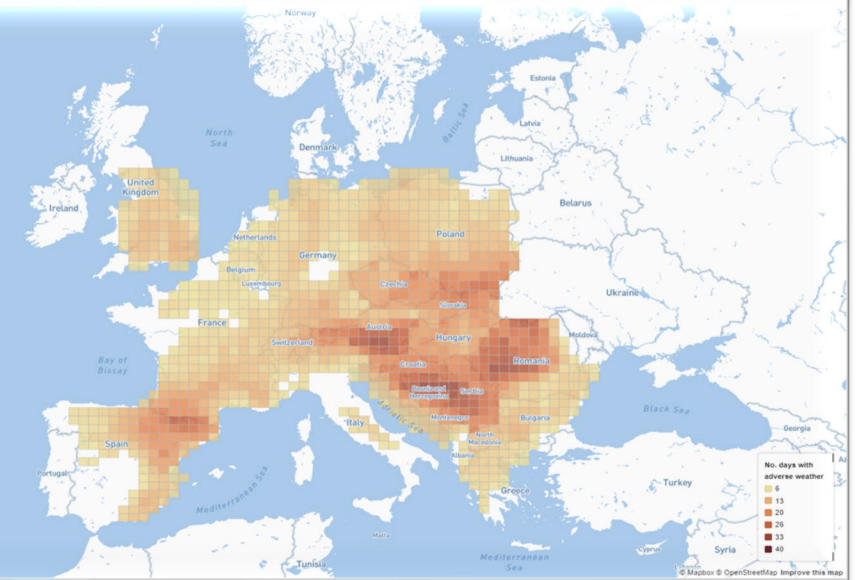




- **Weather management at airport level**
  - Could lead to a local disruptions
  - Or in some situations to a Network disruptions (EGLL 2010)



- **WX at Upper Airspace impacts larger area and in Europe will be crossing FIRs and National borders (summer 2023)**





# Case Study

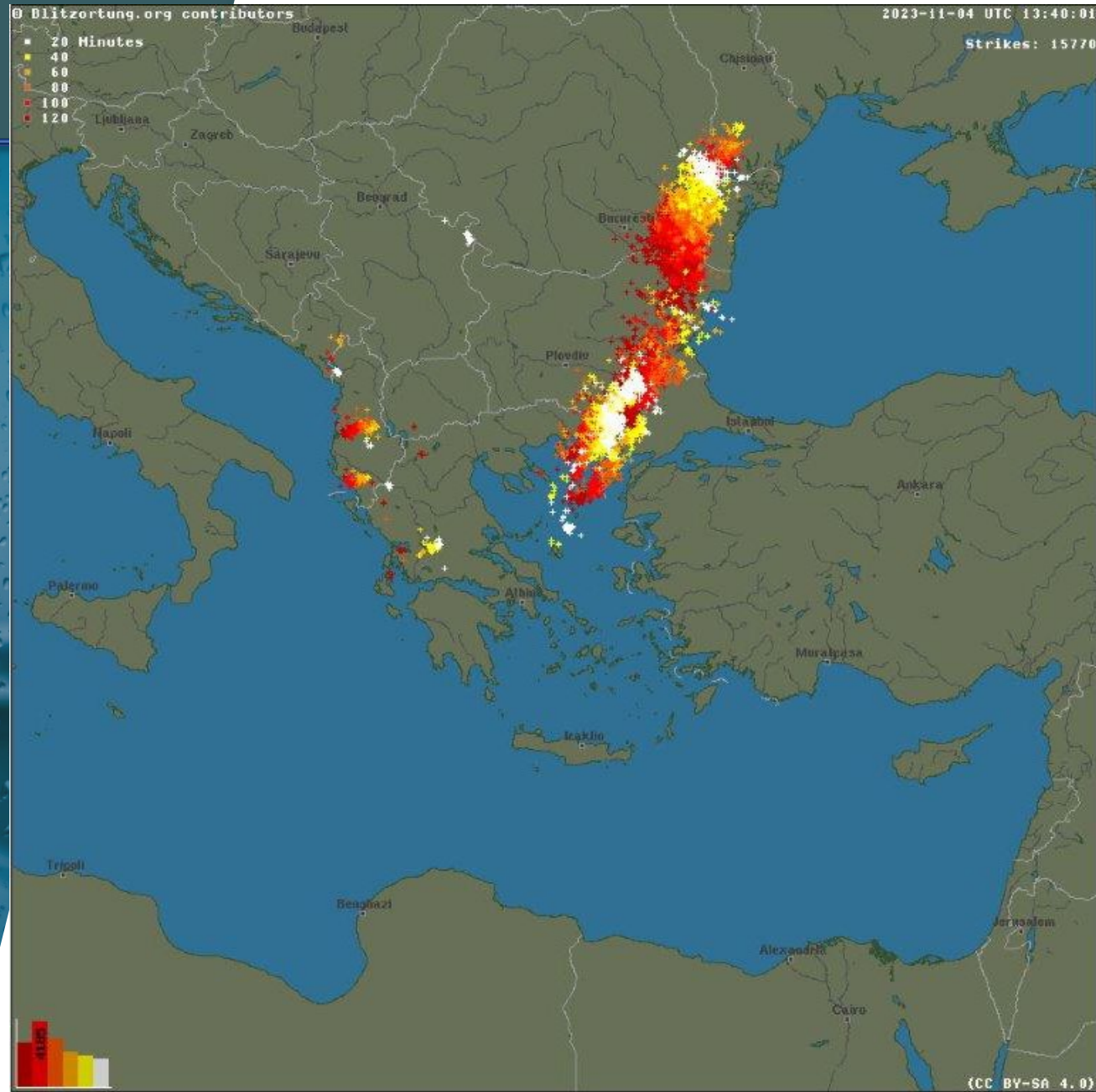
Impact at A/D and on adjacent state Airspace

- A significant increase in traffic intensity for **Sofia ACC** was reported by **BULATSA** in the late afternoon on Saturday **4 November 2023**.
- The most affected sector family by the increase was the **Varna Sectors**.
- A significant difference between the actual load and the expected demand was found during post **operational analysis**.
- **The majority of increase** was associated with **Istanbul IGA** arrivals and departures with a significant number of the flights performing tactical re-routings due to weather avoidance.
- This resulted in **offset demand** (both vertically and horizontally) with flights operating on non-standard trajectories.



# WX 13:40

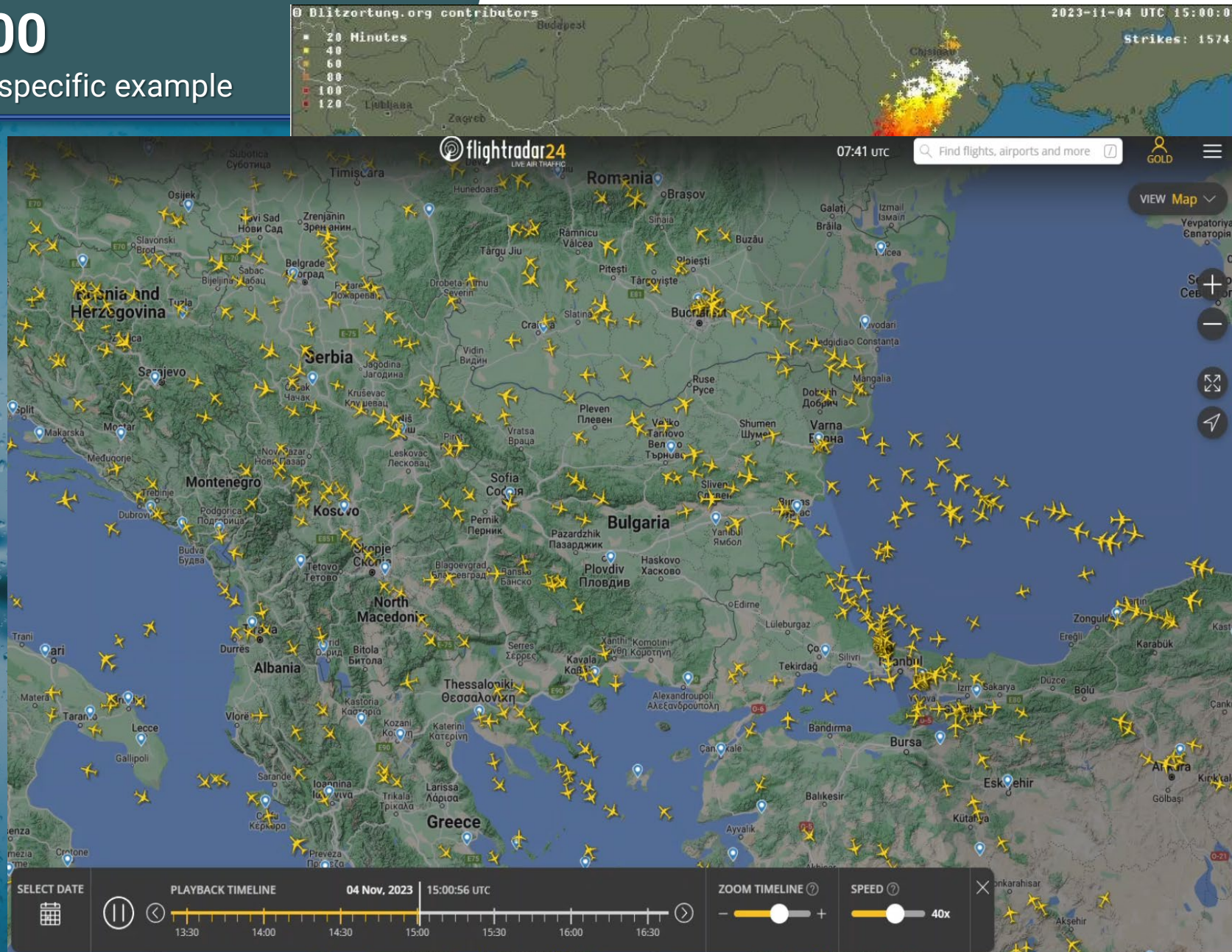
Cross border specific example





# WX 15:00

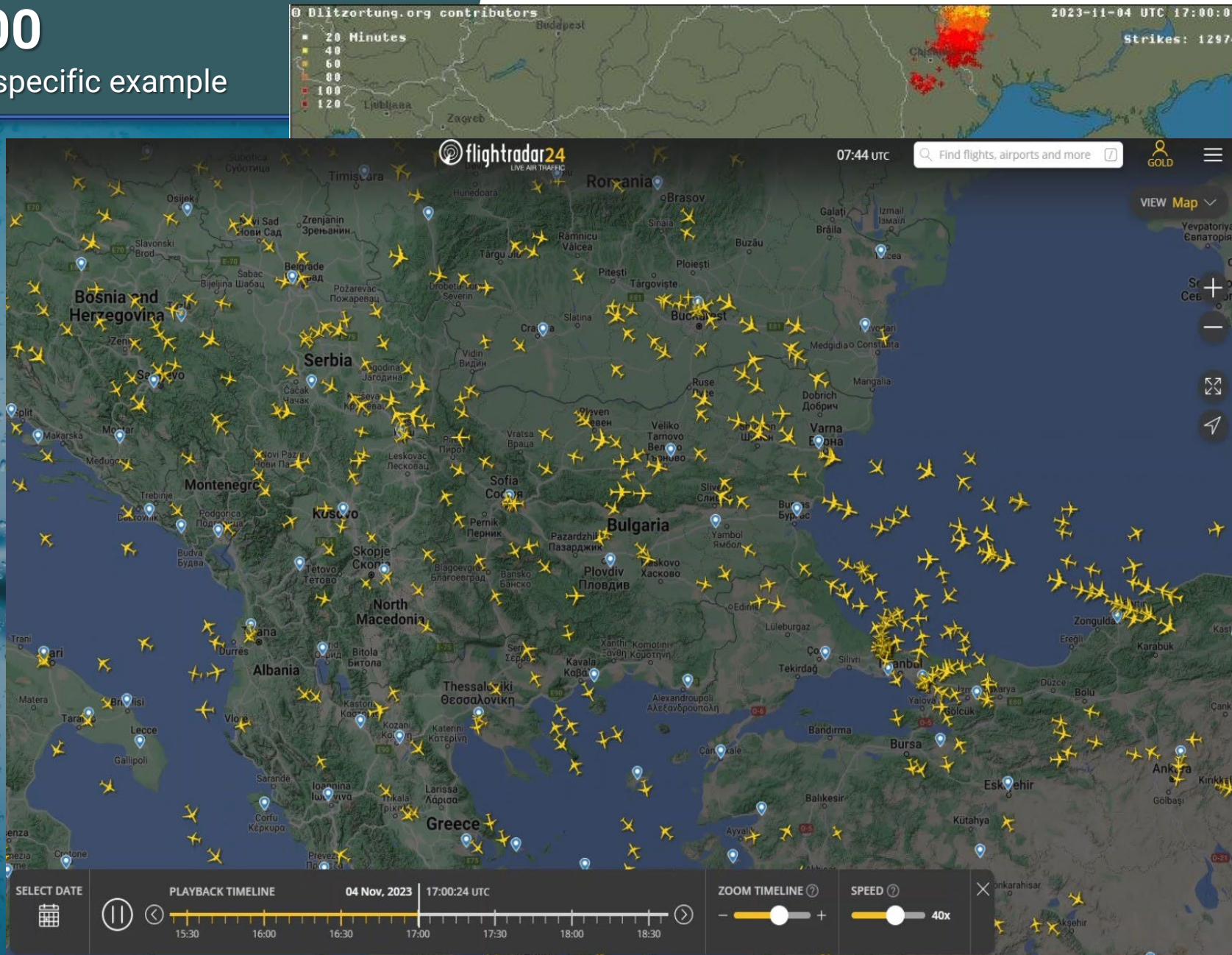
## Cross border specific example





# WX 17:00

## Cross border specific example





# Lessons learnt

Effective ATFM strategy to ensure safe operations, particularly during adverse weather



**Network approach** – cross border view is essential

**Coordination** – better preparation for disruption scenarios

**Anticipation** – earlier coordination and predictions

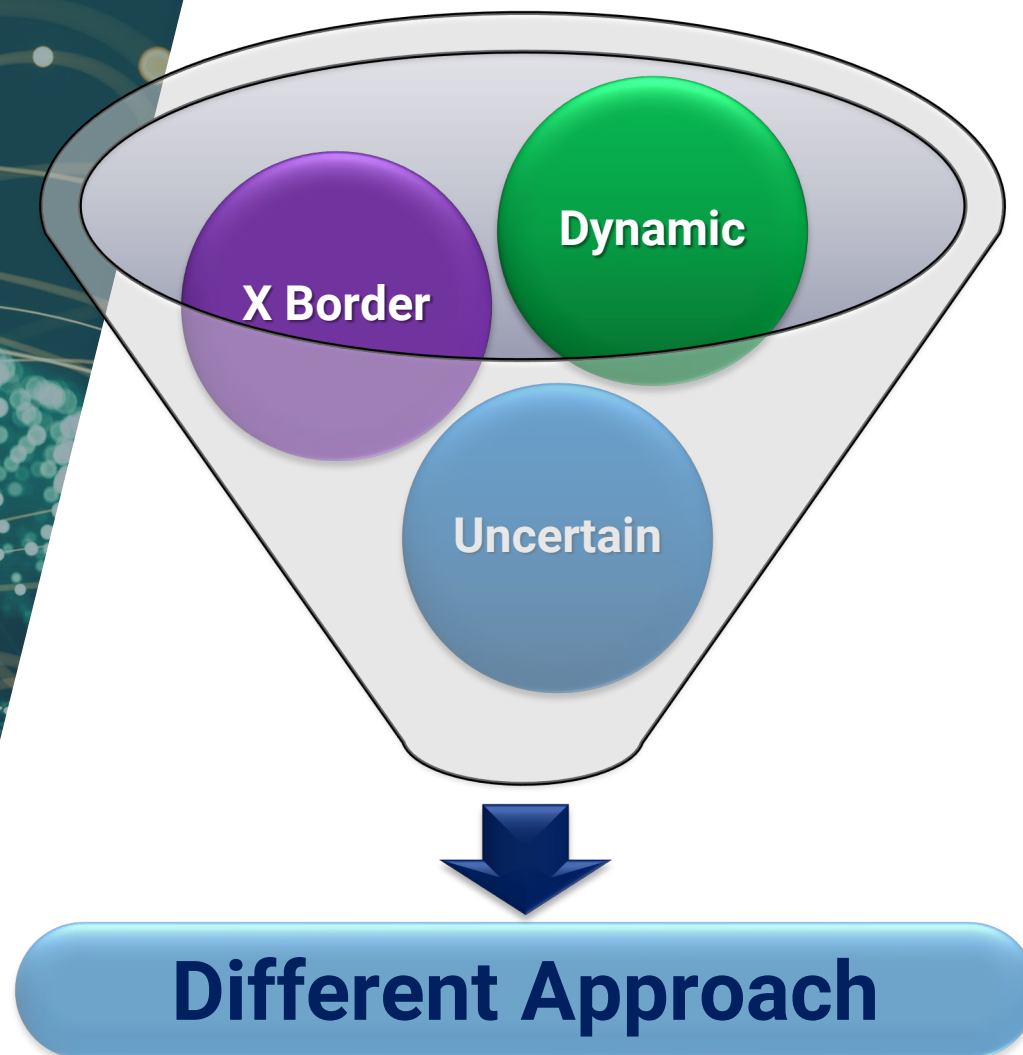
**Protection** – ATFM can only be effective if activated in advance

**CDM** – Collaborative approach with all stakeholders will ensure better results

**Exploration of new emerging technologies**



# A very particular bottleneck





## NETWORK FORECAST AND ACCURACY

The system in the USA has grown for decades within a native environment, now Europe needs to build its own environment.

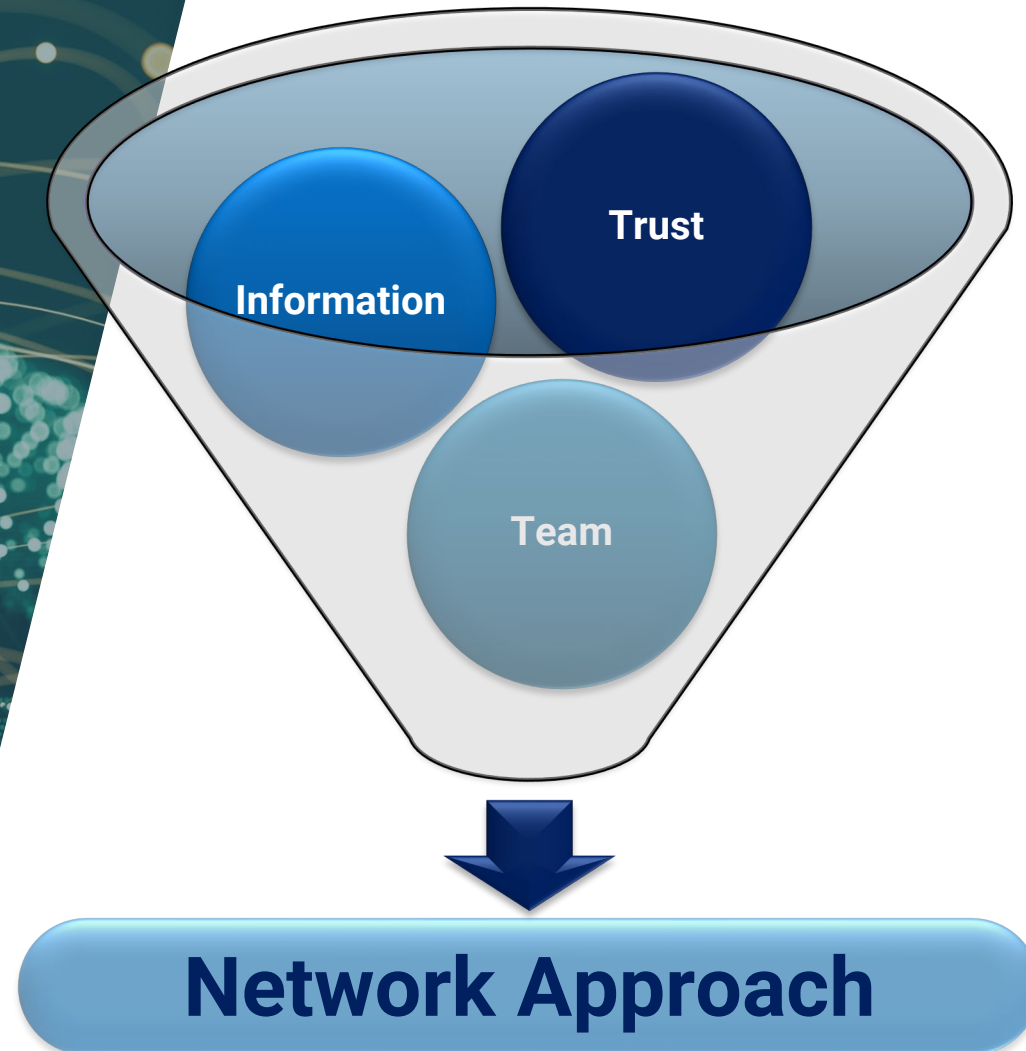
Appropriate measures should be taken to guarantee the provision of sustainable meteorological data at European level (Network forecast) adapted to the aeronautical environment. **Accuracy, continuity, and granularity of data supply shall be assured.**

## HARMONISED XB NETWORK PROCEDURES

Consequently, the establishment of **pretactical and tactical network procedures** is required. **NMOC's role** to implement the more efficient measures at a network level is crucial.



# Network Manager's Role

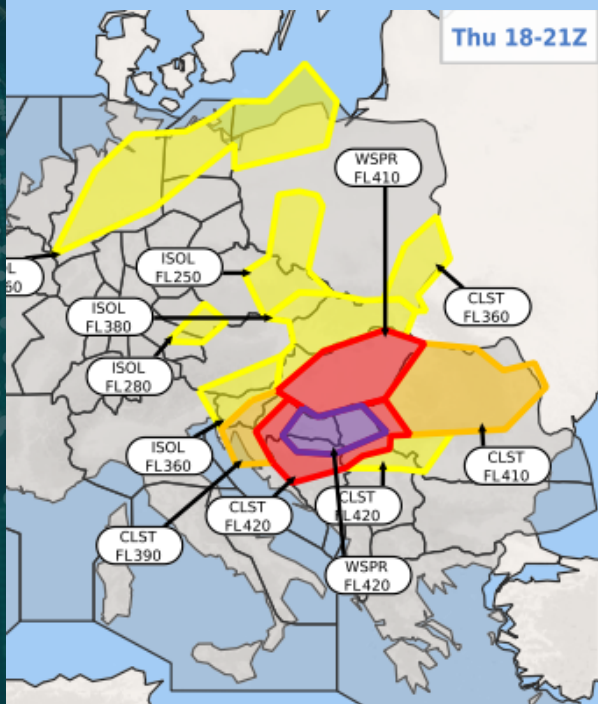




# Main enablers

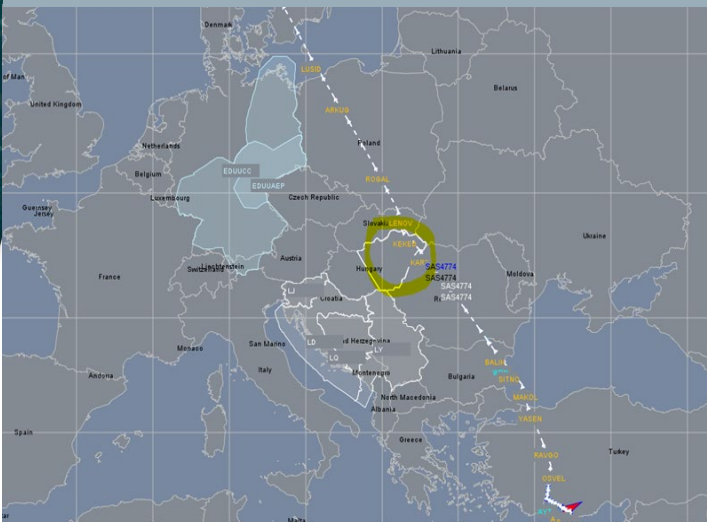
Information

## NETWORK FORECAST



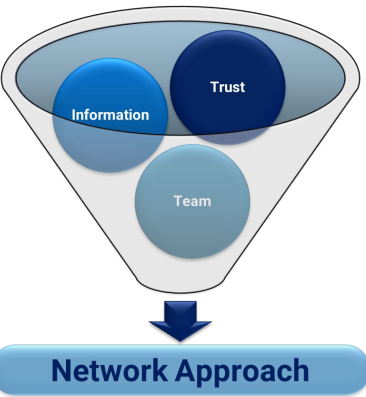
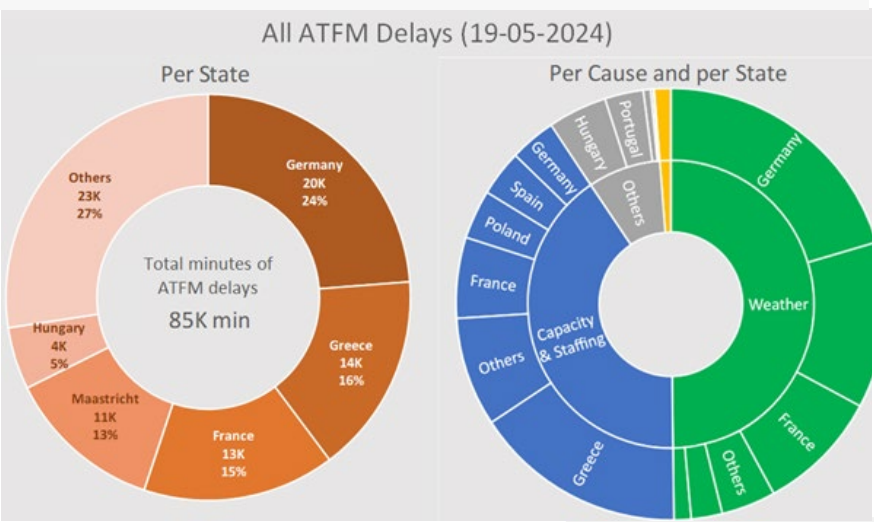
Team

## NETWORK PROCEDURES



Trust

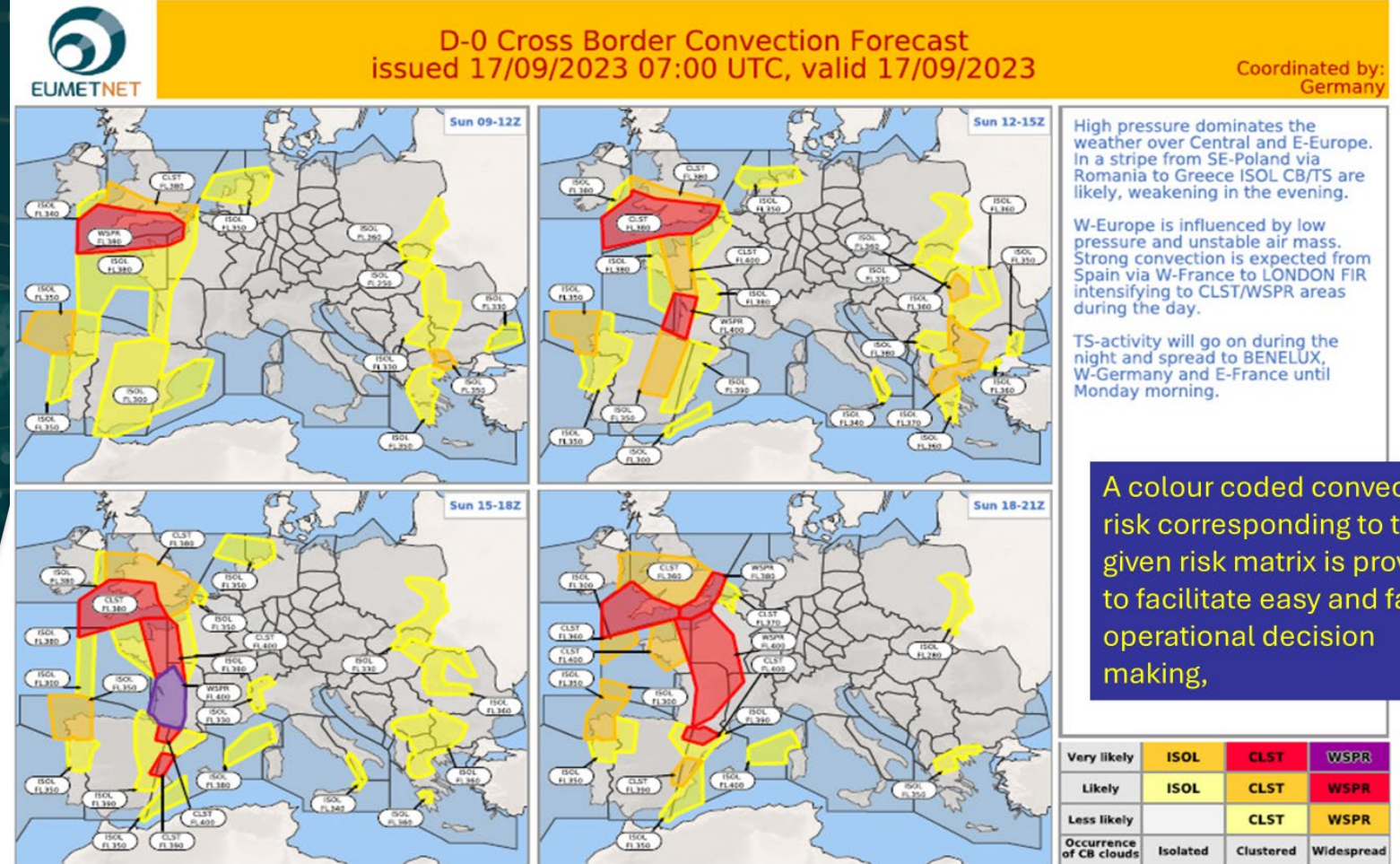
## POST ANALYSIS





# Network Forecast

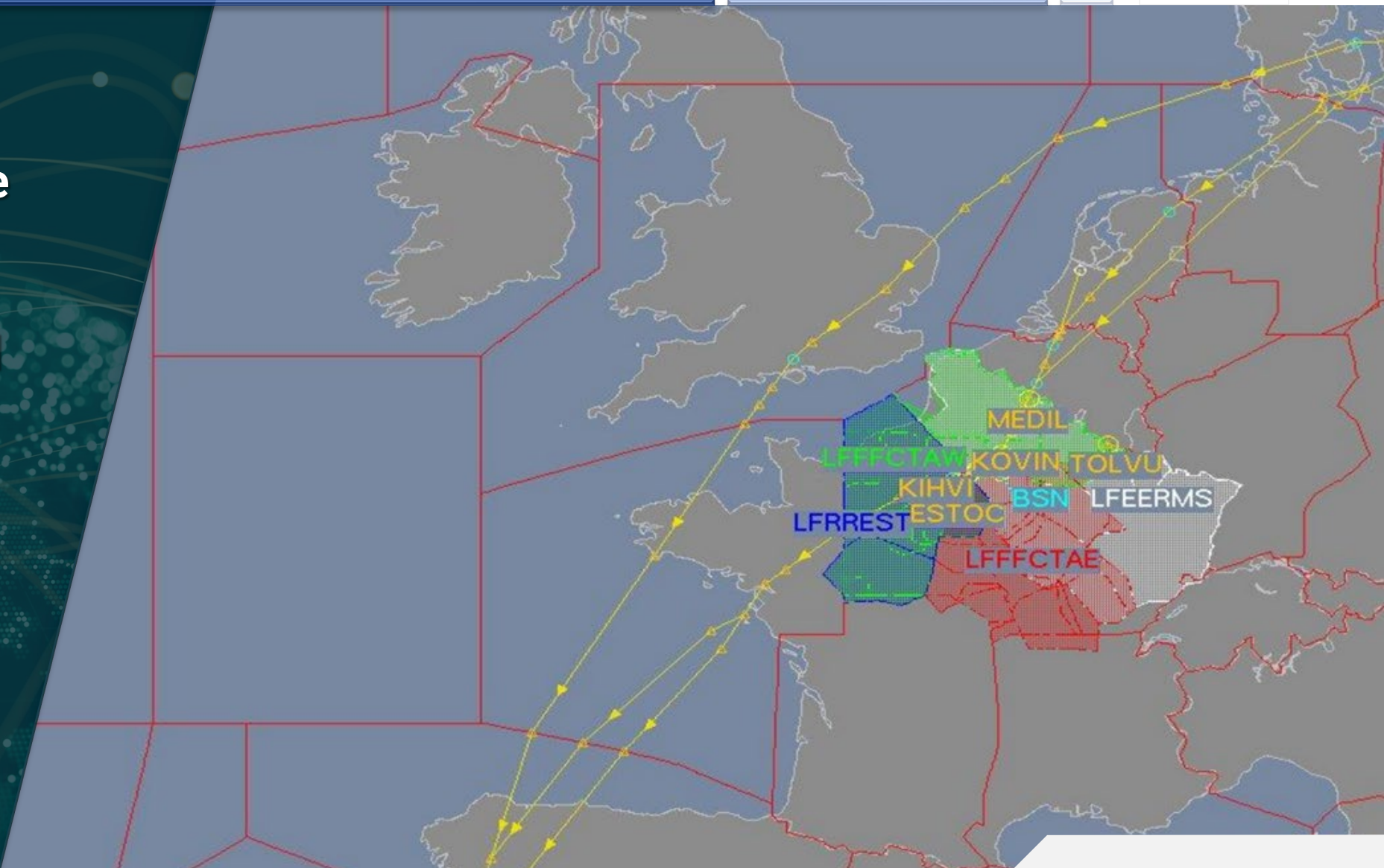
- European
- Continuous, granular
- Accurate
- All phenomena  
(space weather)





# Network Procedures

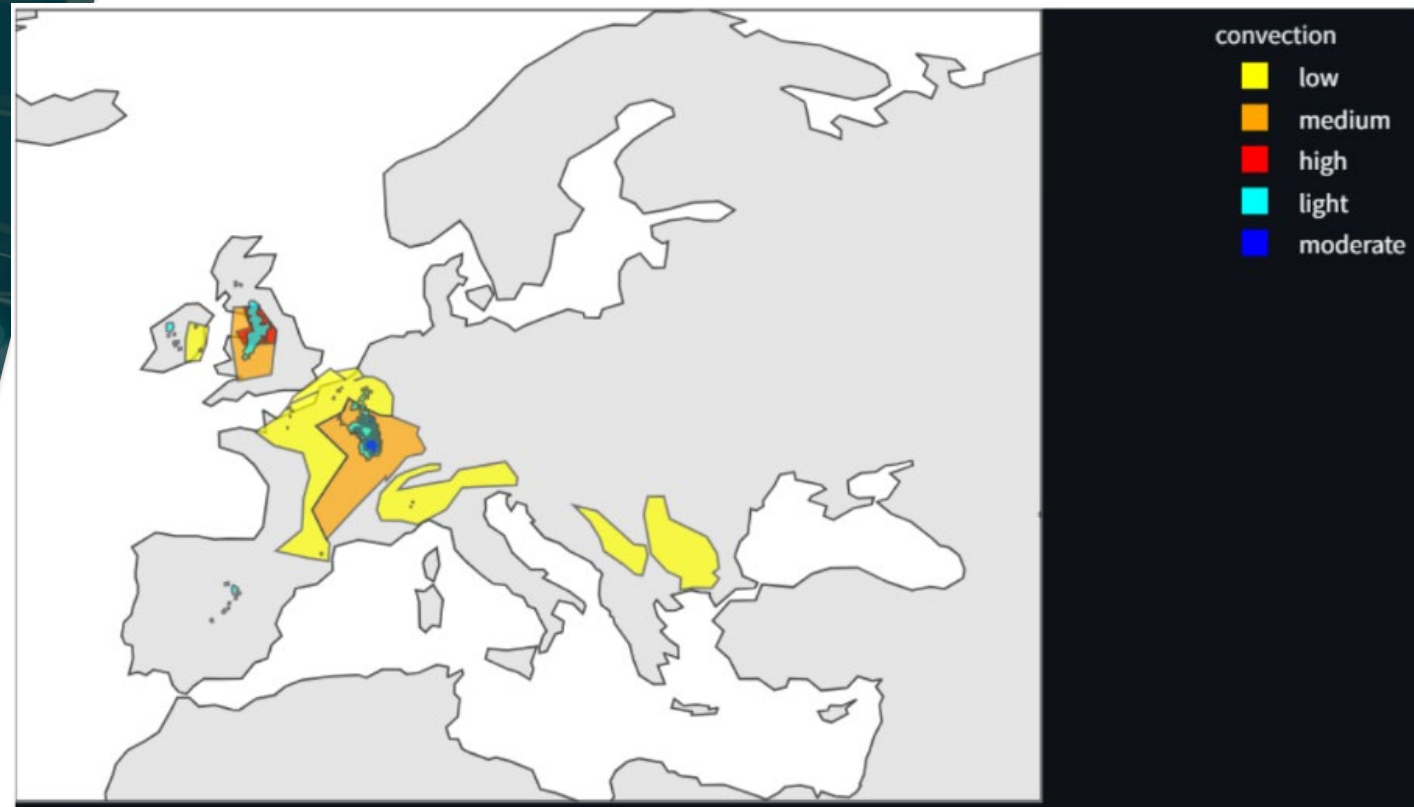
- NMOC leading role
- Pre-agreed (CDM)
- All actors involved
- Optional and mandatory





# Post Analysis

- Rolling
- Input to adapt forecast and procedures
- Building trust



Precision - 0,07; Observed Cb coverage - 0.88; Quality - 0.26 (**good**)



# Beyond 2024: NMOC Weather Desk

- **New Service**
- **New Technologies**
- **Dedicated team**  
(reinforce pretactical team)
- **One stop shop**  
(information)
- **Rolling post ops analysis**
- **Extend initiative to the winter period**  
(airports) and space weather





# SUPPORTING EUROPEAN AVIATION

