



Eyjafjallajokull
Volcano
By
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[How to say Eyjafjallajokull](#)

Where?



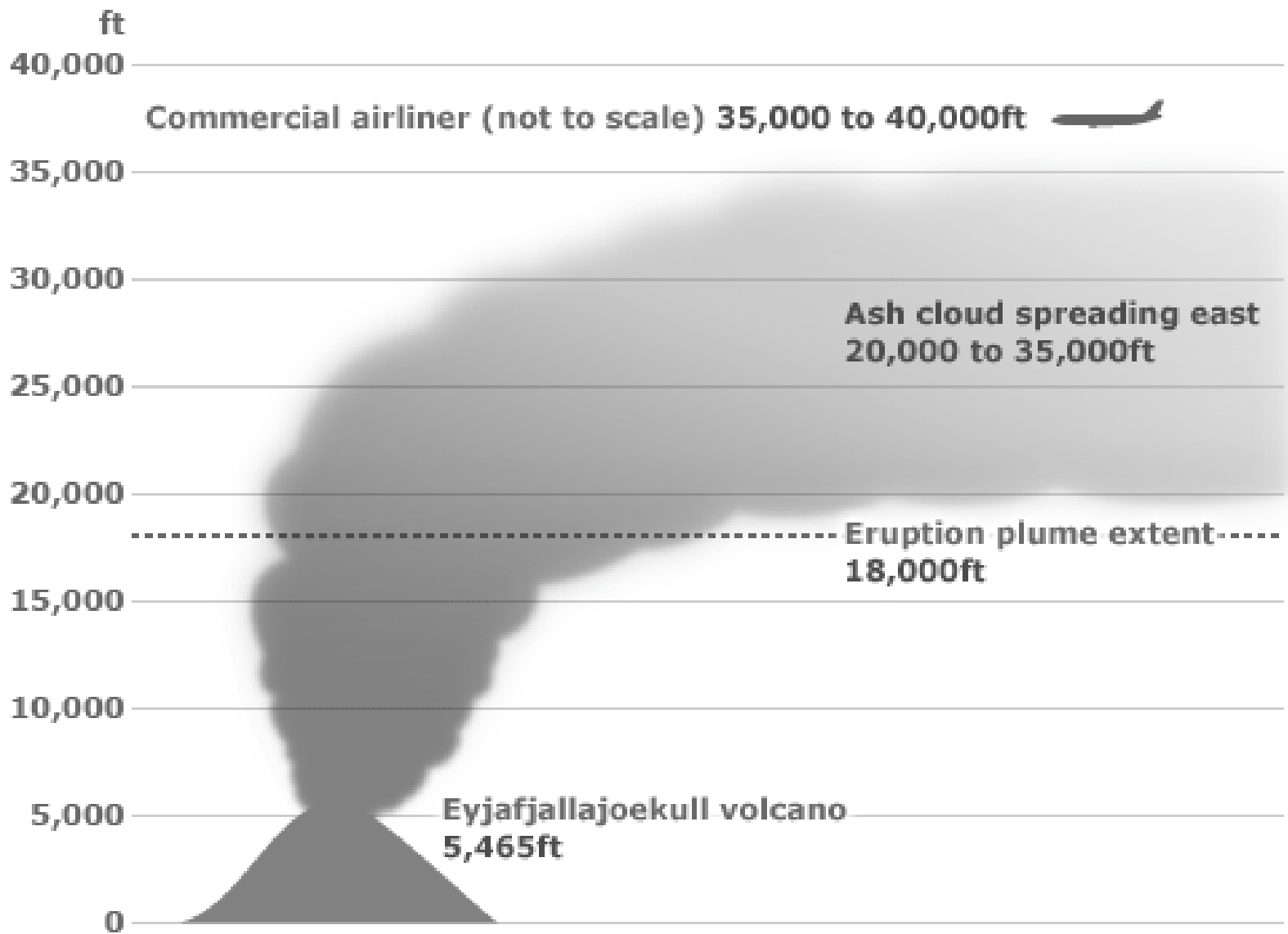
Eyjafjallajökull Glacier

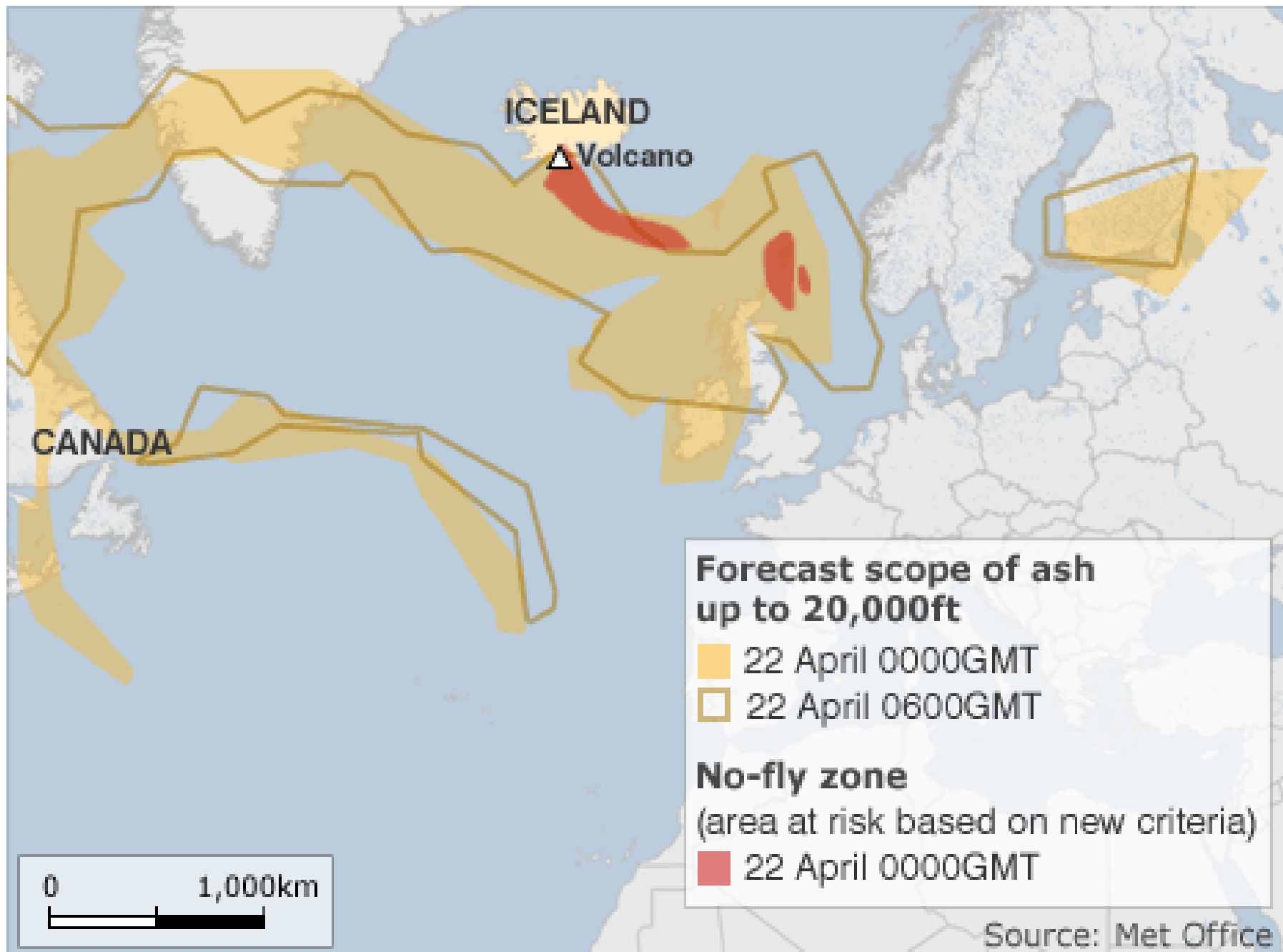
What Happened?

- Eruption occurred Saturday evening April 17
- Southern Iceland's Eyjafjallajökull glacier
- Emitting gaseous volcanic ash plume into the stratosphere (~32Km high!)
- Plume
 - Ash
 - Rock and Dust
 - Volatile Chemicals



Height of Icelandic volcano ash cloud





Effects: Short Term

- UK's National Air Traffic Control (NATS) closed parts of the continent's airspace for six days.
 - Grounding planes at London's Heathrow international airport.
- Cost airlines \$1.7 billion in lost revenue.
 - International Air Transport Association (IATA)

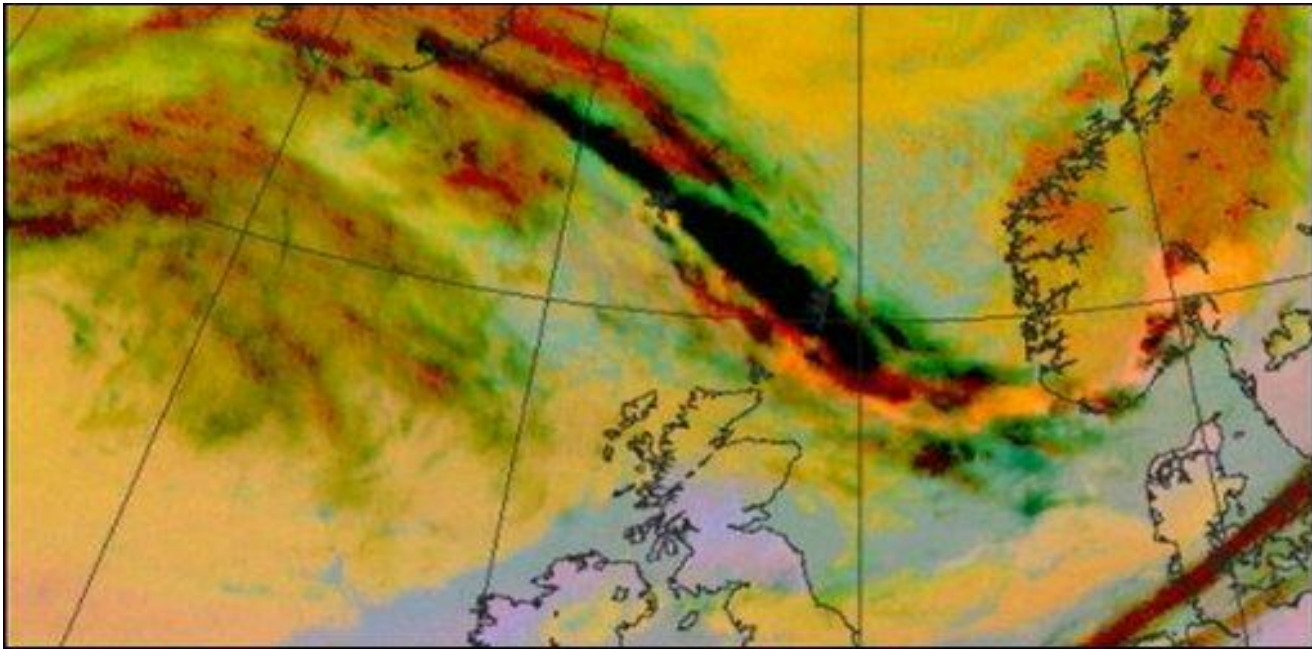
Why Close Air Space?

- Two sides
 - Commercial Airlines
 - Civil Aviation Authority



Commercial Airlines

- “Ash cloud posed little risk to air travel.”
 - Willie Walsh, British Airways CEO
- "Airspace was being closed based on theoretical models not on facts." - IATA

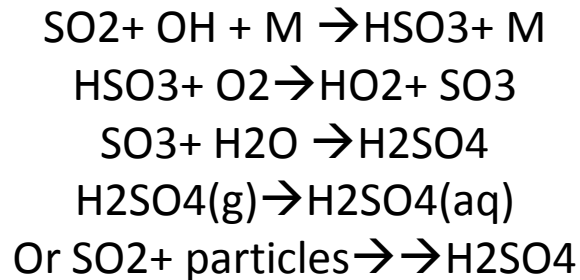


Civil Aviation Authority (CAA)

- “The decisions made were the right ones and we absolutely stand by those.” - Bristol, NATS spokesman
- "We would never be forgiven if we had let planes fly and there was a real danger to people's lives," - Prime Minister Gordon Brown

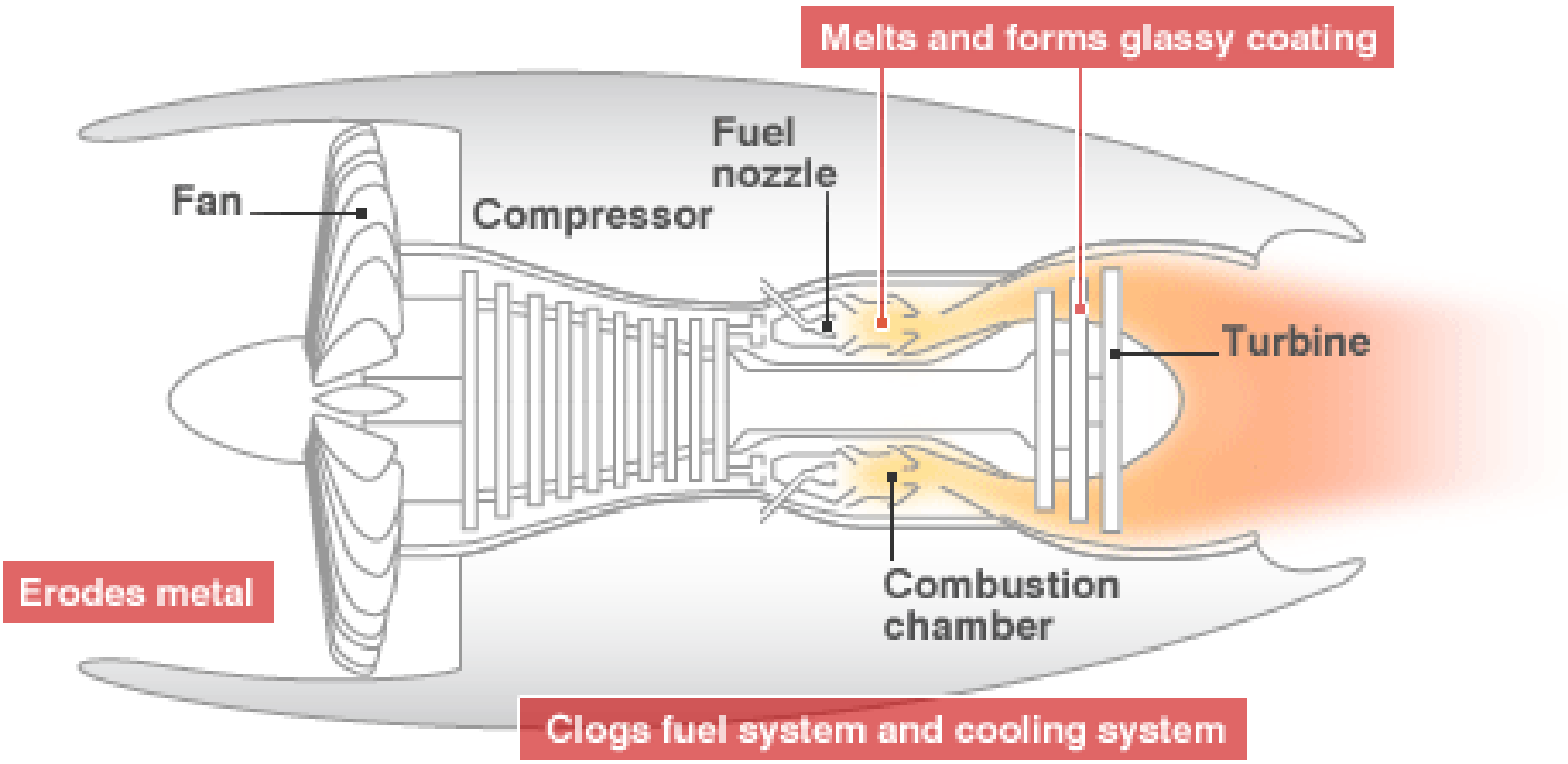
BUT WHY?

- Ash
 - “Experts say the tiny particles of rock, glass and sand contained in the ash cloud could jam aircraft engines, as has happened in previous incidents of planes flying into plumes of volcanic ash.”
- Volatile chemicals
 - Sulfate particles



- Sulfuric Acid corrodes metal on plane!

Effects of volcanic ash on jet engine



When is it safe to fly?

- Previous Rule: ZERO TOLERANC LEVEL!
- "The whole of Europe has been in the same position, acting according to the same aviation safety rules," - Prime Minister Gordon Brown

When is it safe to fly?

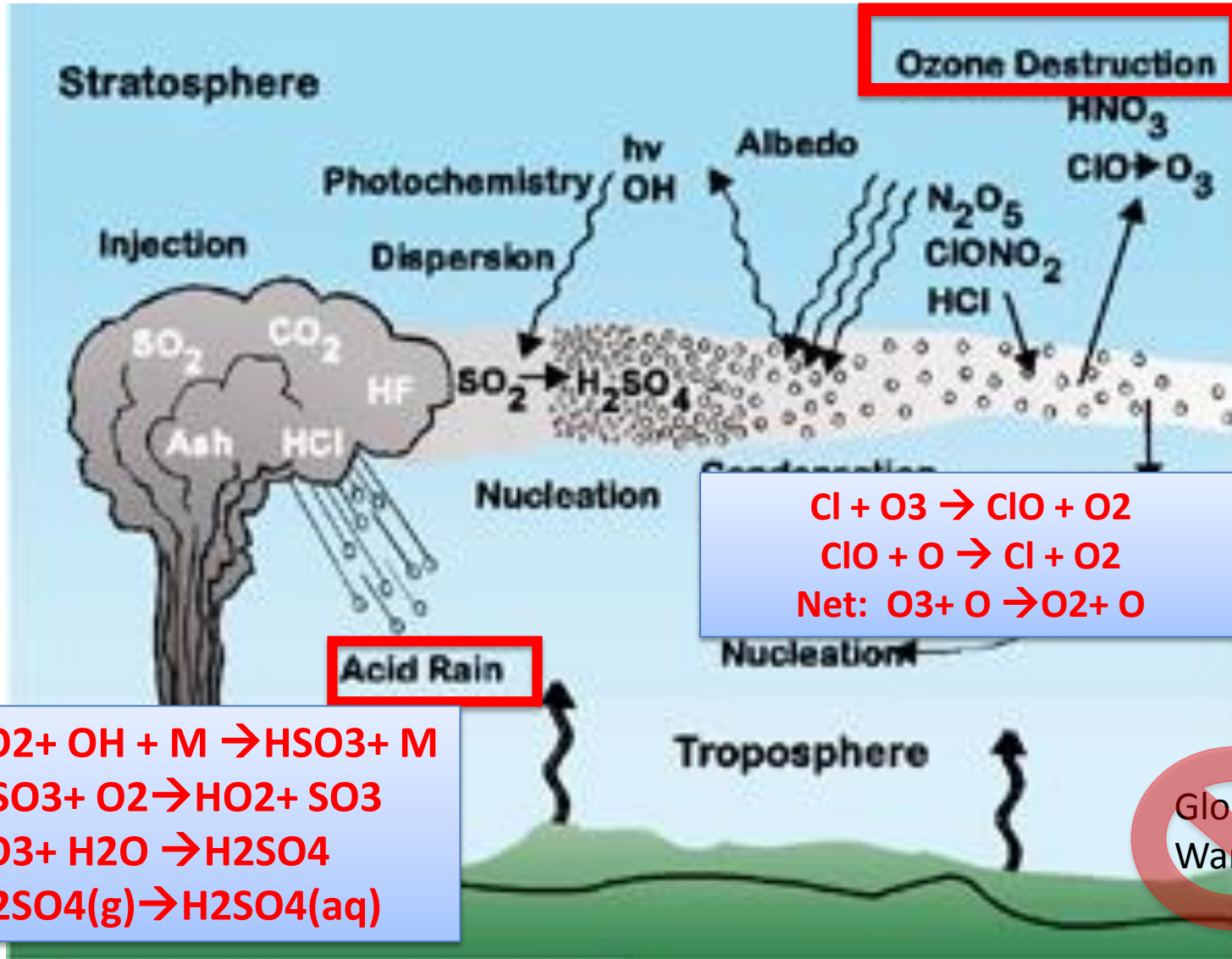
- New Rule:
 - Raised threshold of ash density in the atmosphere at which flying is deemed safe from zero to:
0.002 grams per meter cubed per hour
 - Civil Aviation Authority
- Engines have "increased tolerance levels in low ash density areas" – Civil Aviation Authority
- Under new regulation closer would not have happened!
- But how is ash density measured?

Method	Applications
Direct sampling	Collection of emissions in glass containers and on filters for laboratory chemical and isotopic analysis
Spectroscopic and remote sensing techniques	Ground-, airborne-, and satellite-based measurements of gases in volcanic plumes to obtain emission rates
Soil gas measurements	Determination of diffusive fluxes of volcanic gases in volcanic regions
Chemical sensors	Continuous in-situ monitoring of the concentrations of volcanic gases in fumaroles, soils, and ambient air
Leachate analysis	Determination of the amounts of gas adsorbed on surfaces of ash

Result

- Flights resumed Thursday April 22
- New regulation should prevent future closers
- Increased safety for European air travel
- "We're now at a situation where (engine manufacturers) know what their engines can cope with," he said. "It's something that shouldn't happen again because now we know what we're dealing with." –Bristol, NATS Spokesman

Other Effects: Long Term



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QUESTIONS?

