



2<sup>nd</sup> International Conference on Cyber Crisis  
Cooperation and Exercises  
Athens, 23-24 September 2013

# Aviation Crisis Management in Europe

## Cyber Attack Exercise – CYBER 13

Žarko Sivčev  
Advisor to the Director  
EUROCONTROL/Network Manager Directorate

# 1. EUROCONTROL

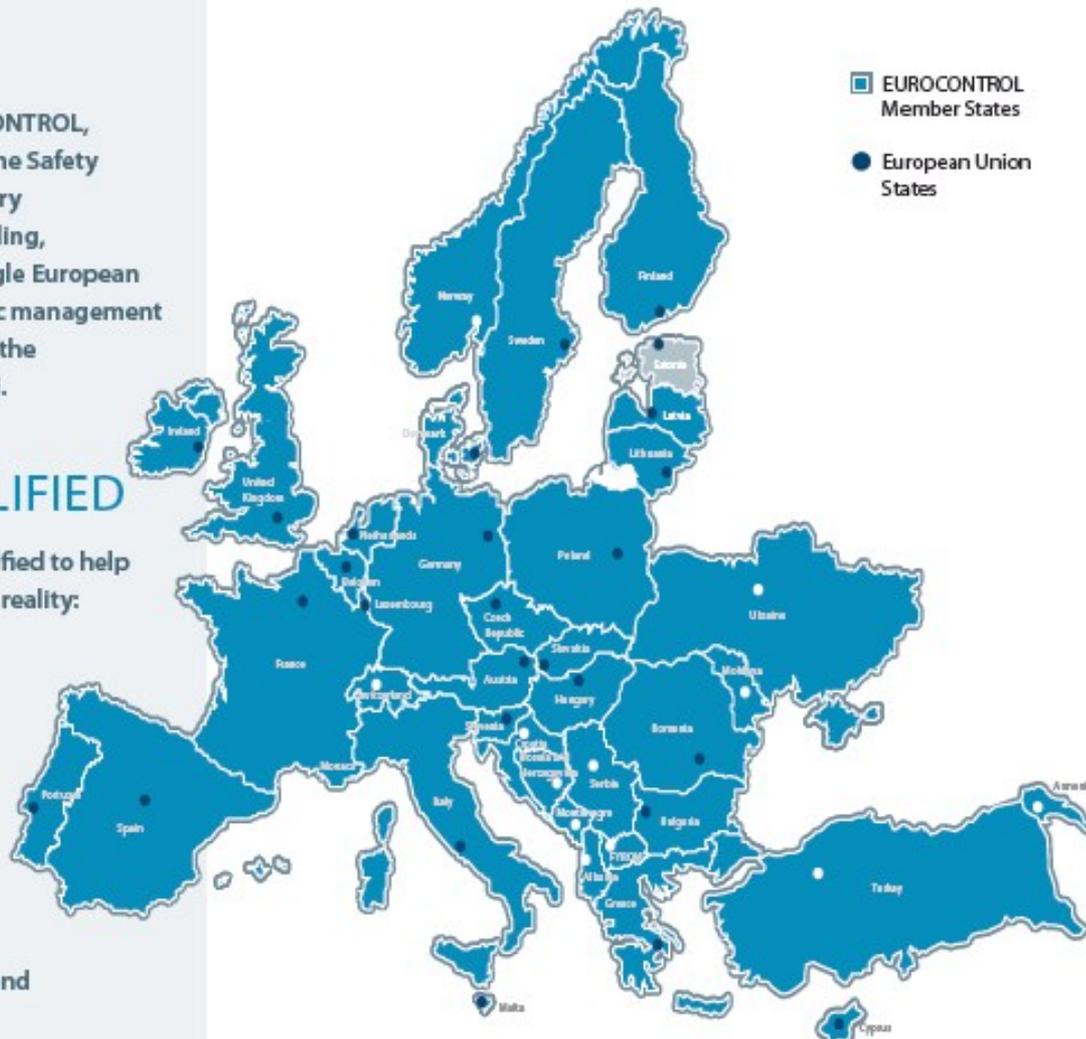
### MISSION

Founded in 1960, today EUROCONTROL, the European Organisation for the Safety of Air Navigation, is a civil-military organisation committed to building, together with its partners, a Single European Sky that will deliver the air traffic management (ATM) performance required for the twenty-first century and beyond.

### UNIQUELY QUALIFIED

EUROCONTROL is uniquely qualified to help make the Single European Sky a reality:

- Its 39 Member States provide a truly pan-European perspective;
- Its technical expertise is unrivalled and covers both the operational and regulatory elements;
- can advise on both the civil and the military aspects of ATM;

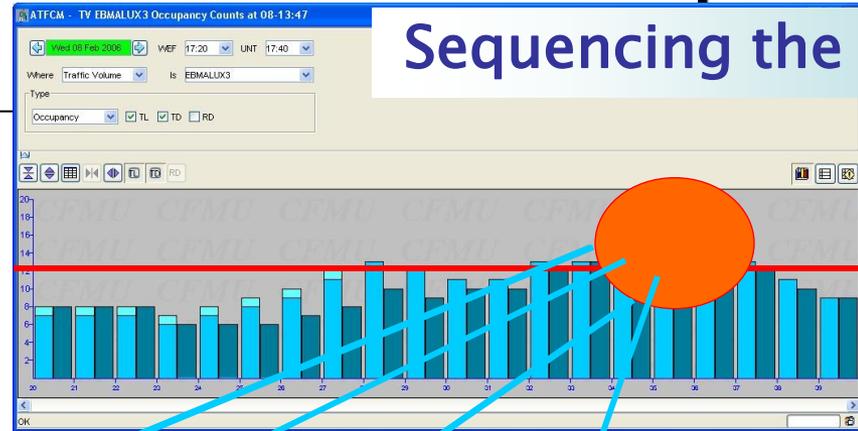


# Air Traffic Flow Management



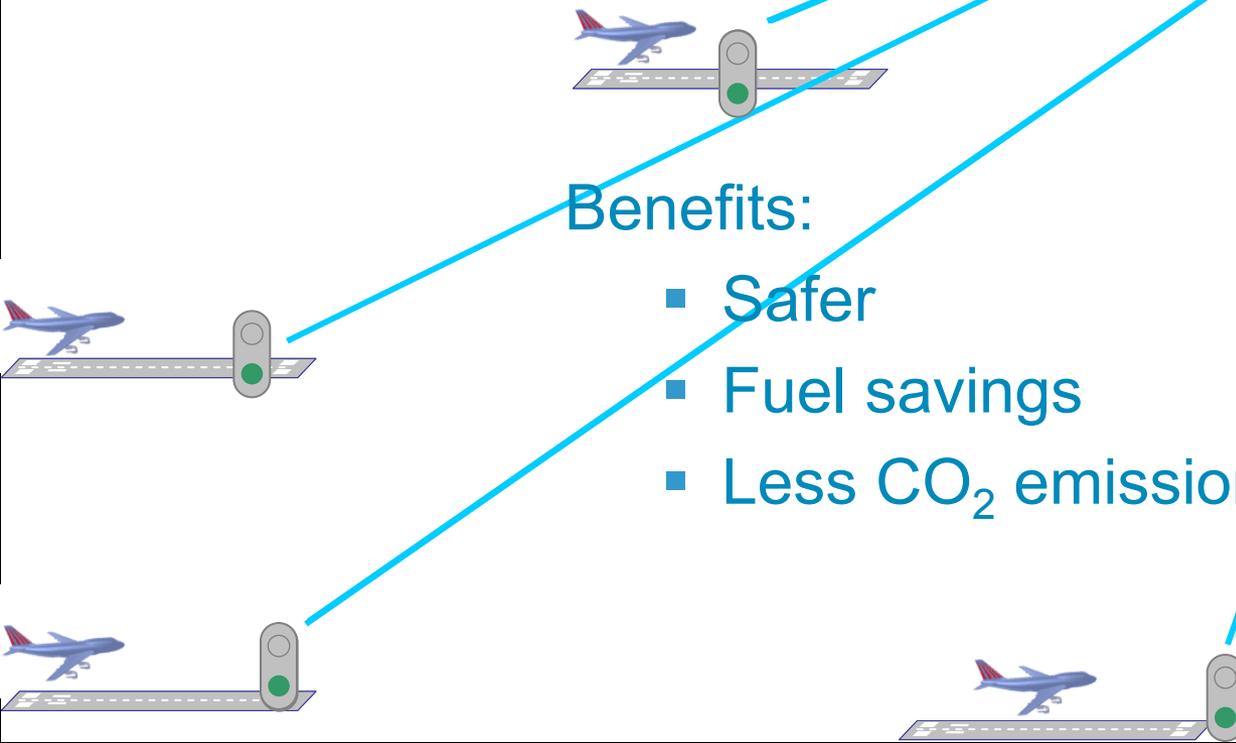
Avoiding congestion  
Safety Issue

Sequencing the traffic



Benefits:

- Safer
- Fuel savings
- Less CO<sub>2</sub> emission



2007/04/12  
16:48:00  
0/605

# Flight Plan Processing



**FPU1**

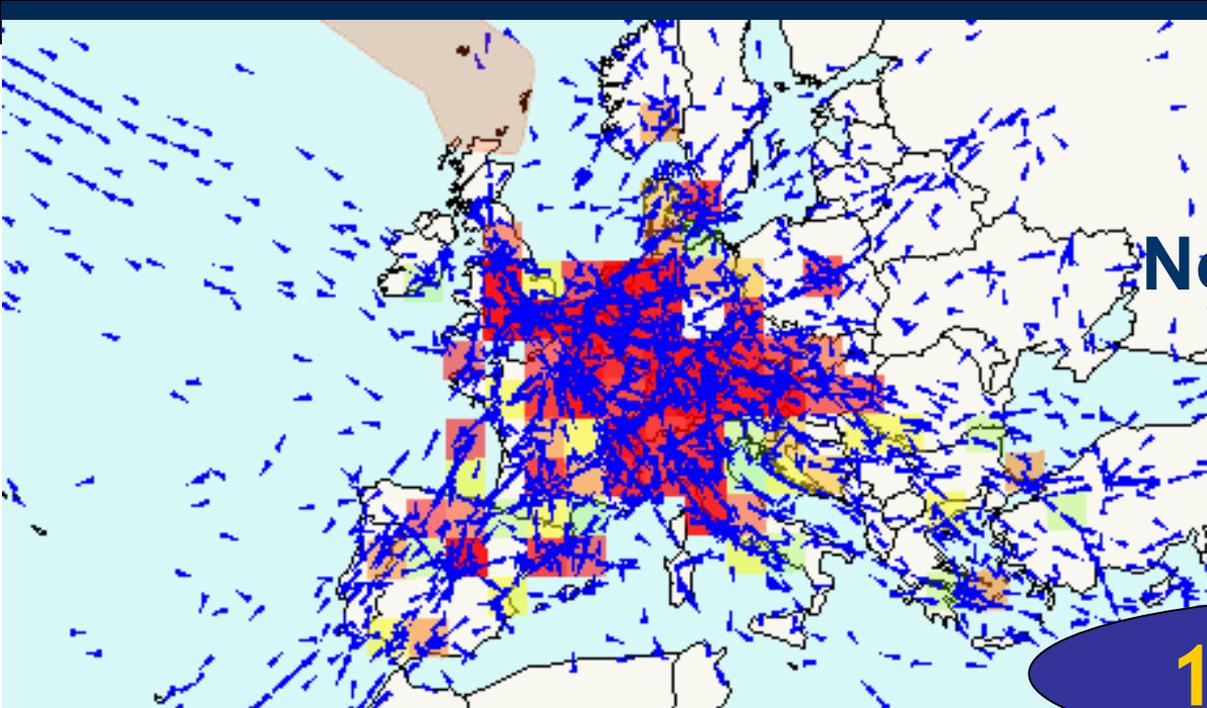
**IFPU2**

30000 Flights every day  
1 Flight Plan processed every 3 seconds  
And above 60000 Flight Plan electronic messages every day  
88% of messages processed automatically



## 2. Eyjafjallajökull 2010 crisis

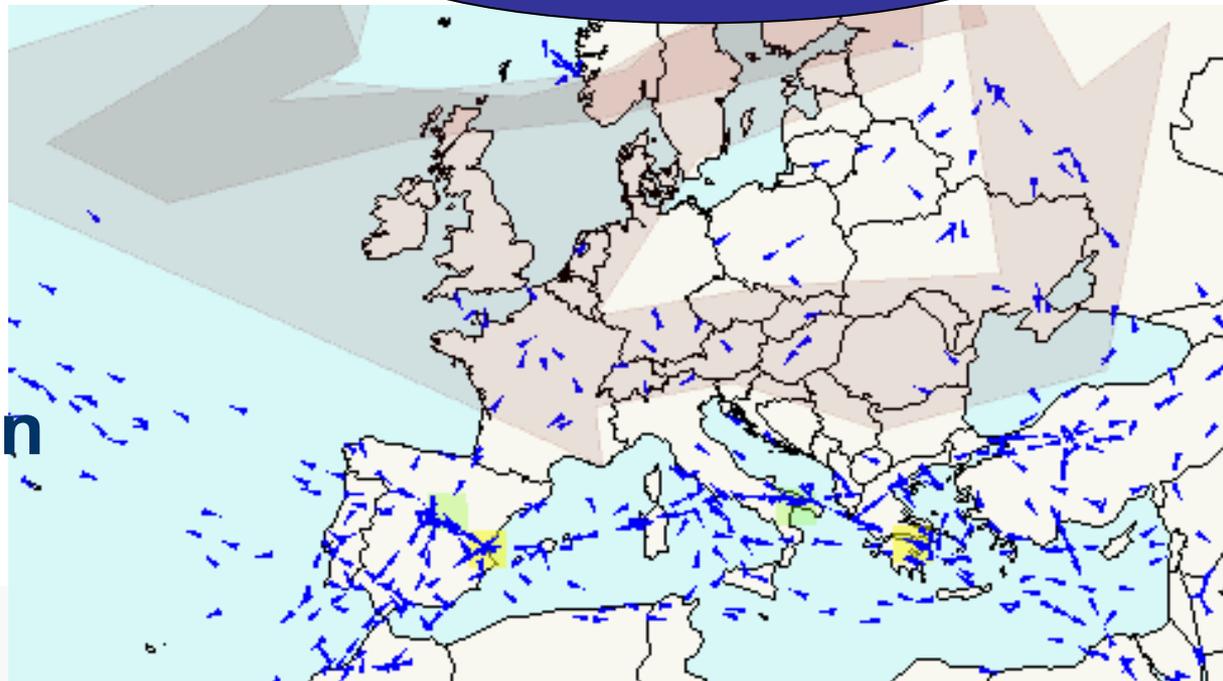
# Normal traffic density in Europe in April



16.00 UTC

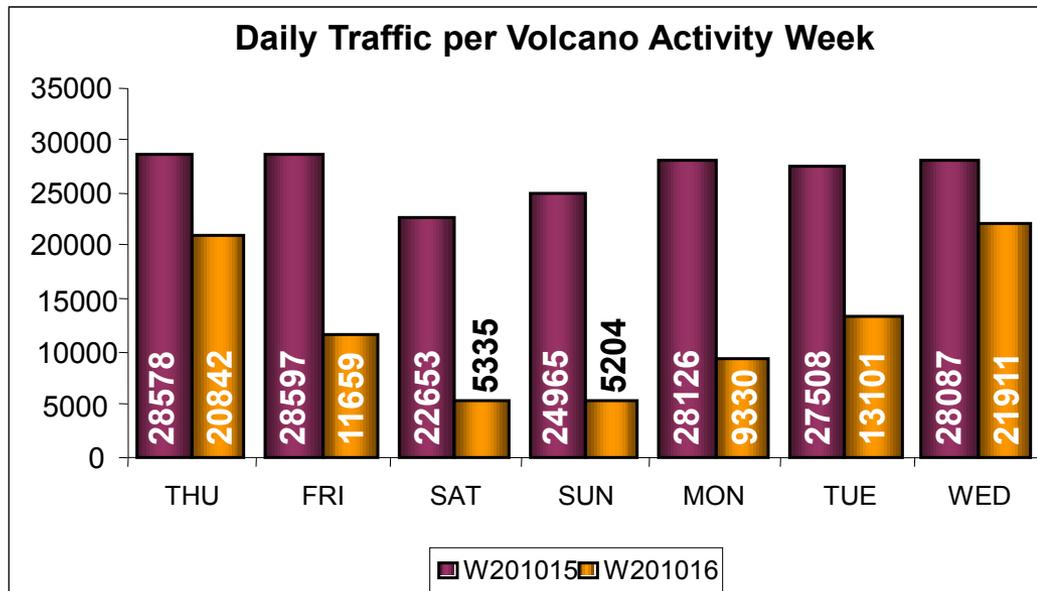
What  
happened?

## Traffic in Europe on 18 April 2010



# Impact on the European traffic

## 15 April – 21 April 2010



- 54% of flights not operated
- More than 100,000 flights
- 1% of annual traffic

# CFMU Network Operations Portal (NOP)

<https://www.cfm.eucontrol.int/PUBPORTAL/gateway/spec/index.html>



**CFMU NOP**  
Network Operations Portal

**21:58** 11/05/2010  
38 UTC

**TARGET DATE: 11/05/2010**

Username: guest

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              | 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

| 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
- 1006 - 03 June

**Additional Documentation**

**ATFCM Events**

| Occurrence      | Event                   | ACCs                      |
|-----------------|-------------------------|---------------------------|
| Axis Management | 01/04/2010 - 08/11/2010 | EGTT, EISN, GCCC, LECB... |
|                 | South West Axis 2010    |                           |

**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 (18 %)  |
| >= 30 min      | 1706            |

**Delay Causes**

| Reason       | Delay | Delay (%) |
|--------------|-------|-----------|
| Others       | 58981 | 41 %      |
| ATC Capacity | 41900 | 29 %      |
| Weather      | 27396 | 19 %      |
| ATC Staffing | 7517  | 5 %       |

**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.

**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 12-1200**  
**from FL200-FL350 12-1200**

Next update: 12-0830 utc

**BIRD (Iceland)**

For no fly zone check notams:  
 SFC-FL200 A0509/10 11-1800z until 11-2359z  
 SFC-FL200 A0510/10 12-0000z until 12-0600z

13.5 million hits in one day!

Aviation Crisis Management in Europe

9

Following

Lists

@teemul we're looking into this, will publish jpg maps asap today

30 minutes ago via HootSuite in reply to teemul

@monstermunch99 sorry only Flash, can I help by forwarding a map or transmitting info?

39 minutes ago via HootSuite in reply to monstermunch99

@odeckmyn we are moving to a new site ,same as the White House :- ) soon soon... sorry about the inconvenience, what were you looking for?

about 1 hour ago via HootSuite in reply to odeckmyn

Join us on [www.facebook.com/eurocontrol](http://www.facebook.com/eurocontrol) to share your stories about the massive air traffic disruption #euva #ashcloud

# Communication



facebook 1 4 10 Search

EUROCONTROL [Become a Fan](#)

Wall Info YouTube Links Photos Discussions >>

EUROCONTROL + Fans **EUROCONTROL** Just Fans

 EUROCONTROL Latest official #eurocontrol update now live, please check at <http://ow.ly/1zluR> #euva #ashcloud  
4 hours ago via HootSuite · View Feedback (2)

 EUROCONTROL Map used during the press conference showing forecast the ash cloud position (based on risk model) <http://ow.ly/1zjfm>  
5 hours ago via HootSuite · View Feedback (9)

 EUROCONTROL reporting live from the EUROCONTROL press conf on European air traffic situation – here we go!  
6 hours ago via HootSuite · View Feedback (8)

 EUROCONTROL Share with us your stories related to the massive air traffic disruption in Europe!  
7 hours ago · View Feedback (6)

Our aim is to ensure that your European flight will be safe, punctual and that it won't cost too much – either for you, or for the planet.

# 3. European Aviation Crisis Coordination Cell (EACCC)

# Lessons learnt from 2010 ash crisis

**May 2010:**

**European Aviation Crisis Coordination Cell**



**Network  
management**

**Political  
leadership**

**Airworthiness  
Safety**

# European Aviation Crisis Coordination Cell (EACCC)

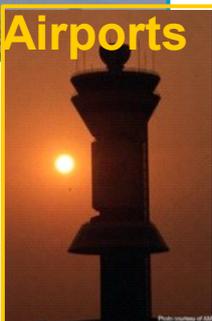
**EACCC**

Coordinate management of response to the network crisis affecting aviation in Europe

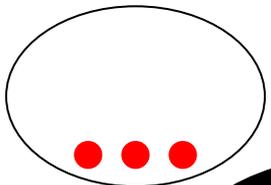
Activated when circumstances beyond normal environment of ops are evident



Members



**State focal points**



# EACCC on Alert

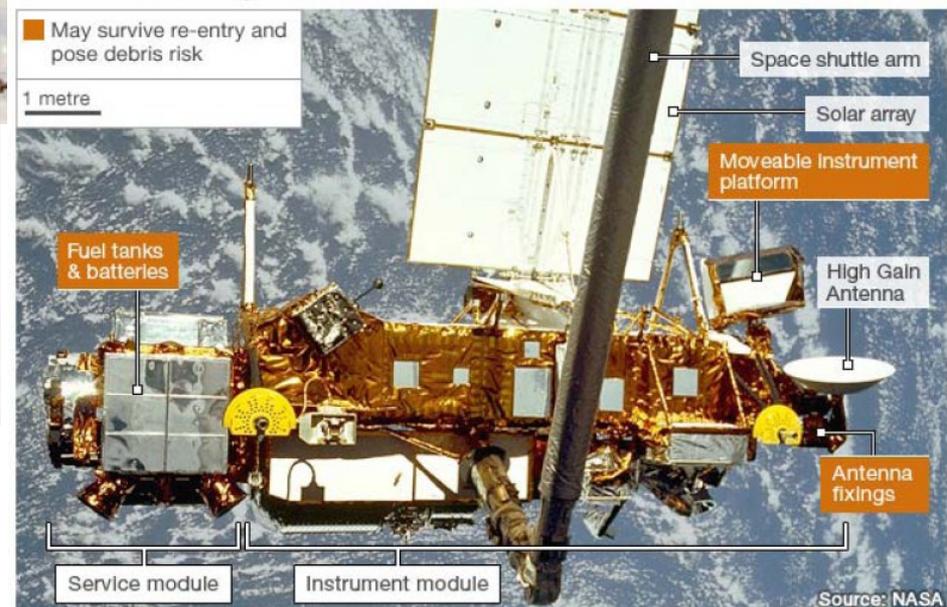


**Activated: volcano Grimsvötn, May 2011**

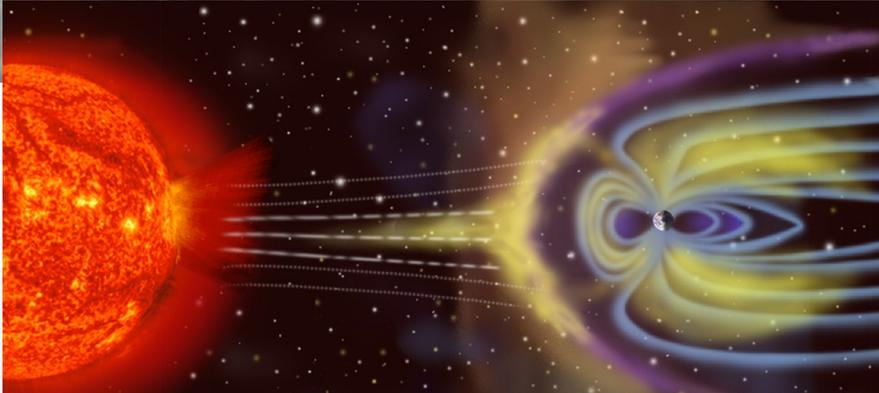


UARS satellite falling to Earth

■ May survive re-entry and pose debris risk  
1 metre



Source: NASA



# Possible threats



- Volcanic ash dispersion
- Nuclear emissions dispersion
- War
- Hazardous chemicals dispersion
- Fire
- Security threats (terrorism)
- Airborne spread of diseases/Pandemic
- Earthquake
- Flooding
- Major failure of a pan-European function
- Industrial action or unavailability of a major or several ANSPs
- Massive cyber attacks
- Heavy meteorological conditions
- Shortage of fuel in Europe
- Threat from space (e.g. satellite, space weather, etc.)

■ ...

# 4. First Network Manager/EACCC Cyber Attack Exercise - CYBER 13

# ICAO volcanic ash exercise: VOLCEX 13/01, 23 – 24 April 2013



Getting ready for  
the next eruption

# CYBER 13 - Network Manager/EACCCC cyber attack exercise



29-30 May 2013

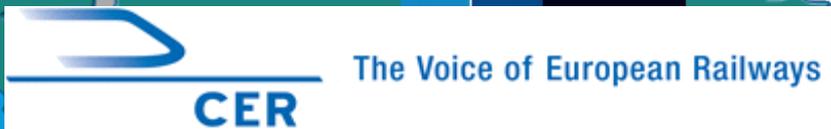


# CYBER 13 – scenario & participants



Day 1  
crisis

Day 2  
recovery



The Community of European Railway and Infrastructure Companies

Observers



## Positive

- Getting to know each other
- Enhancing preparedness
- Raising awareness
- Testing national and European coordination
- Contributing to consistent communication

## Areas for improvement

- Involve airports & railways
- Produce press releases & simulate their distribution
- More graphical representations during the exercise
- Ensure teleconferencing works properly



# CYBER 13 – lessons learned

**Safety!**

- **Reporting lines on cyber issues to be clarified:**
  - from Network Manager to States, ENISA or to Europol
  - within States - State Focal Points to national IT security experts
  - ...
- **Development and use of crisis management support tools is essential (e.g. EVITA)**
- **Involvement of airports should be foreseen in future exercises to help in managing airport congestion**
- **Airlines & Air Traffic Control need an estimated number of flights that can be processed to plan their operations**
- **EACCC should help relieve some of the legal aspects – ‘out of the box’ solutions recognised in crisis**

# CYBER 13 – conclusions



- **Cyber attack may cause many flight cancellations - other methods for transfer of flight plans to be considered**
- **State Focal Points play a key role in such events in coordination and communication**
- **Very positive general impression of participants – ‘when will the next exercise be organised?’**



**Thank you!**

Enter here your presentation title

[zarko.sivcev@eurocontrol.int](mailto:zarko.sivcev@eurocontrol.int)