



The Gas They Pass



Fumarole on northwest side of Fourpeaked Mountain. Yellow staining on snow is result of sulfur emission from the vent. Photograph taken by C. Read, U.S. Geological Survey, February 22, 2007.



Steam plume emanating from the summit ice cauldron of Mt. Spurr. Photograph taken September 10, 2006, courtesy of J. Copen. Used with permission.

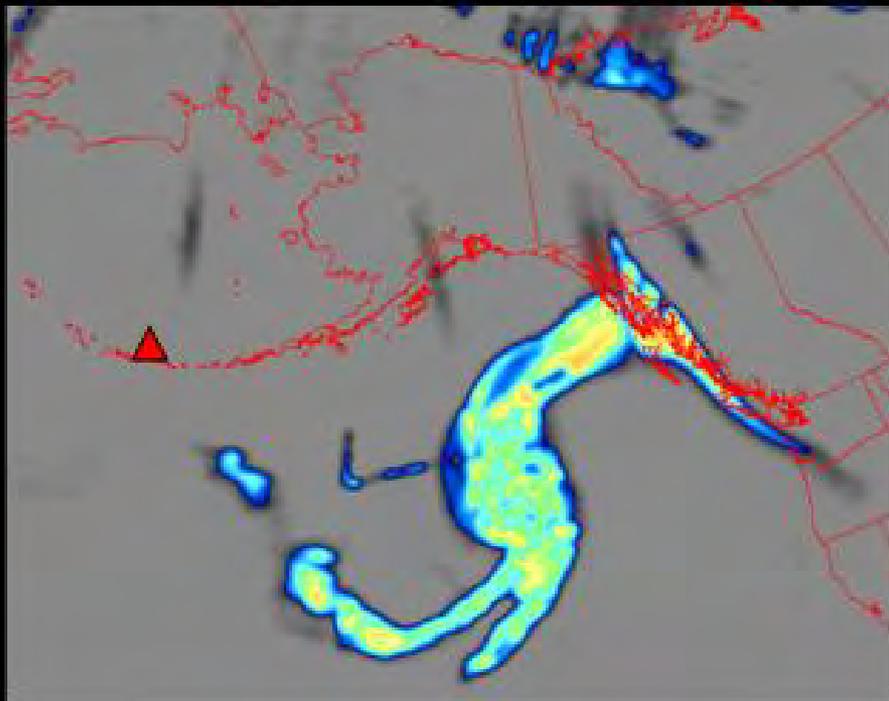


View of the east-southeast flanks of Augustine Volcano and steaming summit. Photograph taken by G. McGimsey, U.S. Geological Survey, June 2, 2006.

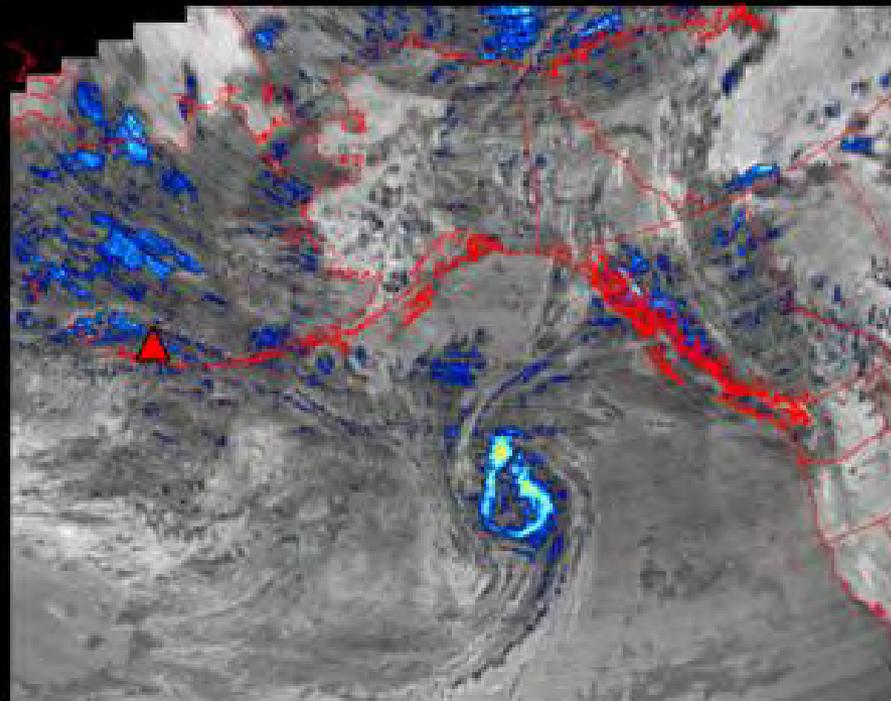


Martin summit crater, in Katmai National Park. The vigorous fumaroles at Martin and nearby Mageik often have been mistaken for volcanic eruptions. Photograph taken by C. Read, U.S. Geological Survey, August 26, 2006.

August 10: 2300 UTC



Sulfur Dioxide Gas



Volcanic Ash

Kasatochi volcanic cloud as observed at 2300 UTC on August 10, 2008, approximately 3 days after the start and 2 days after end of the eruption. The image on the left shows SO_2 gas detected by the OMI sensor and the image on the right shows a smaller region of volcanic ash as indicated by a GOES thermal infrared brightness temperature difference image. The colors are related to the total column abundance (mass per area) of SO_2 and volcanic ash, with warmer colors indicating greater amounts of gas and ash. These data are from NASA's EOS-Aurasatellite and Ozone Monitoring Instrument (OMI), courtesy of Dr. Simon Carn, University of Maryland, Baltimore County.



View of the Okmok caldera's eruption plume viewed from Fort Glenn (ranch building in foreground) on August 3, 2008. The small peak to the left is Tulik, a stratocone outside of the caldera. Photograph taken by J. Larson, University of Alaska, Fairbanks Geophysical Institute.



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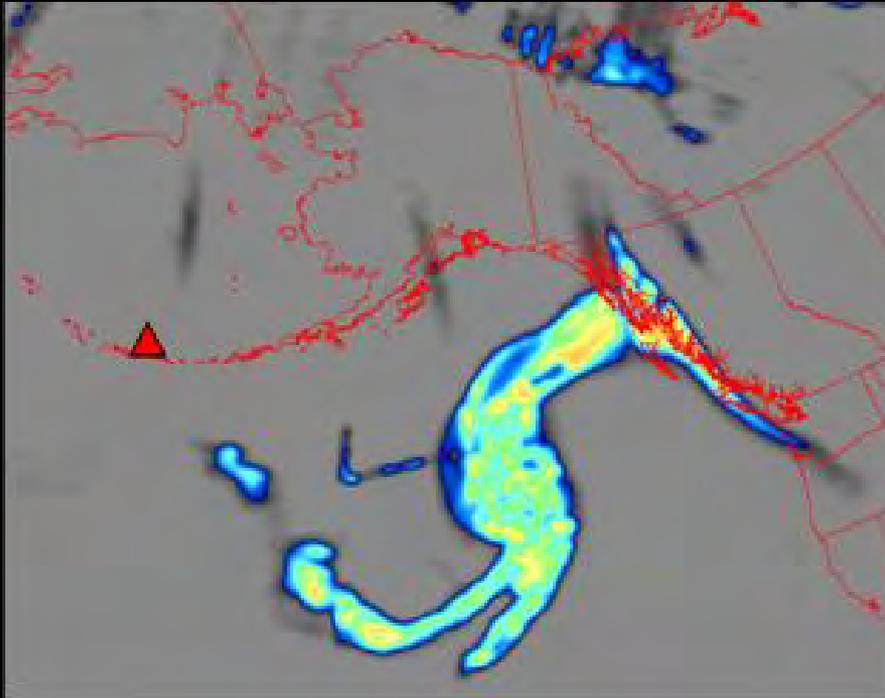




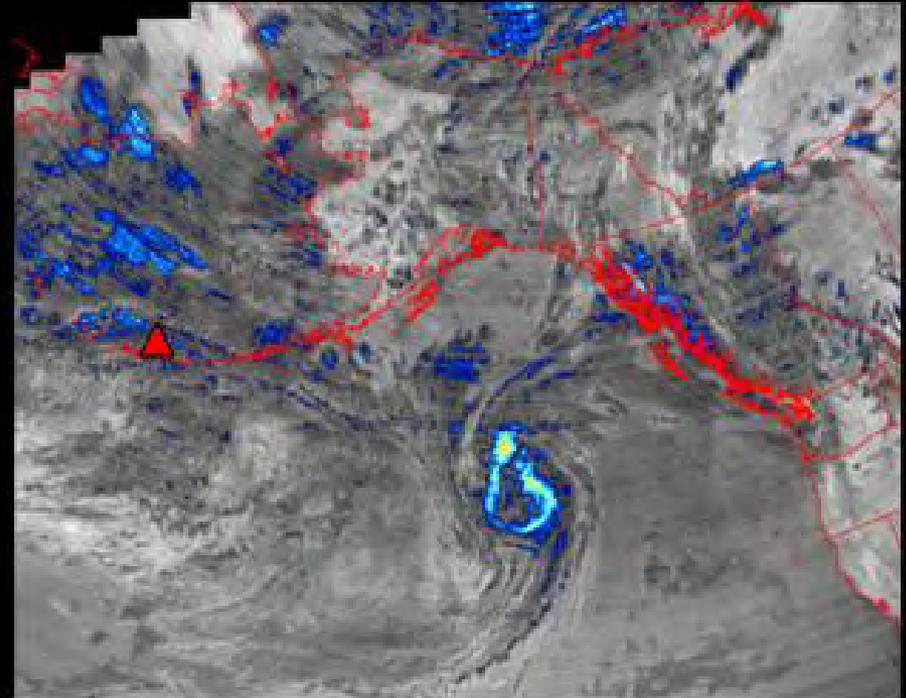




August 10: 2300 UTC



Sulfur Dioxide Gas

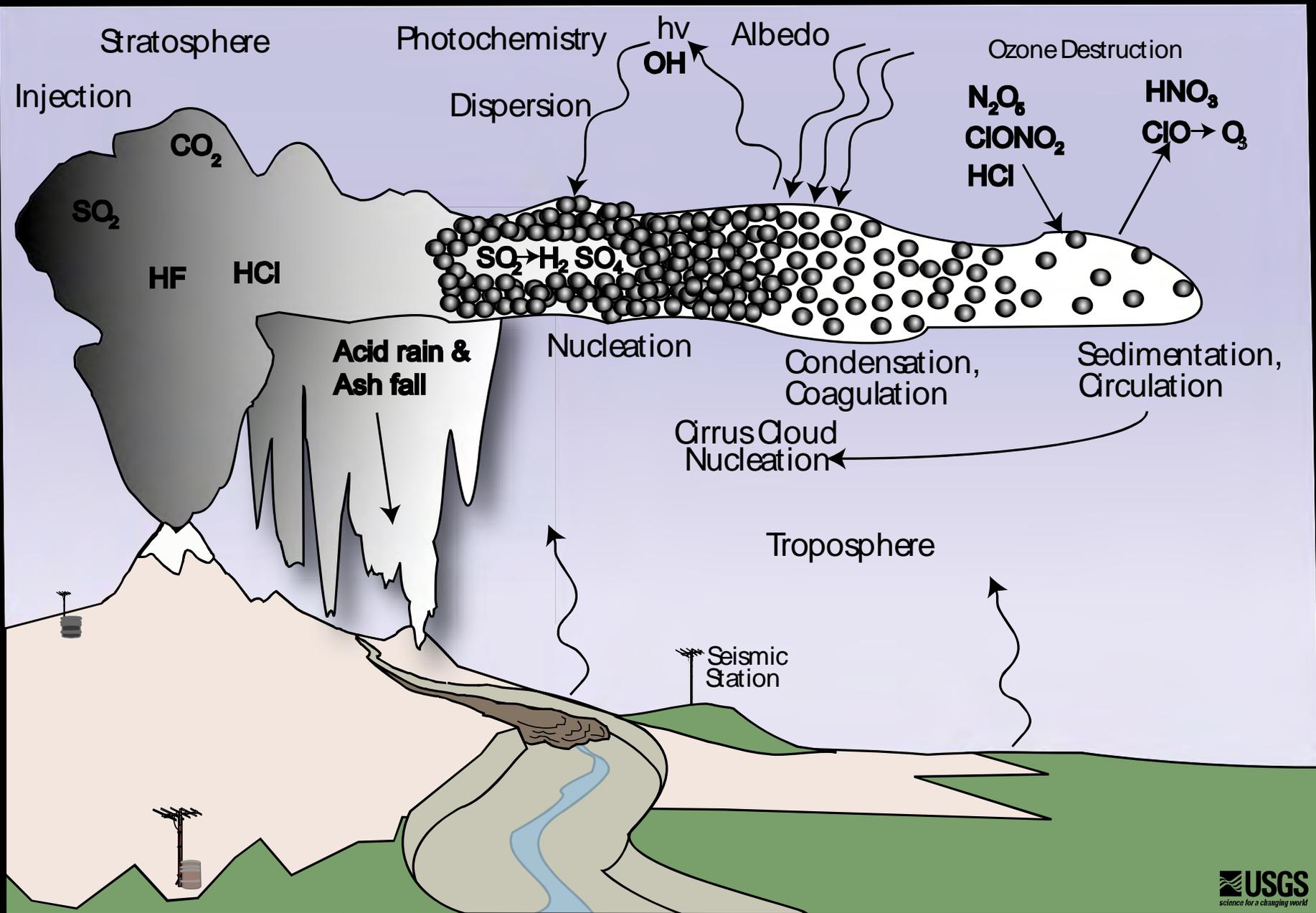


Volcanic Ash



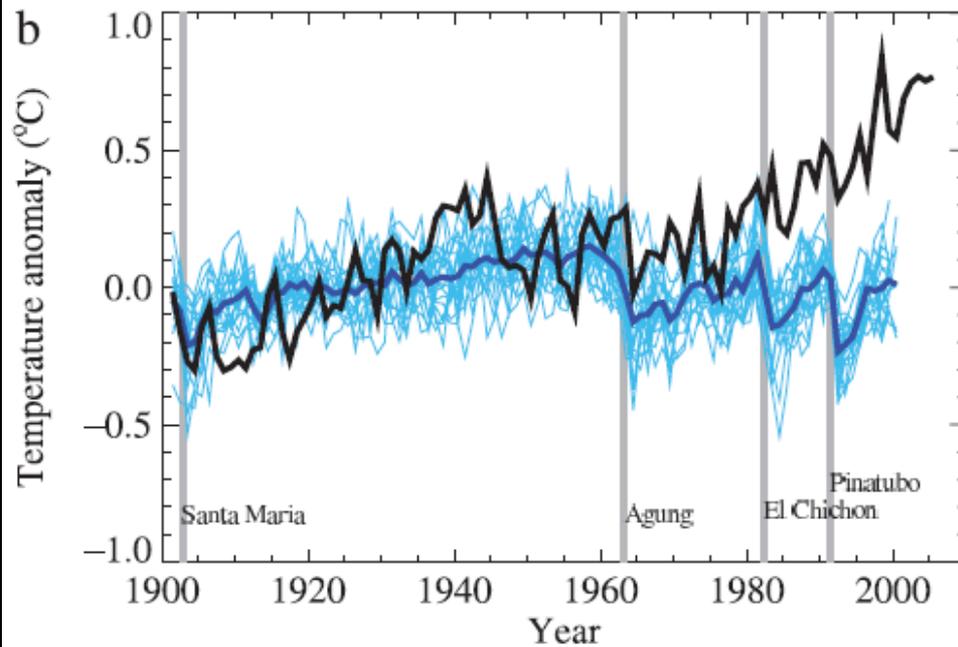
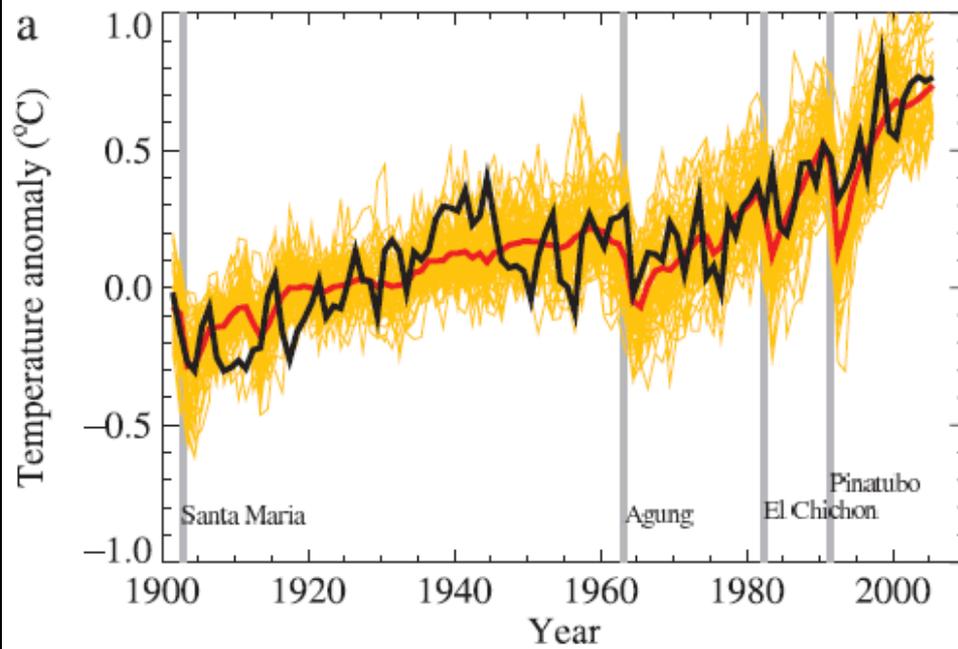


What goes up must come down

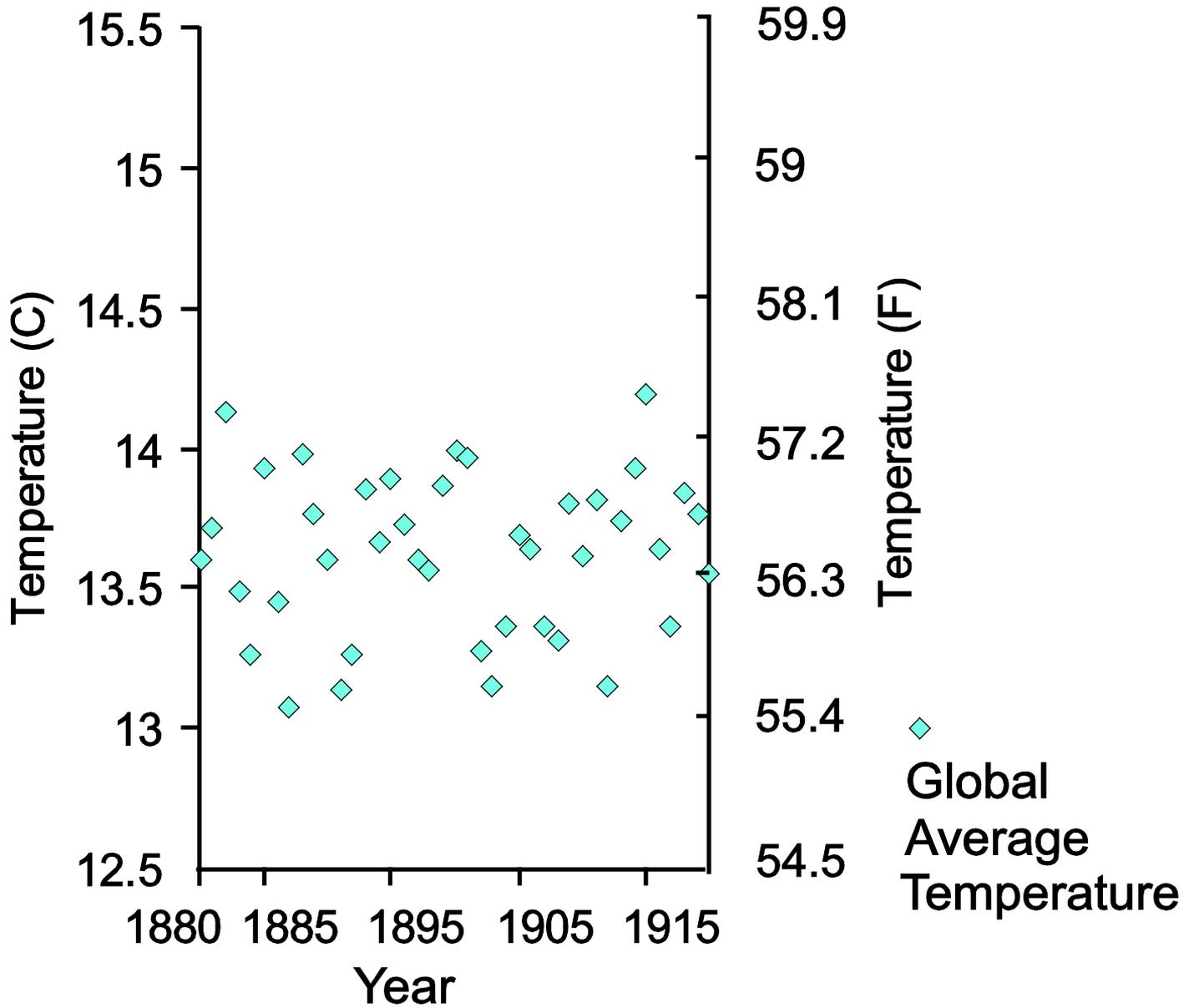




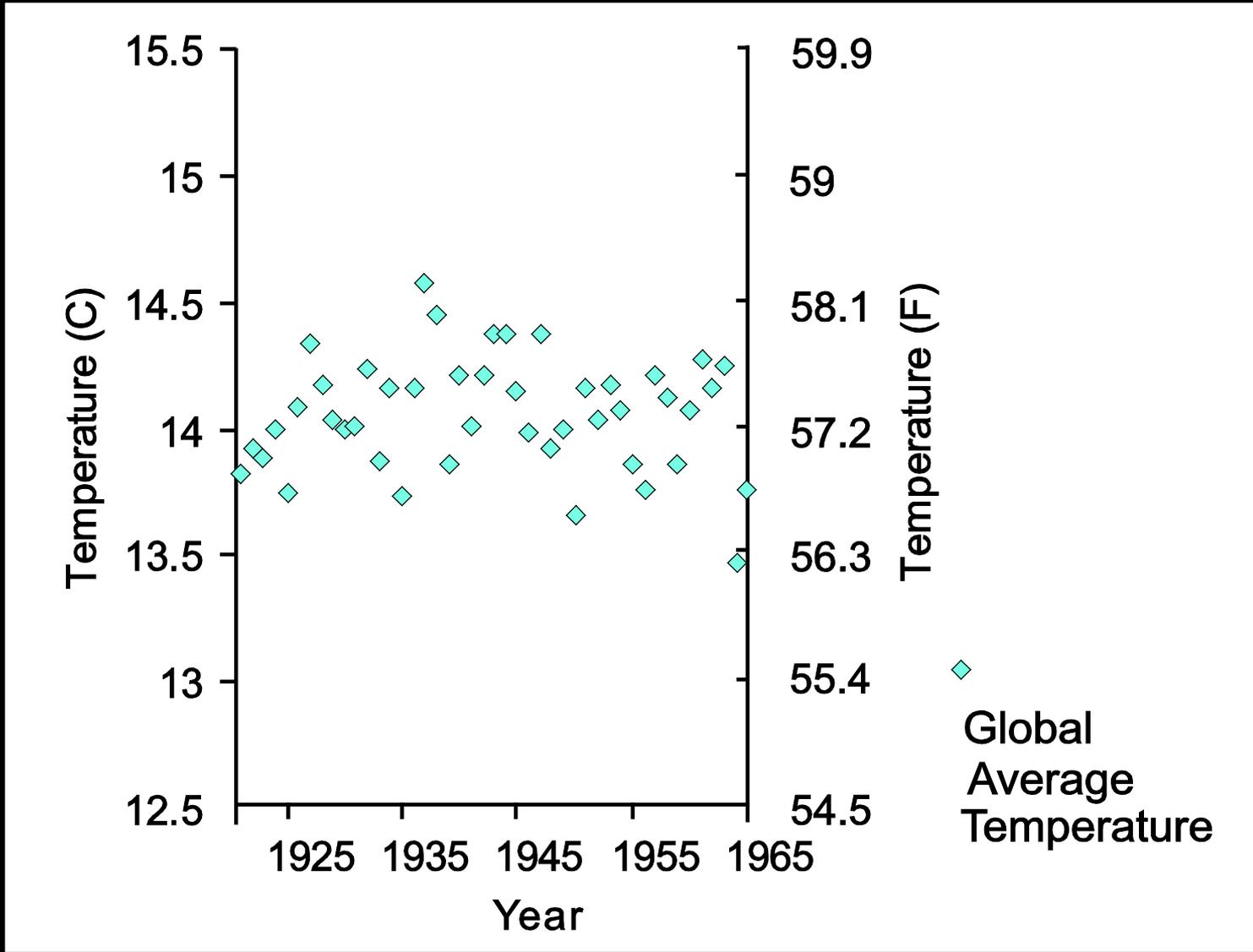
Globally Averaged Temperature and Volcanic Eruptions



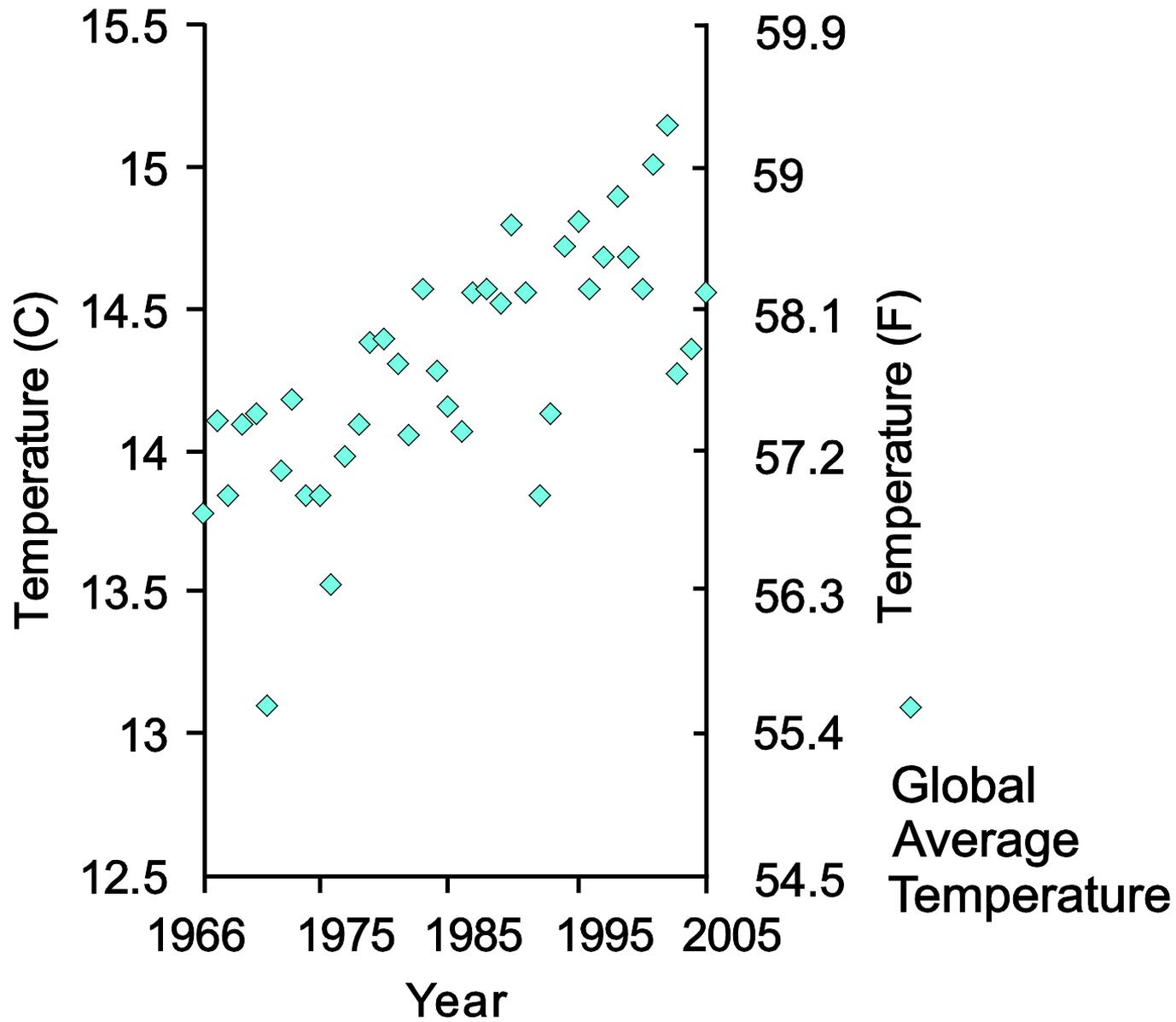
Intergovernmental Panel on Climate Change (IPCC)
 Fourth Assessment Report
 Climate Change, 2007—
 The Physical Science
 Basis: Cambridge
 University Press, New York,
 2007. Chapter 9
 Understanding and
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<http://www.ipcc.ch/ipccreports/ar4-wg1.htm>



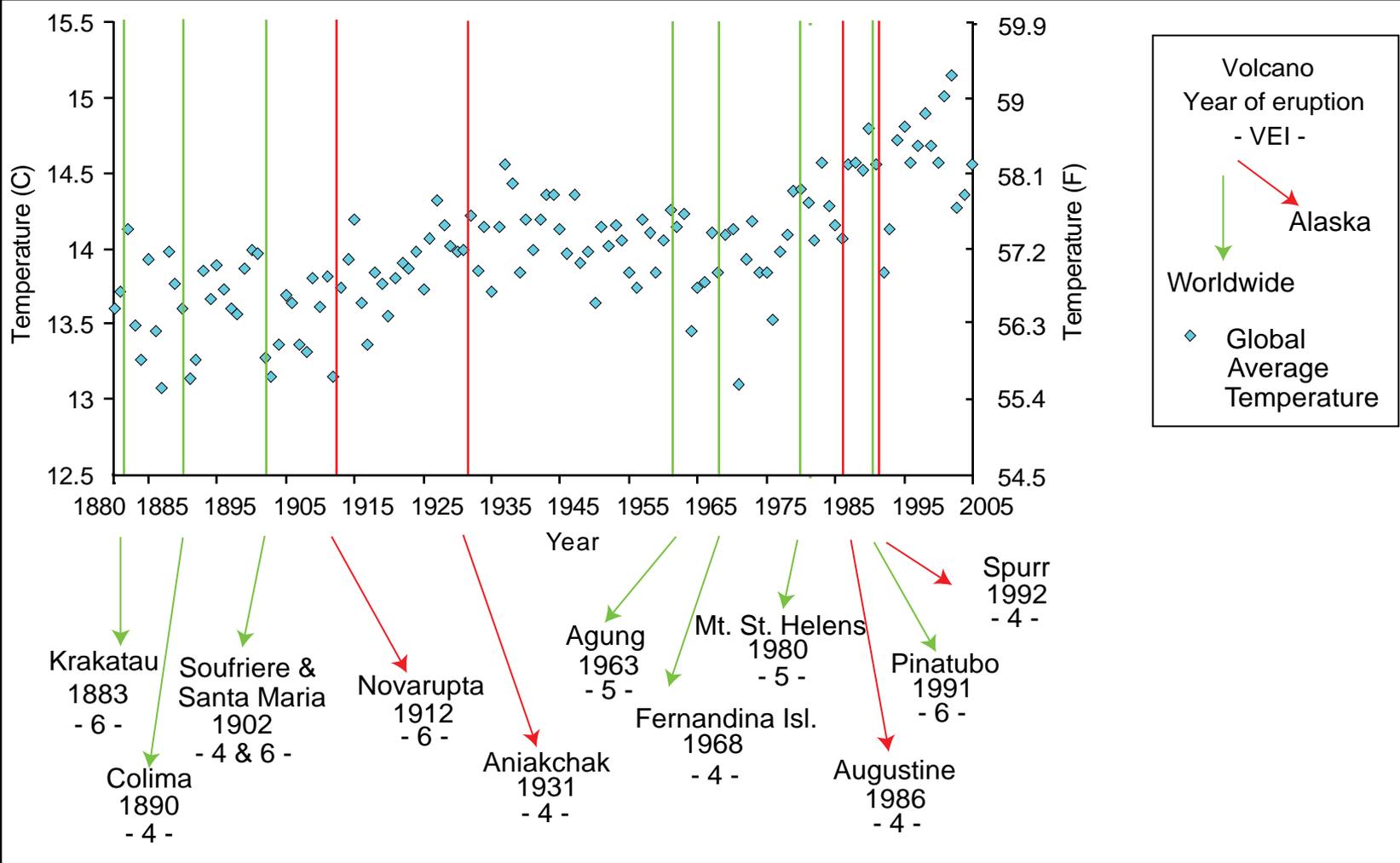
Global temp in °C and °F from 1880 to 2005 scatter plot of annual temperature and time for 1880-1920.



Global temp in °C and °F from 1880 to 2005 scatter plot of annual temperature and time for 1921-1965.



Global temp in °C and °F from 1880 to 2005 scatter plot of annual temperature and time for 1966-2005.



Global annual temperature and time for 1880-2005 and specified volcanic eruptions



An Order of Magnitude

Millions of Tons of CO₂ emissions from Volcanic, Anthropogenic, and Burning of Fossil Fuels Sources

