

# Using “Discernible” ash definition to produce VA products

VAAC’s perspective session – 7<sup>th</sup> WMO VA Workshop  
19 October 2015



# In this presentation we will.....



- Recap the definition of discernible ash
- Describe how London and Toulouse VAACs use observations to determine the location of VA
- Show how the VAACs can potentially provide a running commentary on the location of VA in the atmosphere during an event
- Show what future supplementary VA products might look like

- Since 2011, the WMO VASAG through IAVWOPSG has developed a common understanding of the hazard to aircraft and a common process to observe and forecast the hazard leading to new definitions of the ash hazard:
- ***Visible Ash:*** *Volcanic ash that can be observed by the human eye*
- ***Discernible Ash:*** *Volcanic ash detected by: defined impacts on/in aircraft; or by agreed in situ and /or remote-sensing techniques.*

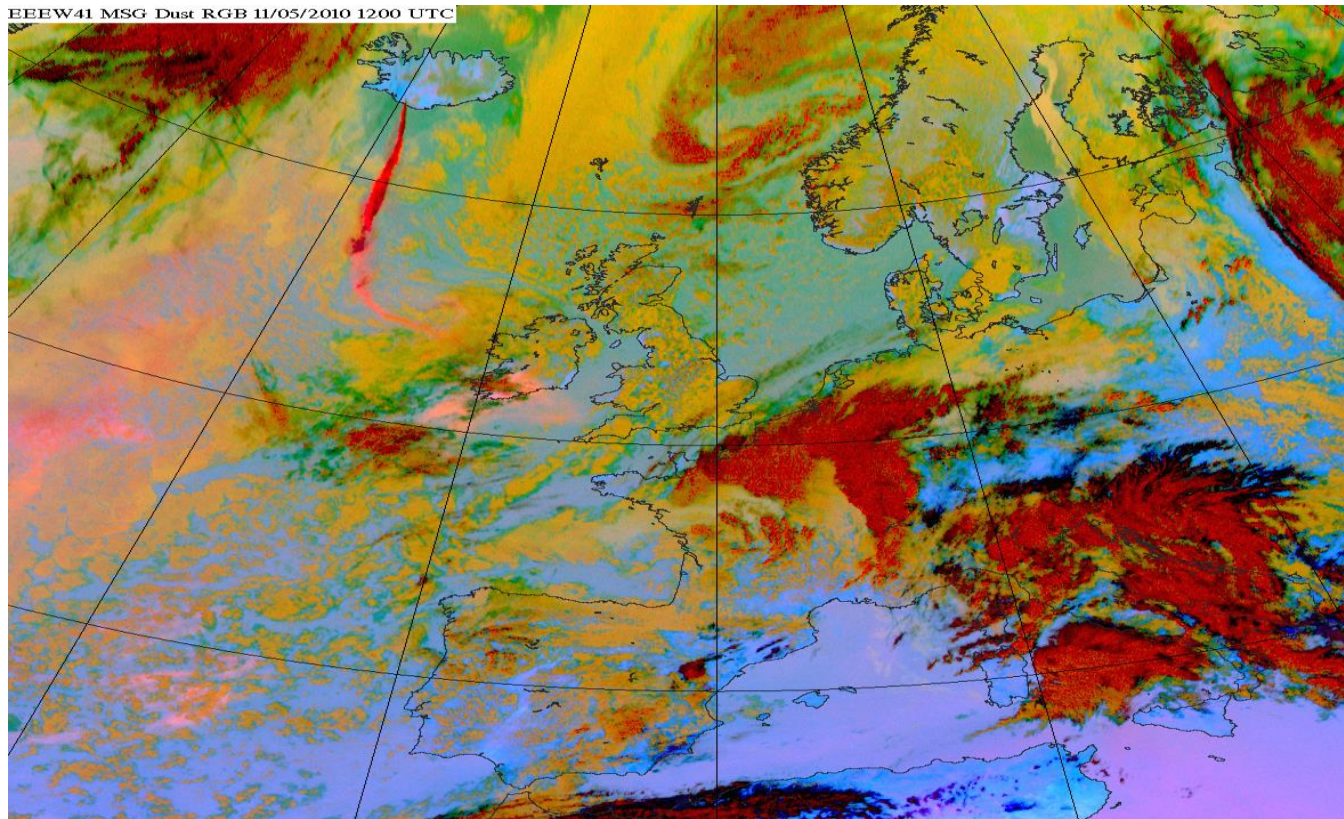


# Potential impacts on/in aircraft

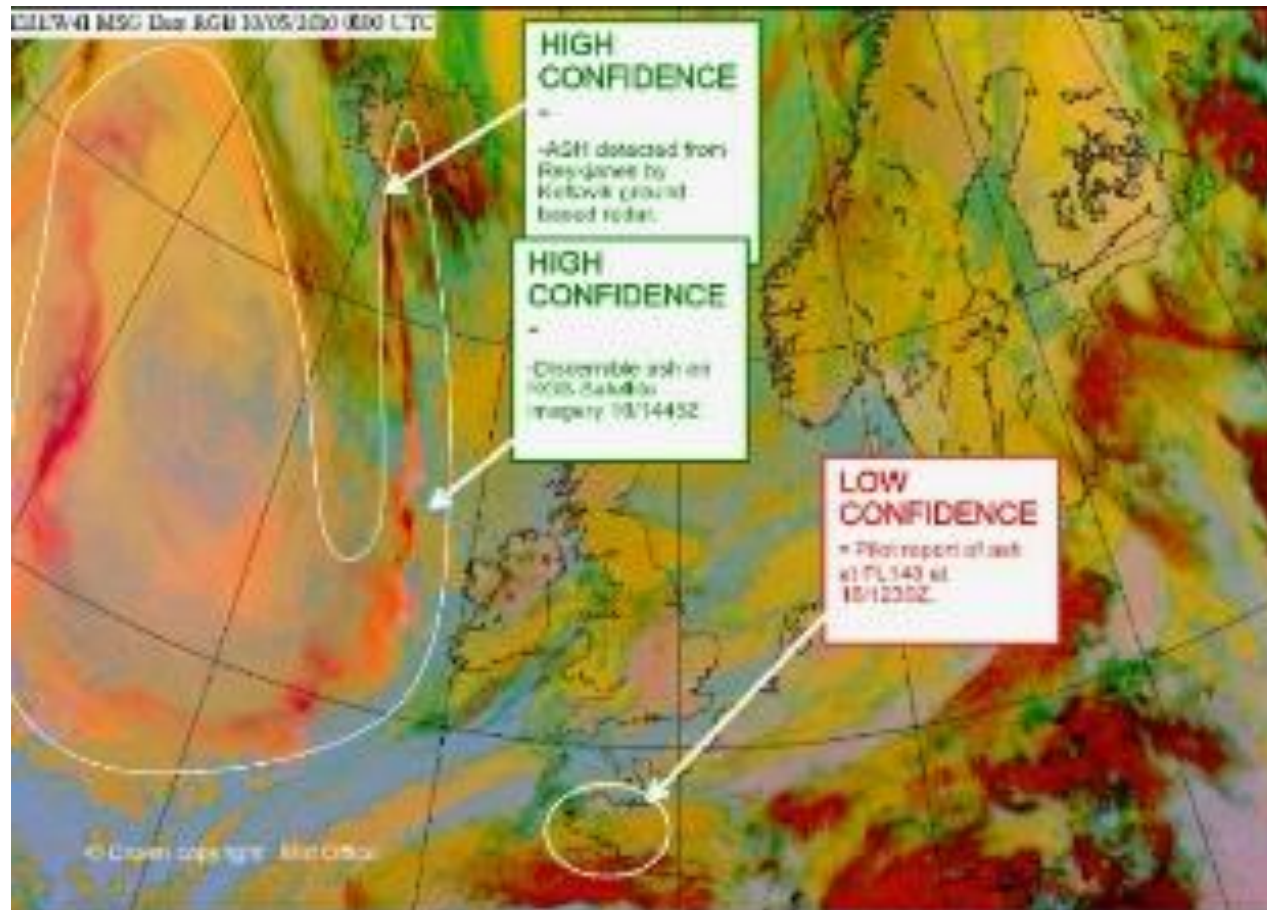


- St. Elmo's fire (?)
- Sulphurous smell
- Engine "issues"
- Communication issues
- Damage to windscreen, e.g. Turns opaque due to "sand" blasting

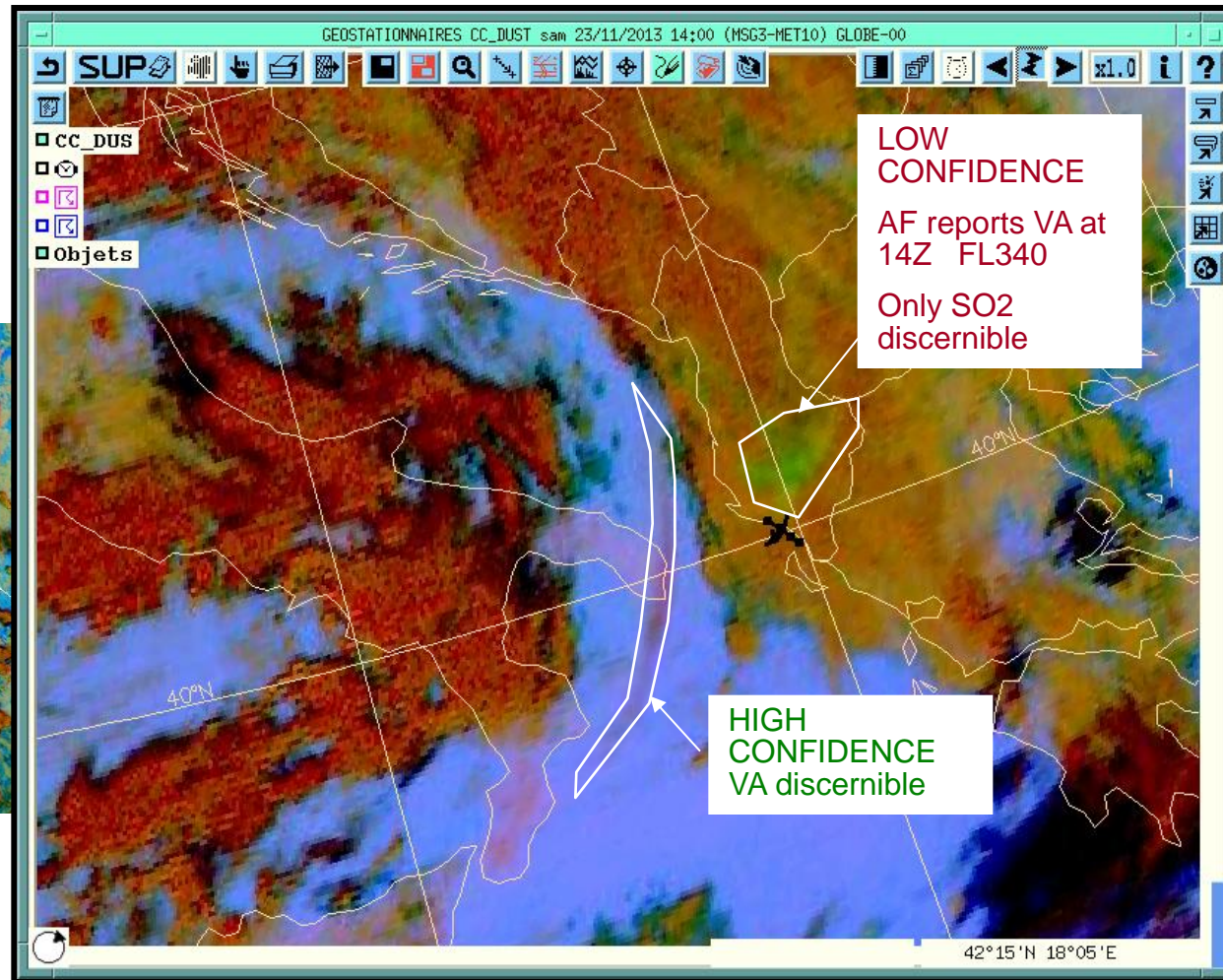
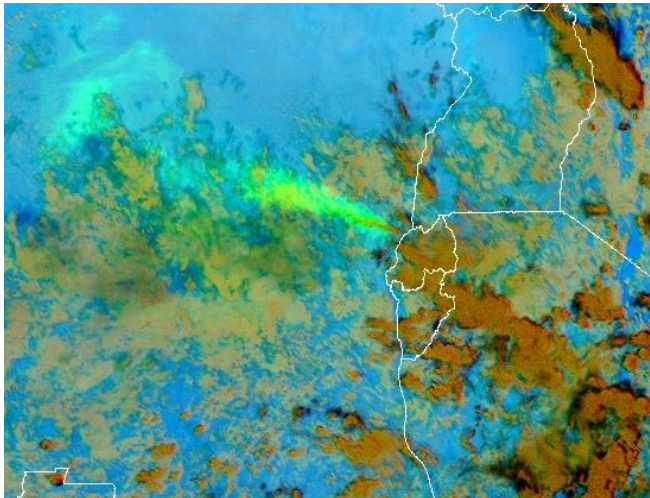
## Satellite imagery



# Annotated Satellite Picture as Running Commentary



# Annotated Sat Picture (TIs VAAC, not yet implemented)





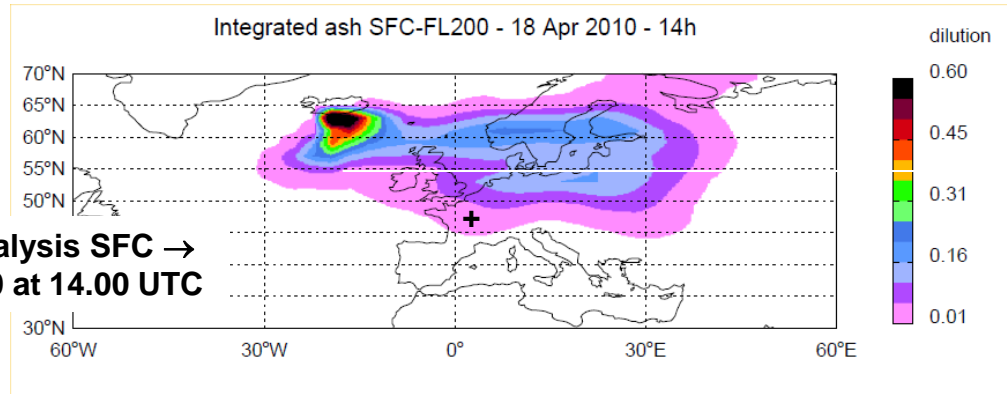
# Agreed in-situ/remote sensing techniques



- Satellite imagery
- LIDAR (or similar) data

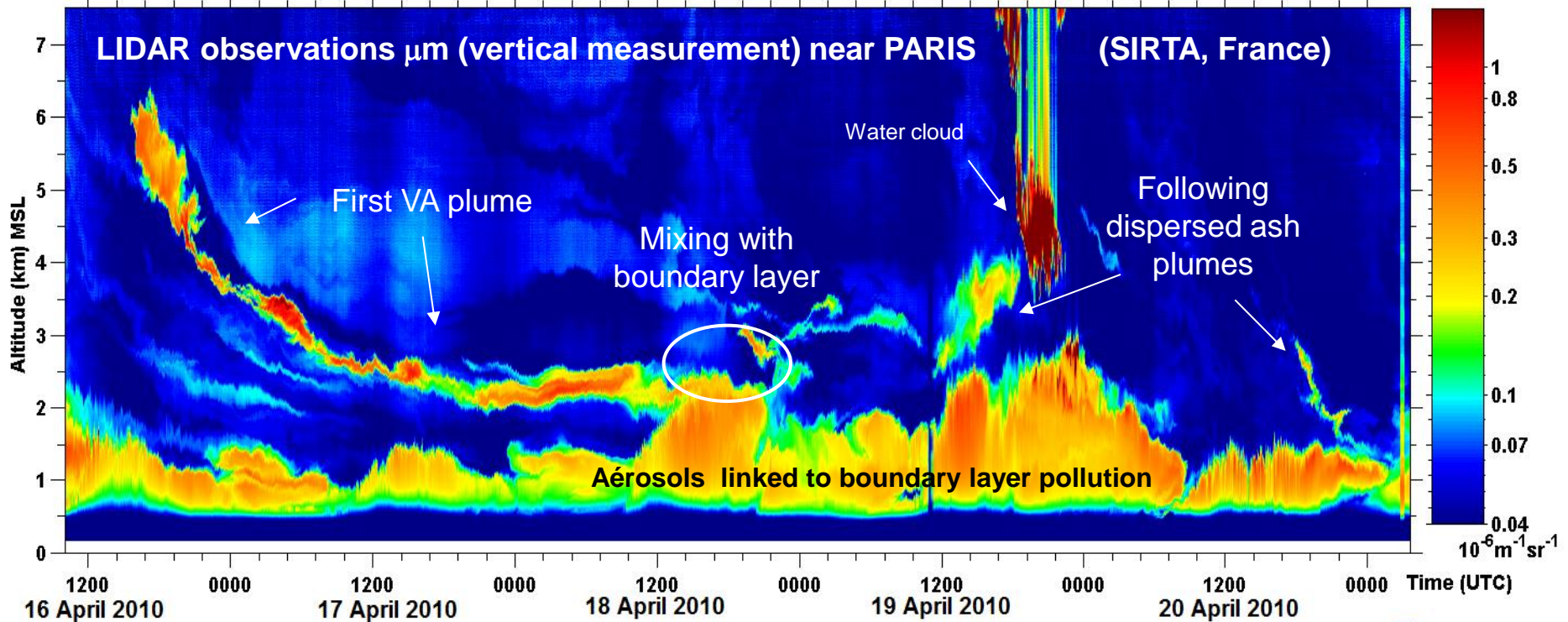


# Ground based LIDARs



Modelled dispersion analysis SFC →  
FL200 on 18th April 2010 at 14.00 UTC

IPSL/SIRTA Lidar (48.7°N 2.2°E) Attenuated backscatter 1064 nm NFOV channel

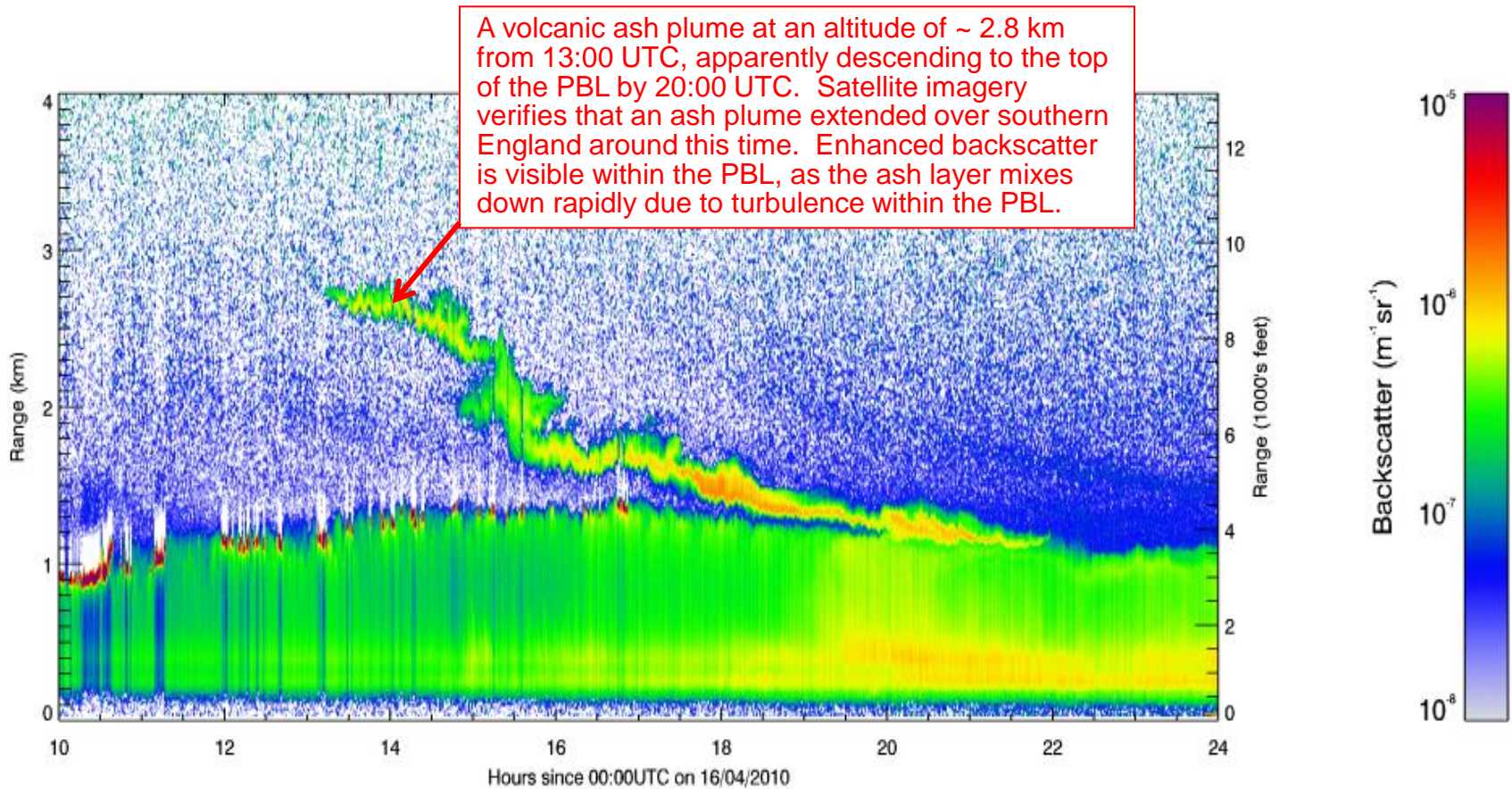


# Future EUR LIDAR Networks : France

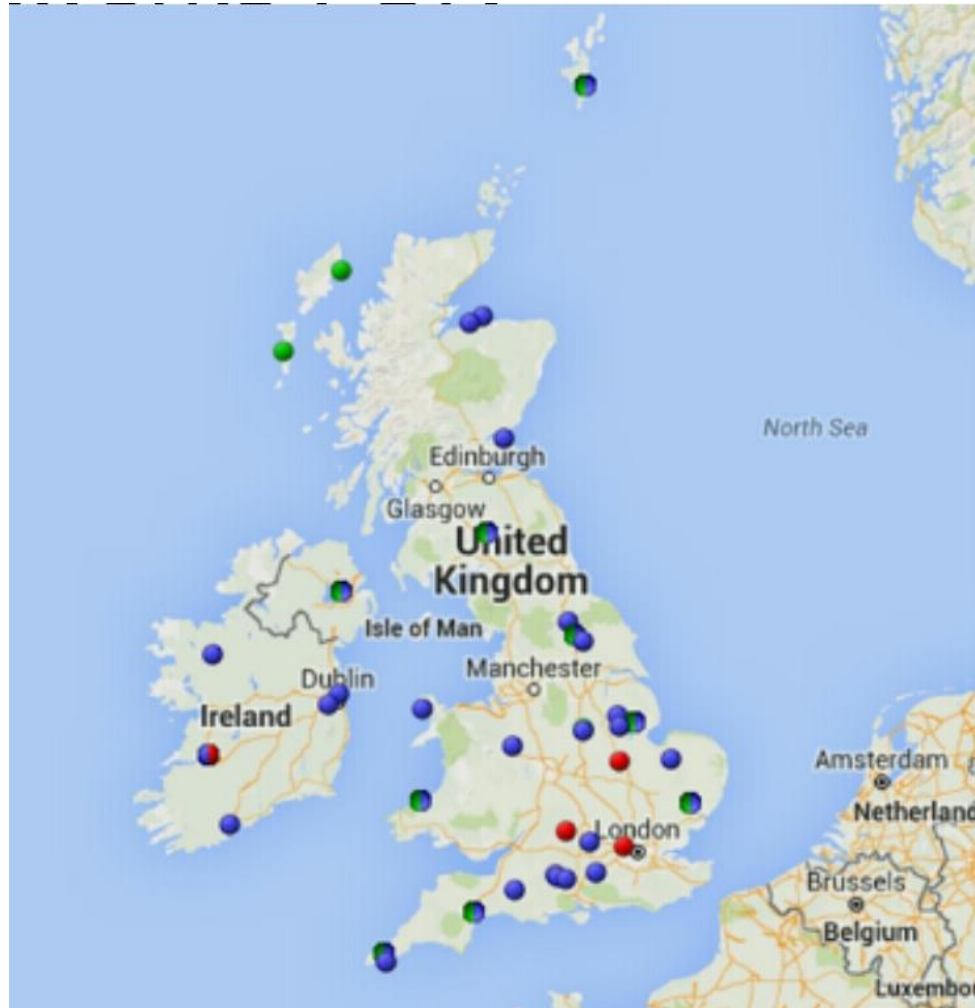
6 LIDARs SIGMA operational in 2016



# Ground based LIDARs



# Future EUR LIDAR Networks : UK





# Agreed in-situ/remote sensing techniques

- Satellite imagery
- LIDAR (or similar) data
- Research aircraft data

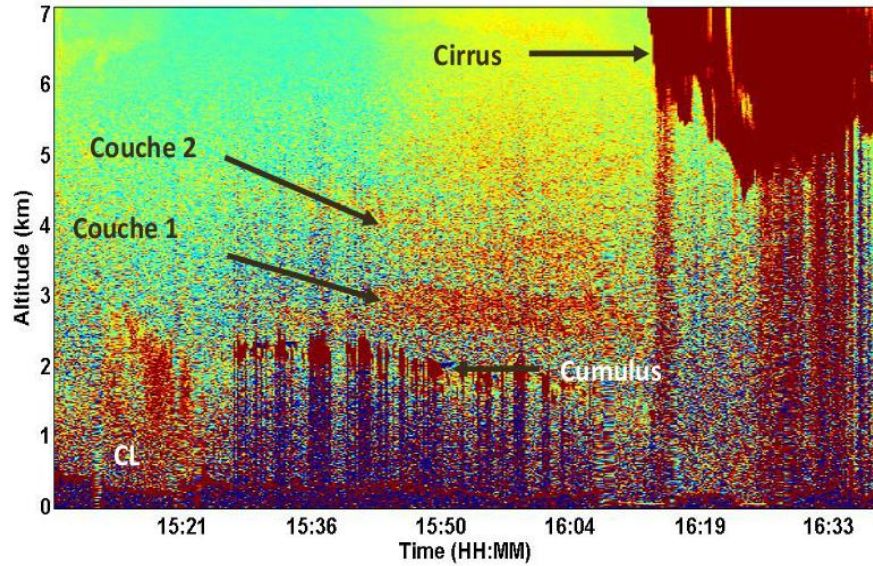
FALCON20 SAFIRE  
(France)



ATR SAFIRE (France)



# IN SITU MEASUREMENTS:



20/04/2010 15h30 NE France

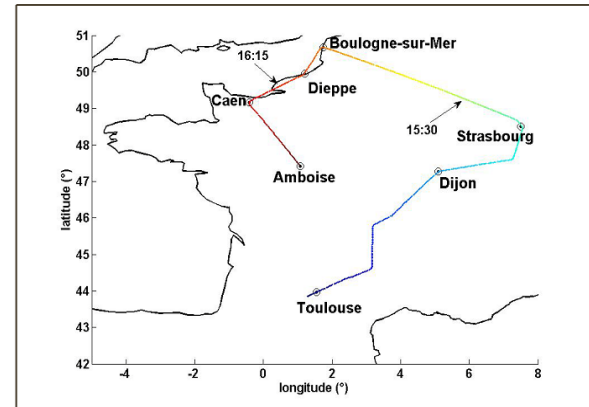
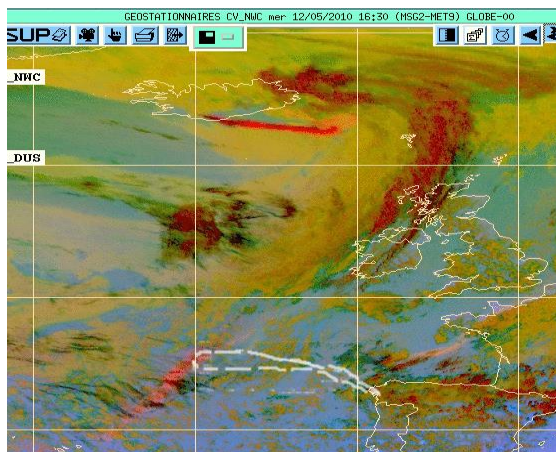
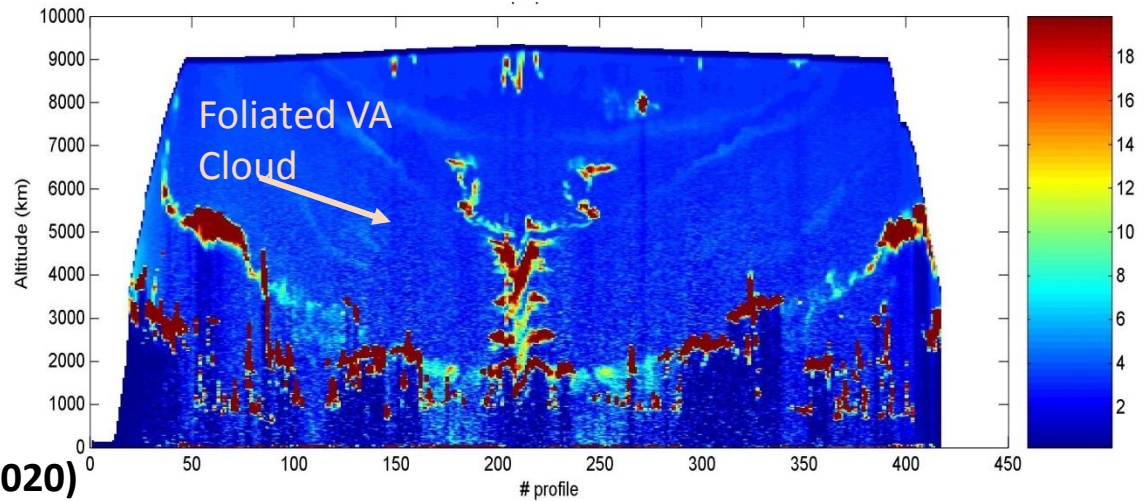


Figure 1 : Plan de vol du F20 le 21/04/2010.



12/05/2010 16h30 MEDIT SEA (N45W020)



# Agreed in-situ/remote sensing techniques

- Satellite imagery
- LIDAR (or similar) data
- Research aircraft data
- VA deposition on ground (?)







Met Office

# MODELLED TOTAL COLUMN



Etna - Exercice

Modelled total column ash

Valid at : 30/04/2015 06:00 UTC

start : 2015-04-28 15:00 UTC

duration : 48h

quantity : Mastin X 10

height : 12000km

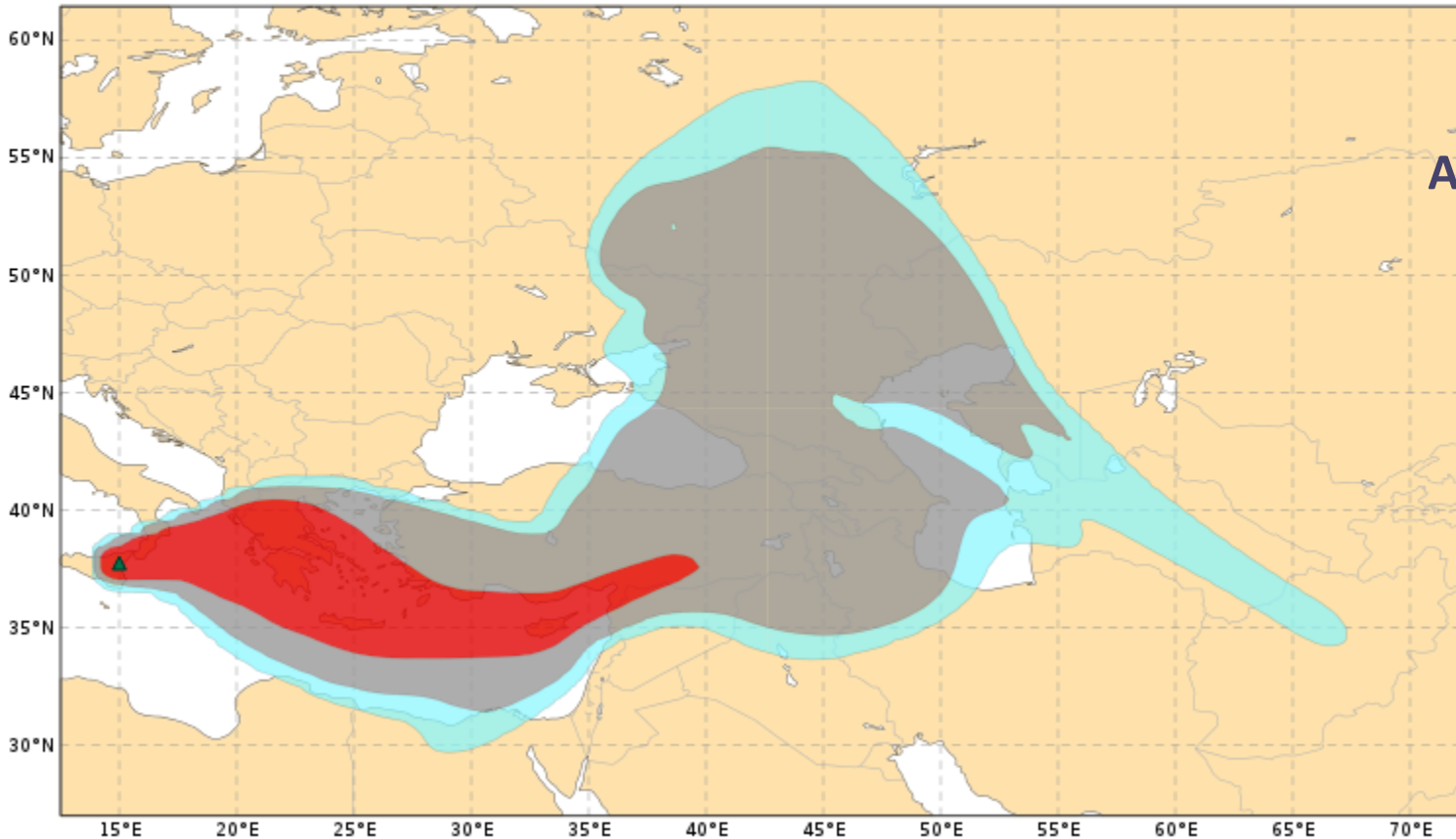
All concentrations are subject to a level of uncertainty relative to errors in the estimation of the eruption strength.

This is a guidance product, supplemental to the official VAAC Toulouse Volcanic Ash Advisory and Volcanic Ash Graphic products.

 LOW

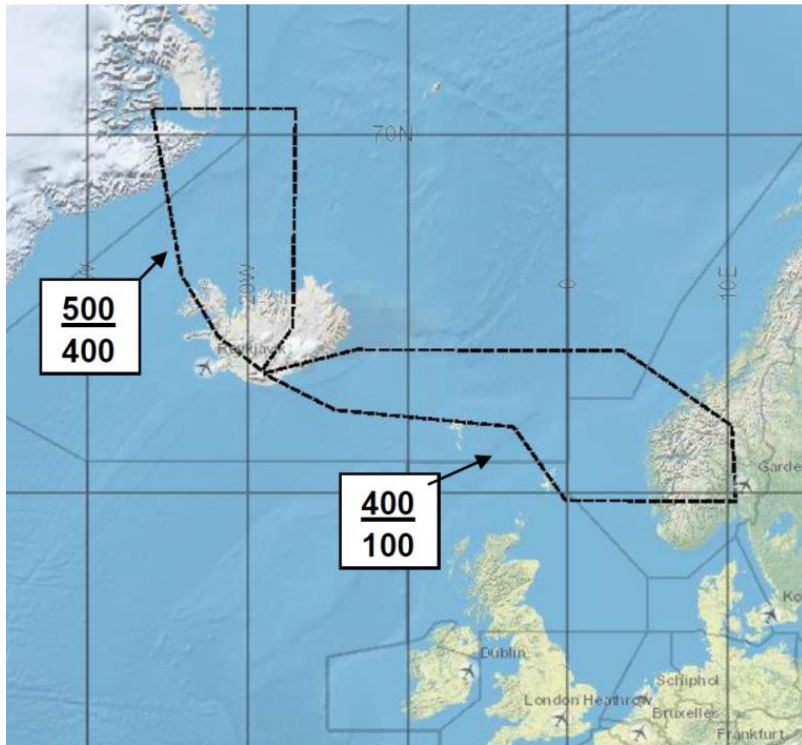
 MEDIUM

 HIGH

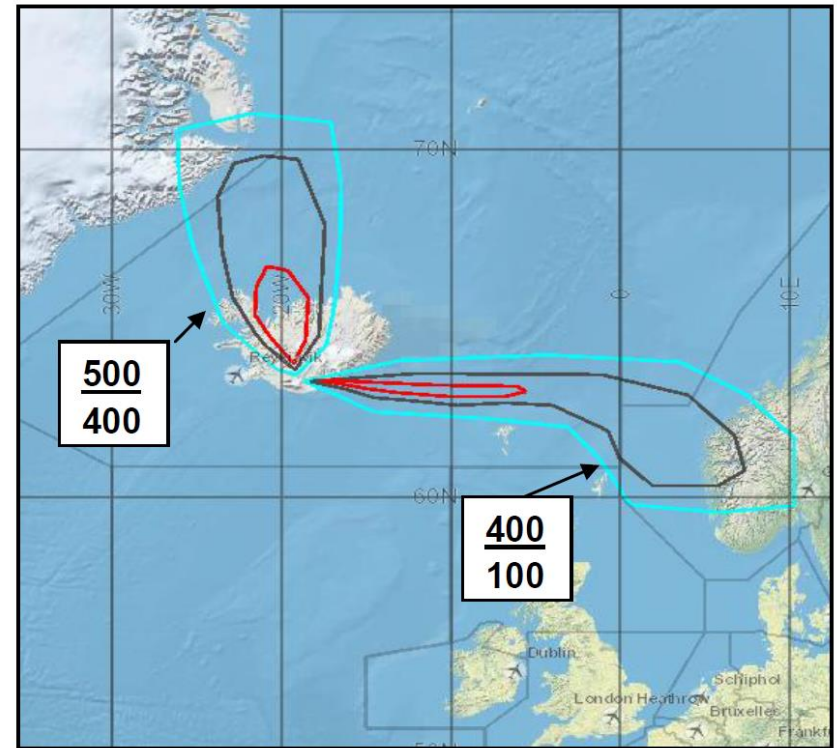


Available to  
Toulouse  
VAAC  
forecasters  
comparable to  
SAT imagery

# Possible format of Volcanic Ash Contamination Information in support to aviation SRA



VAG



SRA support charts



# Thank you

