

WXXM in OWS-7

MFAA team feedback

MFAA role in OWS-7

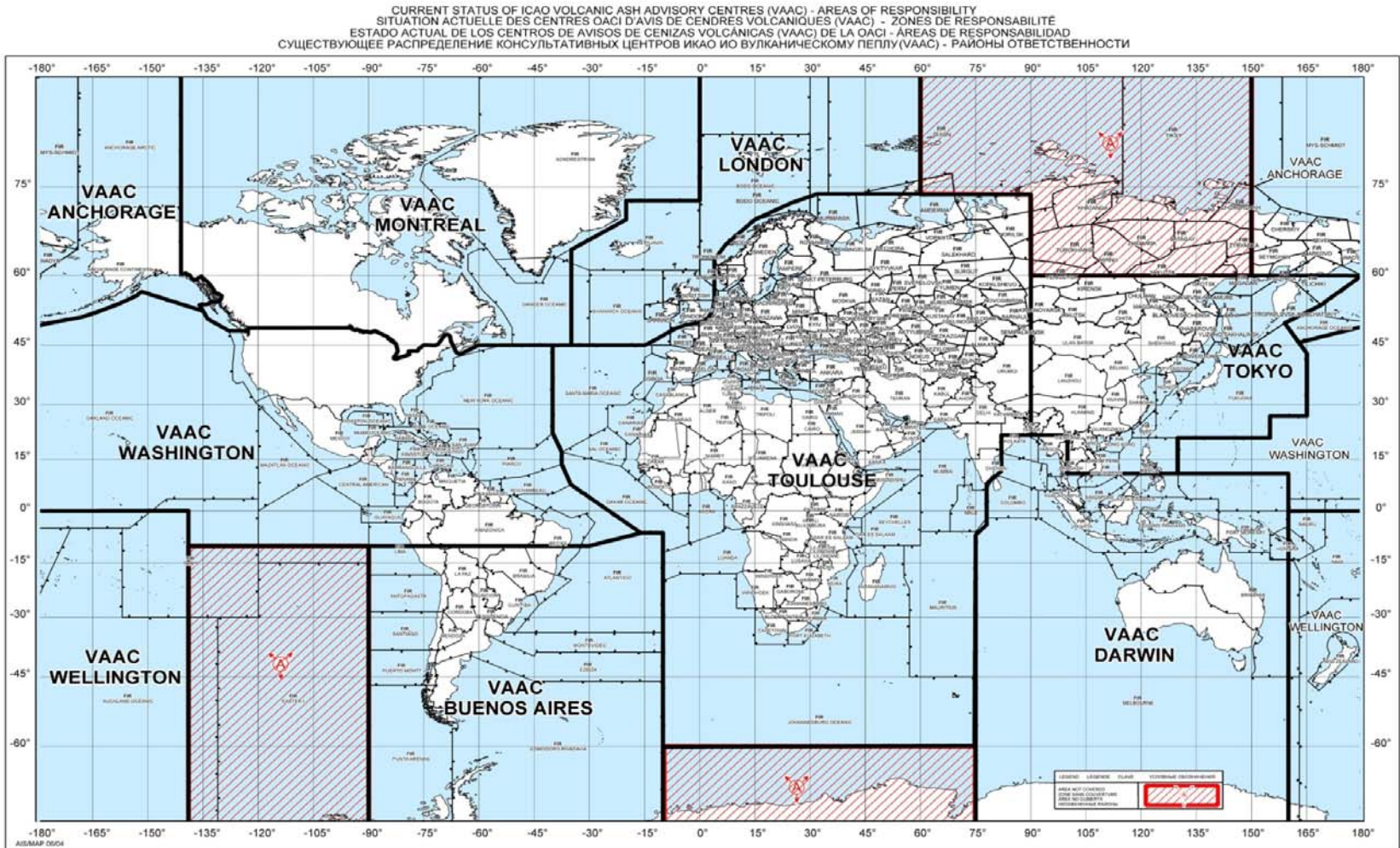
- Develop WXXM 1.1 compliant prototype components of:
 - WFS (*MeteoFrance*), serving Volcanic Ash SIGMETs
 - FPS (*Alticode*)
 - Hand held device client (*Atmosphere*)
- Edit the WXXM section of the Aviation thread's Engineering Report

Volcanic Ash Clouds and Aviation

Well known consequences:

- Mount Galunggung (1982): B742 4 engine shutdown on flight BA009 (13 minute glide from F370 to F130)
- Mount Redoubt (1989): B744 4 engine shutdown on flight KL867 (80 M\$ glide)
- Eyjafjalla volcano (2010): largest air traffic shut-down since WWII

Volcanic Ash Advisory Centers



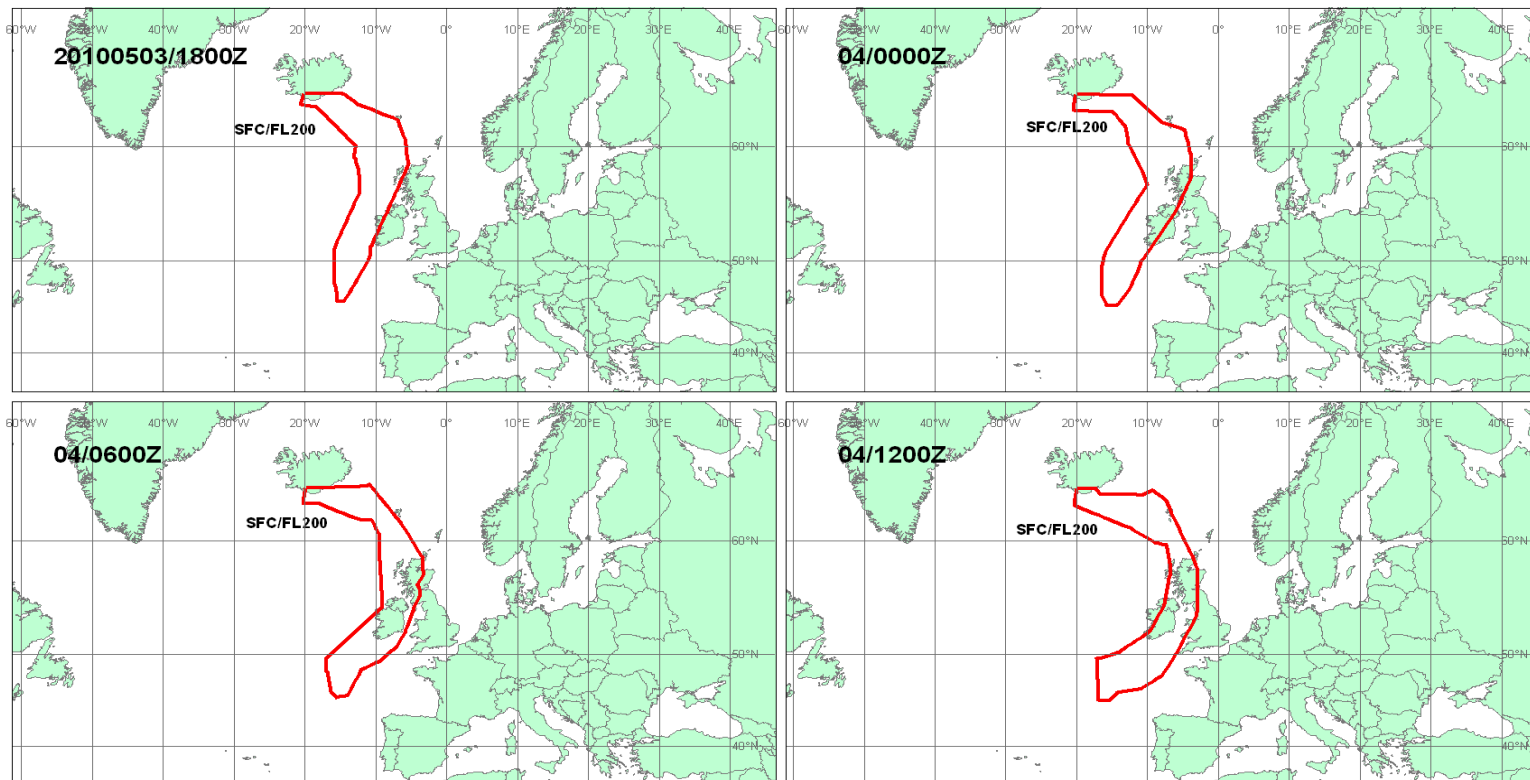
VAACs role

As per ICAO annex 3, VAACs:

- Monitor satellite data to detect the existence and extent of volcanic ash in the atmosphere, within its area of responsibility;
- Run dispersion models to forecast the ash cloud trajectory;
- Issue advisories (cloud extent & movement) to concerned MWOs, other VAACs, ACCs, NOTAM offices, and interested airlines.

Graphical Example of VAA

(courtesy of the Met Office)



VA ADVISORY
DTG: 20100503/1800Z
VAAC: LONDON
VOLCANO:
EYJAFJALLAJOKULL 1702-02
PSN: N6338 W01937
AREA: ICELAND

SUMMIT ELEV: 1666M
ADVISORY NR: 2010/075
INFO SOURCE: ICELAND MET OFFICE
AVIATION COLOUR CODE: RED
ERUPTION DETAILS: ERUPTION CONTINUING.
AT 1430Z ICELANDIC AIRCRAFT REPORTED
PLUME TOPS TO FL180.

RMK: NO SIG ASH ABOVE FL200. LATEST MODEL RUNS HAVE TAKEN
INTO ACCOUNT REPORTED INCREASED ASH CONCENTRATIONS AND
ERUPTION OBSERVATIONS FROM ICELAND.
NXT ADVISORY: 20100504/0000Z

VA SIGMET Encoding in WXXM

Nature of Issues Encountered (so far)

- Weakly typed elements:
 - ❖ Where does this parameter "fit"?
 - ❖ How is it constrained?
 - Documentation (and/or Schematron rules) required
- Adaptation to Web Services use case:
 - A Volcanic Ash product specificity?
- A few other missing items (e.g. AREA attribute, phenomenon type)

VA SIGMET Encoding in WXXM

Weak types

- Need to stick to underlying model, even though terms (and their definitions) are not always those commonly used in target applications...
 - Semantics explanations sometimes required!
- Necessity to accommodate "users" diverse requirements: VA SIGMET looks like a rare bird!
 - ❖ Multiple spatial properties: observed AND forecast clouds (not to mention their vertical extensions) + FIR boundary
 - ❖ Multiple time notions involved: observation, issue, validity, forecast

VA SIGMET Encoding in WXXM

Web Services Use Case

- Retrieve SIGMETs relating to a given phenomenon type (e.g. Volcanic Ash)
- Select those VA SIGMETs which feature an ash cloud that the flown trajectory will encounter:
 - ❖ 4D criterion against an element...
 - ❖ ... but the whole SIGMET message is expected to be returned!
- MFAA components up & running, and start to deliver results (on more basic scenarios), at:
 - WFS: <http://137.129.19.1/WS/ows7/>
 - FPS: <http://www.alticode.net/OWS7/FPS/>
 - Client: <http://galbn1.atmosphere.aero/>



Thank you!