
WELCOME
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A Pilot Perspective on Volcanic Ash

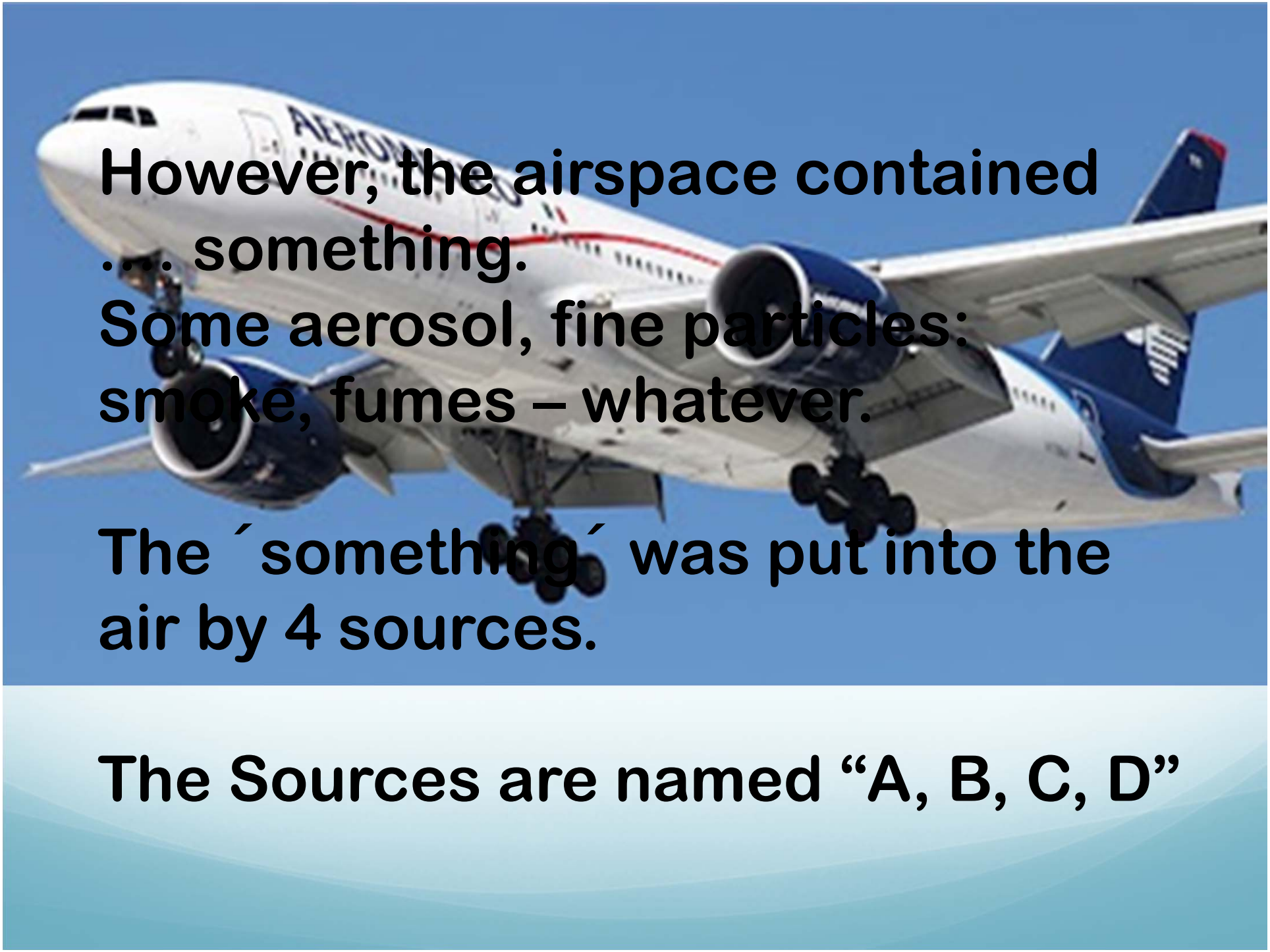
International Federation of Air Line Pilots' Associations

IFALPA

The Global Voice of Pilots

Smoky aerosol, Volcanic ash… of what origin ?

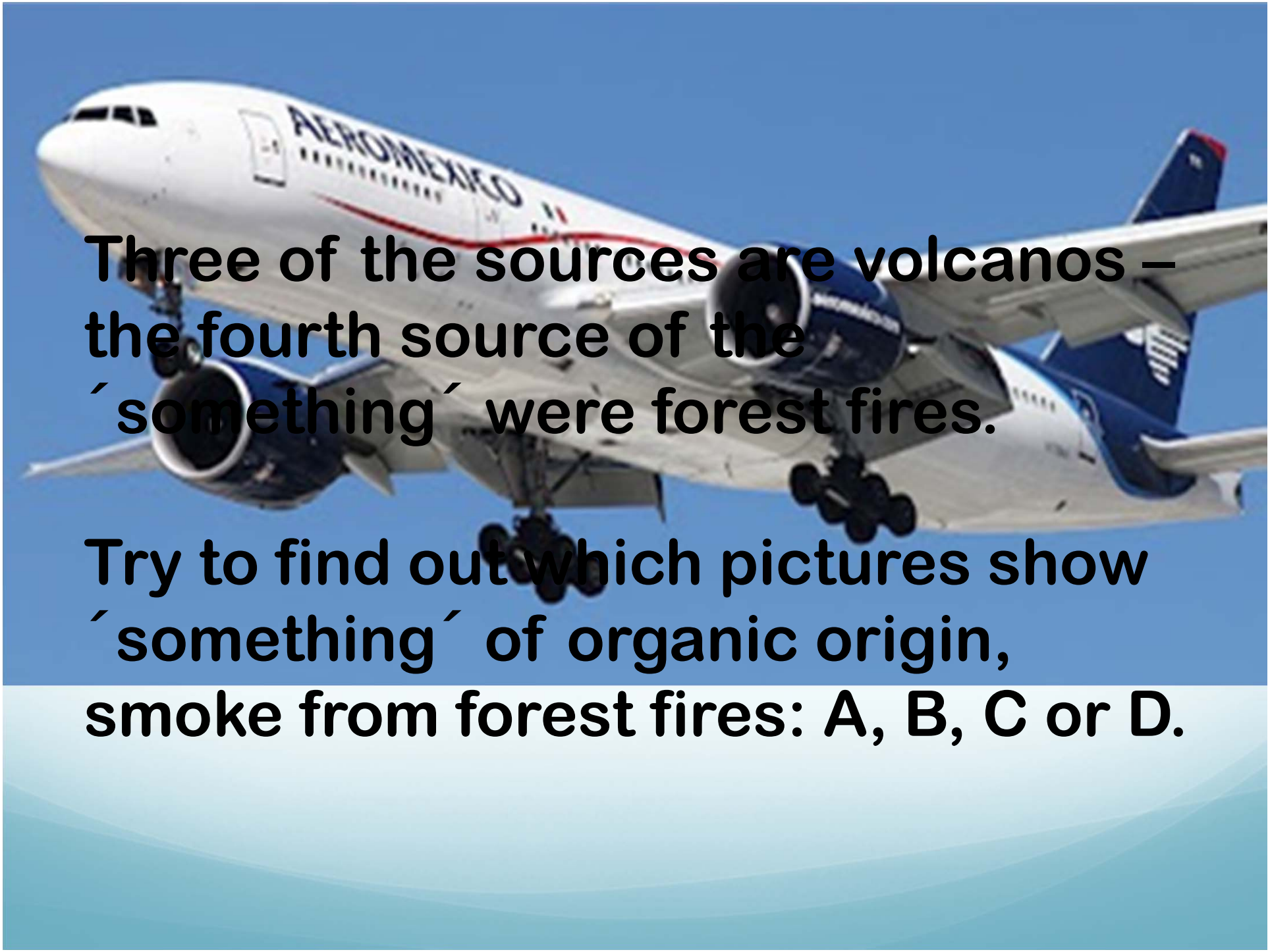
The nexts slides contains pictures taken during flights that had officially uncontaminated air, or air that had a ´low´ level of volcanic ash contamination.



However, the airspace contained .... something.
Some aerosol, fine particles: smoke, fumes – whatever.

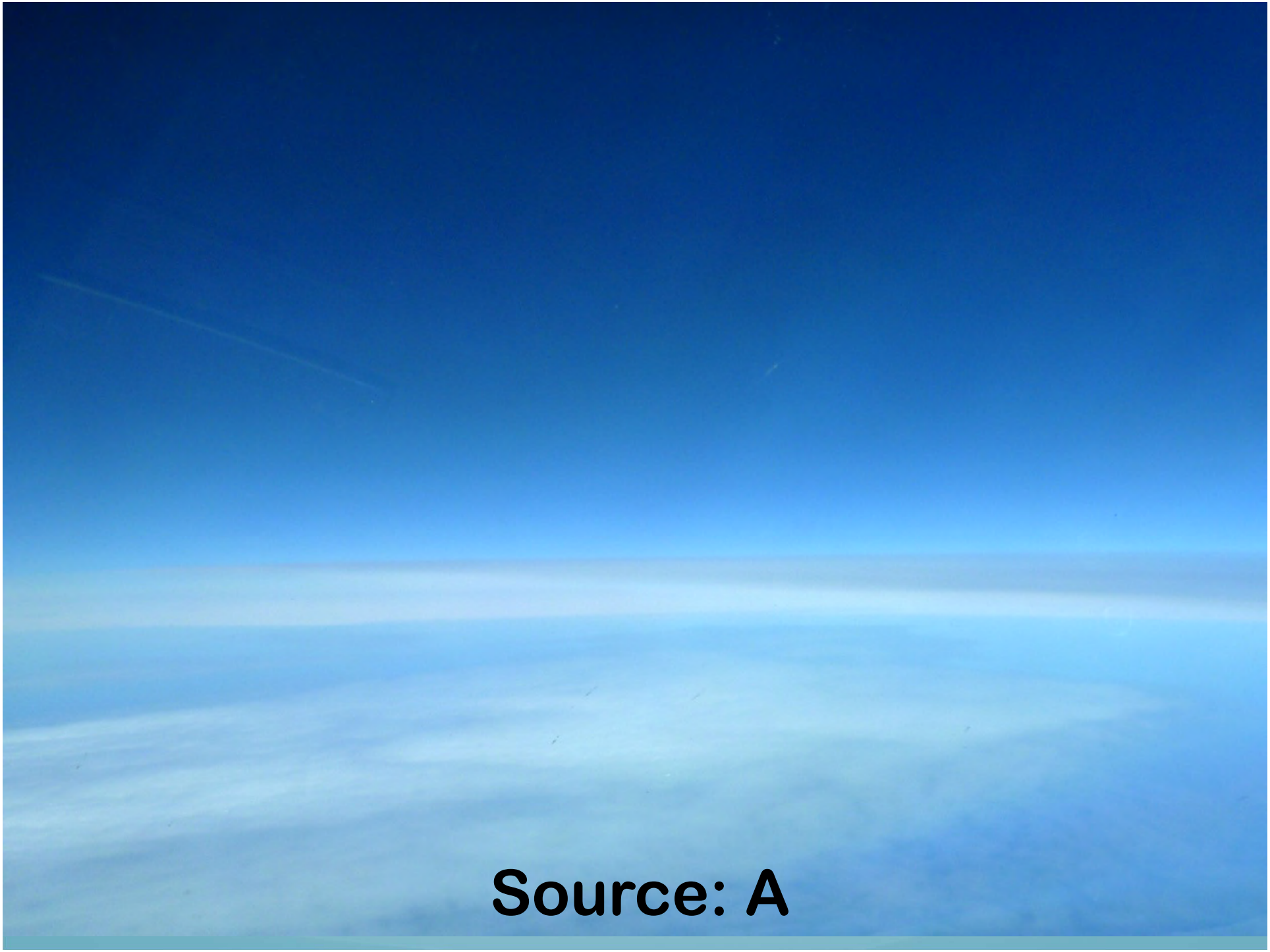
The ´something´ was put into the air by 4 sources.

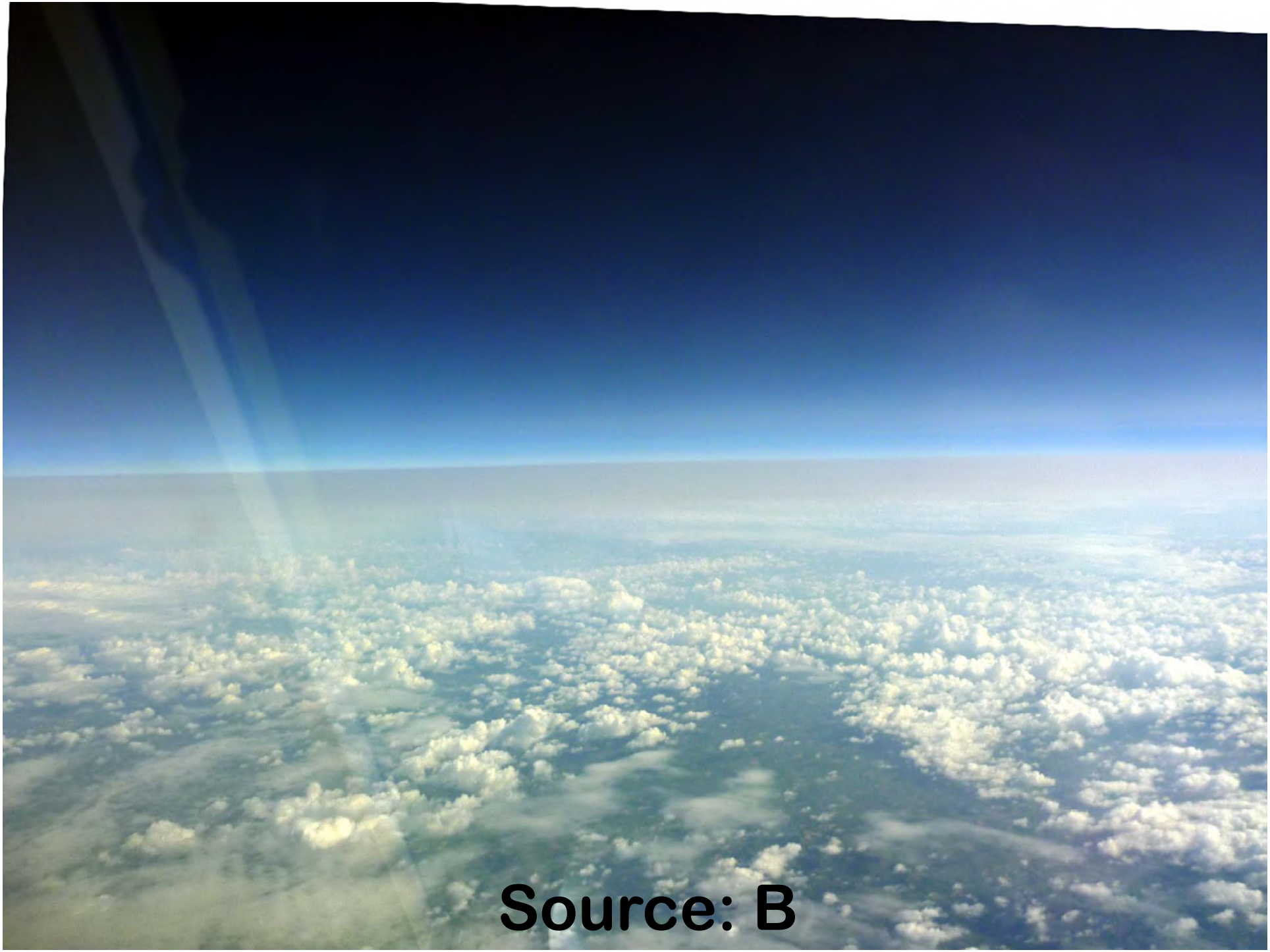
The Sources are named “A, B, C, D”

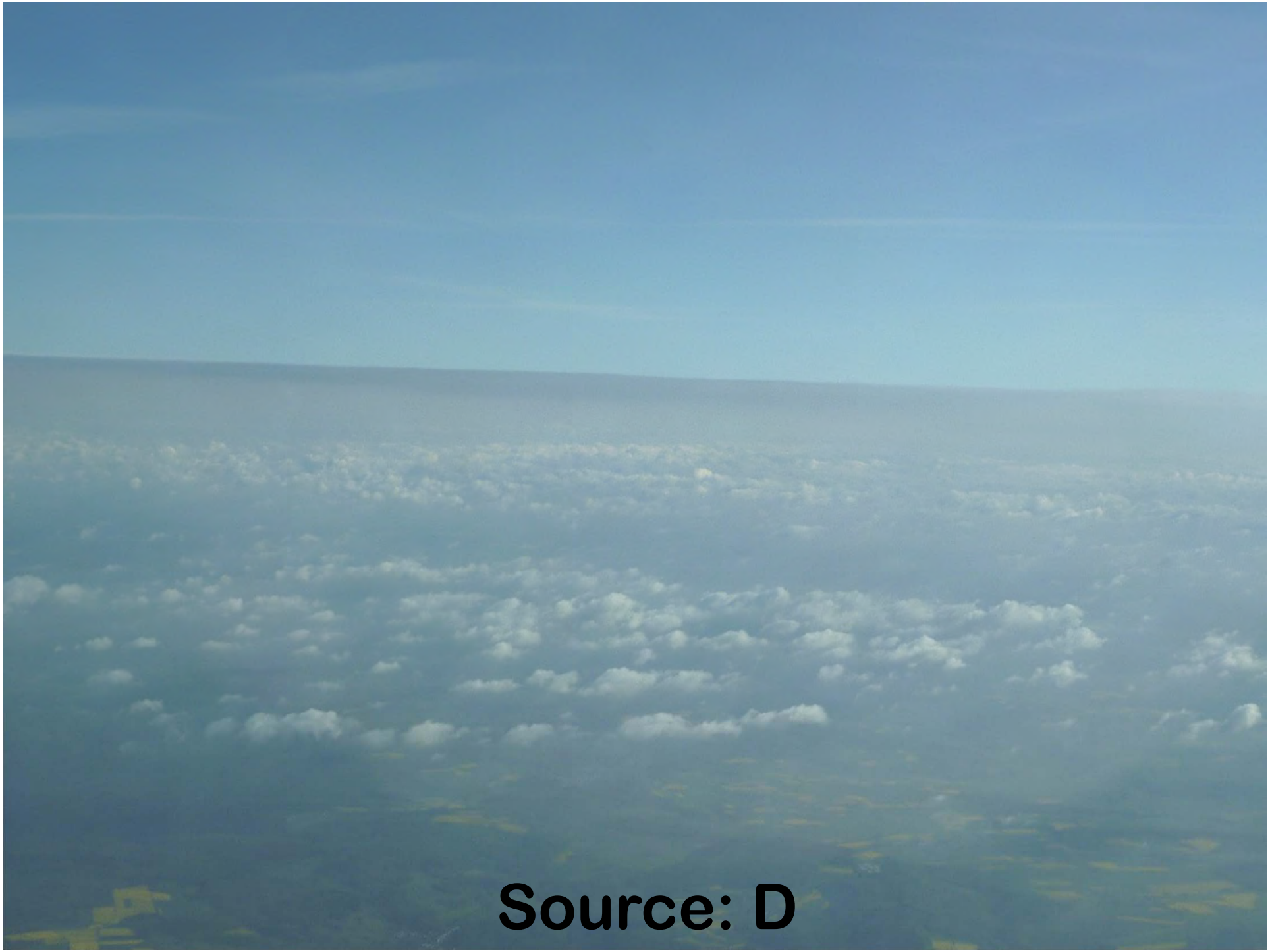


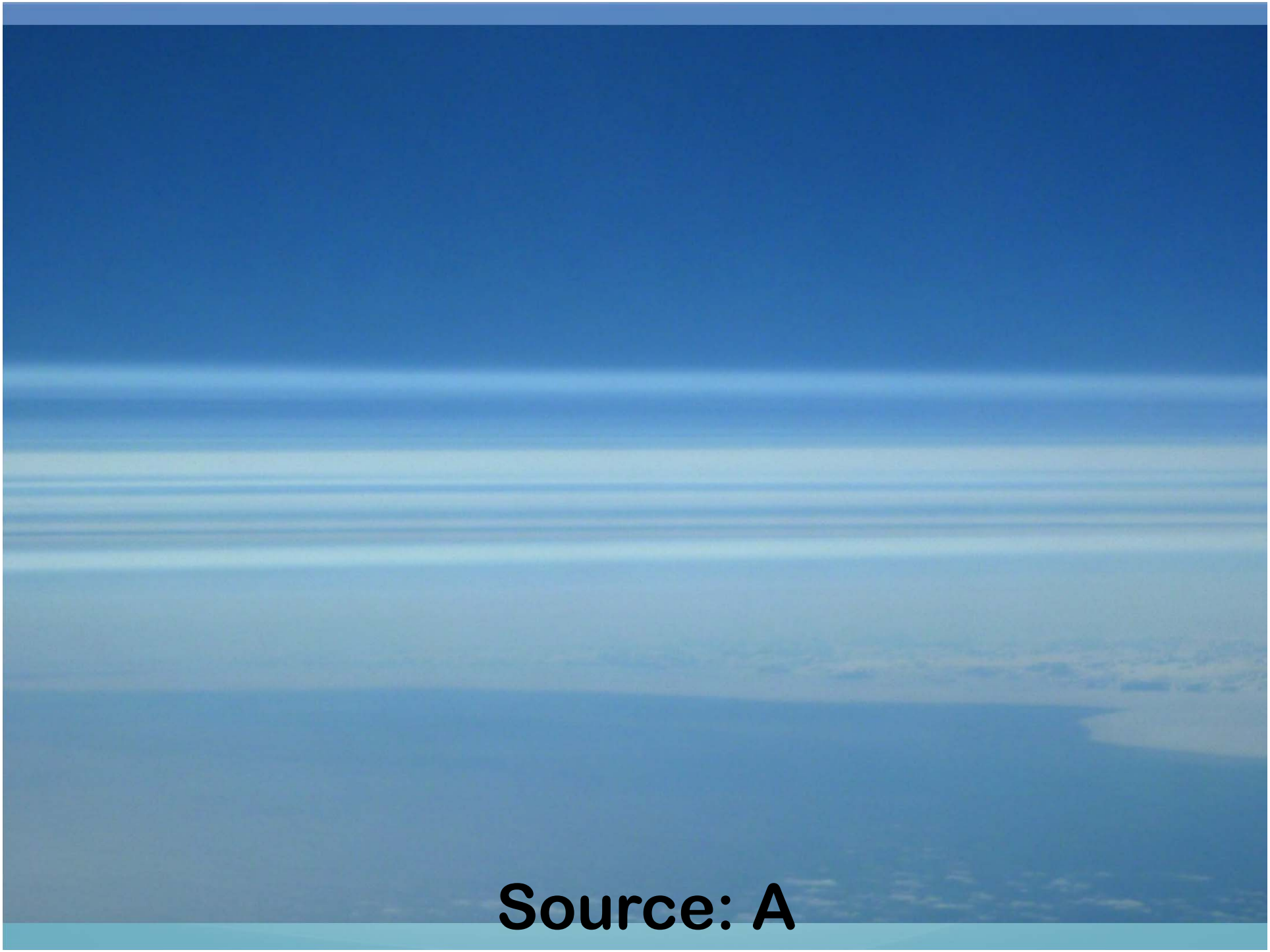
Three of the sources are volcanos – the fourth source of the ´something´ were forest fires.

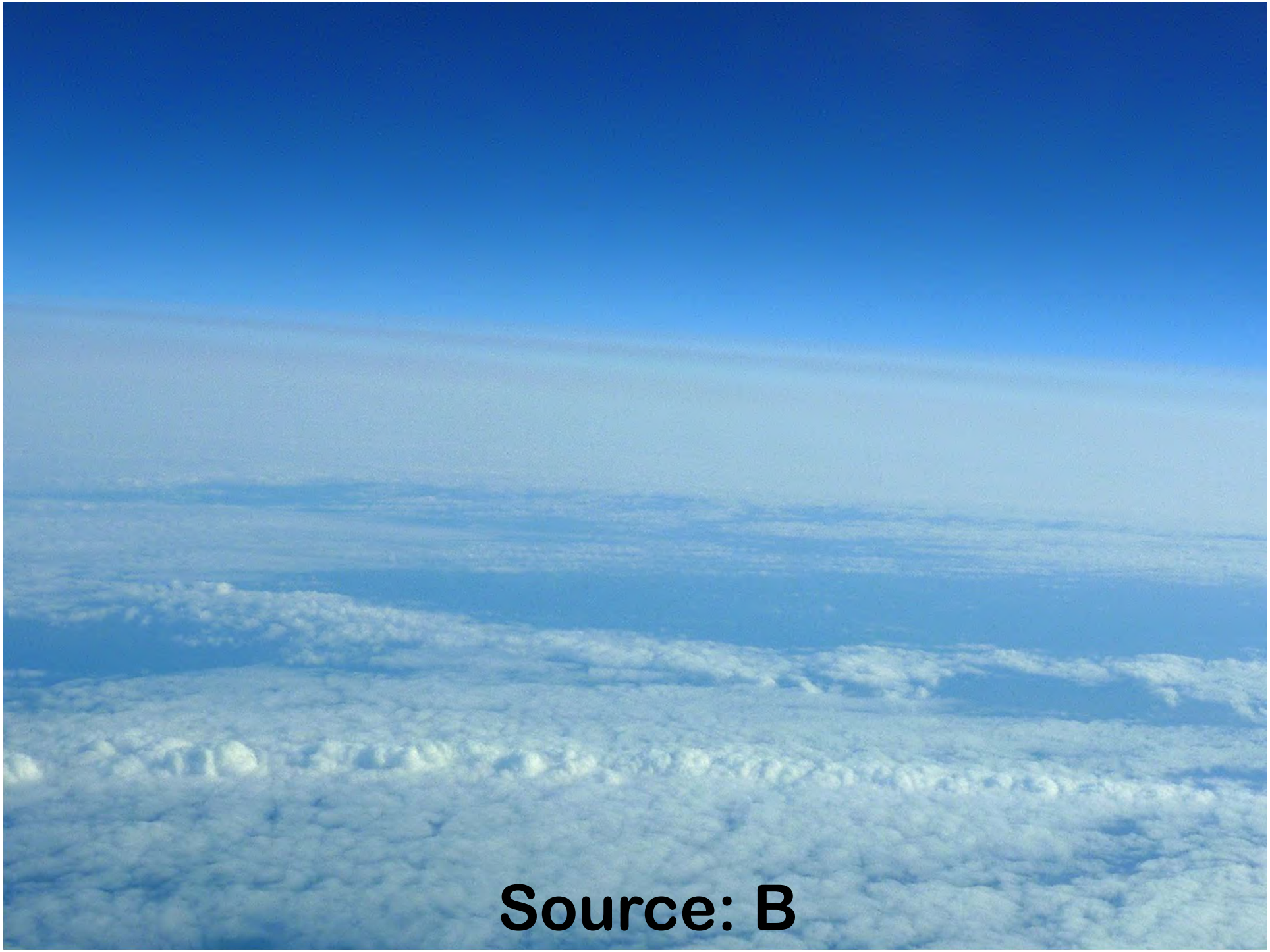
Try to find out which pictures show ´something´ of organic origin, smoke from forest fires: A, B, C or D.

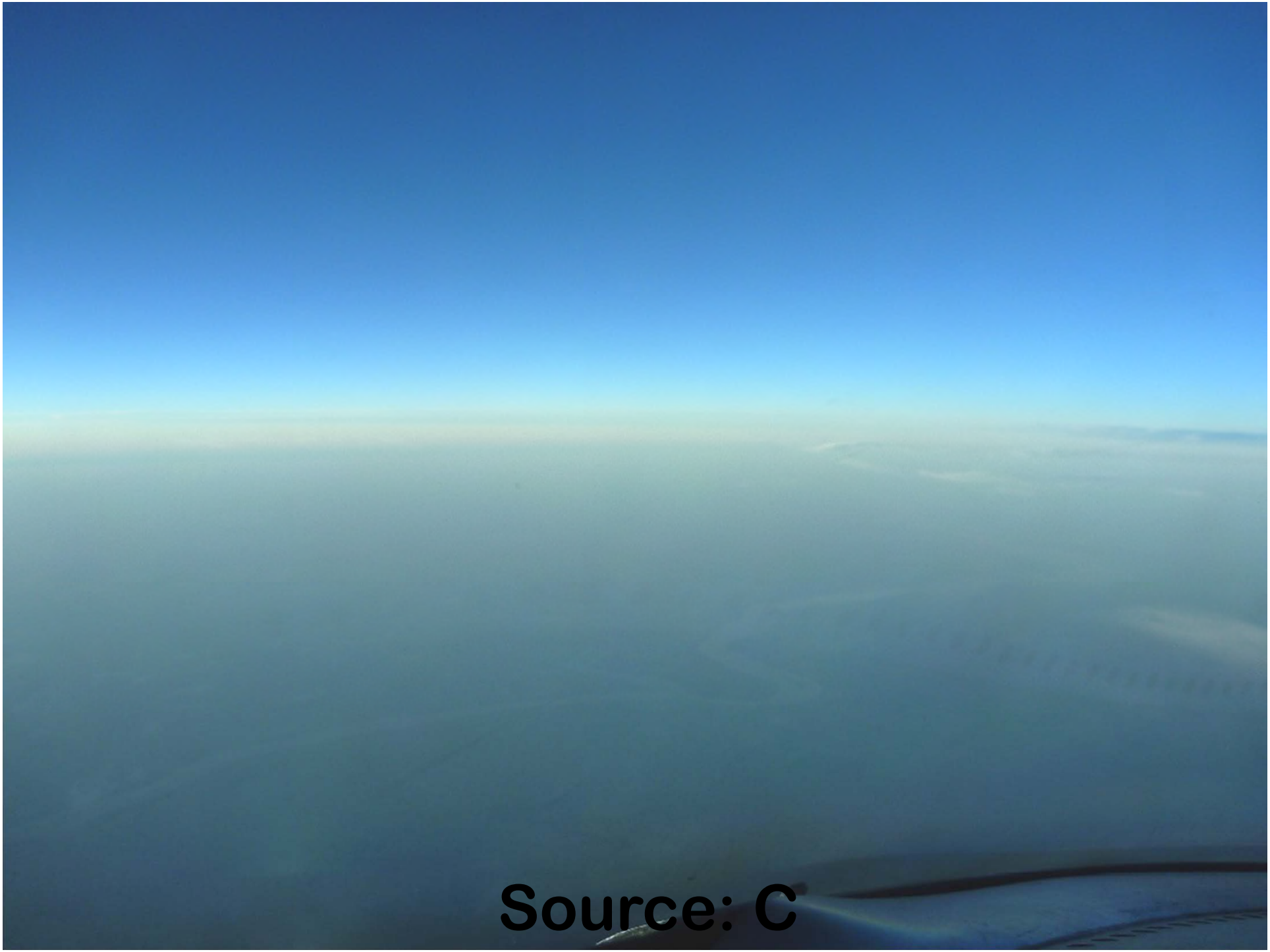

Source: A


Source: B

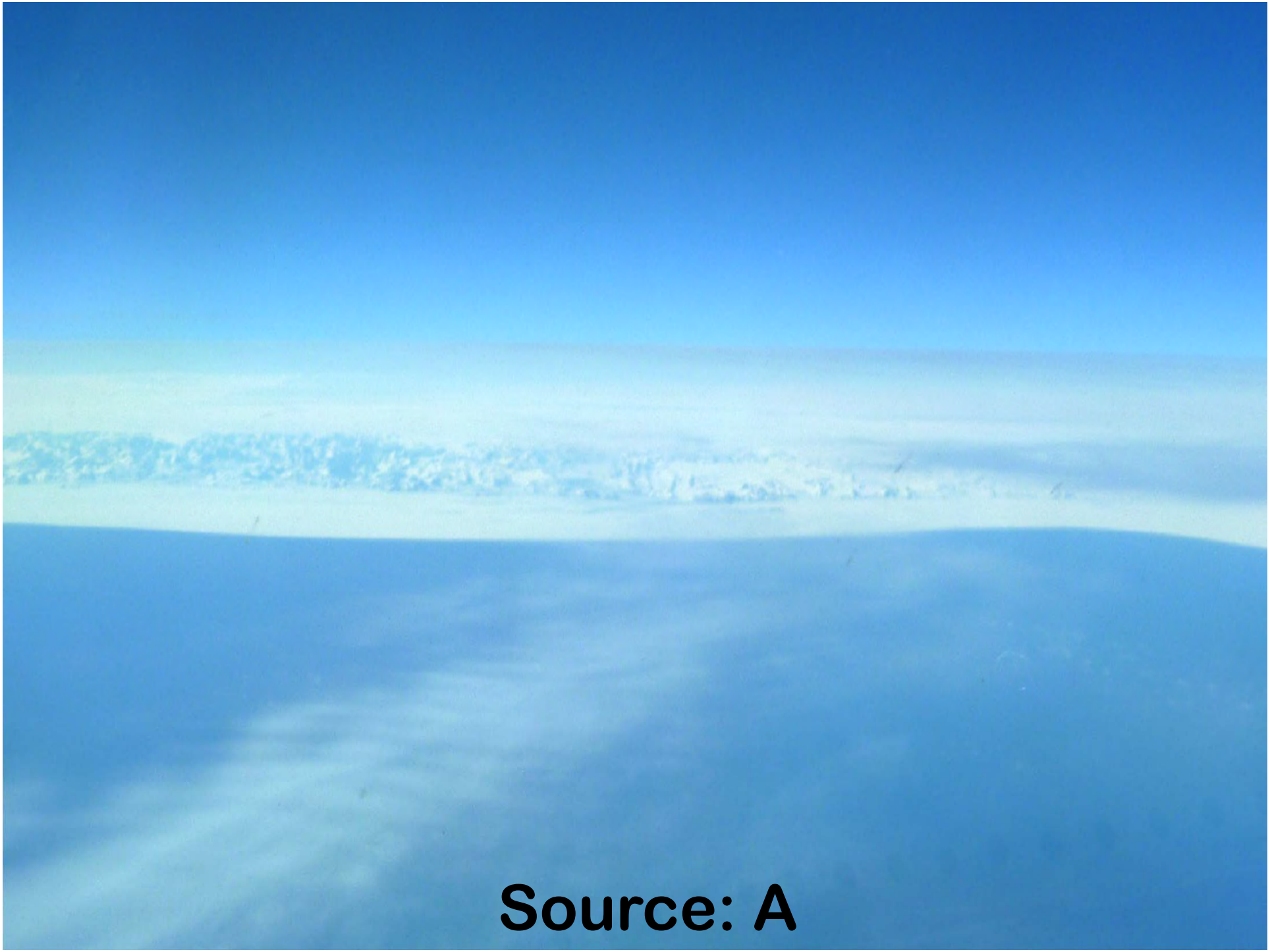

Source: D

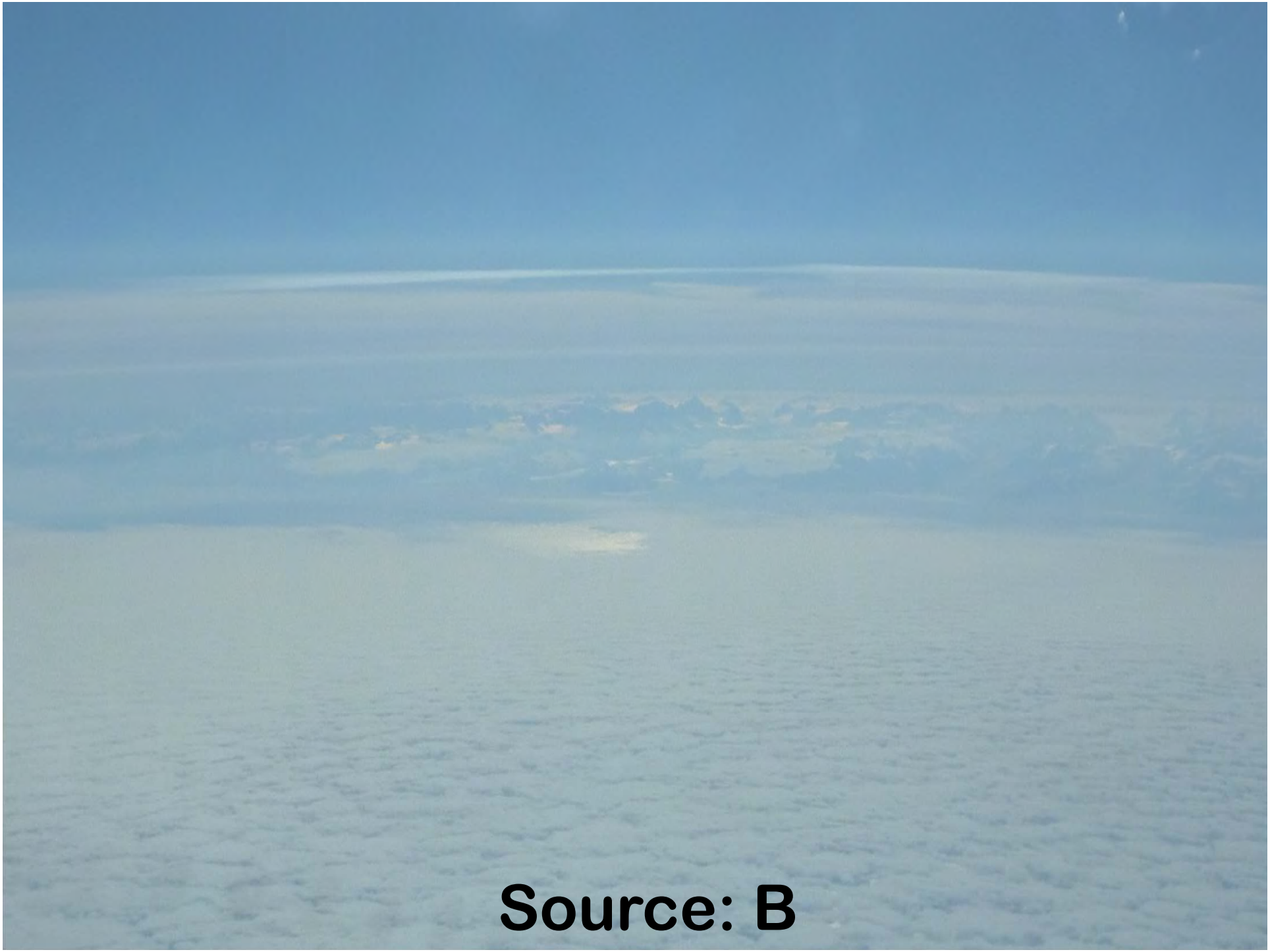

Source: A


Source: B

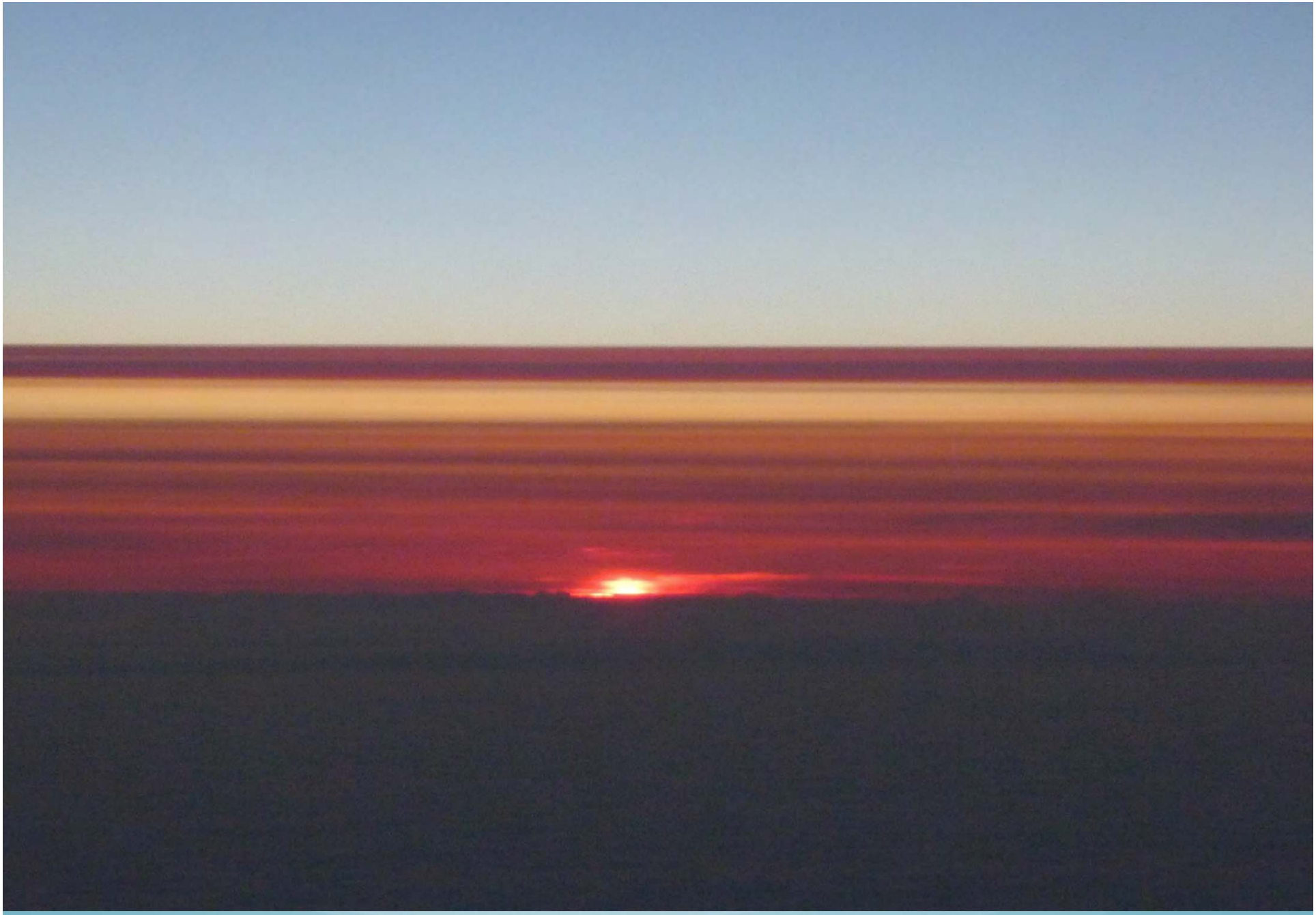

Source: C


Source: D


Source: A


Source: B


Source: D



Source: A

Source: B

Source: D

The next slide contains the solution.

Which pictures show smoke / aerosol that was put into the air by forest fires ?

A ? B ? C ? D ?

Decoding:

Source A: Grimsvötn SO2 – cloud 2011

Source B: Smoke from forest fires and pyro-CB in Canada

Source C: Puyehue, 2011

Source D: Eyafjellajakull, 2010

Volcanic Ash: Setting the limit or not?

- Why to set the limits?
- What do we need to know?
- What do we have?
- What do we required?

WHY TO SET THE LIMITS?

It is of special interest to pilots defining the concept of "Visible Ash".

There is presently no clear threshold for the composition and concentration of ash that is hazardous to aviation.

WHAT DO WE NEED TO KNOW?

Pilots need to know the exact location and size of the of volcanic ash cloud and where it will be located in the future (FORECAST).

WHAT DO WE HAVE?

Currently, pilots have only:

- **Air manuals**
- **SOP**

To address the potential effects of "volcanic" ash.

Volcanic Ash

Condition: Volcanic ash is suspected when one or more of these occur:

- A static discharge around the windshield
- A bright glow in the engine inlets
- Smoke or dust on the flight deck
- An acrid odor.

Objective: To exit the ash cloud and restart engines if needed.

Caution! Exit the volcanic ash as quickly as possible. Consider a 180° turn. Consider a descending turn.

1 Don oxygen masks and smoke goggles, as needed.

2 Establish crew communications, as needed.

3 Autothrottle (if engaged) . . . . . .Disengage

If conditions allow, run the engines at idle thrust.

4 Thrust levers (both) . . . . . Close

This reduces possible engine damage or flameout, or both, by decreasing EGT.

5 ENGINE START switches (both) . . . . . FLT

6 PACK switches . . . . . HIGH

7 ENG ANTI–ICE switches (both) . . . . . .ON

8 WING ANTI–ICE switch . . . . . .ON

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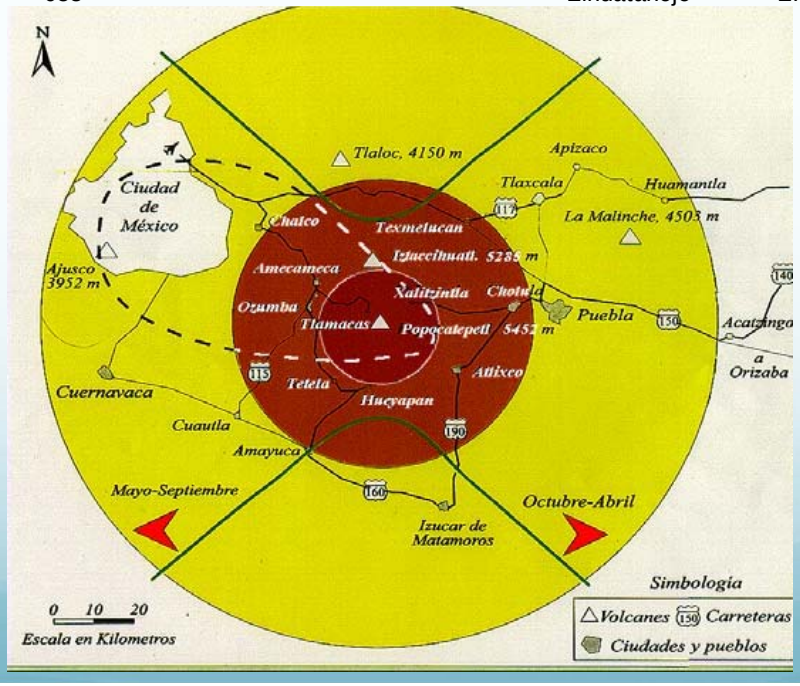
LUGARES CON PROBABILIDAD DE AFECTACIÓN DE ACUERDO CON LA DIRECCIÓN E INTENSIDAD DEL VIENTO, A PARTIR DEL CRÁTER

Dirección donde proviene el viento:	La ceniza se desplaza hacia:	
042º	Cuautla	CUA
068º	Cuernavaca	CVA
130º	A.I.C.M.	MEX
105º	Toluca	TLC
234º	Puebla	PBC
146º	Sta. Lucía	SLM
163º	Otumba	OTU
193º	Apan	APN
259º	Veracruz	VER
315º	Oaxaca	OAX
230º	Nautla	NAU
187º	Tampico	TAM
209º	Poza Rica	PAZ
128º	Querétaro	QET
141º	San Luis Potosí	SLP
104º	Guadalajara	GDL
105º	Morelia	MLM
122º	Bajío	BJX
124º	Aguascalientes	AGU
021º	Acapulco	ACA
058º	Zihuatanejo	ZIH



HERE IS WHERE THE REAL PROBLEM LIES

- How we defined volcanic ash visibility?
- How we can dicern it?
- What are the minimum values of visibility?
- What is the minimum concentration of ash?

If There is No answers!

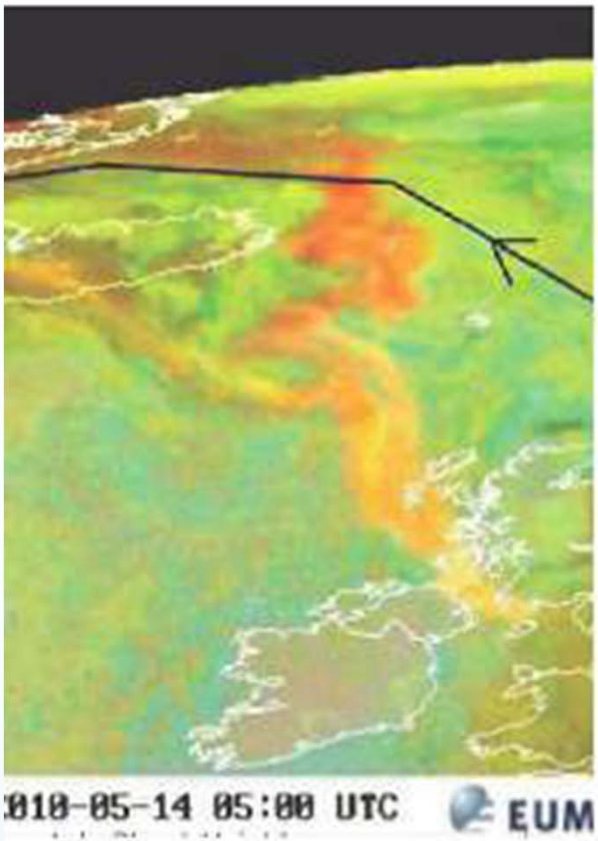
1. Avoid, Avoid, Avoid
2. PIREPS
3. Meteorological agencies
4. Satellite detection

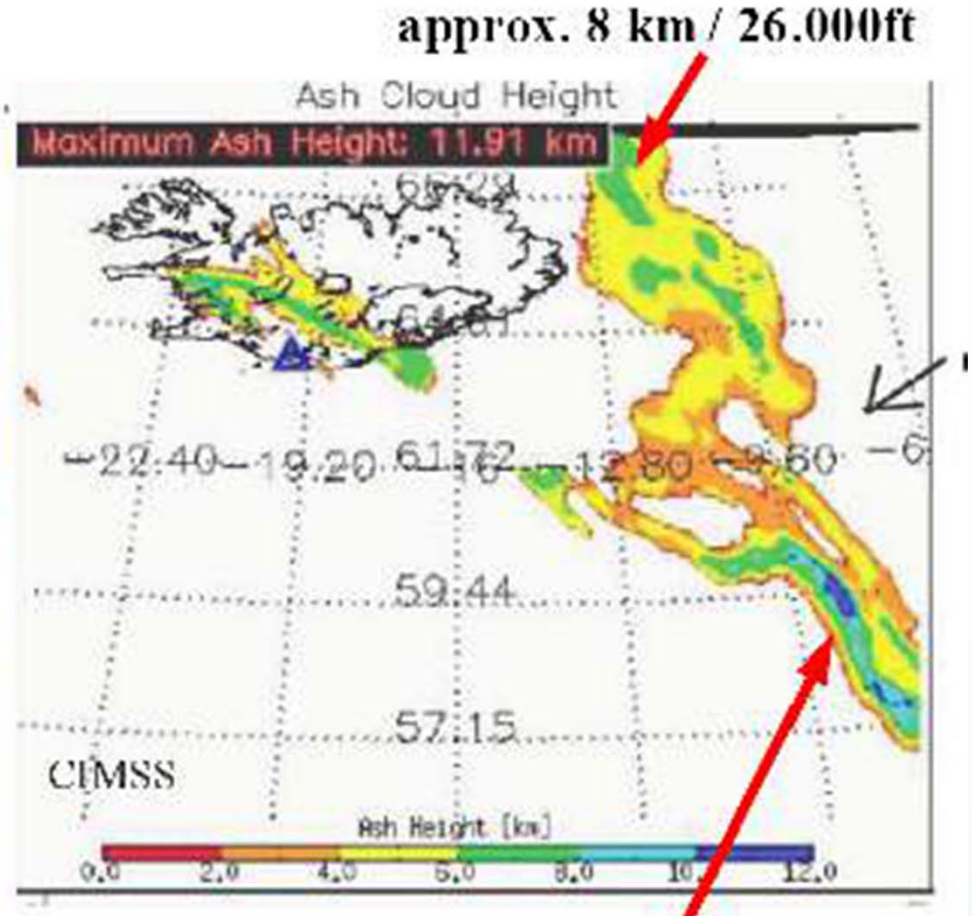
Basic rule: Avoid visible ash !

WHAT DO WE REQUIRED?

Dispatcher briefing a flightcrew on route-details.

Clear and easy to understand doc´s





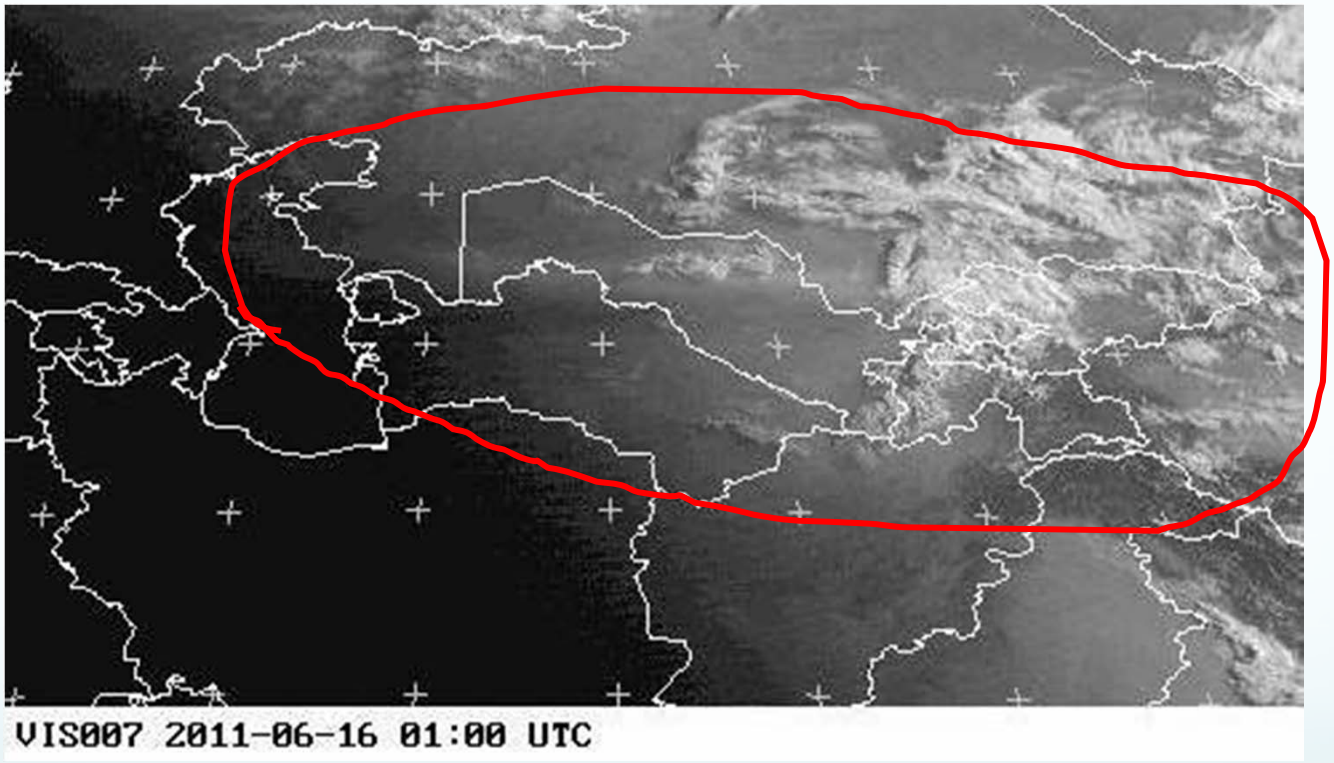
Good supplement / reality-check for VA charts. Requirement:

VA-sat-pictures with height & concentration.

12km, approx. 39.500 ft.

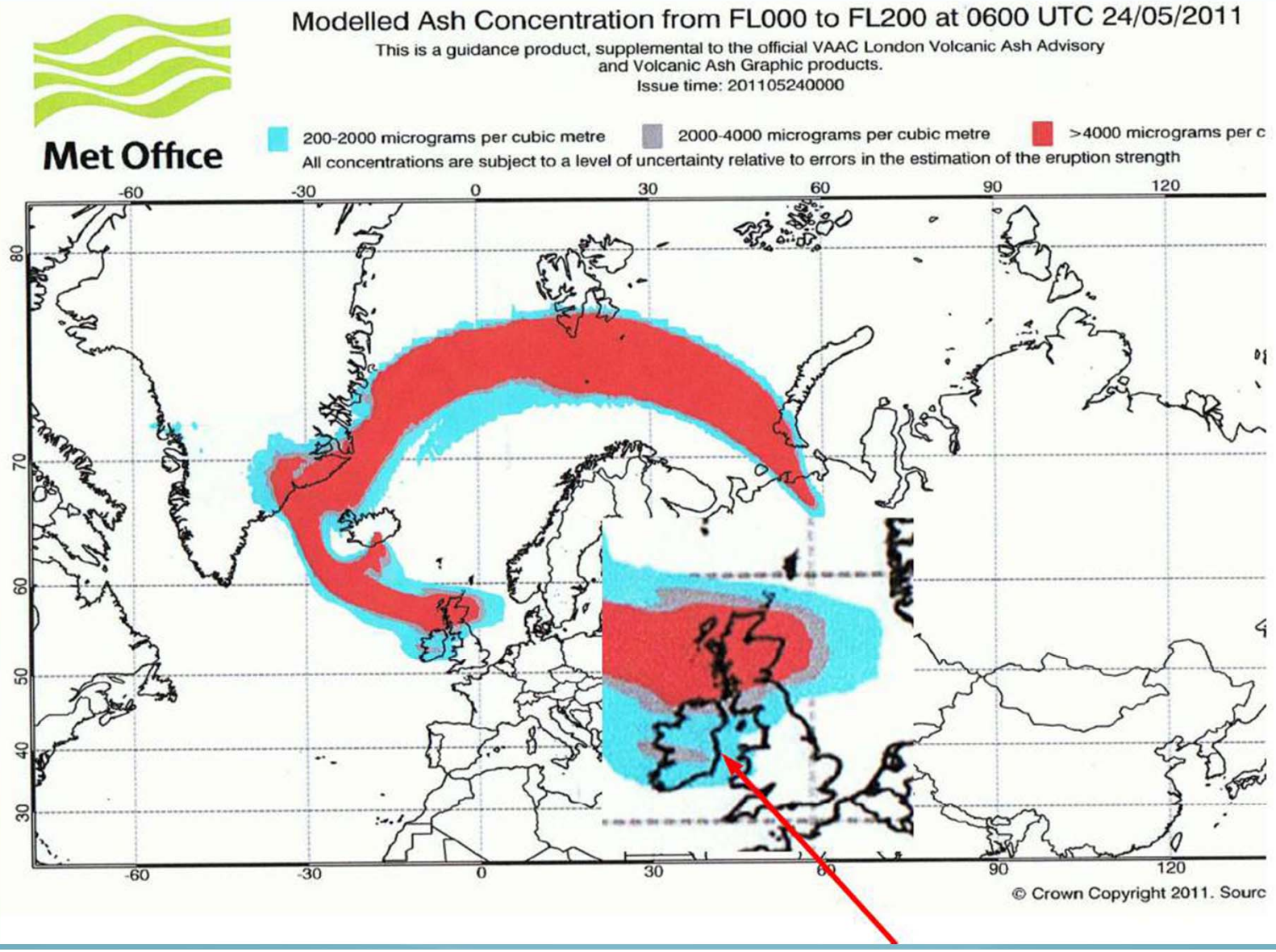
VA-satellite pictures with height and concentration info

Bands of volcanic SO2 aerosol / sulfate clouds from Nabro



Need S02- charts also forecast

Requirements to inform crews of fresh SO2 so they can prepare to avoid



¡ THANK YOU!

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