



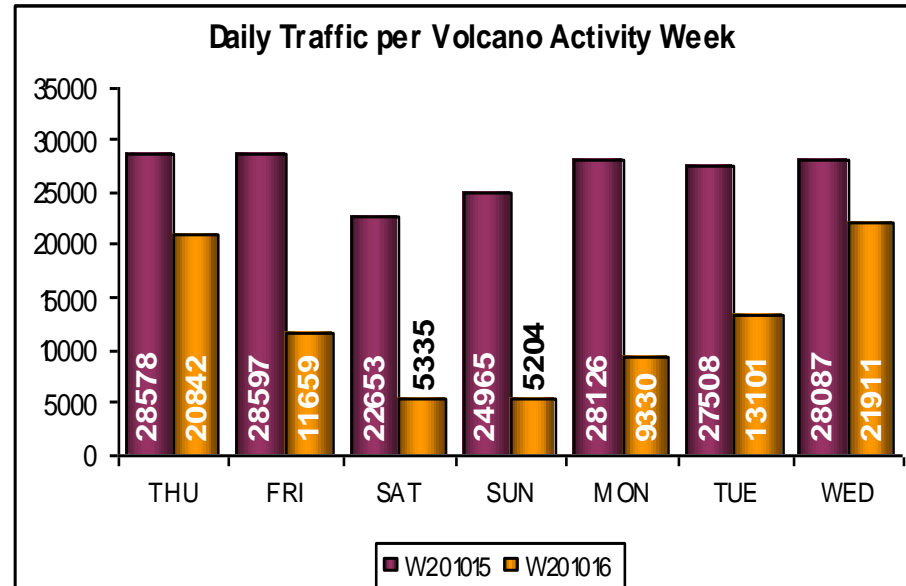
# Building the future on lessons learned from Eyjafjallajökull

Bo Redeborn

Director Cooperative Network Design (CND), EUROCONTROL

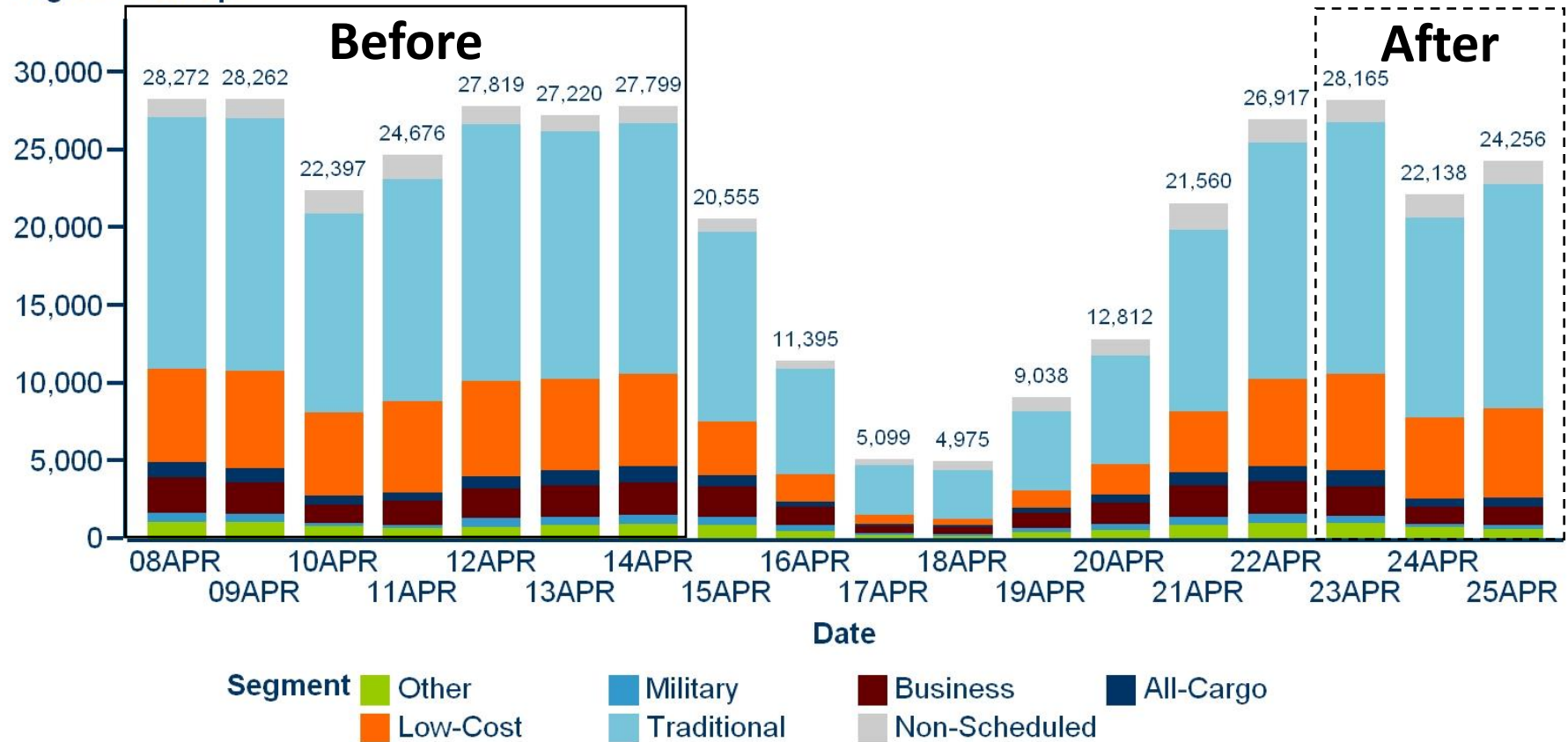
## Two different months

- April
  - 104,000 cancelled flights
  - 10 Million disrupted passenger journeys
  - 5,000 additional flights
  - Limited delays
- May
  - “Only” 7,000 cancelled flights
  - Heavy delays: 43% of flights delayed on departure



# Differences between market segments

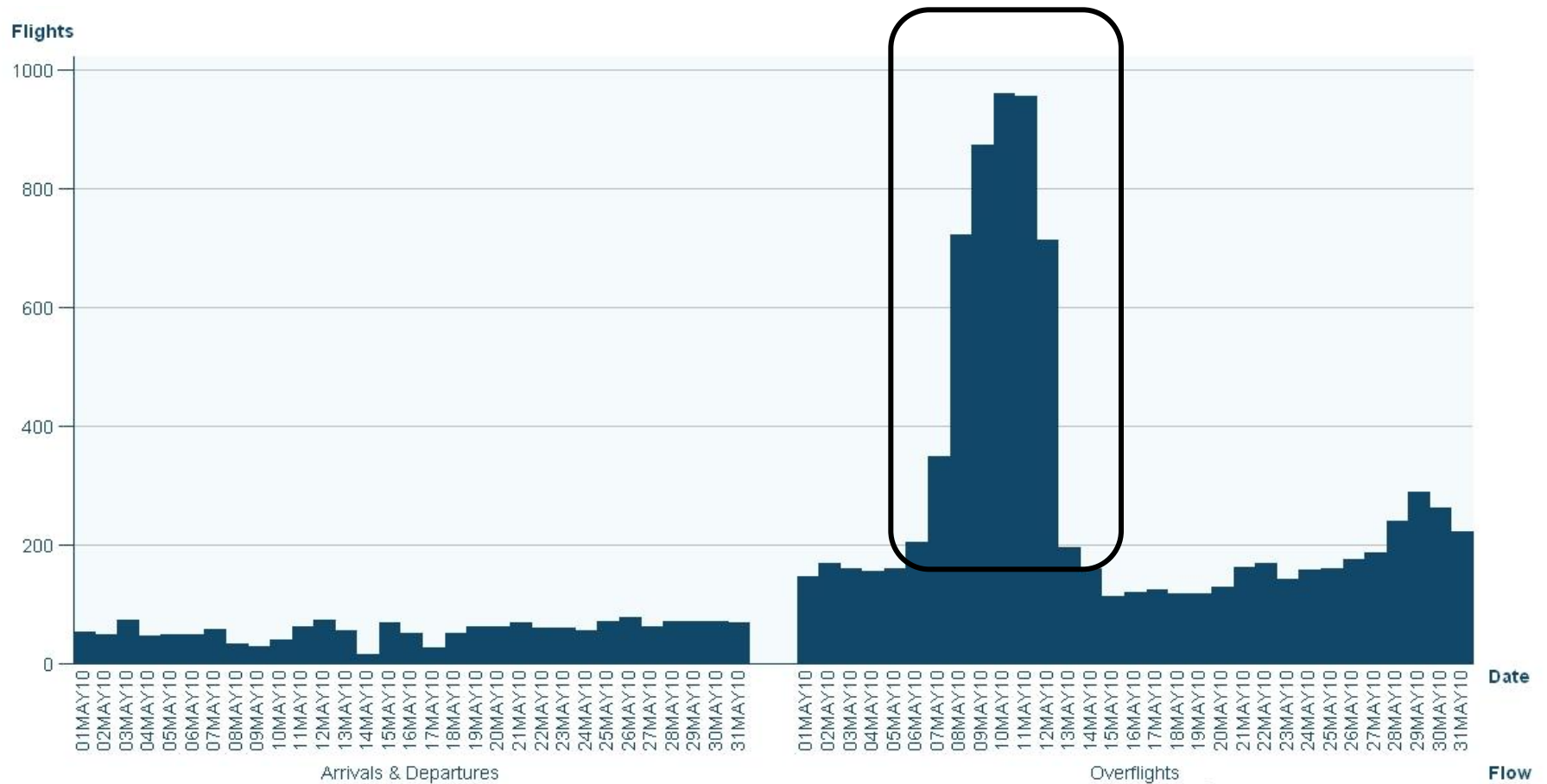
## Flights in Europe



Full report at: [www.eurocontrol.int/statfor](http://www.eurocontrol.int/statfor)

© EUROCONTROL 2010 [www.eurocontrol.int/STATFOR](http://www.eurocontrol.int/STATFOR)

# Icelandic traffic – May 2010



## ② European Coordination - Unlocking the crisis: 19<sup>th</sup> April



- **Close coordination – EC & EUROCONTROL**
  - EC – political leadership
  - EUROCONTROL – network management expertise
- **EUROCONTROL proposes three options**
- **Teleconference of the EUROCONTROL Provisional Council (AM) & EU Council of Ministers (PM) – one solution chosen by States**

## VAAC London ash concentration data

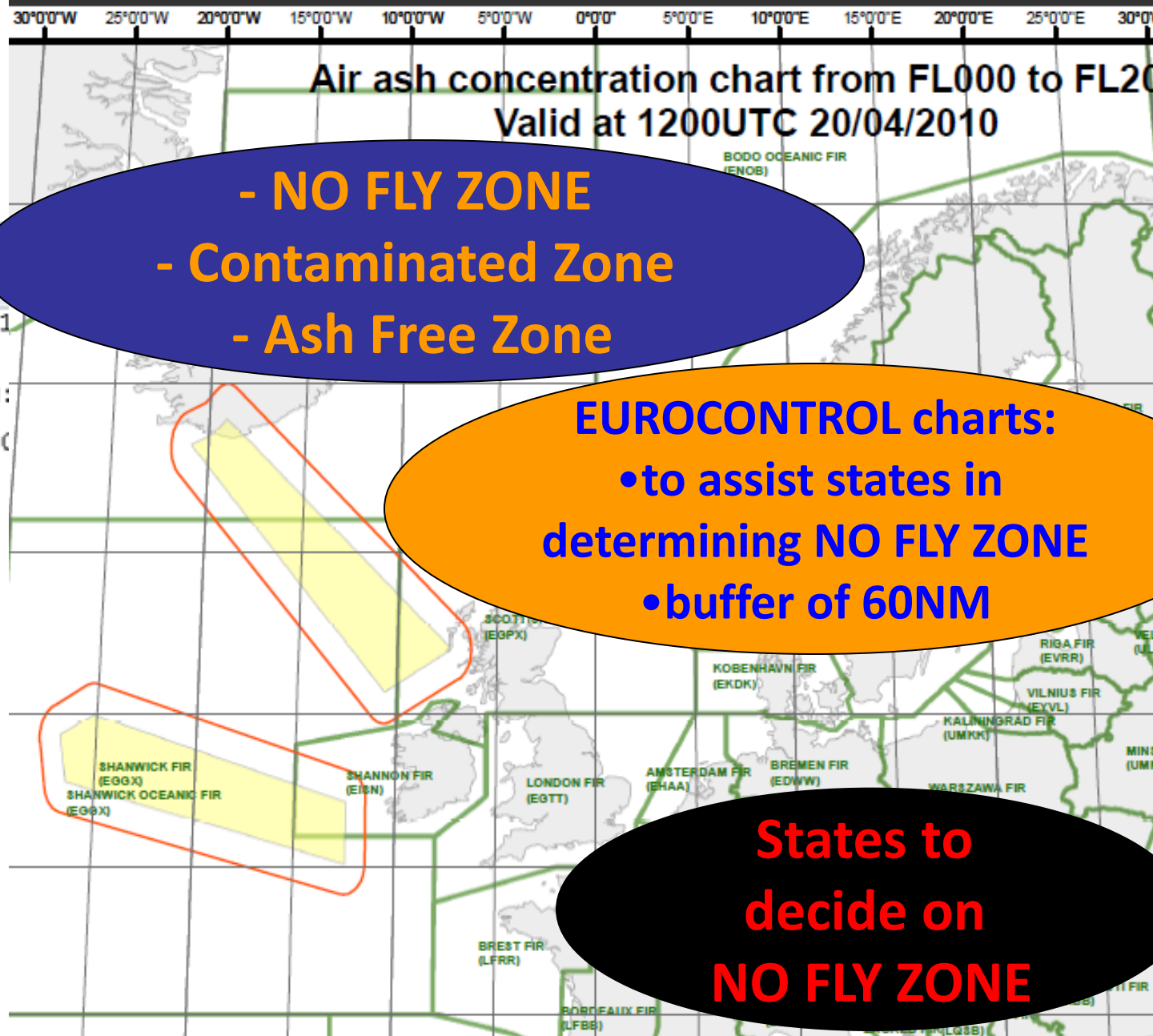
BufferZone\_24apr2010-00h0

File Edit Format View Help

VOLCANO: EYJAFJALLAJOKULL 1  
PSN: N6338 W01937

VOLCANIC ASH CONCENTRATION:  
MODEL RUN: 20100423/1800  
VALIDITY TIME: 20100424/000  
FLIGHT LEVEL: SFC/FL200  
REMARKS: MODEL DATA

POLY 1  
N654800,W0274200  
N651800,W0290200  
N643500,W0302200  
N634300,W0310100  
N625900,W0303100  
N624300,W0284300  
N624700,W0265400  
N630100,W0255000  
N631300,W0245200  
N631000,W0234800  
N630300,W0222600  
N624000,W0214900  
N621100,W0204600  
N620000,W0192000  
N620300,W0173700  
N620700,W0151900  
N623800,W0141200  
N631700,W0134300  
N634700,W0125600  
N643200,W0121100  
N651300,W0124500



### ③ ENHANCED ROLE FOR EUROCONTROL/CFMU

- **Early warning – issue information on volcanic ash activity**
- **On request of national ATC providers : CFMU applies measures**
- **Facilitate information exchange e.g. organise teleconferences, help desk**
- **Publish charts to assist states in deciding on NO FLY ZONE**
- **NOP used as central data repository**
- **Collect reports on Volcanic Ash (initially for FABEC then ECAC wide) through EUROCONTROL Voluntary ATM Incident Reporting (EVAIR) mechanism**





SET

Username: guest

SEARCH

PREFERENCES

HELP

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

#### AIM

##### Description

Description	Release On
XCD POSSIBILITY FOR LEPA	11/05/2010 20:35
TAXI TIME EHAM	11/05/2010 11:46
GMMM A/D	11/05/2010 18:11
TAXI TIME EDDF	11/05/2010 17:57

#### GRAM

##### Route

#### EAUP

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

Last update: 11/05/2010 21:45



### ATFCM Situation Data

Last update: 11/05/2010 21:51:00

#### Flights

Total	27793
Landed	25214 (91 %)
Airborne	1980 (7 %)
Expected	599 (2 %)

#### Delays (in minutes)

Cumulated	142483.0
Average/Flight	5.1
En-route	123285.0 (87 %)
Airport	19198.0 (13 %)
>= 30 min	1706

### Network Headline News

11/05/2010

#### Volcanic Ash Update - 2100z

Eruption of Icelandic volcano: Eyjafjallajökull.

**Volcanic Ash Advisories** and **Predicted ash concentration charts** are updated by VAAAC London at 00:00 / 06:00 / 12:00 / 18:00 utc

The Ash Concentration Charts produced by London VAAAC 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 10th April 2010.

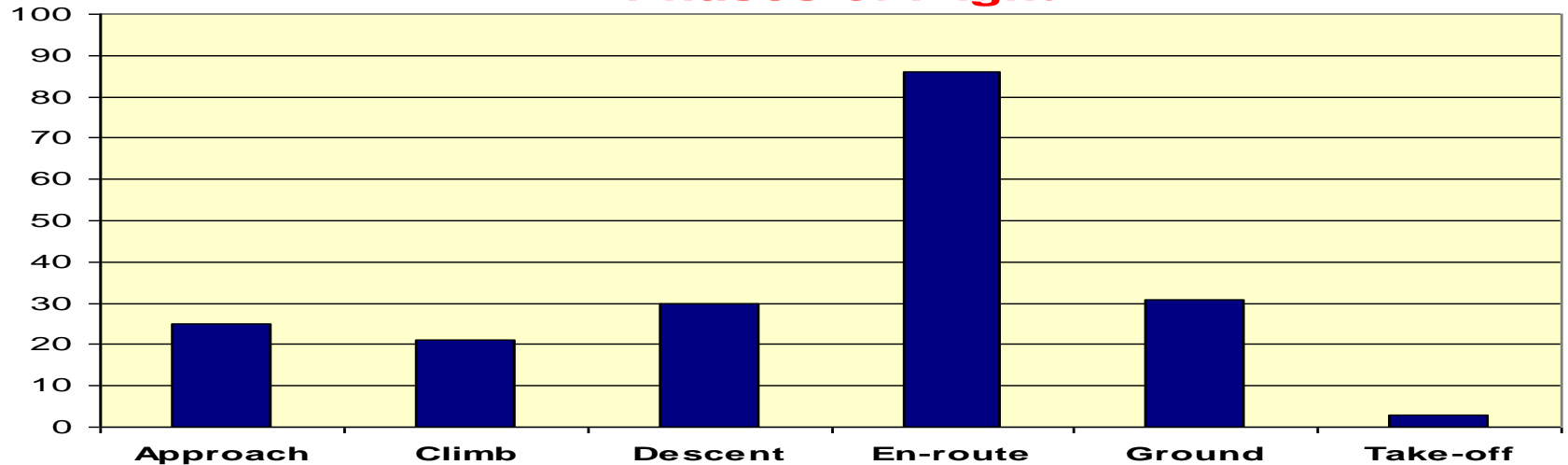
This and charts showing areas of potential concentration containment have been produced in close coordination with London Volcanic Ash Advisory Centre. These charts enable States to establish NO FLY zones where necessary. Ongoing work by the UK Met Office and the UK CAA has confirmed the effectiveness 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  
from FL000-FL200 12-1800

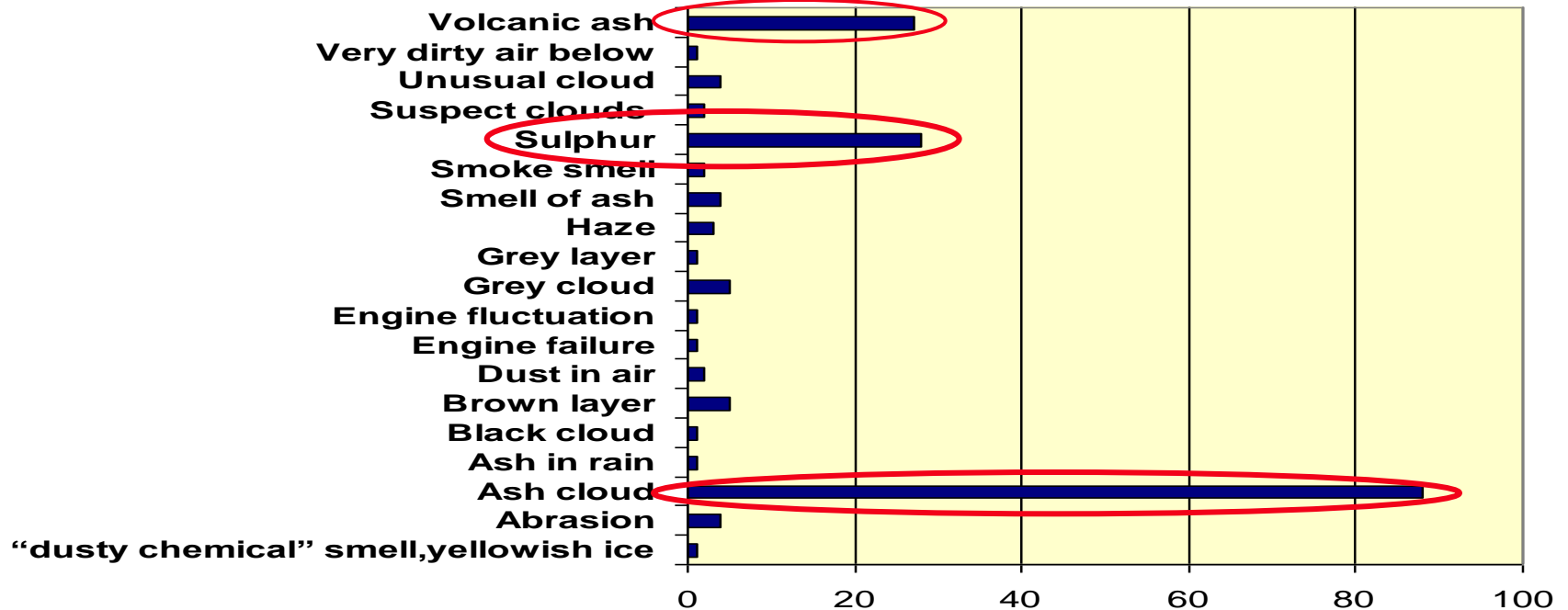
13.5 Millions hits  
in one day on the NOP



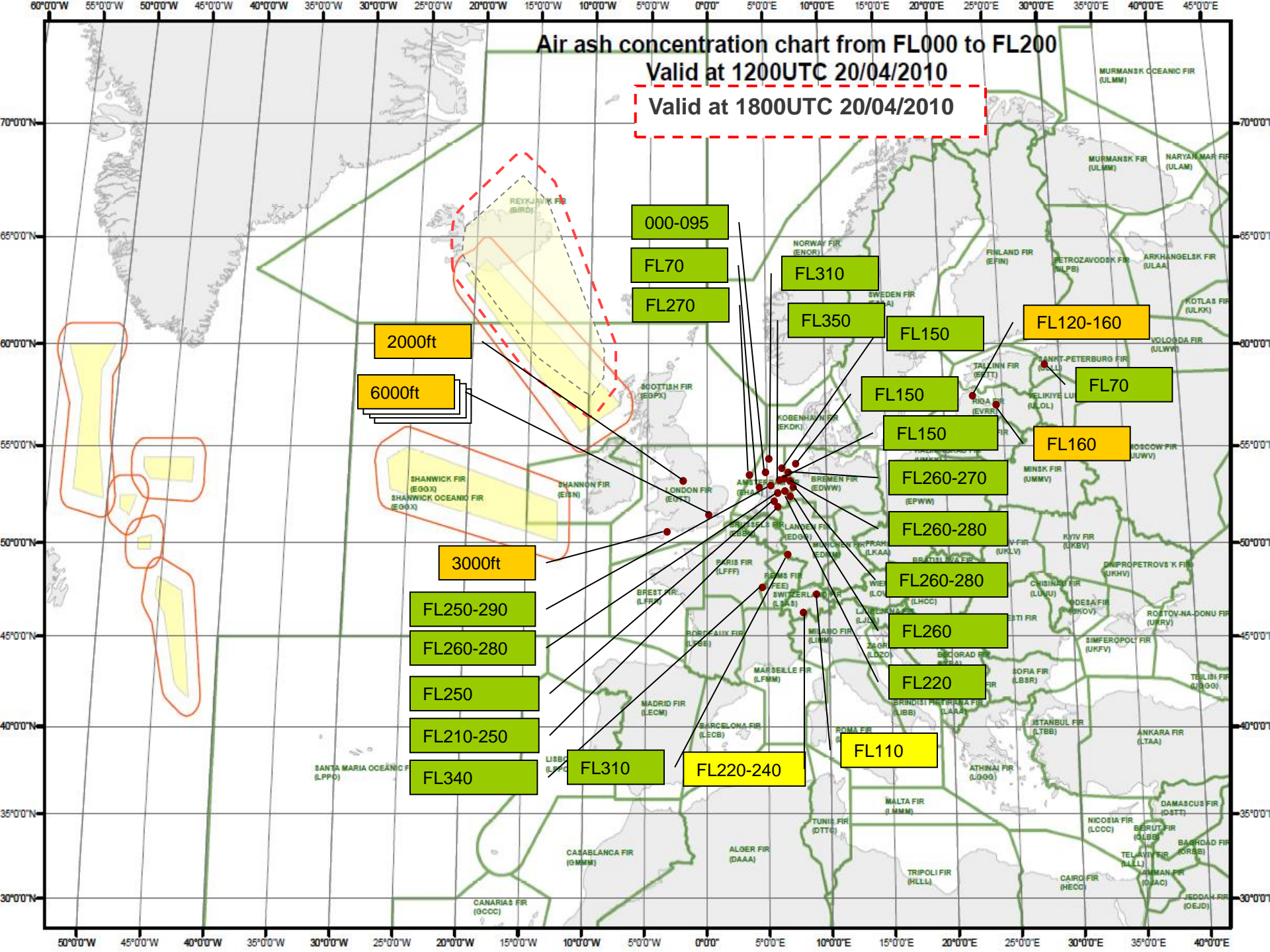
## Phases of Flight



## In-flight and post-flight observations



**Valid at 1800UTC 20/04/2010**



## ③ cont'd Lessons learnt from ash crisis

**May 2010:**

**European Aviation Crisis Coordination Cell**



**Network  
management  
expertise**



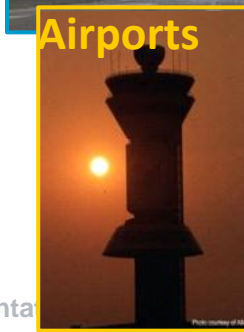
**Political  
leadership**

# European Aviation Crisis Coordination Cell (EACCCC)

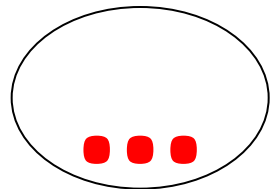
EACCCC

Facilitate management of crisis situations  
affecting aviation in Europe

Activated when circumstances beyond  
normal environment of ops are evident



Regulators



## ⑥ Instead of Conclusions –

Issues	Key Questions to be Answered
Volcanic ash vs. volcanic dust	What is the influence of the particle sizes on the aircraft parts exposed?
Accurate simulations of volcanic ash encounters for various types of aircraft and engines	Increased wear or safety hazard? Where does the safety hazard begin?
Similarity between volcanic ash/dust and sand atmospheric pollutant	There is much flying experience in sand contaminated atmosphere; is it worth using it for volcanic ash?
Volcanic ash longevity in the atmosphere	Is it fair to demand total avoidance of the volcanic ash, since it floats up in the atmosphere for years?
Operators risks vs. ATM risks	If operators decide they could fly through a contaminated area, is the ATM system able to cope with the increased emergency probability?
Impact of volcanic ash/dust on the human body	Do aircraft occupants risk anything by breathing dust-contaminated air?
Risk functions	Does the risk function depend on concentration threshold, or time of exposure, or both in certain proportions? Does the risk depend on the particles dimension distribution?
Reporting system optimization for relevance	How should pilot reports and objective measurements be consistently used in an information system used by decision makers?

**We need appropriate and commensurate RISK MANAGEMENT !!!**





What if an eruption starts tomorrow?

Contingency  
or crisis ?