

V & V Validation & Volcanoes

Some lessons learned in Europe

FAA V&V Symposium, Atlantic City, 13-14 October 2010

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Validation of R&D in SESAR

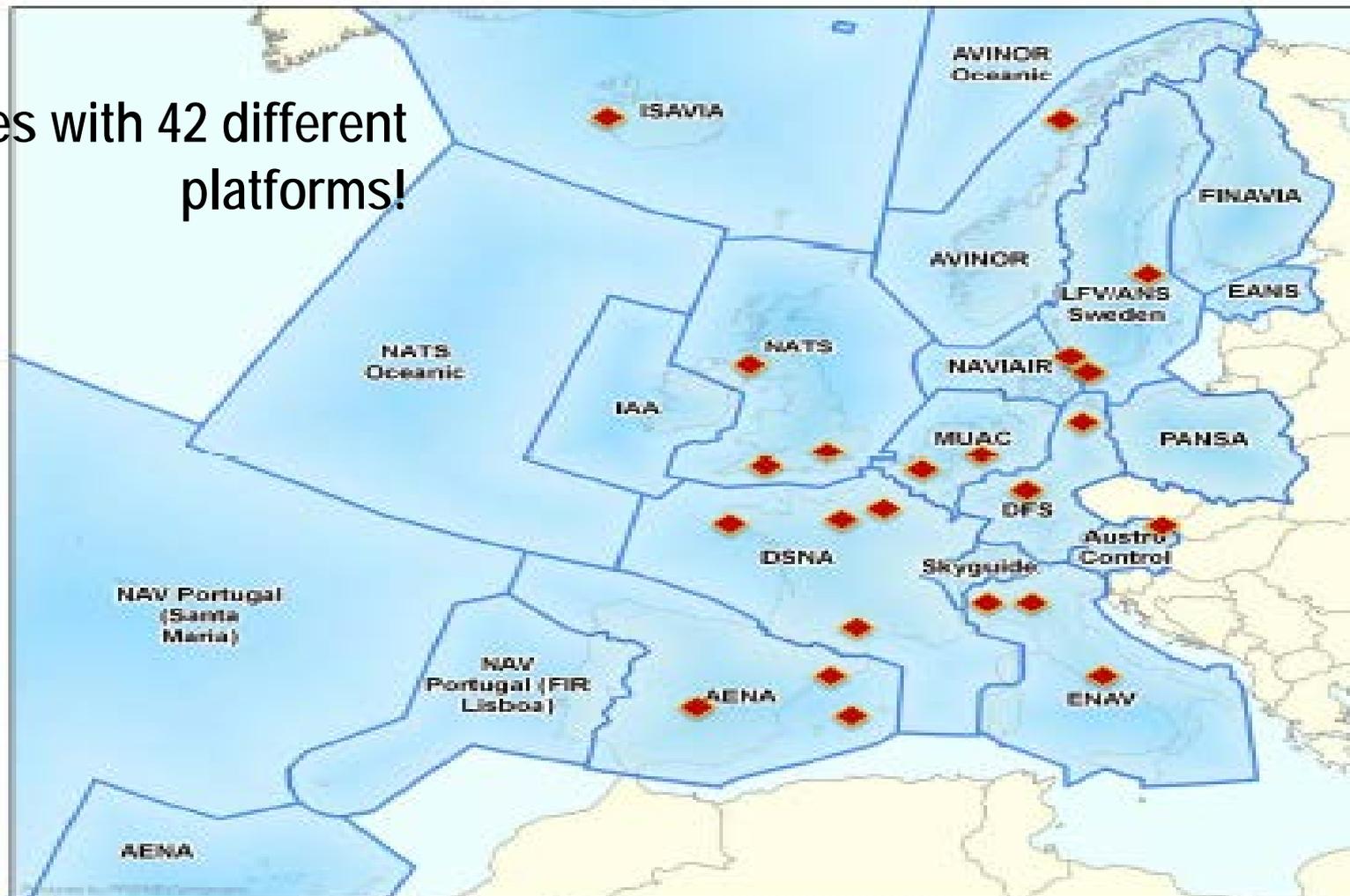
- SESAR (Single European Sky ATM Research) R&D Work Programme now in full swing – after several months delay
- V&V Road Map reissued 13th September based on updated planning (soon to be released after review)
- Now moving rapidly to execution of the work programme
 - Step 1 of the plan (focused on short term applications) has 147 planned Validation exercises (simulations, live trials, shadow mode) in next 4 years

Maturity	2010	2011	2012	2013	2014	Totals
V2	7	34	6	1		48
V3	4	41	43	8	1	97
Total	11	75	49	9	1	147
		51%	36%			

SESAR Validation Sites

The graphic presents the geographical location of SESAR Validation Sites

38 sites with 42 different platforms!

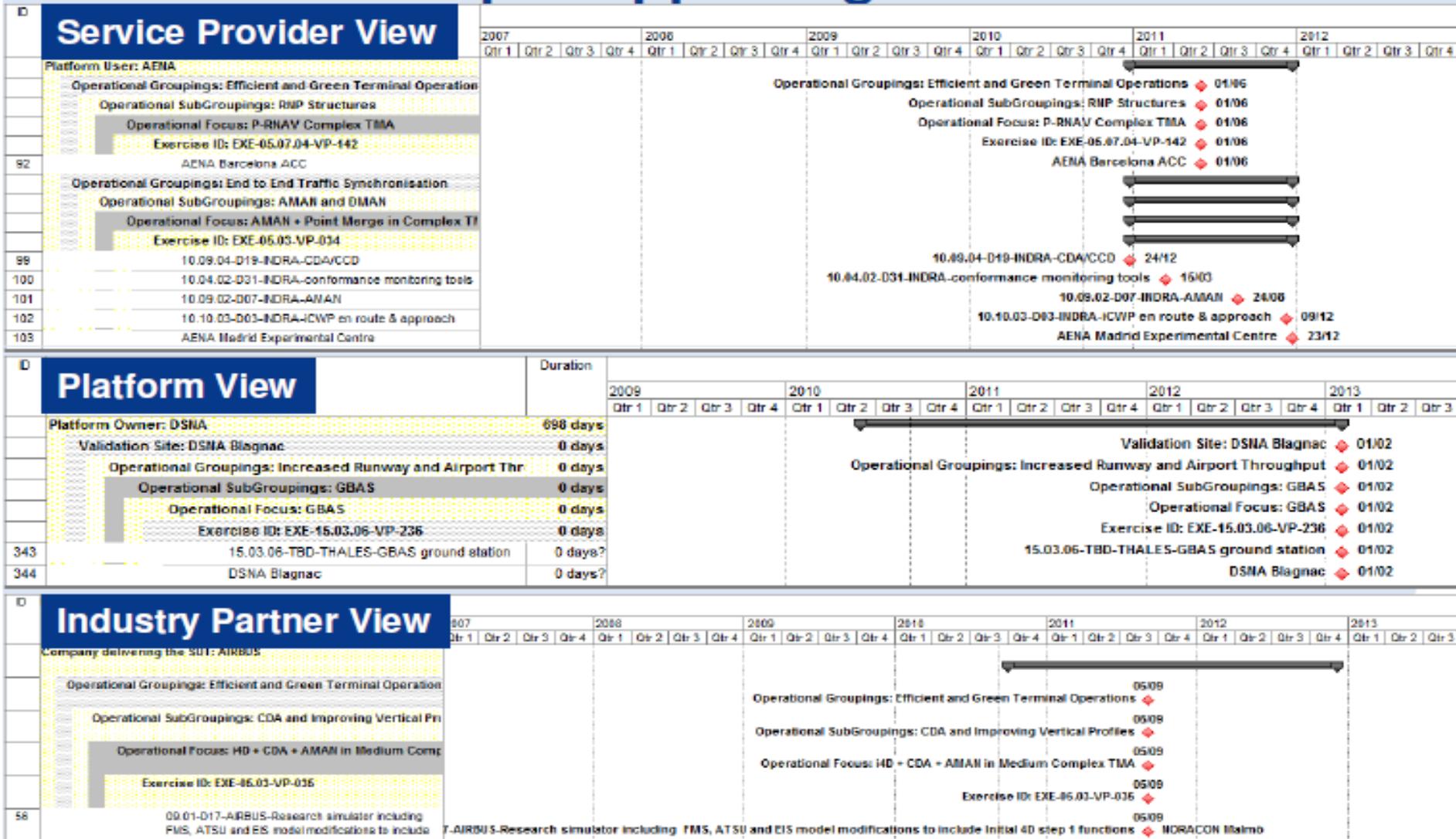




MEMBER OF
SESAR
JOINT UNDERTAKING

SESAR V&V Planning

V&V Roadmap: Supporting Views



SESAR V&V Update

- **Complex** - many partners over many sites looking at many issues
- **Implementation in phases** - focus on being ready for Implementation phases
 - maintaining 3 Implementation Phases over next 18 years - IP1 thro' 2013, IP2 thro' 2020 & IP3 2025+
 - But likely that some content slips from IP1 to IP2 and to IP3
- **Validation goals**
 - Achieve ATM performance expectations
 - preparing industry standards,
 - meet safety regulation expectations (much work with EASA) and
 - Update ICAO SARPS

Working with the USA

- New Memorandum of Cooperation (MoC) on Aviation Research between FAA and European Commission to be signed very soon (covers SESAR Joint Undertaking and all industrial partners)
- Annex 1 of MoC covers joint Nextgen-SESAR activities (to be identified soon)
- See www.sesarju.eu for all details

Volcanoes and air traffic lessons learned

14th April 2010

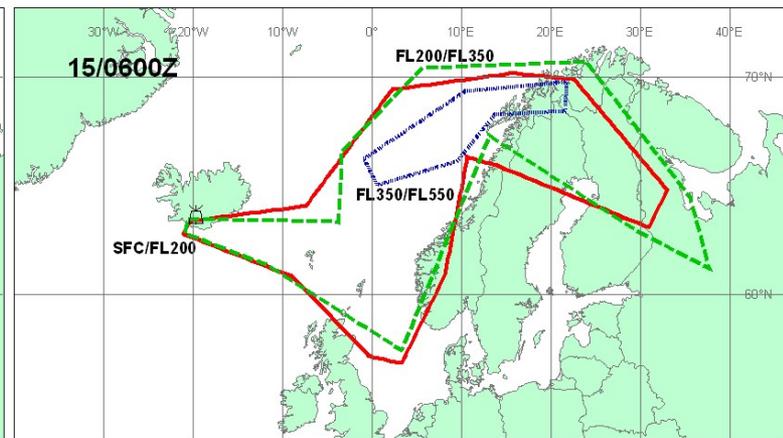
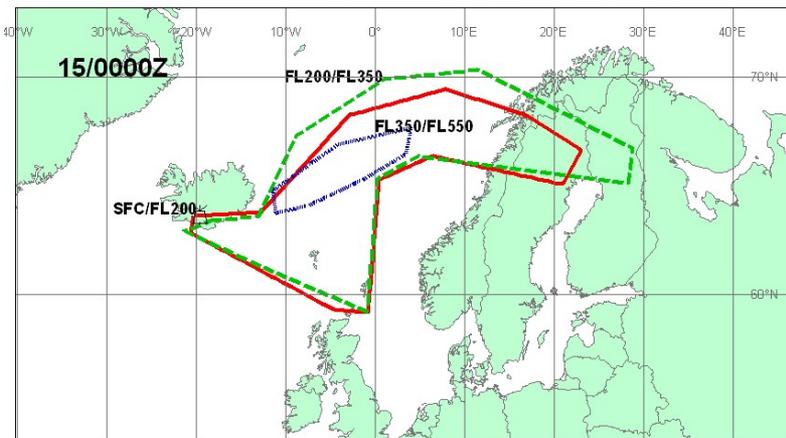
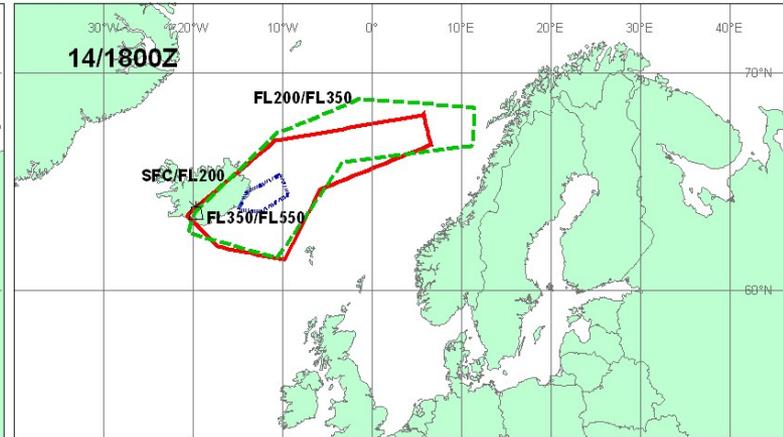
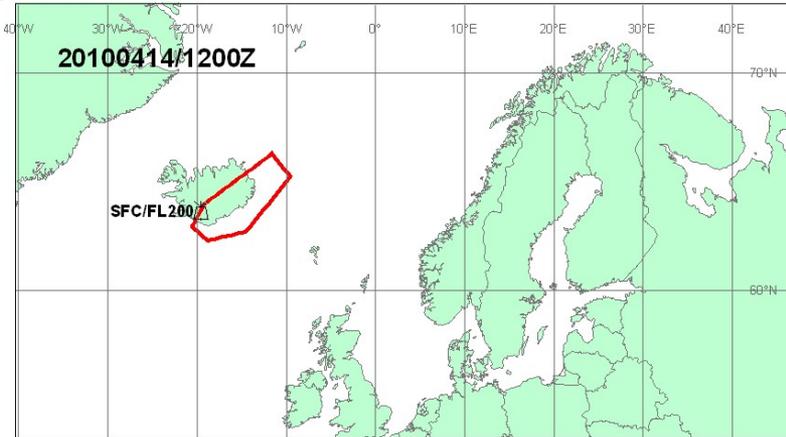
Eyjafjallajokull erupts in Iceland

**15th April Europe air traffic enters
CRISIS state**

**Some outcomes of the volcanic
dust negative and positive**

Ólafur Sigurjónsson

14th April eruption



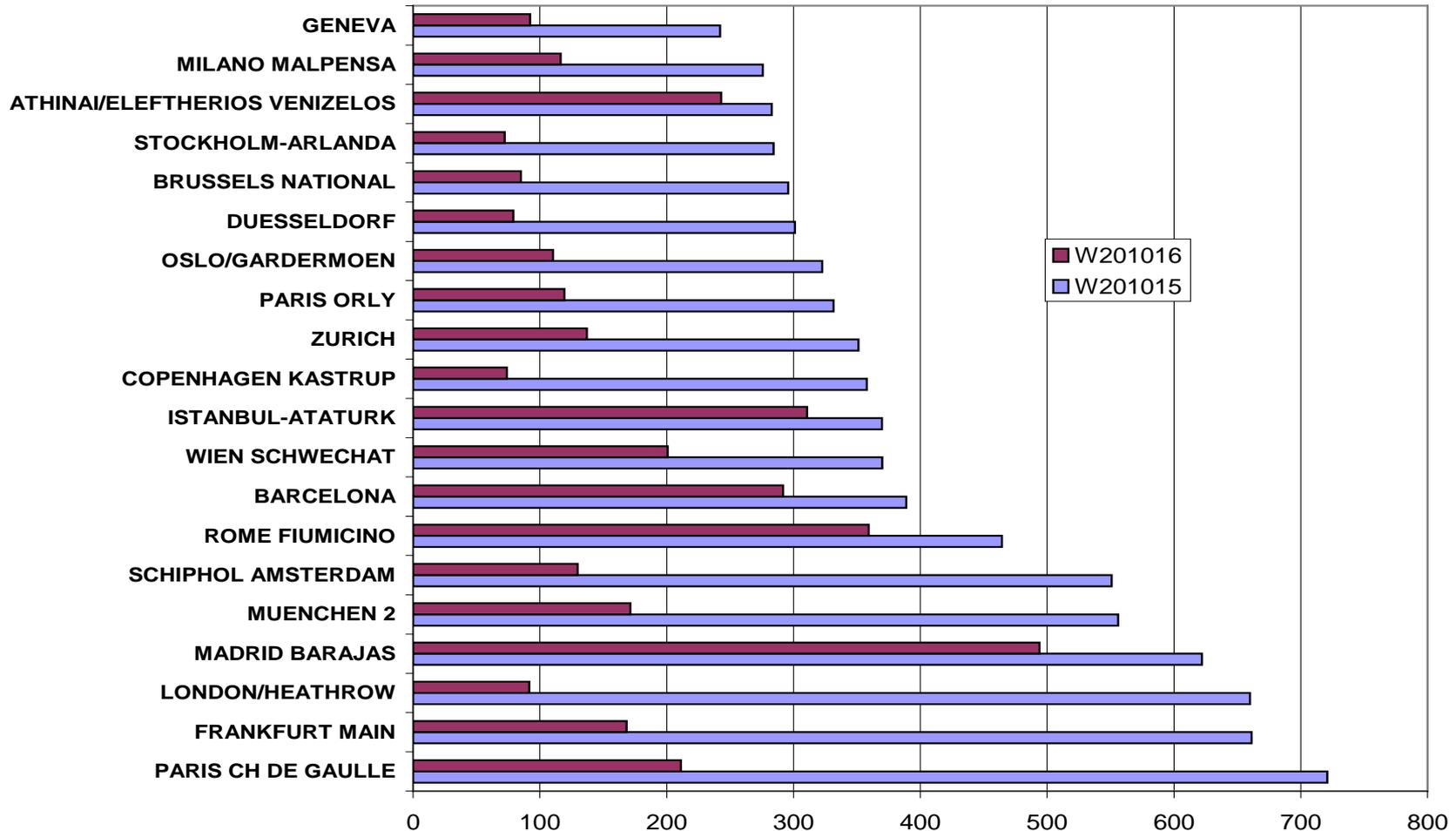
VA ADVISORY
DTG: 20100414/1200Z
VAAC: LONDON
VOLCANO:
EYJAFJALLAJOKULL
PSN: N6338 W01937
AREA: ICELAND

SUMMIT ELEV: 1666M
ADVISORY NR: 2010/001
INFO SOURCE: ICELAND MET OFFICE
AVIATION COLOUR CODE: UNKNOWN
ERUPTION DETAILS: PLUME FROM VOLCANO
REPORTED TO BE UP TO 6000M

RMK: NIL
NXT ADVISORY: 20100414/1800Z



Impacts on traffic 15-21 April



Area directly affected by the ash - 70% reduction of flights
Outside above area - 3% reduction



The need for international criteria of flyable ash concentrations

EUR Doc 019
NAT Doc 006, Part II

18th May - UK CAA/Met Office issue a new CHART: black, grey, red

INTERNATIONAL CIVIL AVIATION ORGANIZATION

21st May – EASA issue a Safety Information Bulletin:

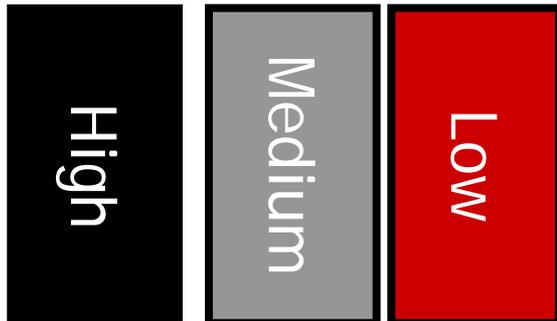
**NO FLY ZONE,
ENHANCED PROCEDURES ZONE:
GREY AND RED,
NORMAL ZONE**

**EUR/NAT
Volcanic Ash Task Force**



VOLCANIC ASH CONTINGENCY PLAN

EUR AND NAT REGIONS



July 2010

The need to detect ash & predict where it will go

Essential difference between USA and Europe

- US
70% detection
30% modeling
- Europe
30% detection
70% modeling



Met Office

Modelled Ash Concentration from FL000 to FL200 at
1200 UTC 18/05/2010

Issue time: 201005181200

This is a guidance product generated from model data and is supplemental to the official VAAC London Volcanic Ash Advisory and Volcanic Ash Graphic products. FIR boundaries are indicated for reference



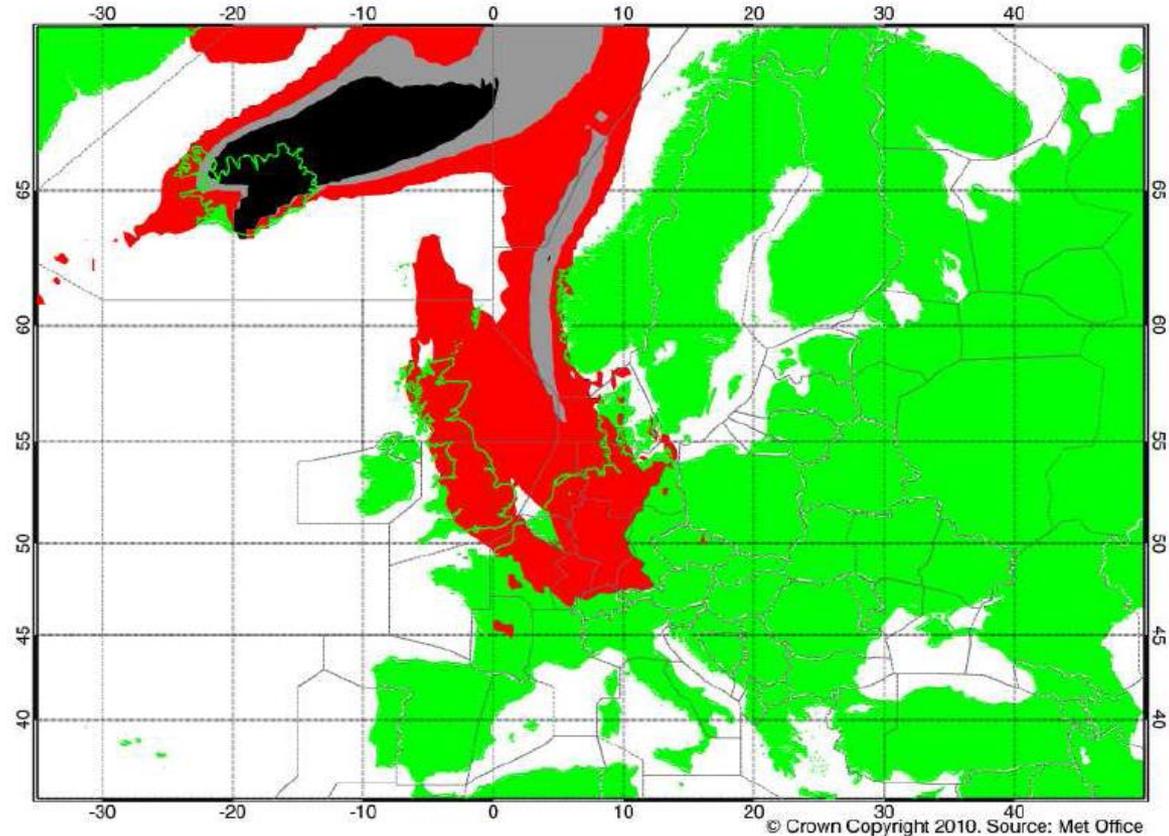
Predicted area where volcanic ash may be encountered



Predicted area of ash concentrations in which flights are permitted with an appropriate safety case and agreement from engine and airframe manufacturers



Predicted area of ash concentrations that exceed acceptable engine manufacturer tolerance levels





Need for international co-ordination cell

Network expertise



Political leadership



May 2010 - European Aviation Crisis Coordination Cell (EACCC)

To be activated in future when circumstances beyond normal environment of ops are evident

Hosted by Eurocontrol

Members – European Commission, Regulators, Service providers, Airports, Airspace users, Industry.

Resources

Post-Operations

Tactical

PreTactical

Strategic

Contingency

The status of the CFMU operations is **NORMAL**.
CFMU Contingency Plan
This document addresses the contingency procedure to be carried out in the event of a long term failure of CFMU systems.

ANM
Valid on 11/05/2010
Last Released 11/05/2010 21:20

Description	Released On
XCD POSSIBILITY FOR LEPA	11/05/2010 20:33
TAXI TIME EHAM	11/05/2010 18:46
GMMM A/D	11/05/2010 18:11
TAXI TIME EDDF	11/05/2010 17:57

CRAM
Route
Display full CRAM

TYPE	Valid WEF	Valid TIL
EUUP	11/05/2010 11:00	12/05/2010 06:00
EAUP	11/05/2010 06:00	12/05/2010 06:00
EUUP	10/05/2010 11:00	11/05/2010 06:00
EUUP	10/05/2010 06:00	11/05/2010 06:00
EAUP	10/05/2010 06:00	11/05/2010 06:00

RAD

The objective of the RAD is to facilitate flight planning, in order to improve ATFCM, while allowing aircraft operators flight planning flexibility. The RAD is updated on a AIRAC cycle-basis following a structured and standard process.

- [RAD Homepage](#)
- [1005 - 6 May](#)
- [1005 - Increment](#)
- [1005 - What's New](#)

ATFCM Network Situation



Network Headline News

11/05/2010 **Volcanic Ash Update - 2100z**
Eruption of Icelandic volcano: Eyjafjallajökull.
Volcanic Ash Advisories and **concentration charts** are updated by London at 00:00 / 06:00 / 12:00 / 18:00.
The Ash Concentration Charts produced by London VAAC show the predicted area where volcanic ash may be encountered.
In accordance with the conclusions of the 19 April teleconference of Members of the Provisional Council, EUROCONTROL has been facilitating the implementation of the preferred solution since 20th April 2010.
This end charts showing areas of potential concentrated contamination have been produced in close coordination with London Volcanic Ash Advisory Centre. These charts enable States to establish NO FLY zones where necessary. Ongoing work by the UK Met Office and the UK CAA has confirmed the effectiveness of the model used to determine the areas where ash concentration could be above engine tolerance levels. For that reason, the 60 nautical mile "Buffer Zone" which was initially added has been removed from charts published as from 11-1200 UTC. States retain the prerogative to add the 60nm buffer if they believe it is necessary to do so.

- [from FL000-FL200 11-1800](#)
- [from FL200-FL350 11-1800](#)
- [from FL000-FL200 12-0000](#)
- [from FL200-FL350 12-0000](#)
- [from FL000-FL200 12-0600](#)
- [from FL200-FL350 12-0600](#)

Network Operations Portal
13.5 million hits in one day!

Summary

Validation in SESAR

Detailed planning updated after technical pause to work programme

New V&V Roadmap available soon

Joint US-EU work areas to be identified soon under new MoC

www.sesarju.eu for all details

Volcanic Dust

Crisis management capability – involving political, safety, operational parties

Value of a system wide operational co-ordinator - future of EUROCONTROL

Importance of system wide information availability

Still need

improvements to volcanic dust detection and movement modeling.

Scientific basis to allowable volcanic dust exposure