

Luciad & OGC OWS-7

Building a Common Operational Picture for NextGen/SESAR

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Luciad Electronic Flight Bag (EFB) client

- **Common Operational Picture for pilots**
 - Up-to-date aeronautical and meteorological information
- **Multi data format support**
 - Aviation & weather: WXXM, AIXM, ARINC, DAFIF, GRIB
 - Vector: SHP, KML, GML
 - Imagery: GeoTIFF, JPEG 2000, MrSID, ECW
- **OGC Web Services integration**
 - WFS, WMS/FPS, WCS, WRS, SLD, OGC Filter
- **Dynamic updates**
 - Automatic handling of Digital NOTAMs
 - Temporality awareness (timeslices, timesheets)
 - Bad weather conditions, runway closures, SUAs

Architecture



Luciad EFB

AIXM WFS

- Airport layout
- Airspaces
- Route information

WXXM WFS

- METAR / TAF
- PIREPS
- AIRMET/SIGMET

WMS/FPS

- Remote rendering
- Background data

Event Service

- Digital NOTAM
- Weather / Aero

Scenario

Flight
baseline data

- Airports of interest
- Routes & airspaces
- Weather forecast

Pre-flight ops

Volcanic ash!



SIGMET



Severe icing on
destination runway!

Digital SNOWTAM

Common
Operational
Picture

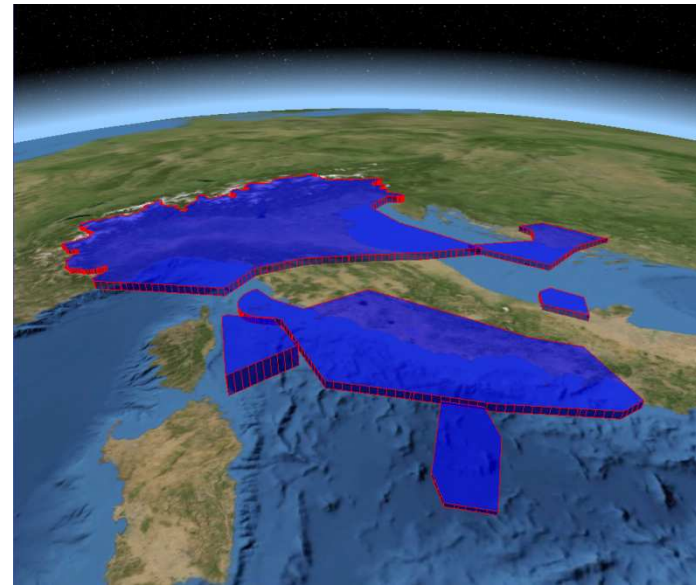
During flight

Improved situational awareness

- **Visualization in 2D & 3D**
 - Meteorological & weather information
 - Imagery
- **Hi-res satellite imagery from Microsoft BingMaps**



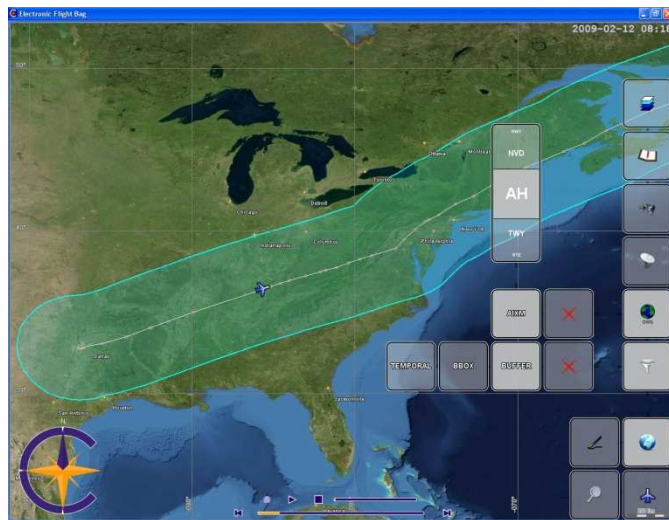
Local airport layout



Global airspace view

Lessons learned & next steps

- **Demonstrated the use of AIXM 5.1 and WXXM 1.1.1 in a realistic aviation scenario**
- **Feasibility of OGC Web Services to provide up-to-date aeronautical & weather information**
 - Interoperability between clients and servers feasible
 - Good efforts by the OGC through compliancy testing and interoperability experiments (i.e. OWS)
- **Importance of robustness and data validation**
 - Compliance of data (XML Schema)
- **Further align OGC standards and aviation requirements**
 - Expression of ICAO rendering guidelines within SLD



- Demonstration