

# Christopher Nye

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Division of Geological & Geophysical Surveys

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## Message:

- There are lots of very active volcanoes in Alaska
- Hazards are international, national, and local in scale
- Our ability to monitor was adequate, but is eroding

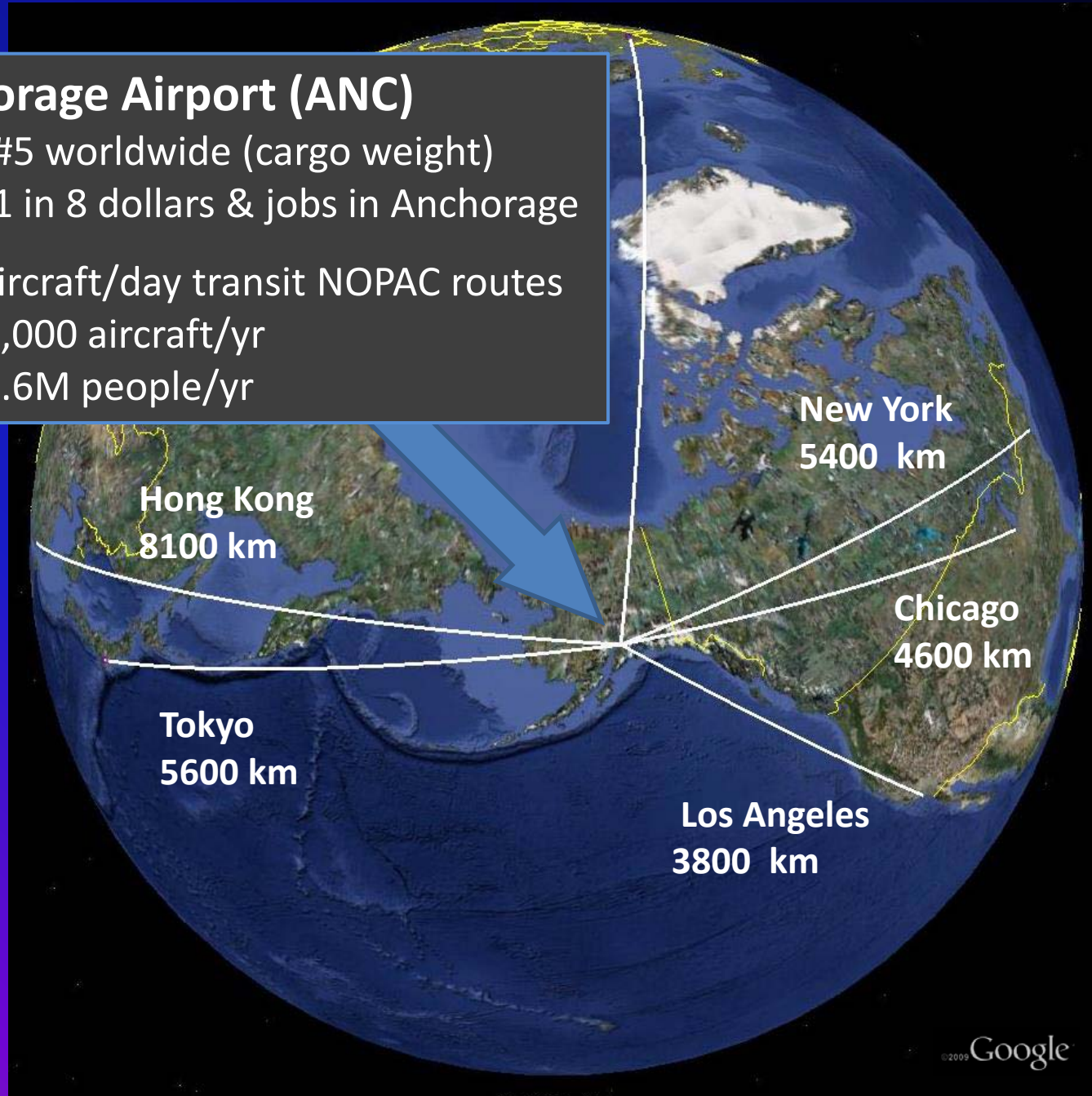




## Anchorage Airport (ANC)

- #5 worldwide (cargo weight)
- 1 in 8 dollars & jobs in Anchorage

~200 aircraft/day transit NOPAC routes  
73,000 aircraft/yr  
14.6M people/yr



## Kuriles (Russia)

- ~20 active volcanoes
- SVERT

## Active Alaska volcanoes

- 52 active within 250 yrs
- 90 active within 10,000 years
- 130 active within 2,000,000 years
- AVO (Alaska Volcano Observatory)

## Kamchatka (Russia)

- 30 active volcanoes
- Ash can blow into U.S. controlled airspace within hours
- KVERT

3243 km

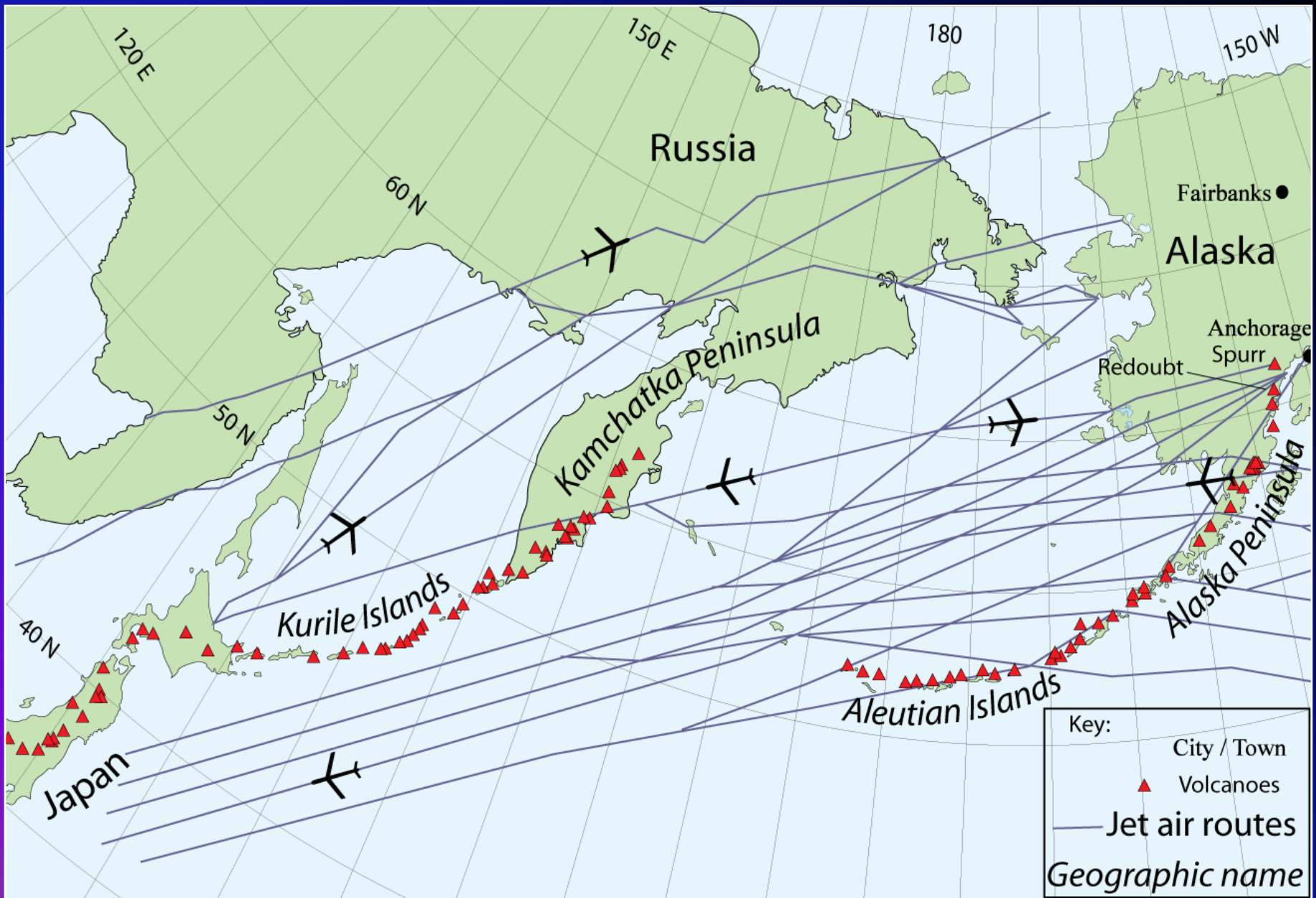
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US Dept of State Geographer

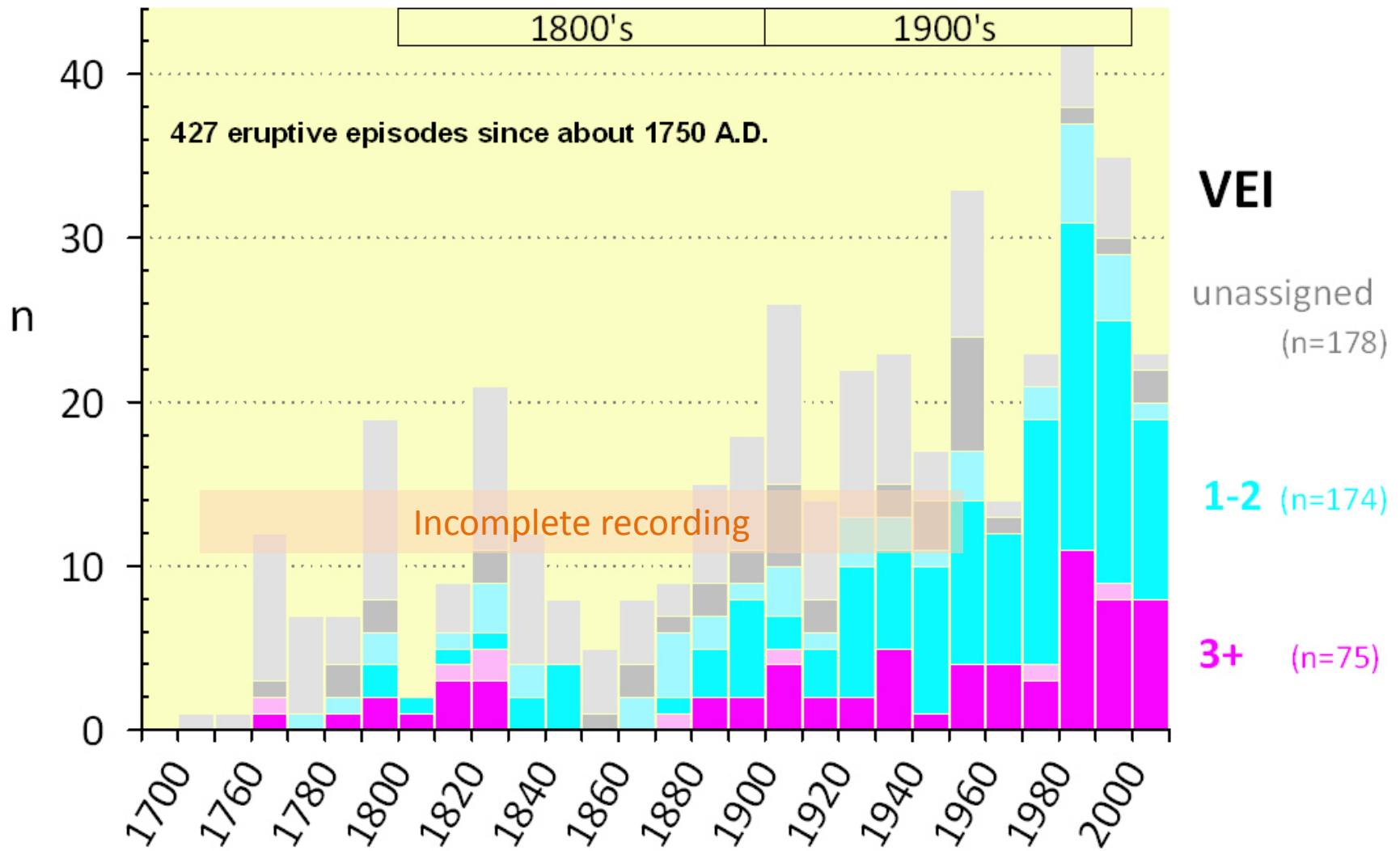
lat: 58.269950° lon: -178.627333° elev: -2714 m

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Eye alt: 4818.30 km



# Eruptions per Decade in Alaska



# Kasatochi – August 2008

unexpected eruption from an unmonitored volcano



**June 11,  
2008**



**August 23,  
2008**

- Far traveled ash cloud
- Largest SO<sub>2</sub> release worldwide since Pinatubo and Hudson (1991)
- Most energetic eruption yet monitored by AVO
- Devastation of island ecosystem (important seabird nesting site)




# Kasatochi SO2 Cloud

August 12, 2008



**Kasatochi  
Volcano**

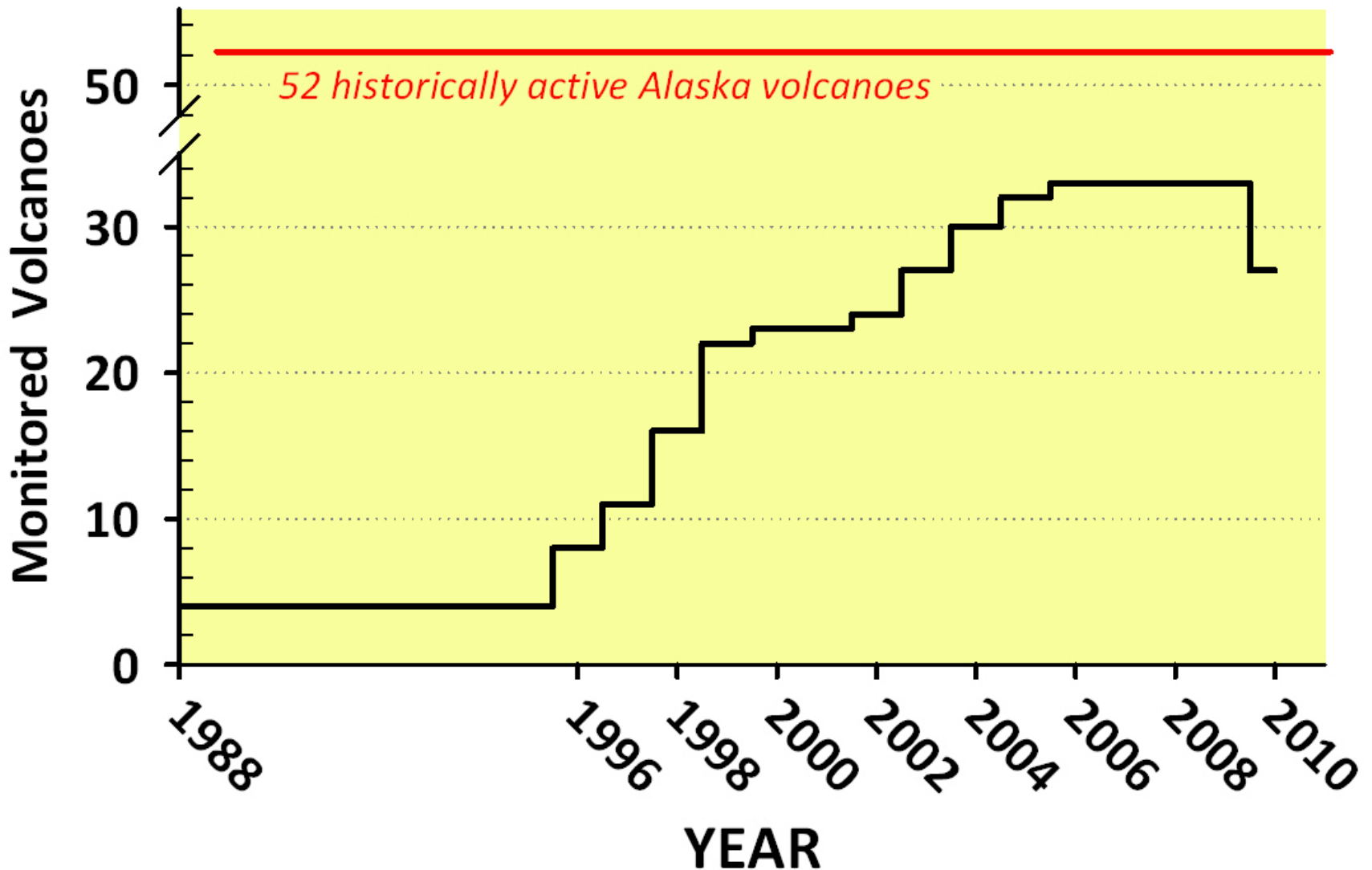
D. Schneider, AVO/USGS

An aerial photograph showing the Redoubt Volcano in the distance, partially obscured by a layer of ash. The foreground is dominated by a large, dark, ash-covered plain with scattered patches of snow. A winding road or path is visible in the lower right, leading to a small, rectangular, fenced-in area that appears to be a military or research installation. The sky is clear and blue.

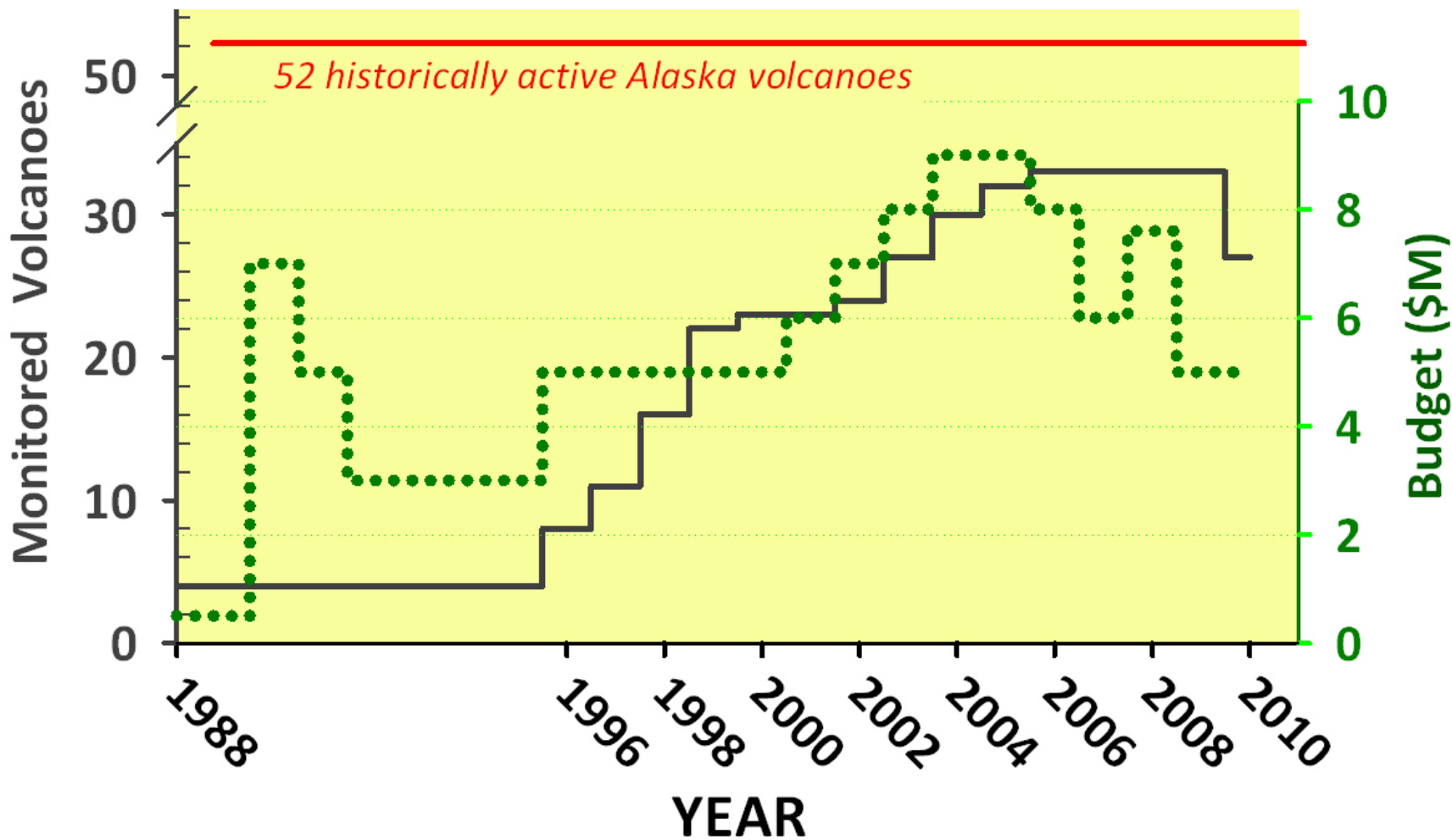
**Redoubt Volcano**  
**April 4, 2009 lahar**



# Real-time monitoring networks

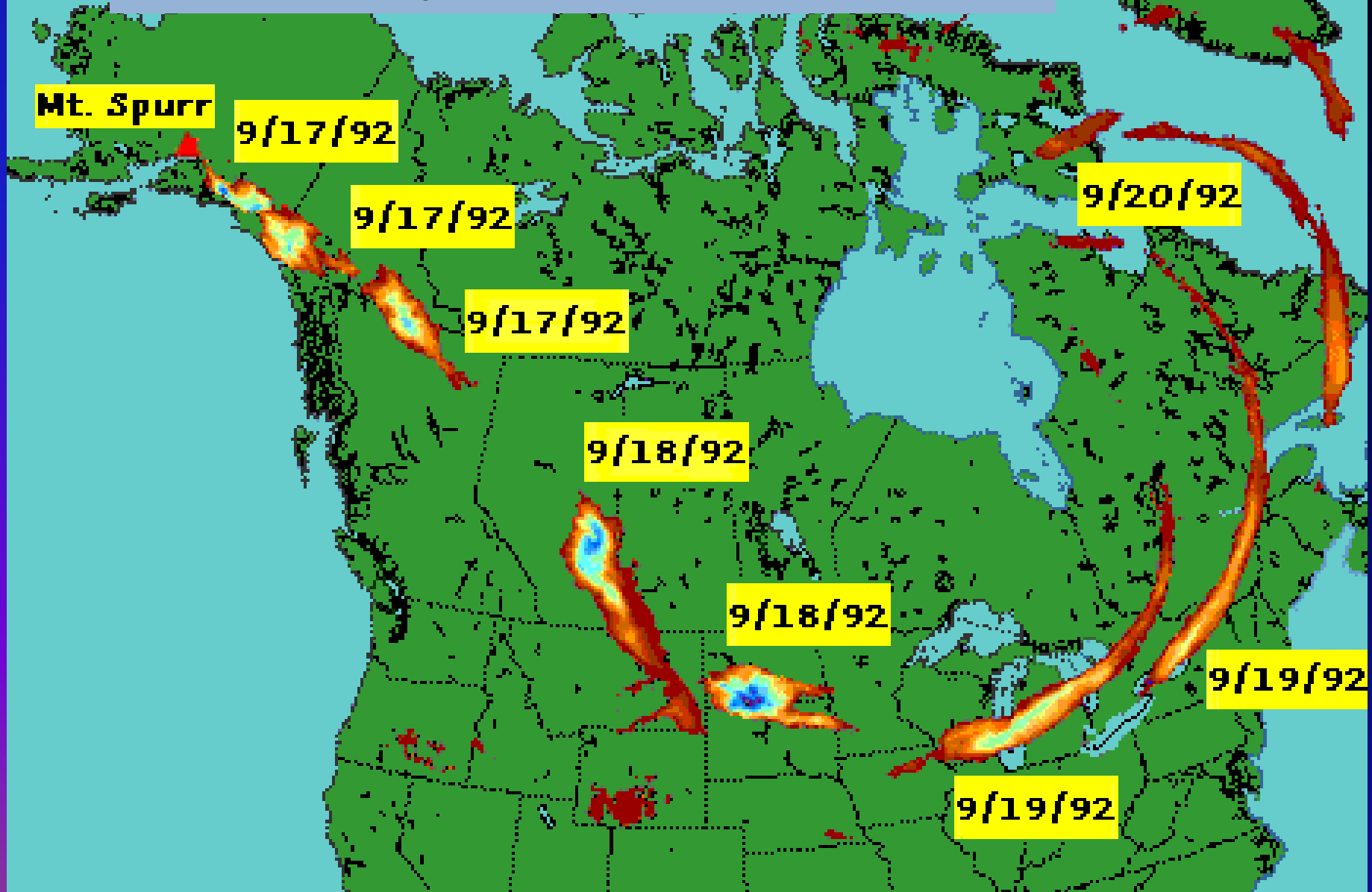


# Real-time monitoring networks



# Spurr, 1992

Air traffic disruption in eastern North America



# Cleveland Volcano 2001

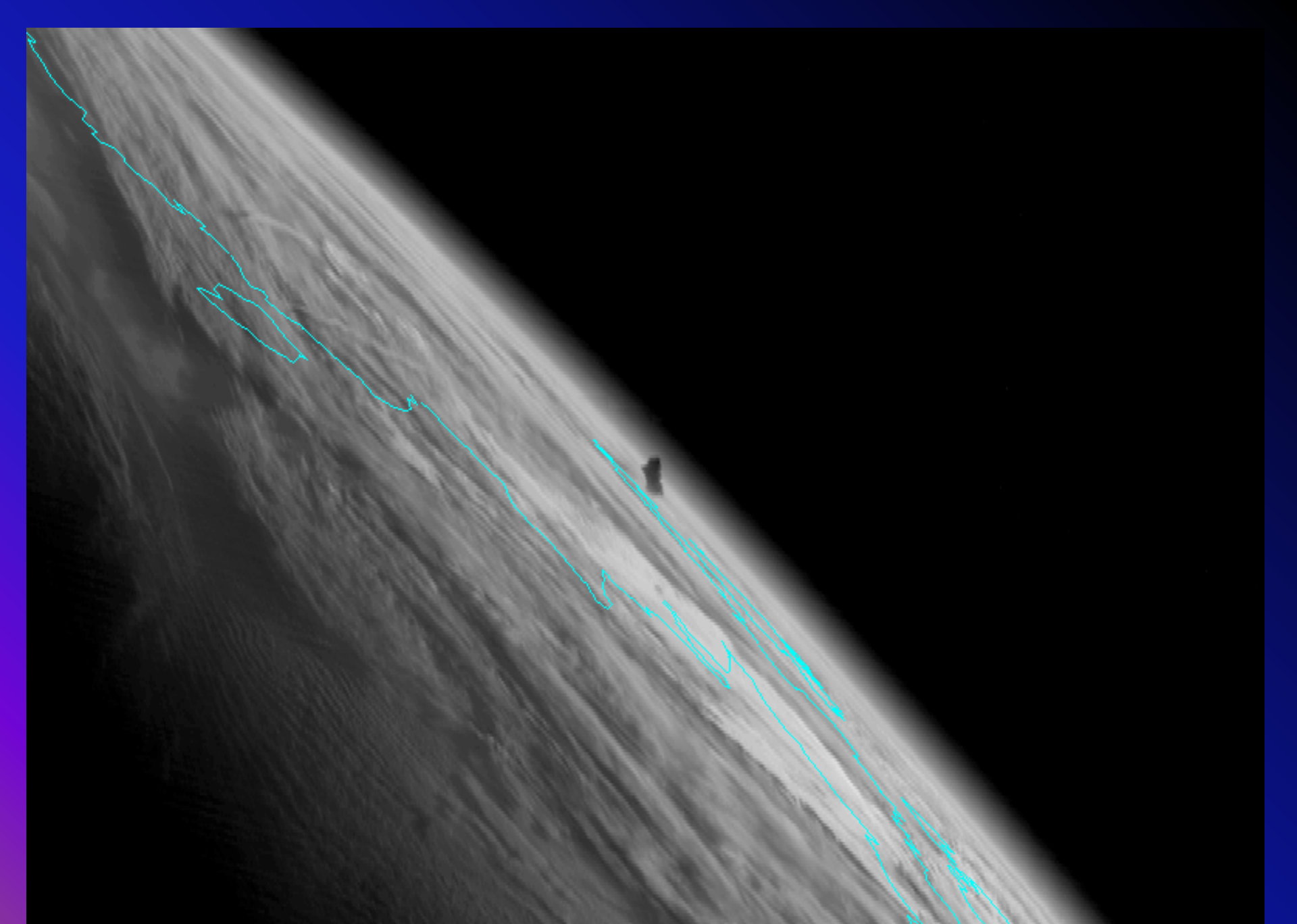












MTSAT-1R - VISIBLE (CHANNEL 01) - 17:30 UTC 26 MARCH 2009 - CIMSS