SESAR 4DWeatherCube

The one stop shop for MET in Europe

Tuesday, 17/05/2016

EUMETNET
EUROPEAN METEOROLOGICAL SERVICES NETWORK

EUMETNET
Kamel Rebaï
kamel.rebai@meteo.fr

FROM INNOVATION TO SOLUTION

The need

I would like TAF, METAR, SIGMET and SIGWX.

This data format is like gobbledygook for me!

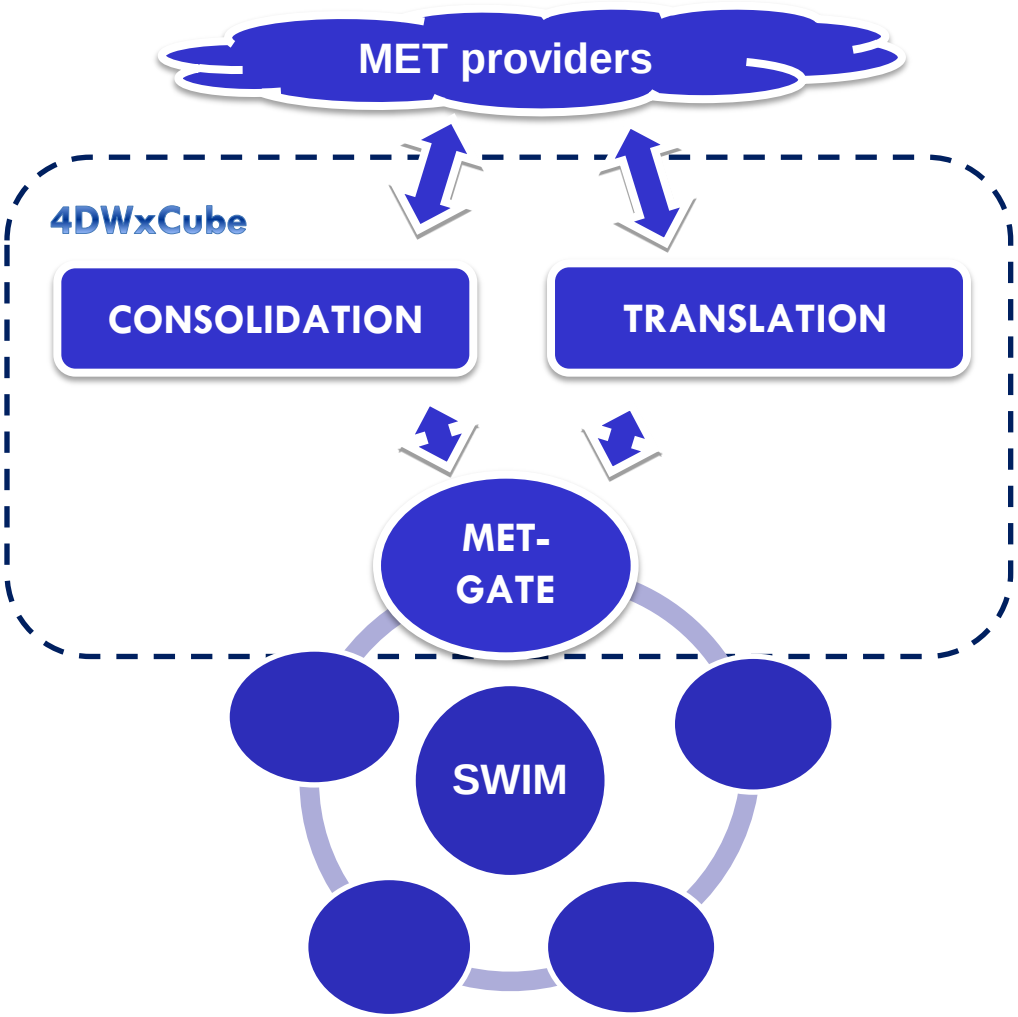
Where can I find MET information?

How can I integrate MET information into my system?

EUMETNET
EUROPEAN METEOROLOGICAL SERVICES NETWORK

FROM INNOVATION TO SOLUTION

Response from the MET community : the 4DWxCube

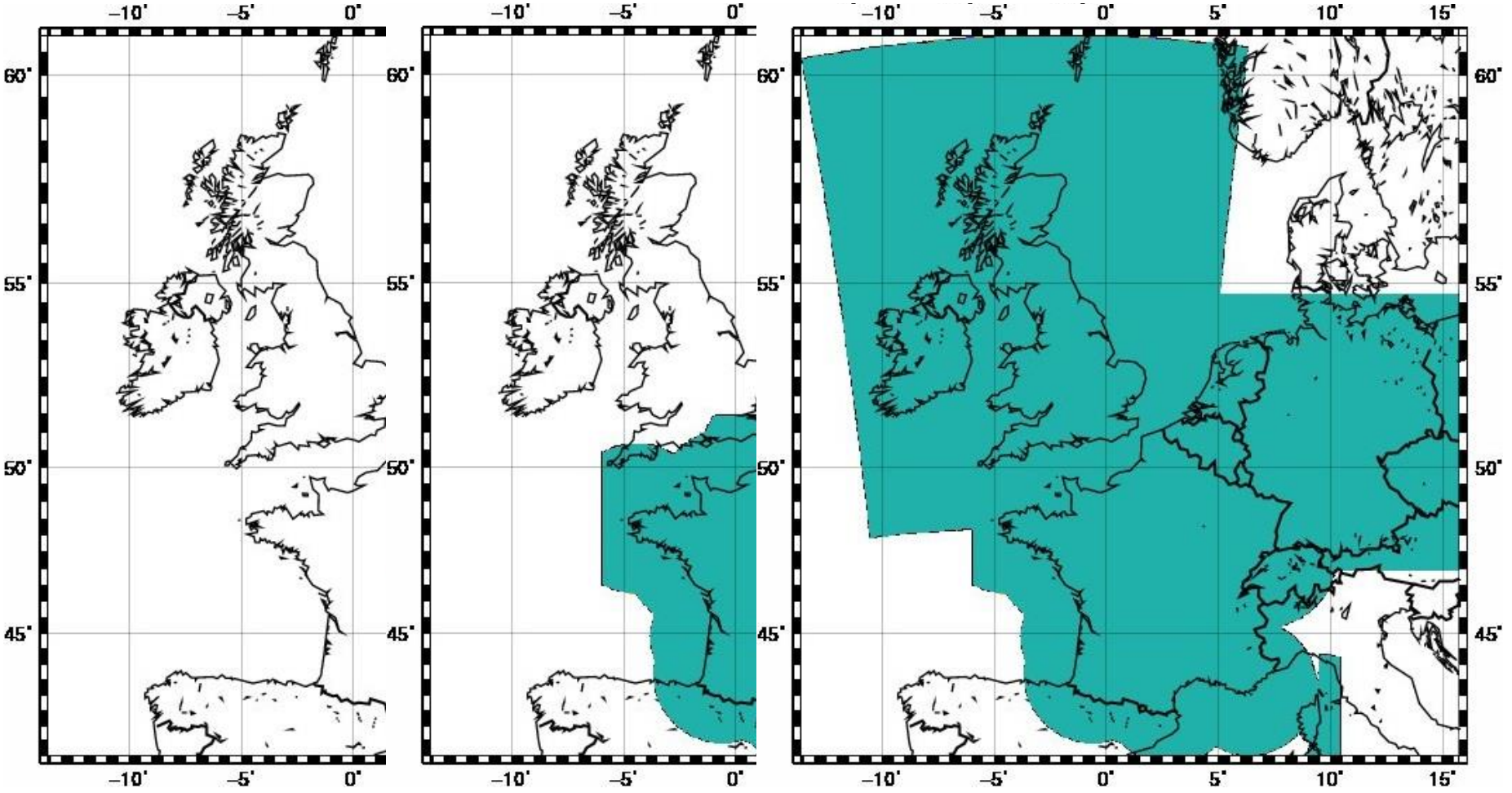


- Consolidated and harmonized view
- Translated to relevant data format
- Best MET information available
- Fit-for-purpose
- Easily integrable in ATM systems
- SWIM compliant web services
- Single access point for Europe: the MET-GATE

FROM INNOVATION TO SOLUTION

EUMETNET
EUROPEAN METEOROLOGICAL SERVICES NETWORK

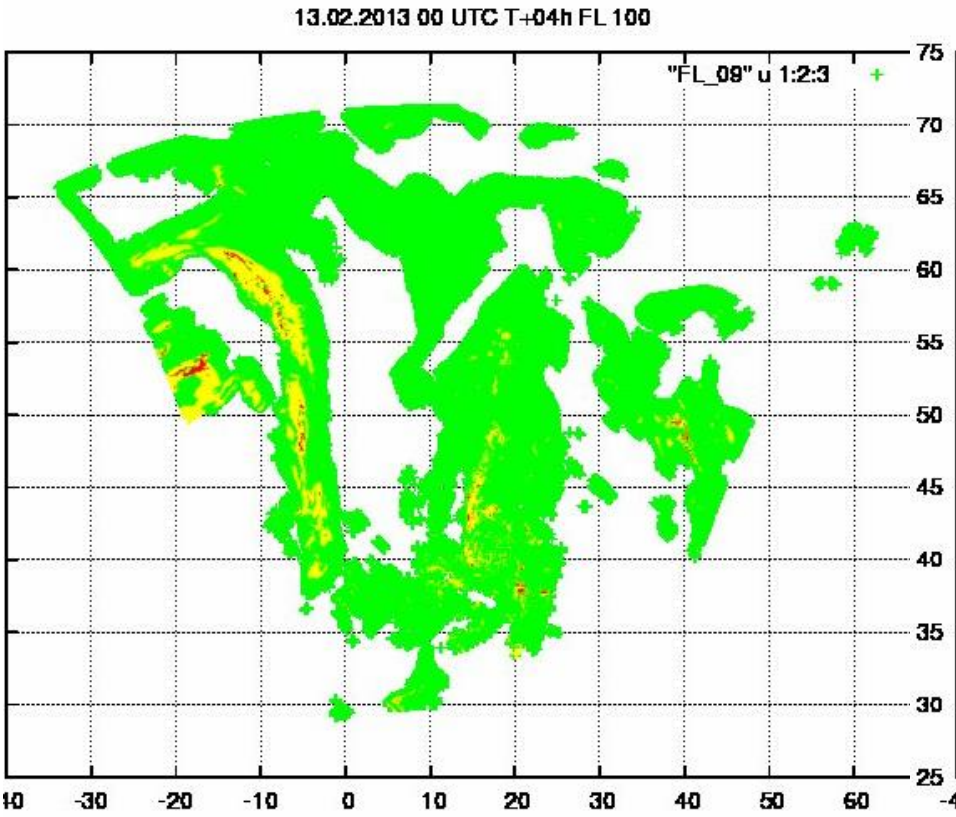
Consolidation of nowcasting of convection

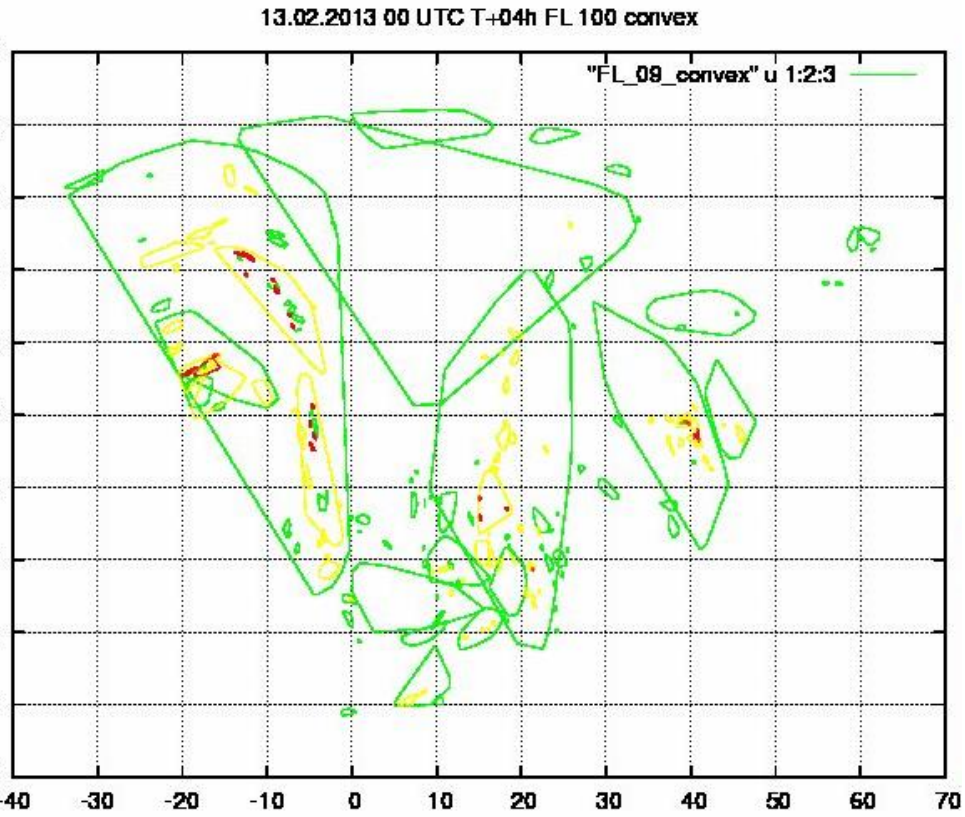


FROM INNOVATION TO SOLUTION

EUMETNET
EUROPEAN METEOROLOGICAL SERVICES NETWORK

Translation: Icing contours





EUMETNET
EUROPEAN METEOROLOGICAL SERVICES NETWORK

FROM INNOVATION TO SOLUTION

MET-GATE development

- SESAR WP11.2:
  - Two high level operational requirements:
    - Single Access point in Europe
    - Consistent view (common situation awareness between all ATM stakeholders on each point in space)
  - Full swim compliance: AIRM, ISRM, OGC Webservices and iWXXM1.0
  - Overall architecture and specification
- MET-GATE first prototype delivered in september 2015
- 8 SWIM services published in the SWIM registry

FROM INNOVATION TO SOLUTION

SWIM MET services presentation

OPMET

METAR service
TAF service
SIGMET service

MET hazards

Airport MET forecast service
Airport MET observation service

MET at airport

MET Hazard EnRoute forecast service
MET Hazard EnRoute observation service

MET gridded forecast

MET gridded forecast service

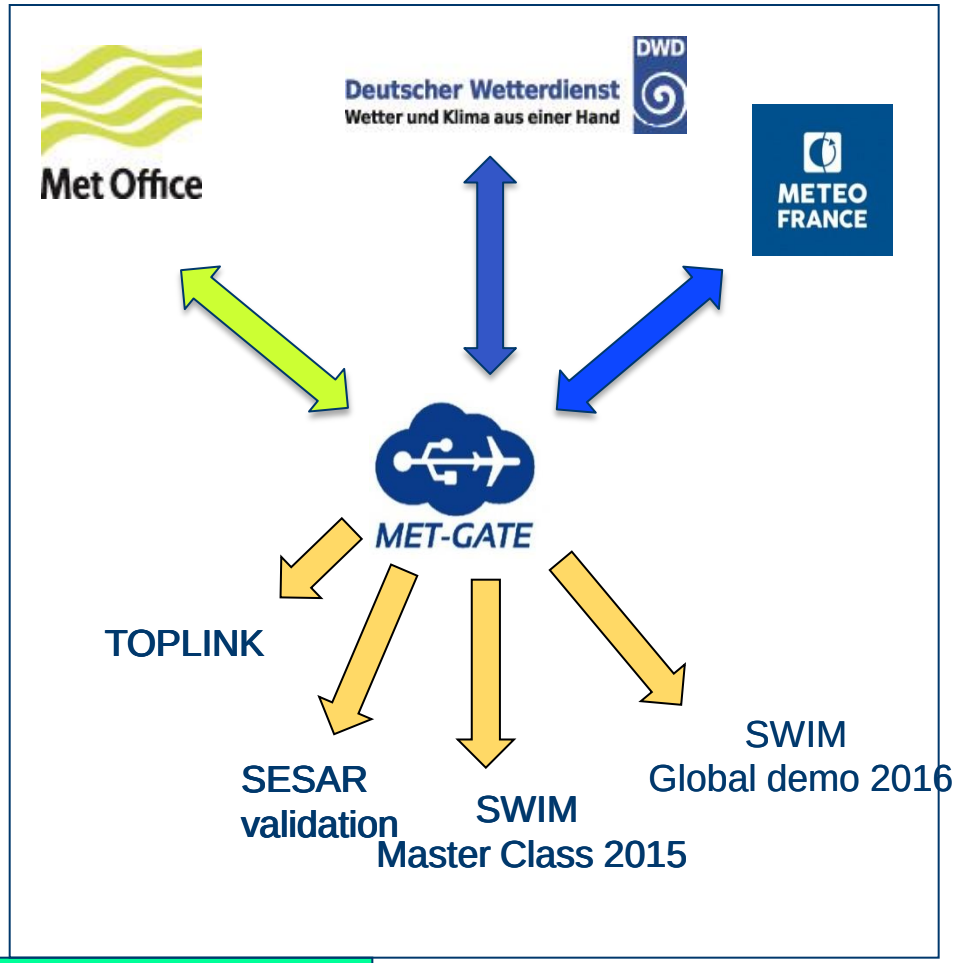
Thanks to our customers, we have some illustrations to show instead of xml files!

EUMETNET
EUROPEAN METEOROLOGICAL SERVICES NETWORK

FROM INNOVATION TO SOLUTION

SESAR11.2 4DWeatherCube : SWIM Partners

- MET-GATE accessed by multiple SWIM partners
  - TOPLINK and SESAR validation partners
    - THALES
    - Eurocontrol
  - SWIM Master Class partners
    - Airbus Defence & Dpace / Luciad
    - IDS
  - New partners from the SWIM global Demo
    - Harris
    - Boeing
    - Jumpstart Eurocontrol



SWIM Master Class 2015
Best in class in the service category

EUMETNET
EUROPEAN METEOROLOGICAL SERVICES NETWORK

FROM INNOVATION TO SOLUTION

VIDEO / DEMO

Link or file to come

Benefits

- Reality check of the SESAR concept 4DWeatherCube
- Early validation of the technical infrastructure
- SWIM Service and application easily integrated: time saving process
- SWIM is a technical unifier of the ATM and MET domains

EUMETNET
EUROPEAN METEOROLOGICAL SERVICES NETWORK

FROM INNOVATION TO SOLUTION

What is next?

- SWIM Global Demo event (8-9 June – Roma): global interoperability demonstrated

- In the frame of SESAR 2020 and the deployment manager, turns the 4DWxCube to an **operational** system by 2020

- Keep "**spreading the SWIM word**" among the MET community: EUMETNET workshop 22-23 may 2016

- Keep **communicating** with ATM stakeholders
  - to adapt the MET products to their needs.
  - to encourage them to use the 4DWxCube services.

FROM INNOVATION TO SOLUTION

EUMETNET
EUROPEAN METEOROLOGICAL SERVICES NETWORK

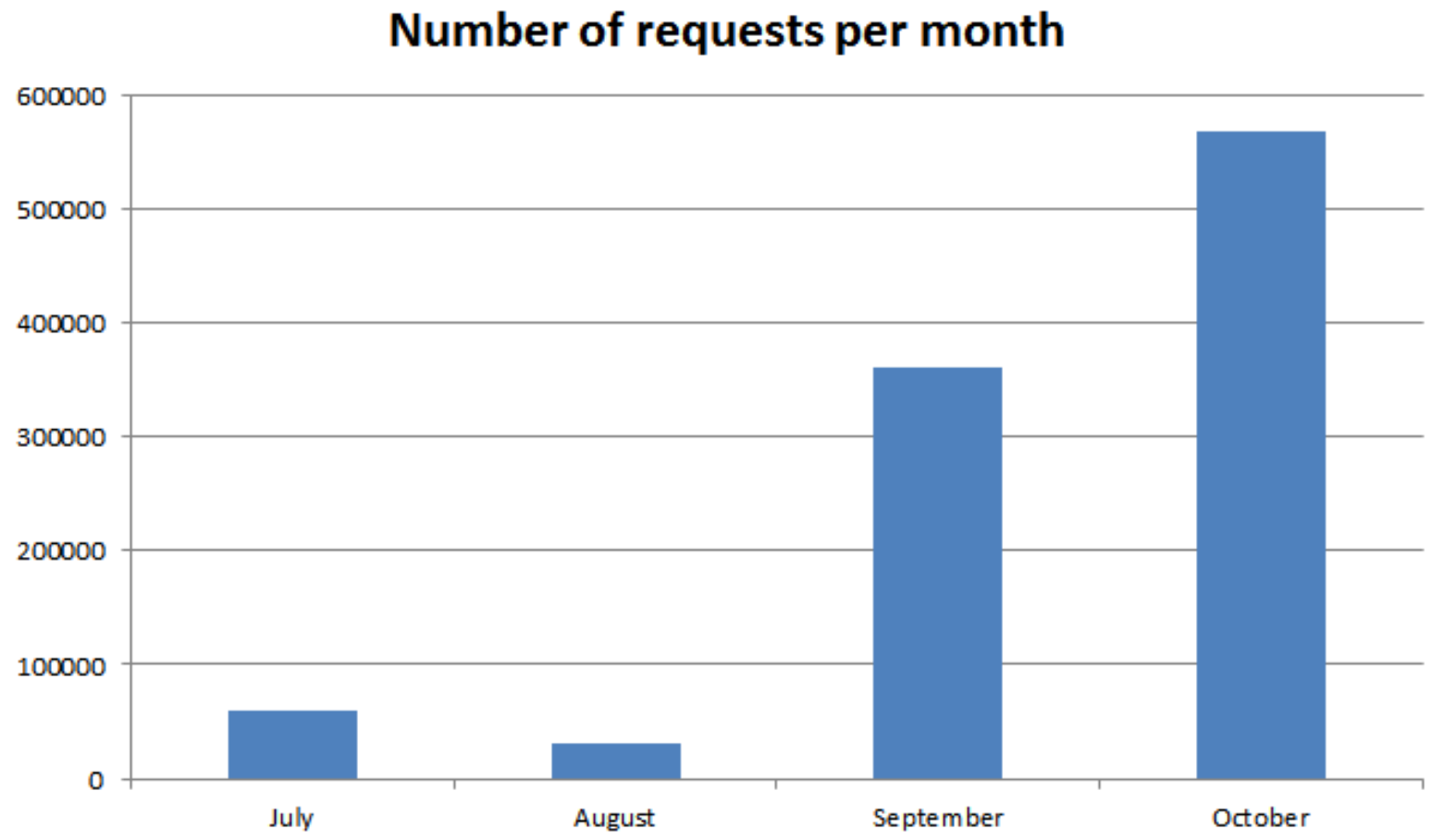
THANK YOU!

EUMETNET
EUROPEAN METEOROLOGICAL SERVICES NETWORK

FROM INNOVATION TO SOLUTION

SPARE SLIDES

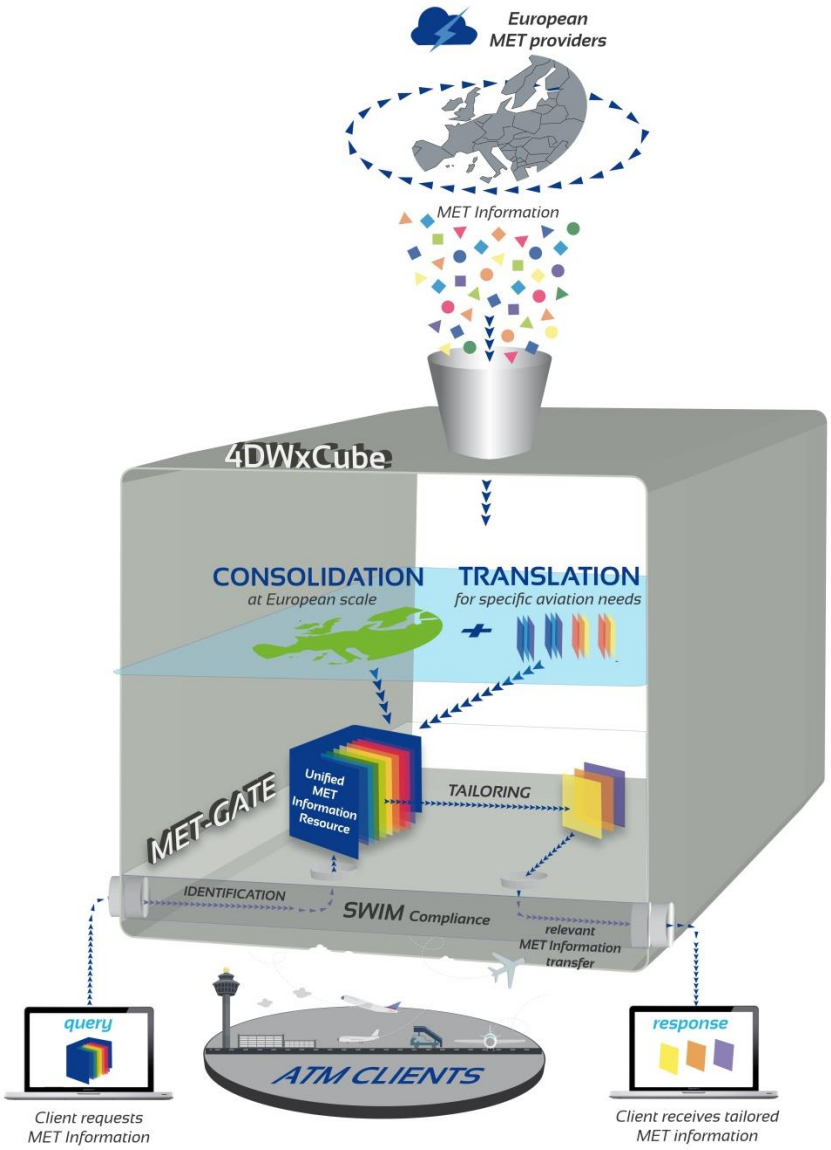
MET-GATE use evolution



EUMETNET
EUROPEAN METEOROLOGICAL SERVICES NETWORK

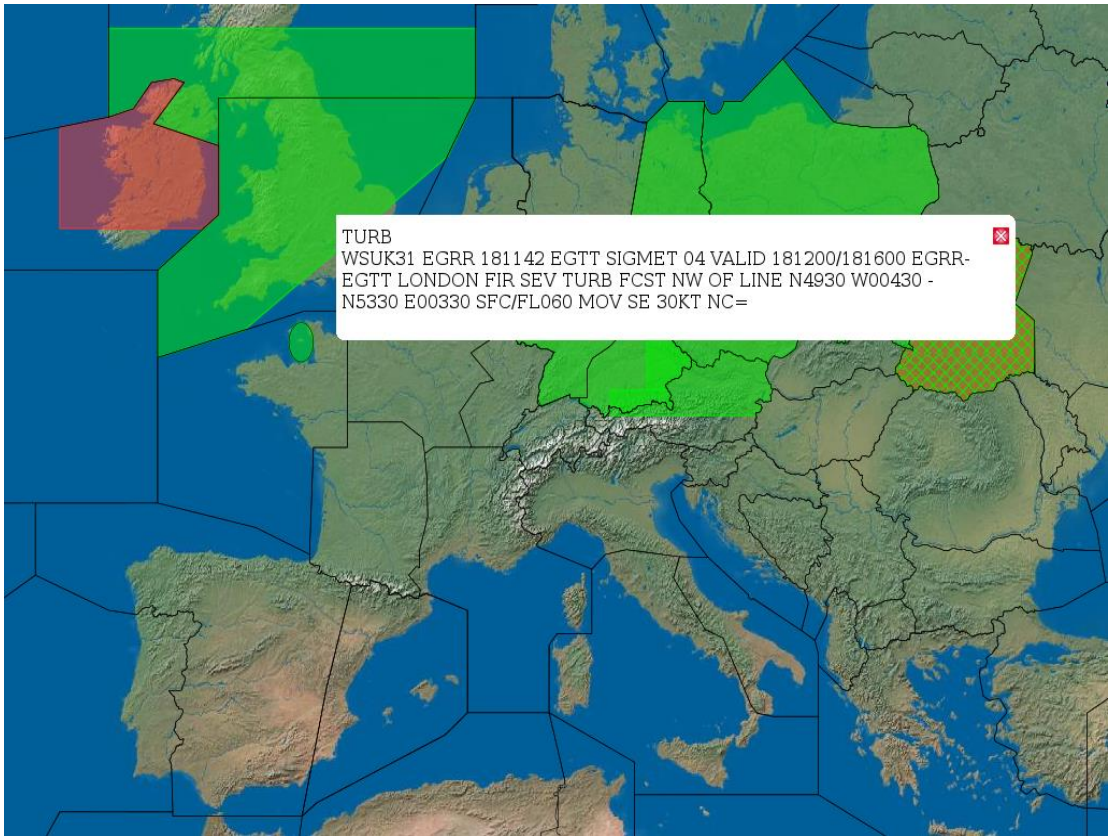
FROM INNOVATION TO SOLUTION

4DWxCube overview



FROM INNOVATION TO SOLUTION

SESAR 11.2 4DWxCube – METAR, TAF and SIGMET service



MET information:
- SIGMET: SIGnificant METeorological Information
- METAR: METeorological Aerodrome Report
- TAF: Terminal Aerodrome Forecast

Observation and Forecast

Coverage:
- World Wide (WW)

Format:
- IWXXM message
- WFS service

OPMET

MET hazards

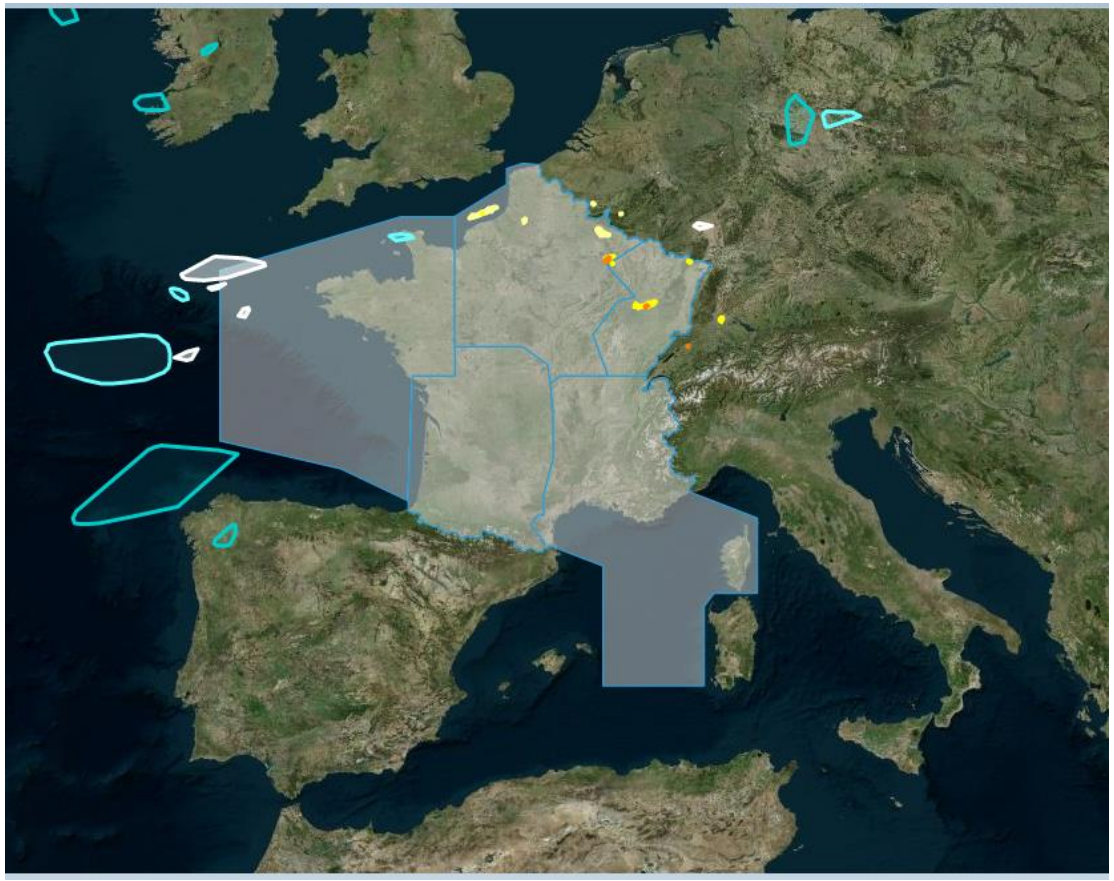
MET at airport

MET gridded forecast

EUMETNET
EUROPEAN METEOROLOGICAL SERVICES NETWORK

FROM INNOVATION TO SOLUTION

SESAR 11.2 4DWxCube - MET Hazards services



MET information:
- Convection
- Icing
- Turbulence

Observation and Forecast

Coverage:
- Europe

Format:
- XML objects based on AIRM
- WFS service

OPMET

MET hazards

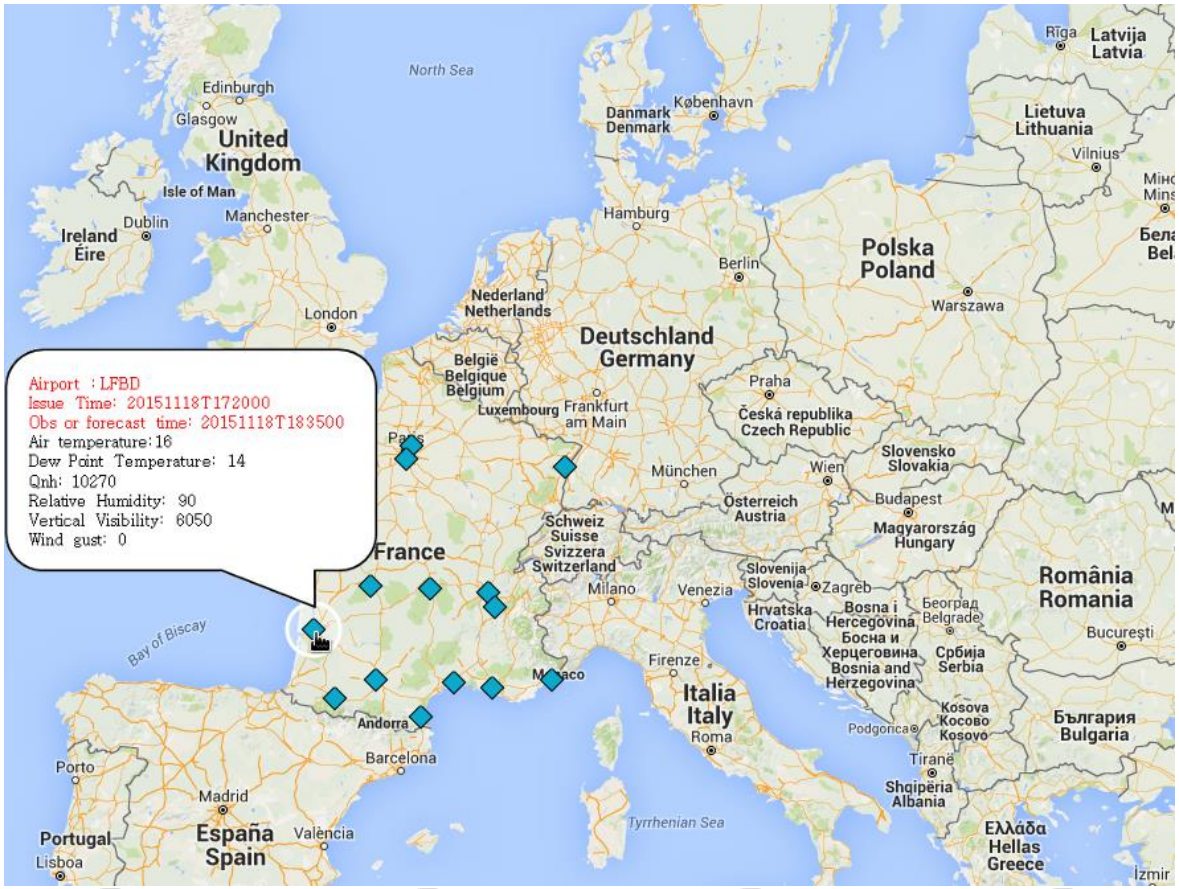
MET at airport

MET gridded forecast

EUMETNET
EUROPEAN METEOROLOGICAL SERVICES NETWORK

FROM INNOVATION TO SOLUTION

SESAR 11.2 4DWxCube - MET at airport services



MET information:
- Wind,
- Temperature,
- Dew point
- QNH,
- Relative humidity,
- Ceiling,
- Wind gust,
- …

Observation and Forecast

Coverage:
- Selection of French airports

Format:
- XML objects based on AIRM
- WFS service

OPMET

MET hazards

MET at airport

MET gridded forecast

EUMETNET
EUROPEAN METEOROLOGICAL SERVICES NETWORK

FROM INNOVATION TO SOLUTION

SESAR 11.2 4DWxCube - MET gridded forecast service

MET information:
- Temperature
- Wind speed
- Wind direction
- Humidity

Forecast

Coverage:
- WorldWide (with several horizontal resolution)

Format:
- Gridded data: netCDF
- WCS Met-Ocean profile

OPMET

MET hazards

MET at airport

MET gridded forecast

EUMETNET
EUROPEAN METEOROLOGICAL SERVICES NETWORK

FROM INNOVATION TO SOLUTION