

Airlines and Volcanic Ash



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On behalf of IATA

A photograph of a volcanic eruption. A massive, dark, and billowing plume of ash and smoke rises vertically from a mountain range in the distance. The plume is dense and textured, with various shades of grey and black. The sky is a pale, hazy blue, and the foreground shows a dark, silty ash layer. The overall scene is dramatic and powerful.

**What happens if an aircraft
encounters volcanic ash?**

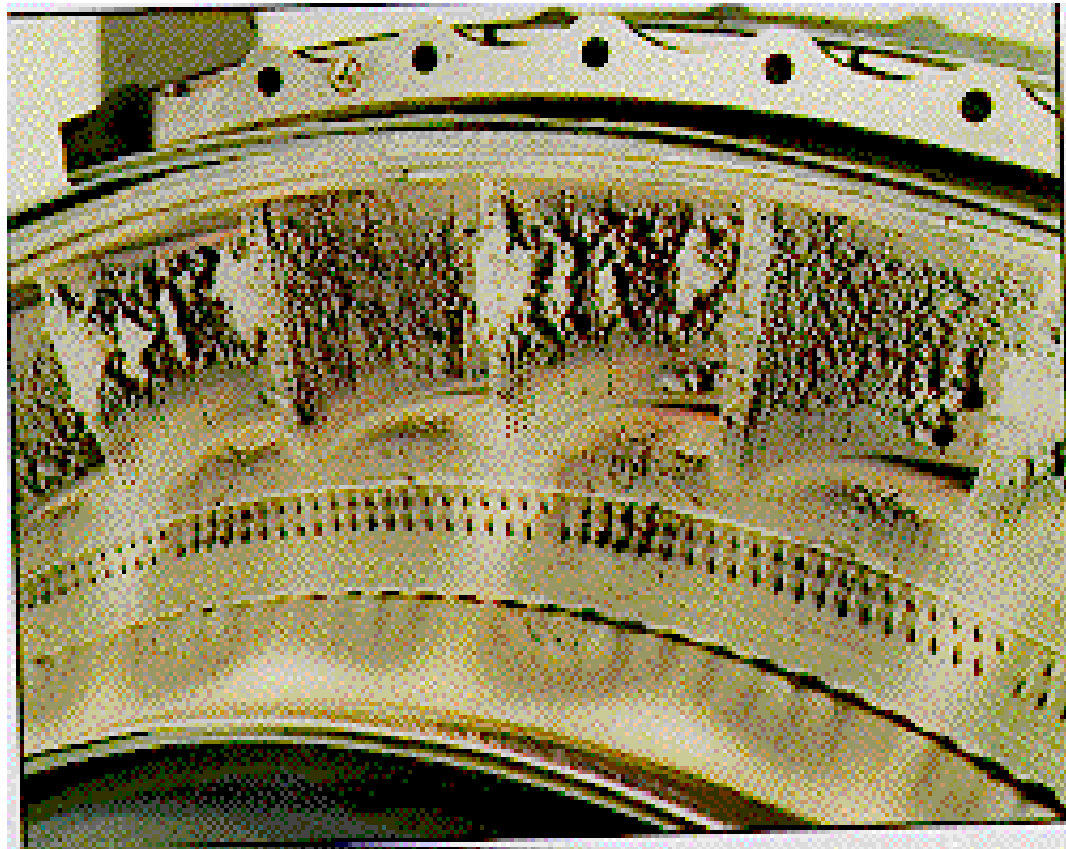
On ground

Aircraft and Airport cleaning



In air

Engine damage

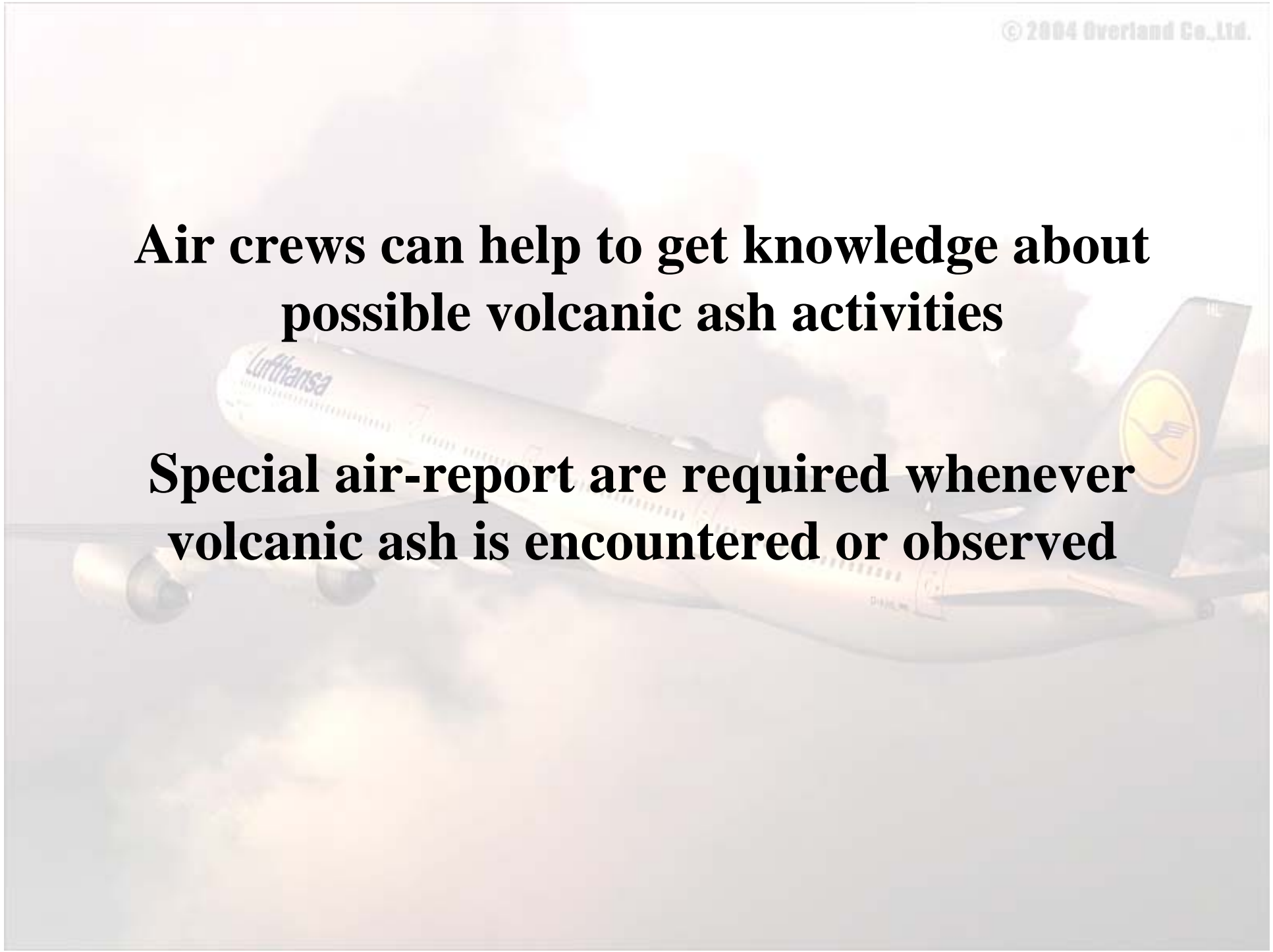


A photograph of a powerful volcanic eruption. A thick, dark plume of ash and smoke billows upwards from a mountain, filling much of the sky. The foreground shows a hazy landscape with some distant hills. The overall scene is dramatic and powerful.

Can airlines give any support?

Air crews can help to get knowledge about possible volcanic ash activities

Special air-report are required whenever volcanic ash is encountered or observed



A photograph of a volcanic eruption. A massive, dark, and billowing plume of ash and smoke rises vertically from a mountain range in the distance. The plume is dense and textured, with some lighter-colored ash falling from its base. The sky is a pale, hazy blue, and the foreground shows a dark, silty landscape. The overall scene is dramatic and powerful.

What can airlines do to avoid volcanic ash encounter?

What information is available in order to enable the dispatchers to select the most efficient route with regard to safety and economics?

What information is available for pilots?

- **Volcanic Ash Advisory (D)**
- **Volcanic Ash Charts (D,P)**
- **SigWx Charts (D,P)**
- **Upper Wind Charts (D,P)**
- **SIGMET ????? (P)**
- **Sat Images ????? (D,P)**

Is that sufficient and legal?

VOLCANIC ASH ADVISORY

ISSUED: 20070316/1233Z

VAAC: DARWIN

VOLCANO: Batu Tara 0604-26

LOCATION: S0747 E12335

AREA: Lesser_Sunda_Is

SUMMIT ELEVATION: 748M/2454FT

ADVISORY NUMBER: 2007/16

INFORMATION SOURCE: MTSAT-1R

AVIATION COLOUR CODE: YELLOW

ERUPTION DETAILS: LOW-LEVEL PLUME OBS AT 16/0533Z EXTENDING

APPROX 20NM TO E

OBS ASH DATE/TIME: 16/1230Z OBS

**ASH CLOUD: SFC/FL100 S0750 E12335 - S0805 E12340 - S0735 E12400 - S0750
E12335**

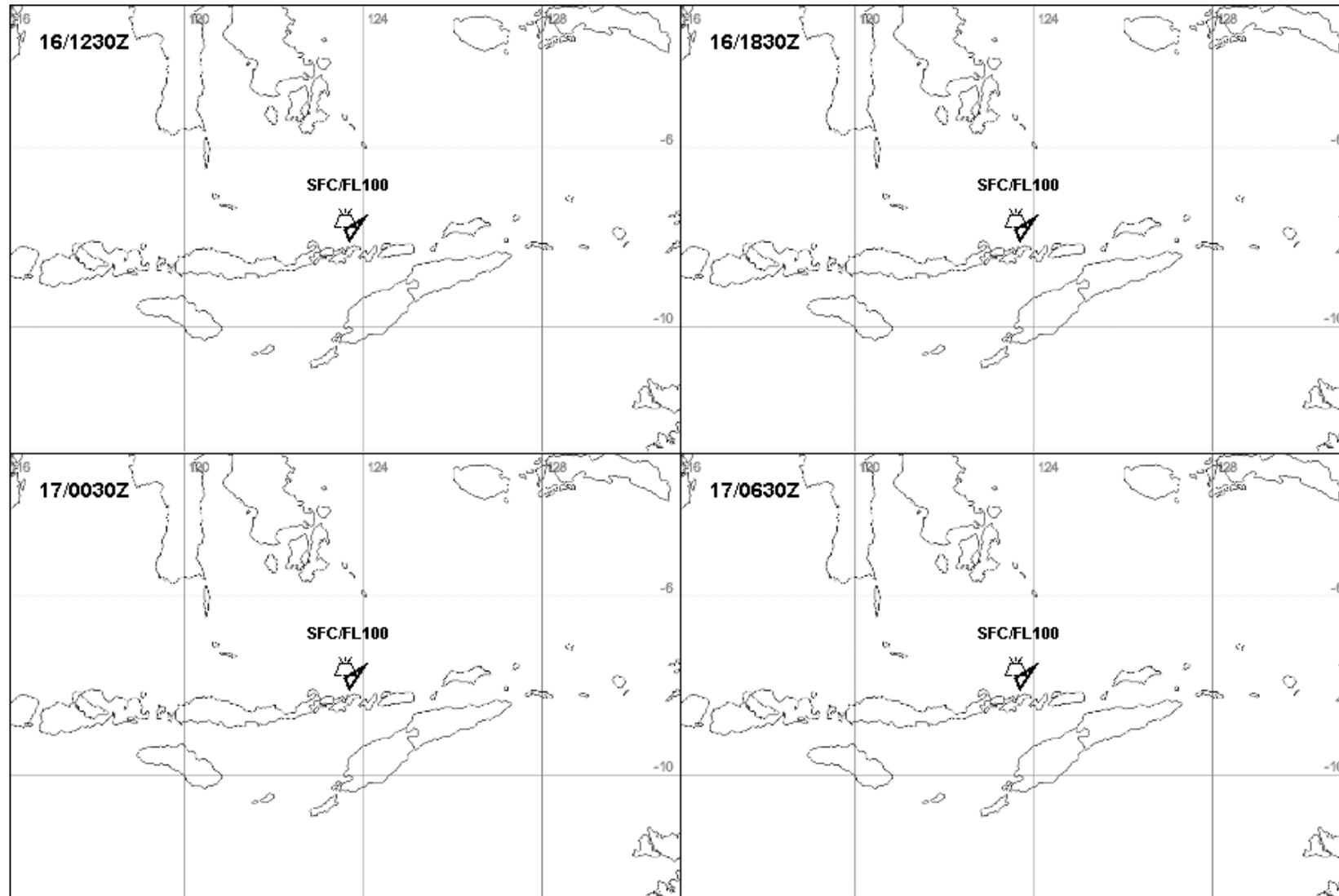
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E12400 - S0750 E12335**

**FCST ASH CLD +12HR: 17/0030Z SFC/FL100 S0750 E12335 - S0805 E12340 -
S0735 E12400 - S0750 E12335**

**FCST ASH CLD +18HR: 17/0630Z SFC/FL100 S0750 E12335 - S0805 E12340 -
S0735 E12400 - S0750 E12335**

NEXT ADVISORY: NO LATER THAN 20070316/1830Z

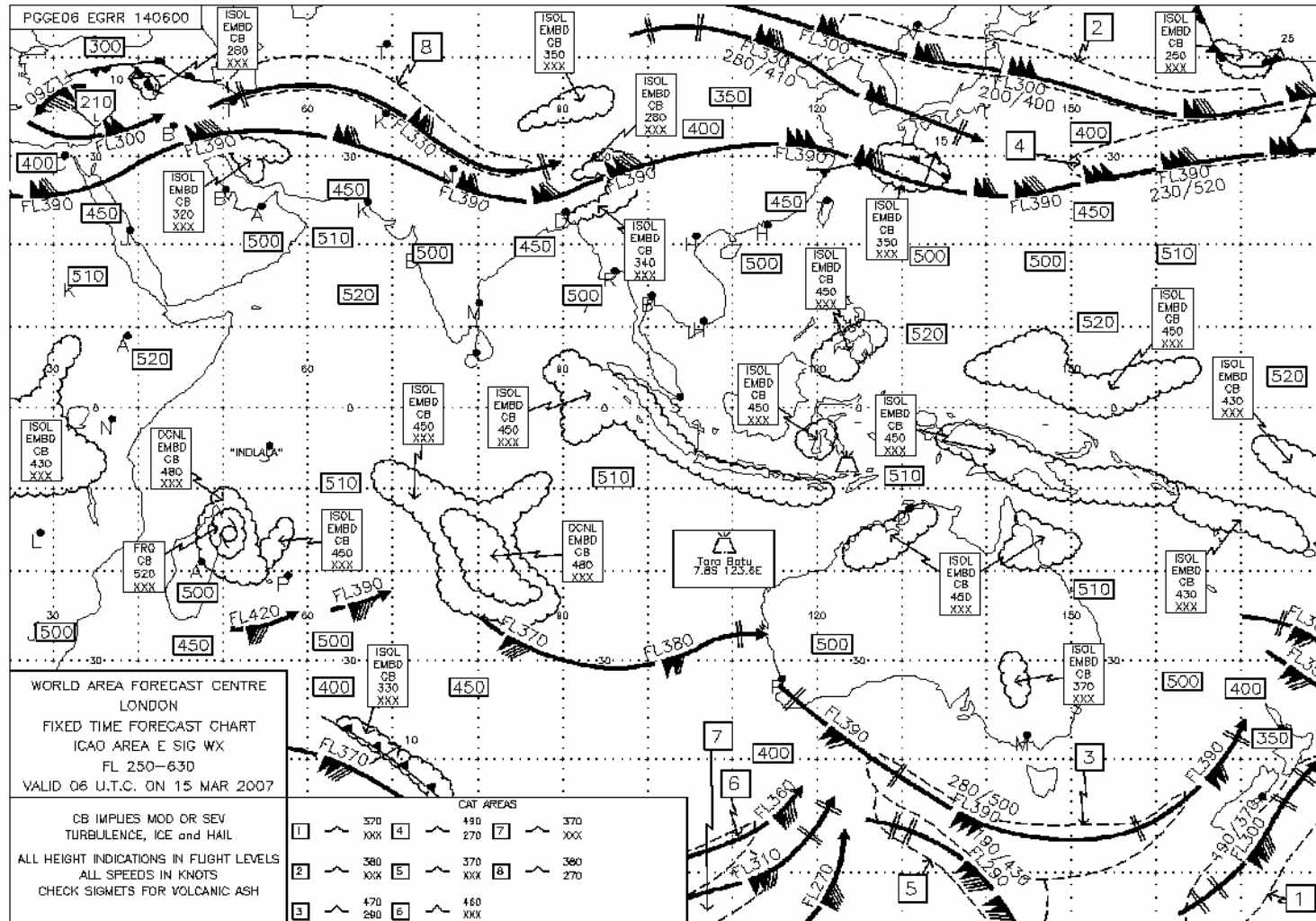
REMARKS: Graphic at [lower case] <http://www.bom.gov.au/info/vaac/advisories.shtml>



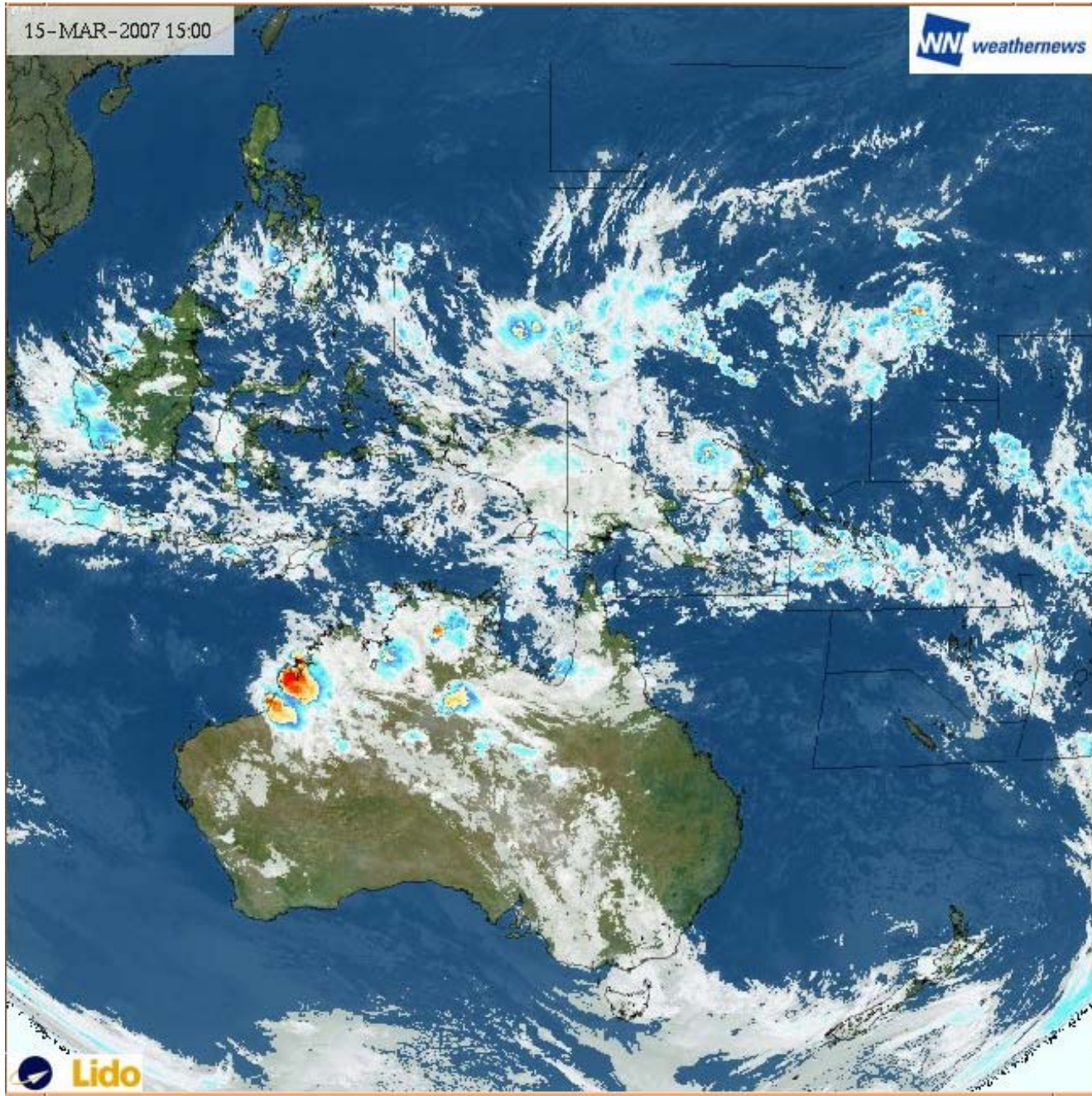
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15-MAR-2007 15:00

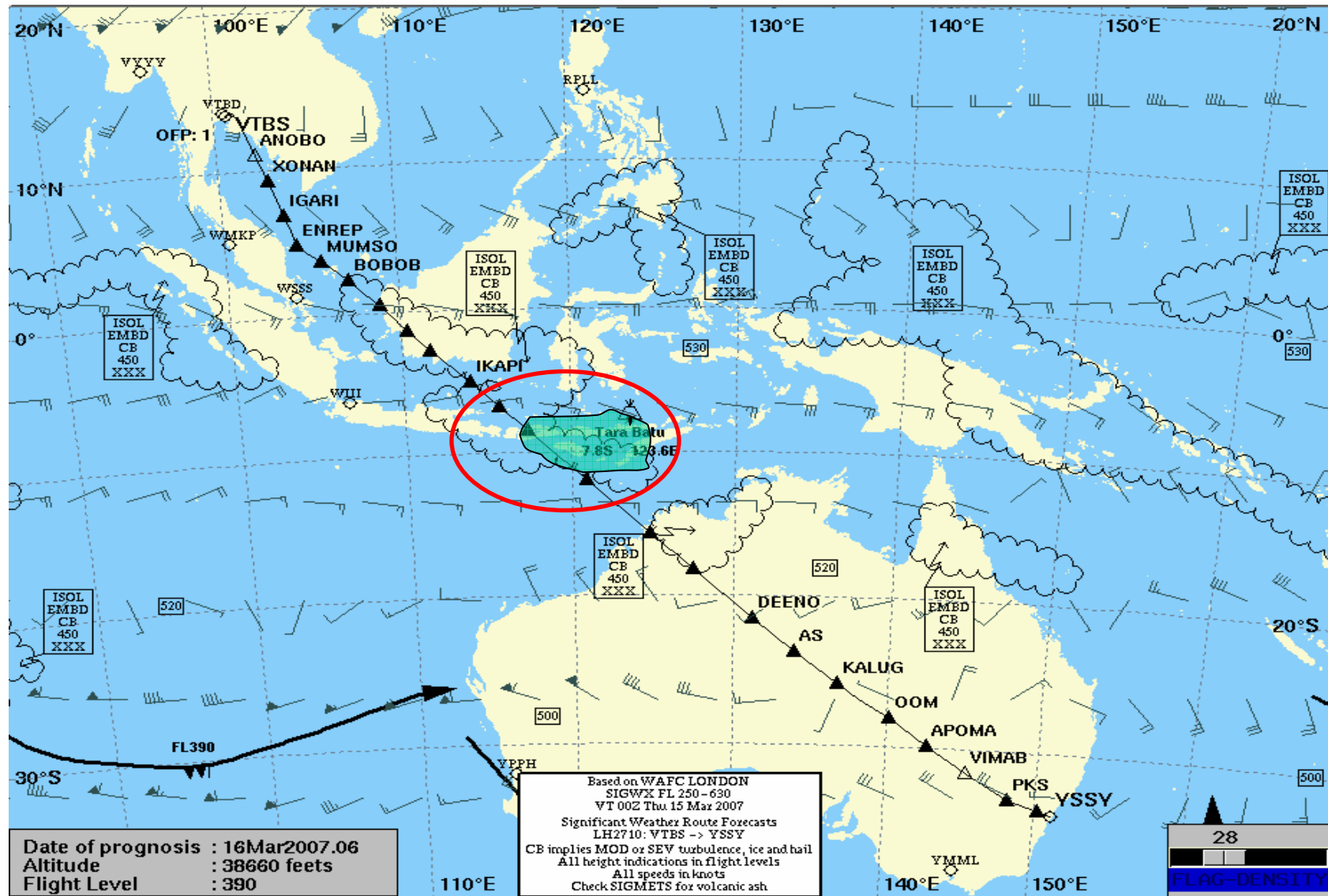


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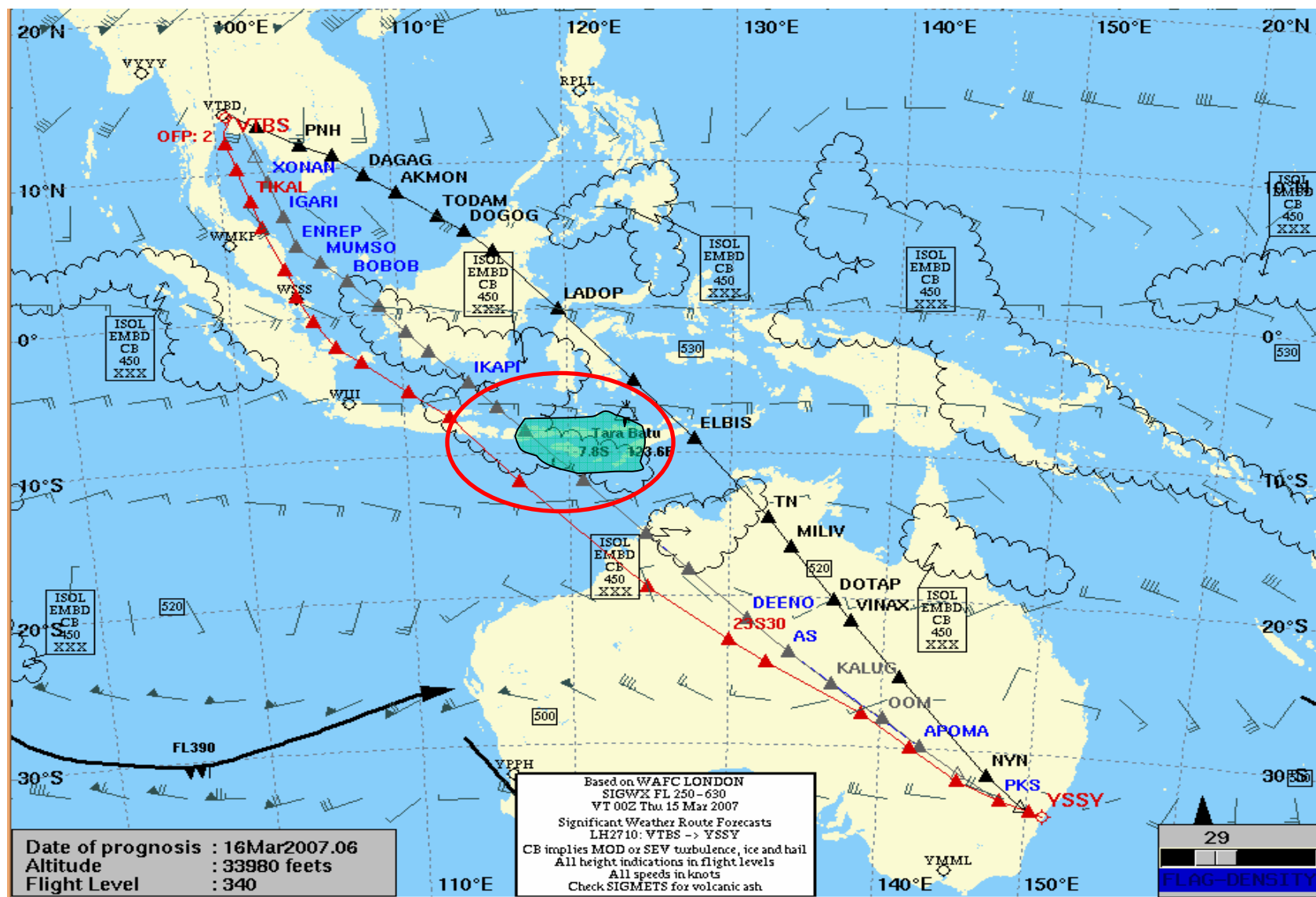
A photograph of a volcanic eruption. A massive, dark grey plume of ash and smoke rises vertically from a mountain range in the distance, filling a significant portion of the sky. The foreground shows a hazy, greenish landscape. The sky is a clear, pale blue. The text is overlaid in the center of the image.

What can airlines do to avoid volcanic ash encounter during flight planning phase?




Flight Optimization



Flight Additional Route Options



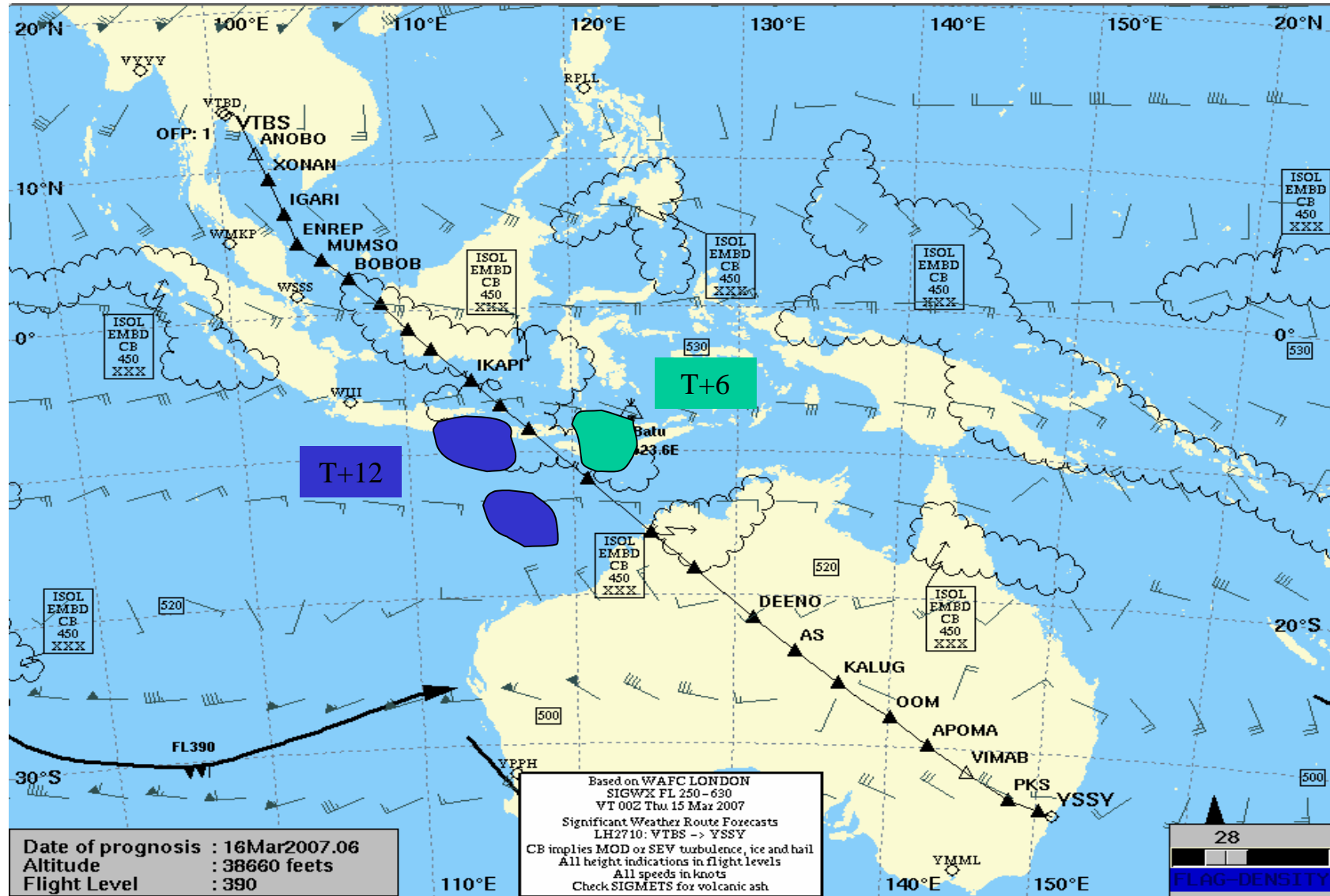
Flight Route Comparison

	Flight Time	Trip Fuel	Costs
	8h 56m	87065 kg	58679 USD
	8h 51m	85712 kg	58391 USD
	8h 54m	87402 kg	59427 USD

A photograph of a powerful volcanic eruption. A thick, dark plume of ash and smoke billows upwards from a mountain, filling much of the sky. The foreground shows a hazy landscape with some distant hills and a body of water. The overall scene is dramatic and powerful.

Problem VA Advisory?


VA Advisory Forecasts



A photograph of a powerful volcanic eruption. A thick, dark plume of ash and smoke billows upwards from a mountain, filling much of the sky. The foreground shows a hazy landscape with some distant hills. The text "Airlines Requirements" is overlaid in the center of the image.

Airlines Requirements

- Improve monitoring and detection techniques for volcanic activities
- Improve alerting system for volcanic activities
- **Improve dispersion models for volcanic activities (details about ash cloud density would be helpful)**
- Improve volcanic ash advisory message system for easy use in airline systems (standards, encoding, etc.)
- **Discuss the issuance of pre-eruption alerts and advisories**
- **Research the impact of volcanic density on aircrafts**

A photograph of a powerful volcanic eruption. A thick, dark plume of ash and smoke rises vertically from a mountain, expanding as it reaches higher altitudes. The foreground shows a hazy landscape with a body of water and distant hills. The sky is filled with the ash plume, and a bright light source, likely the sun, is visible on the right side, creating a lens flare effect.

Last Question

What is the critical density, size and composition of volcanic ash particles, which have dangerous impact to aircrafts in-flight?



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