

NOAA Lower Atmospheric Observing Facilities

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Setting the Stage:

- NOAA operates or contributes to ~200 named environmental observing systems.
- Some shared with NASA, DOE, DOD, FAA, USGS etc.
- NOAA observing systems range from volunteer weather observers to \$ billion satellite programs.
- The annual operating budget for NOAA environmental observing systems is ~\$2.5 billion/yr.
- About one-half of the systems have a lower atmosphere, land surface or upper ocean component.
- NOAA is consolidating observations into ~100 “**Systems of Record**”.
- A System of Record is defined as “**an observing system that provides sustained observations for long-term research and operations**”.
- **Many NOAA measurement systems are hemispheric to global scale**



Some Systems of Record

NOAA Research Ships and Aircraft

- 19 Ships
- 12 Aircraft
- Testing UAVs



WP-3D and G-IV



Ron Brown



Miller Freeman

Fires, June 13, 2012

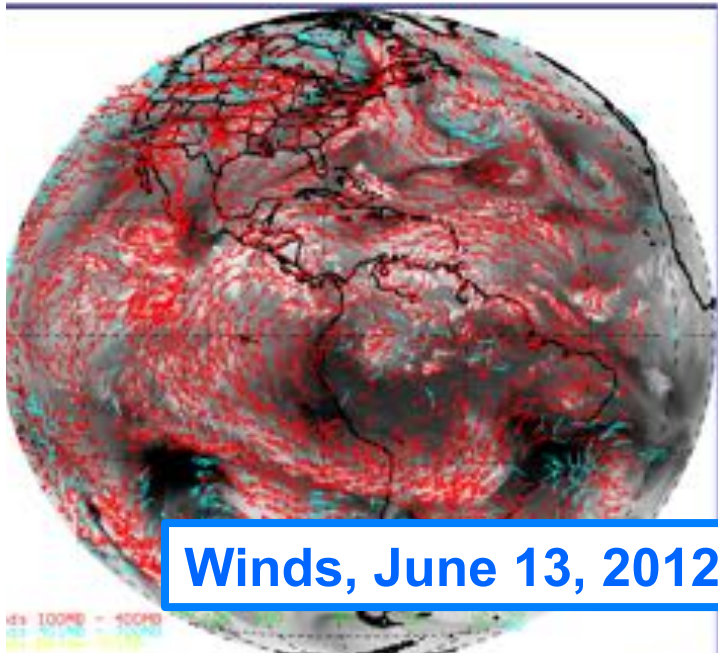


NOAA Produces 1000's of Satellite Products

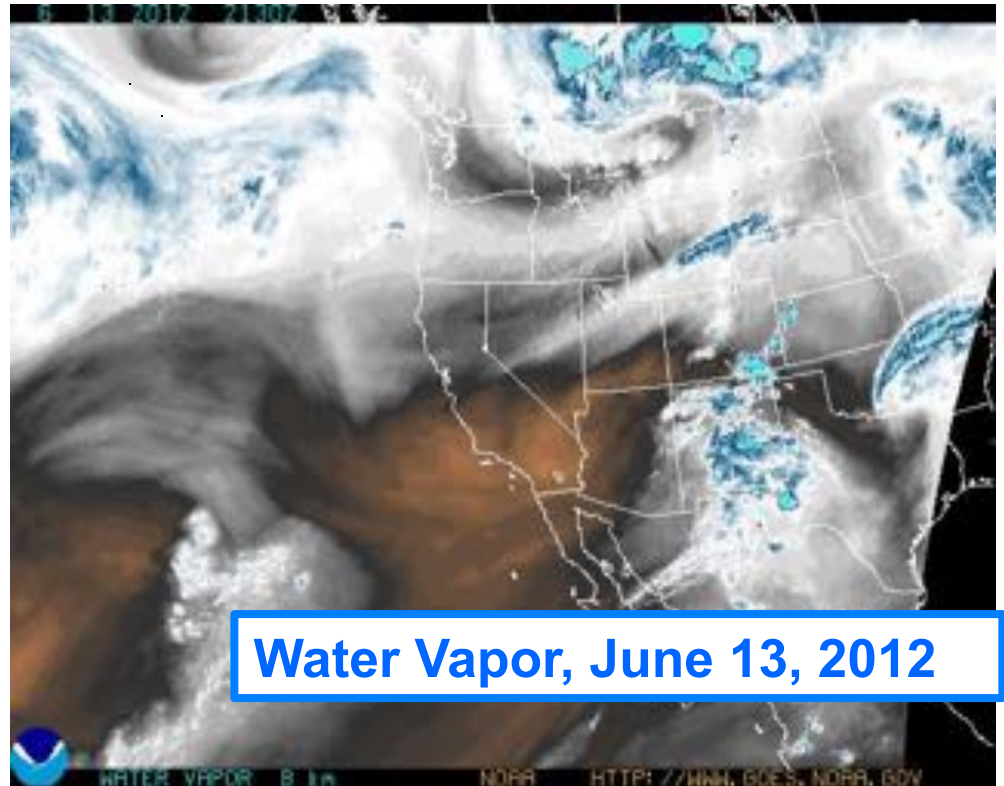
Operational Platforms:

GOES: 12, 13, 14 and 15.

POES: NOAA 15, 16, 17 and 18.



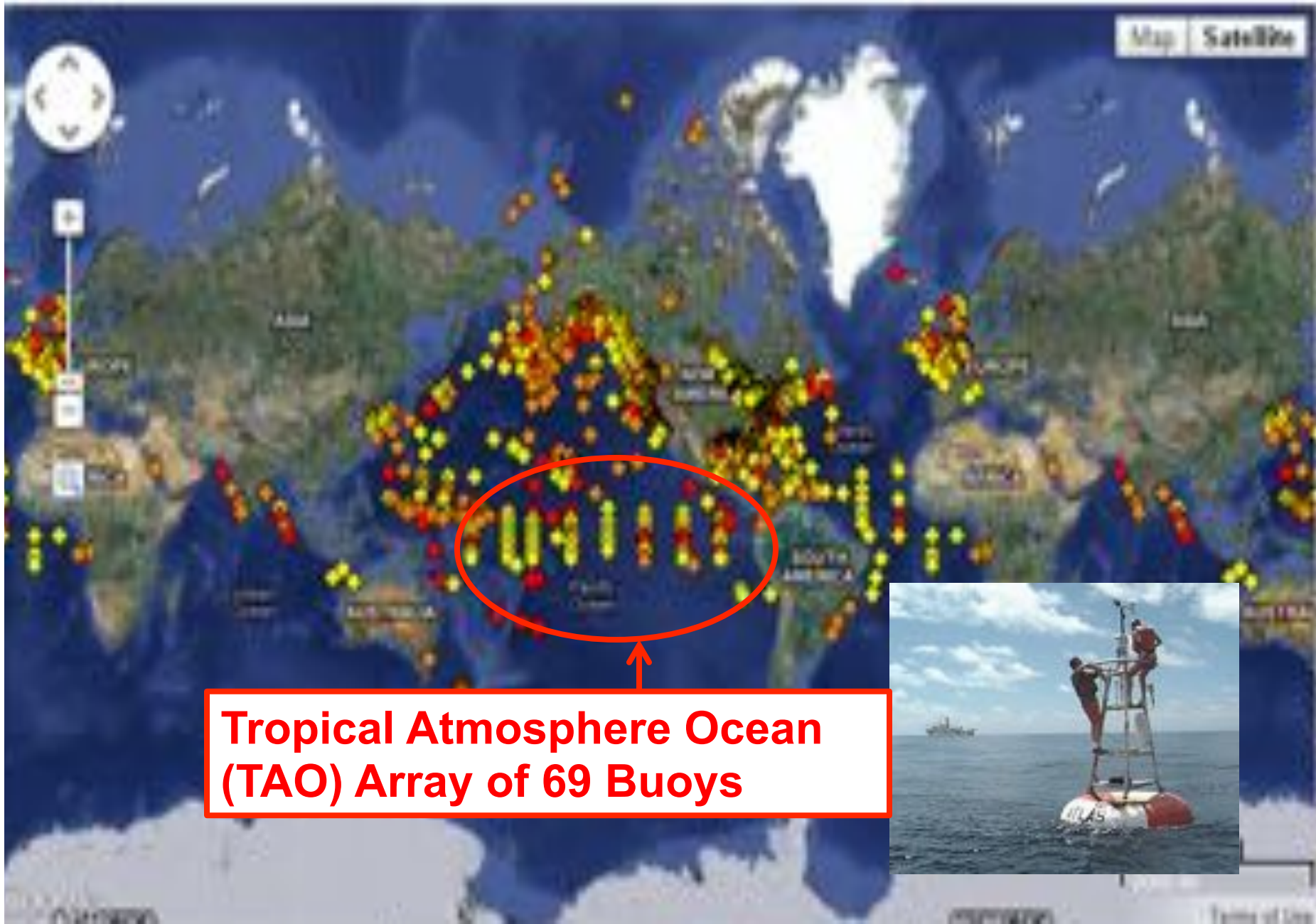
Winds, June 13, 2012



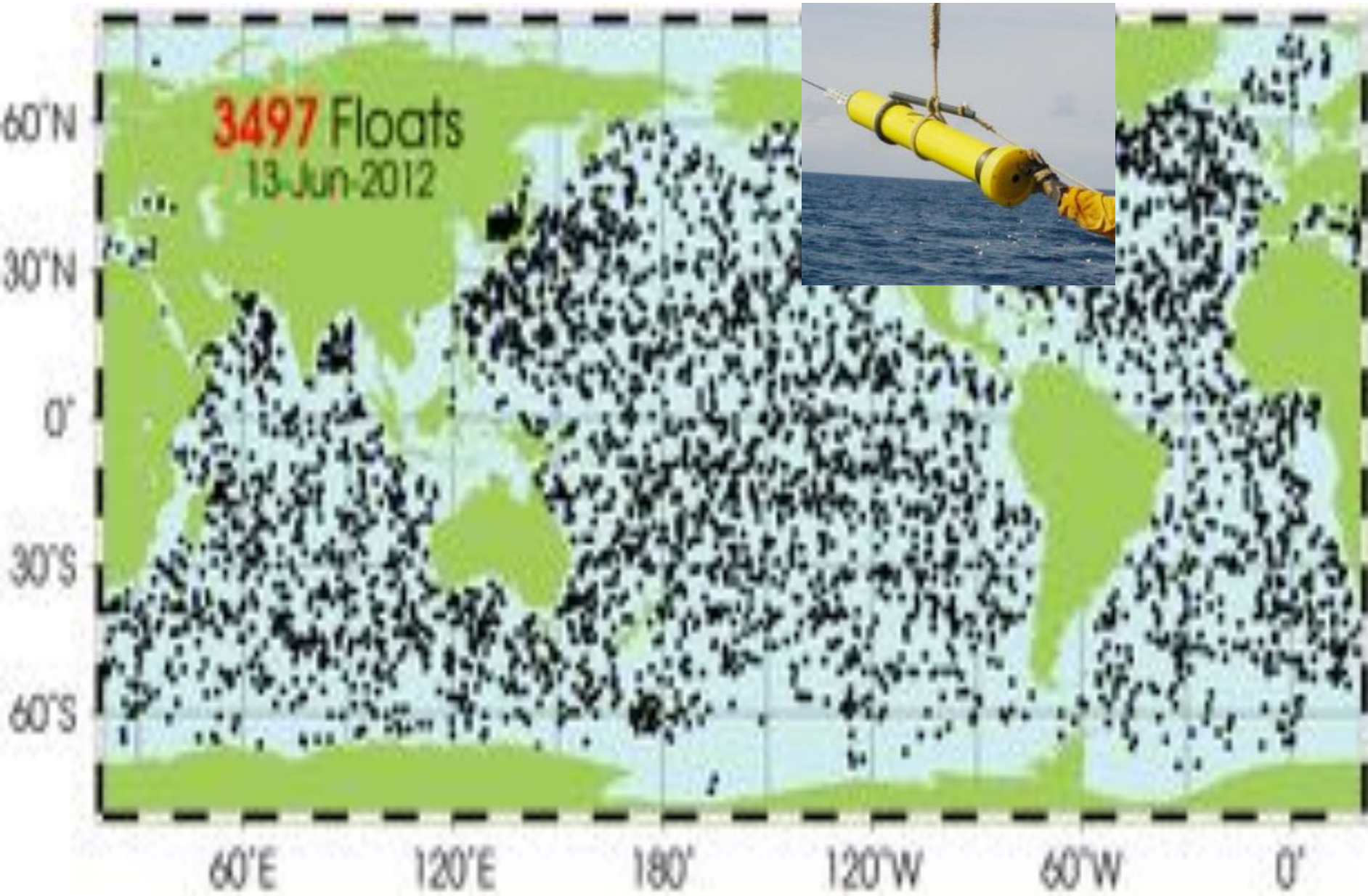
Water Vapor, June 13, 2012

10000 - 40000

NOAA Data Buoy Network (1150 Active)



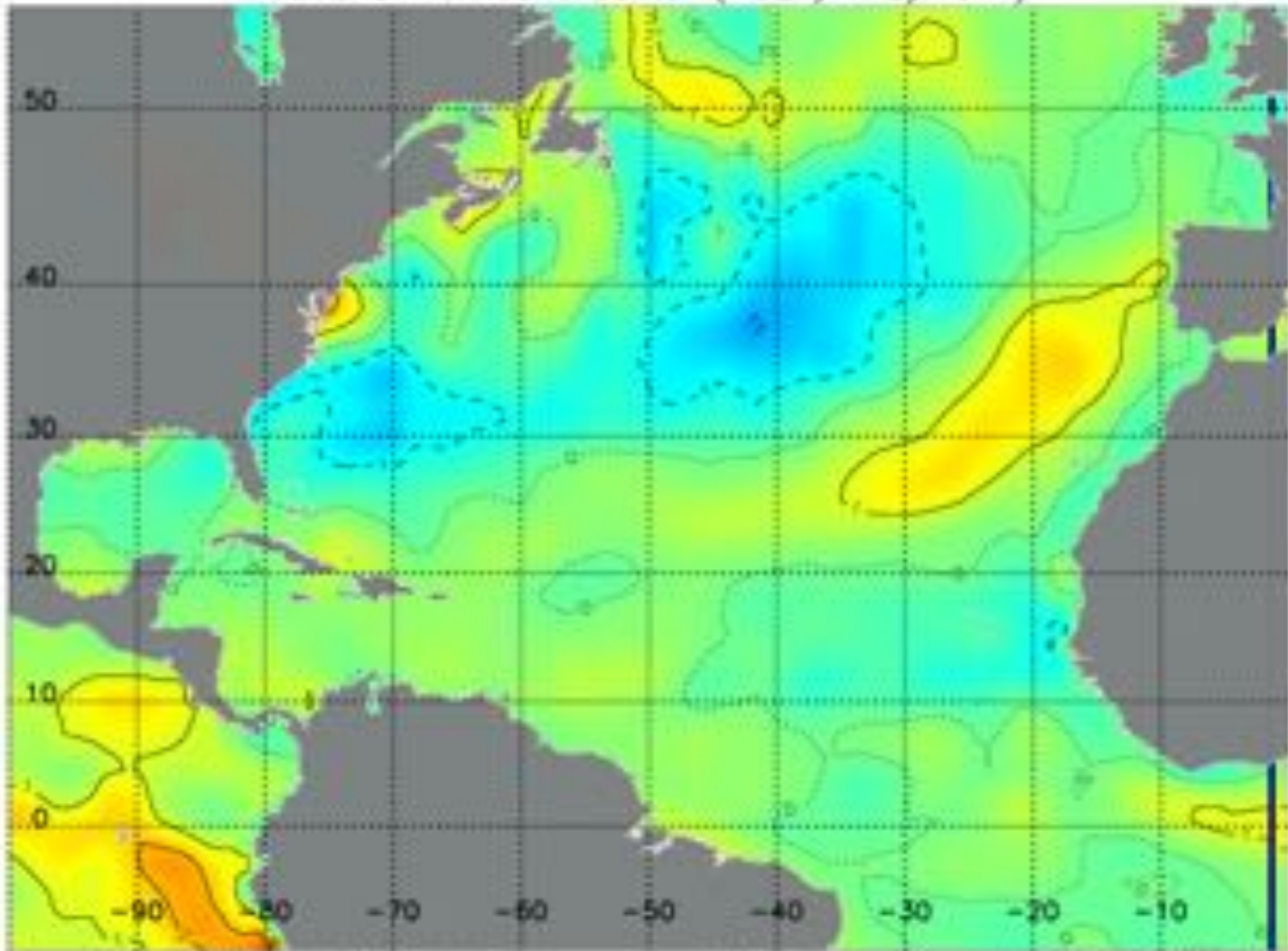
ARGO Profiling Floats (800 replaced/yr)



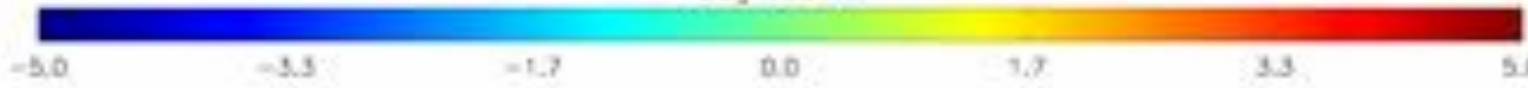
Atlantic Sea Surface Temperature Anomaly, June 9, 2012



National Hurricane Center (NCEP/NWS/NOAA)



Reynolds SST Anomaly (-) below average and (+) above average. (09-JUN-2012)
degrees °C



source: DPC/NCEP/NOAA

Some NOAA NWS Observing Assets

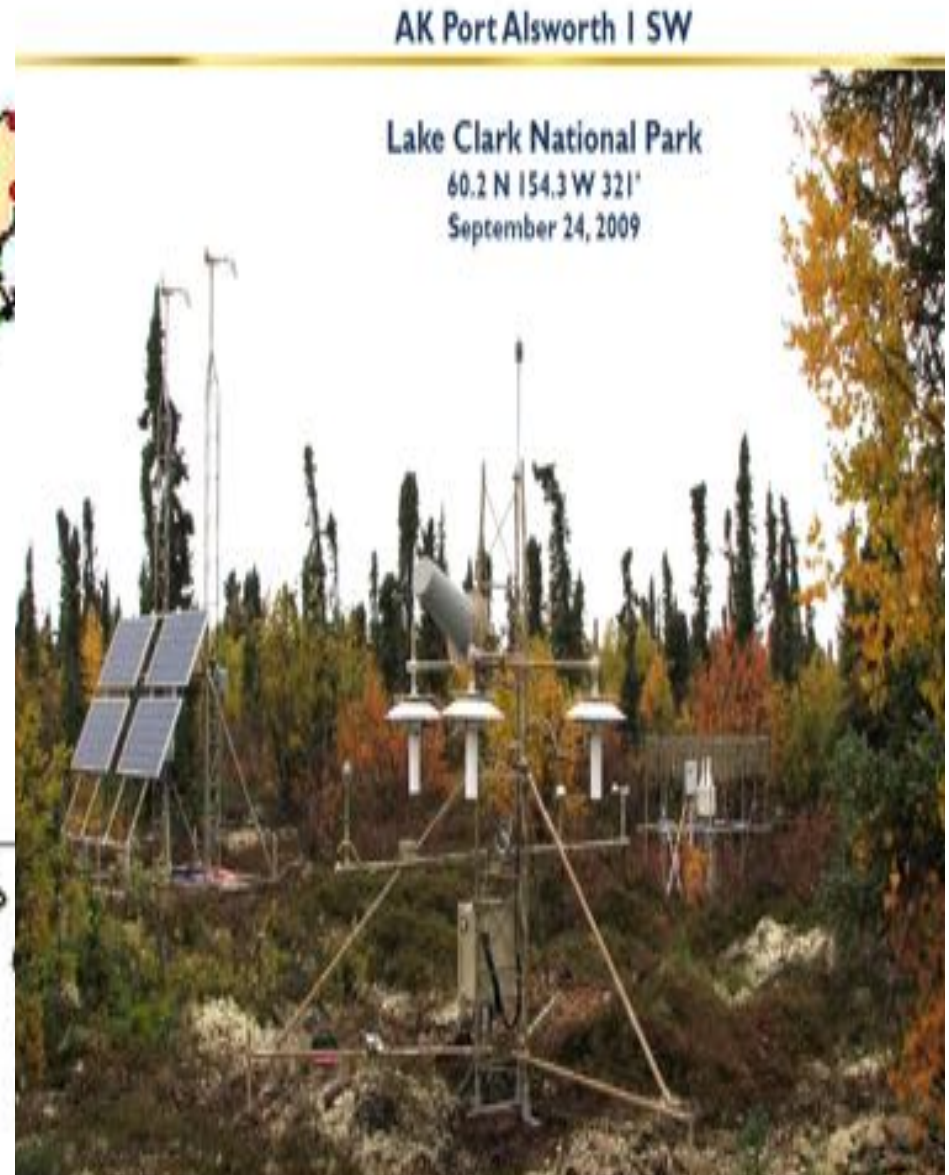
NWS Regional Offices



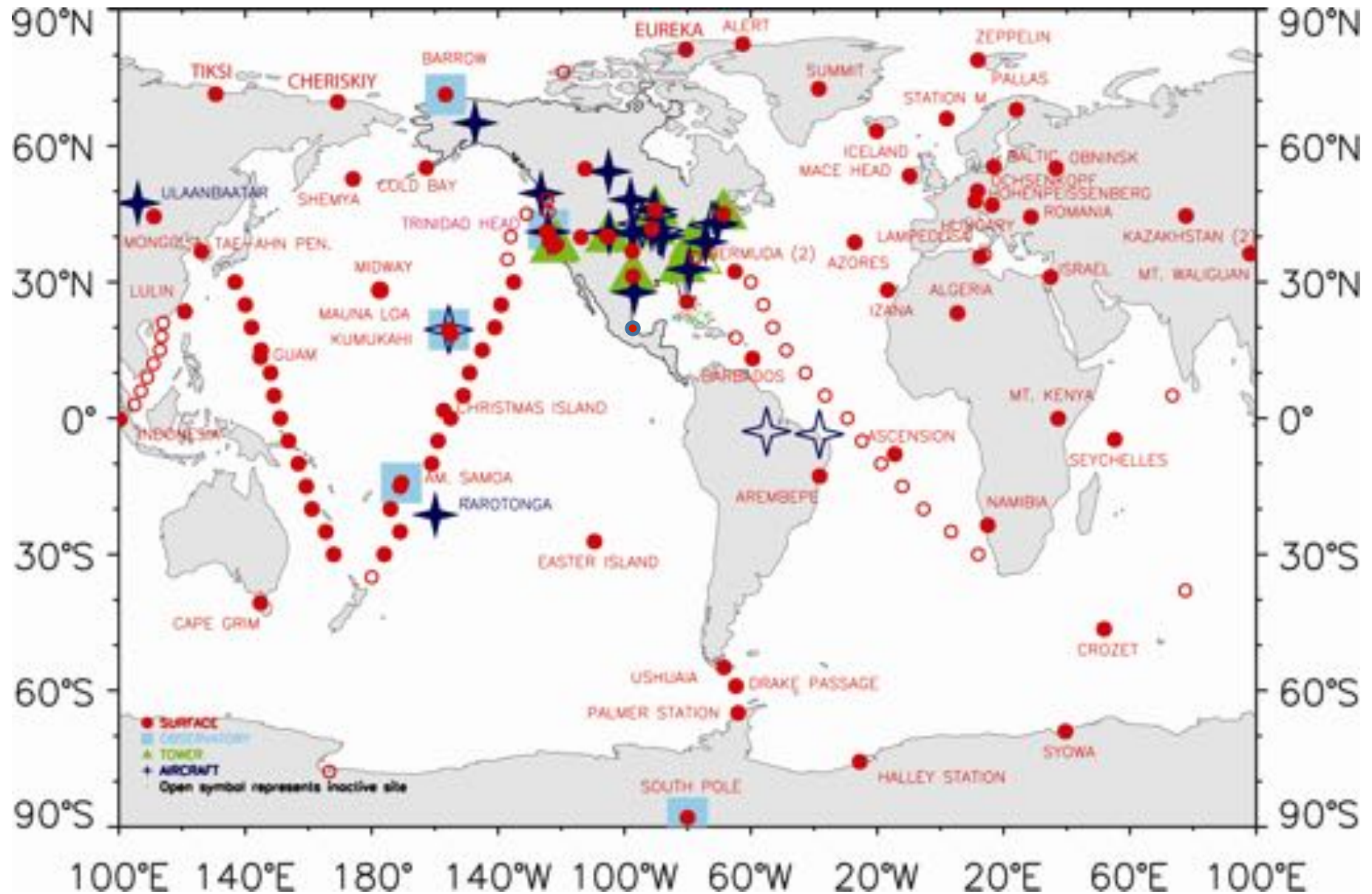
NOAA NEXRAD Sites



NOAA Climate Reference Network



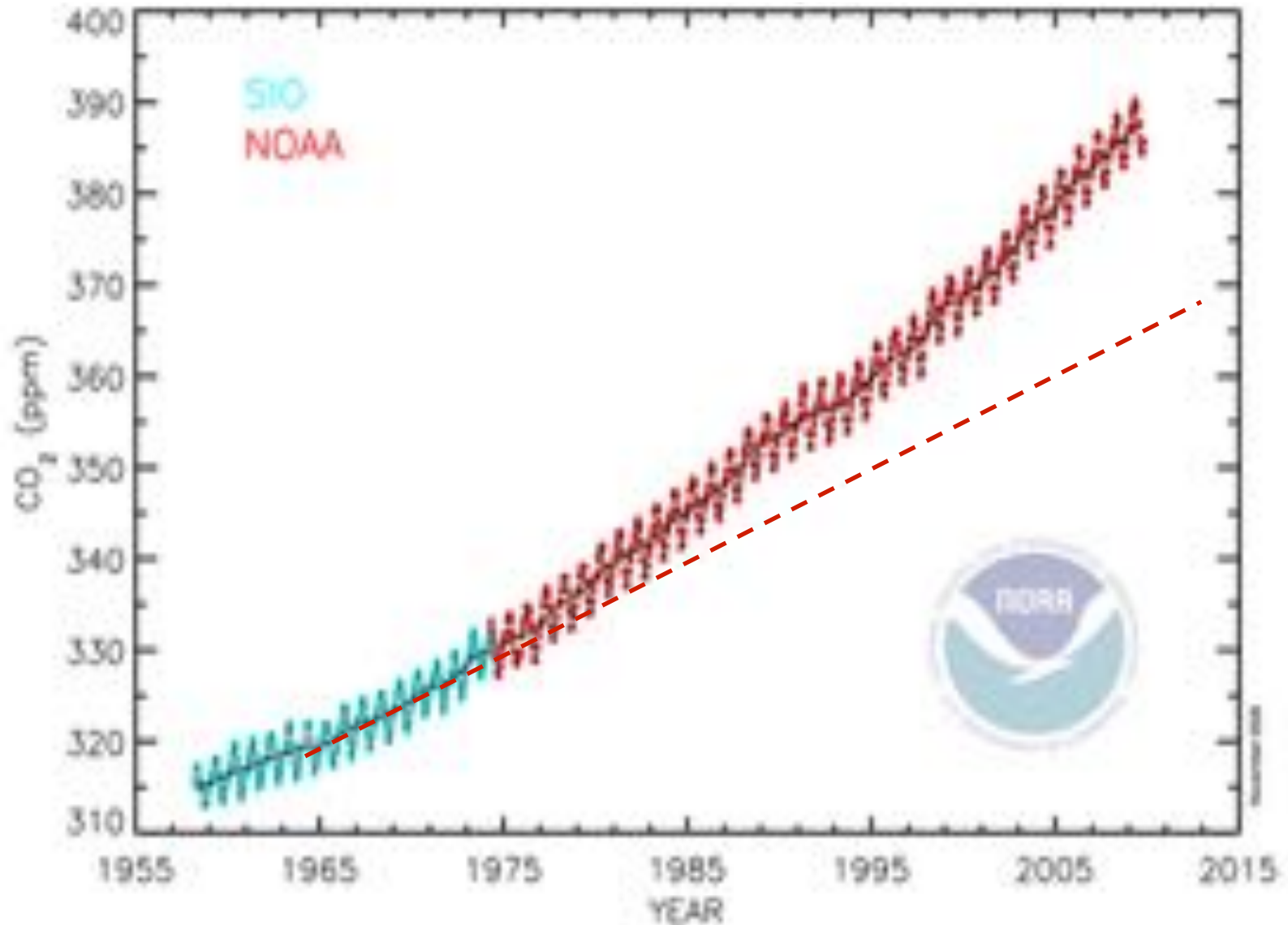
Carbon Cycle Gas Sampling Network



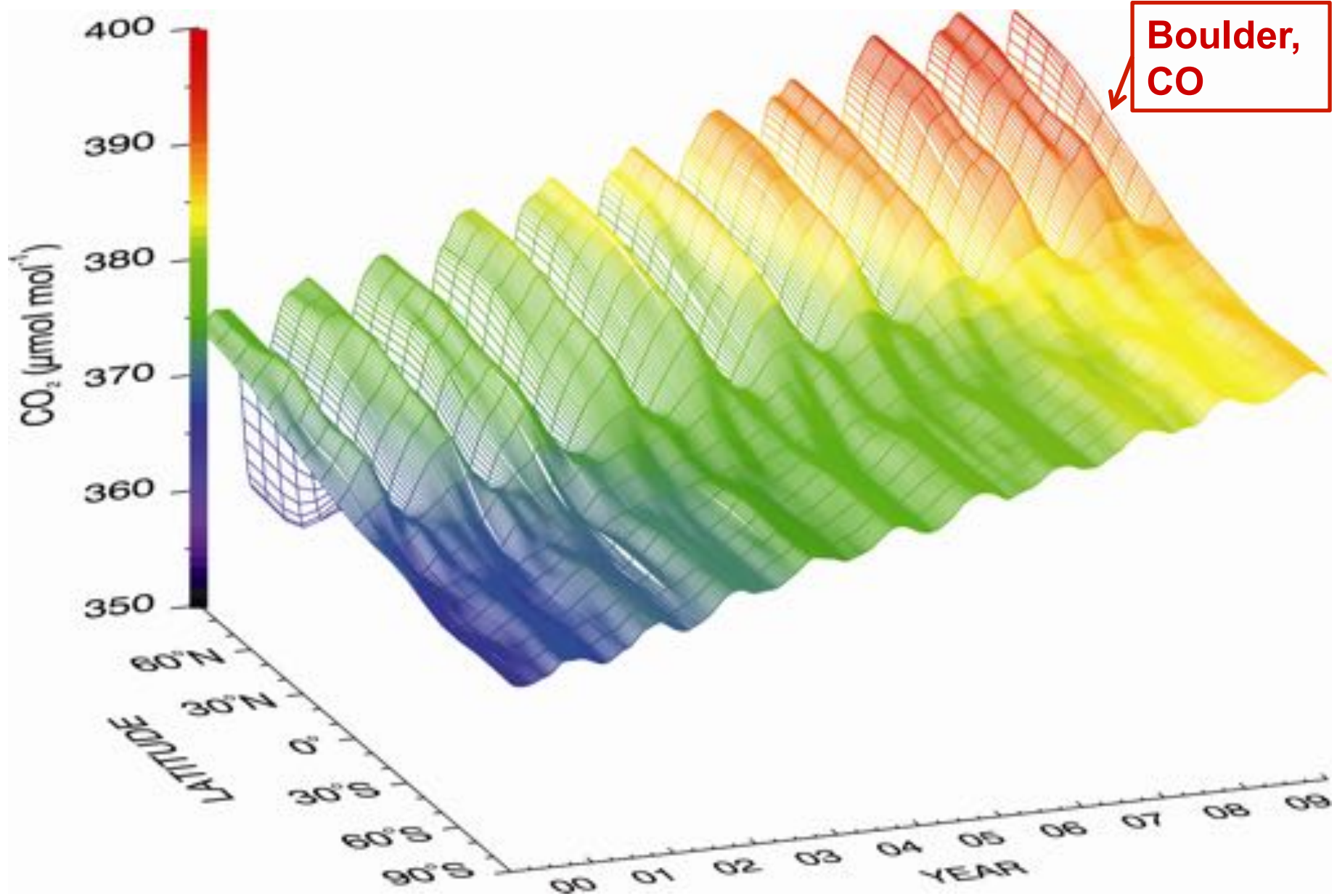
NOAA Atmospheric Baseline Observatories



Atmospheric Carbon Dioxide, Mauna Loa, Hawaii

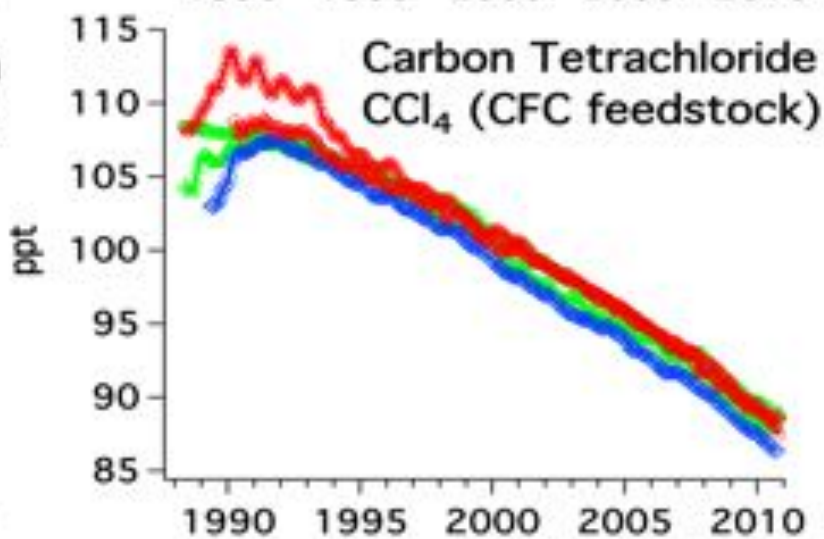
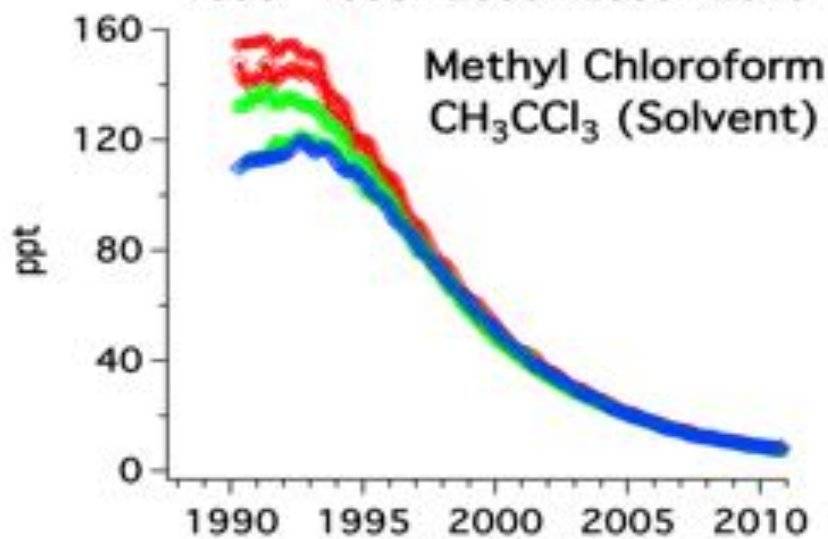
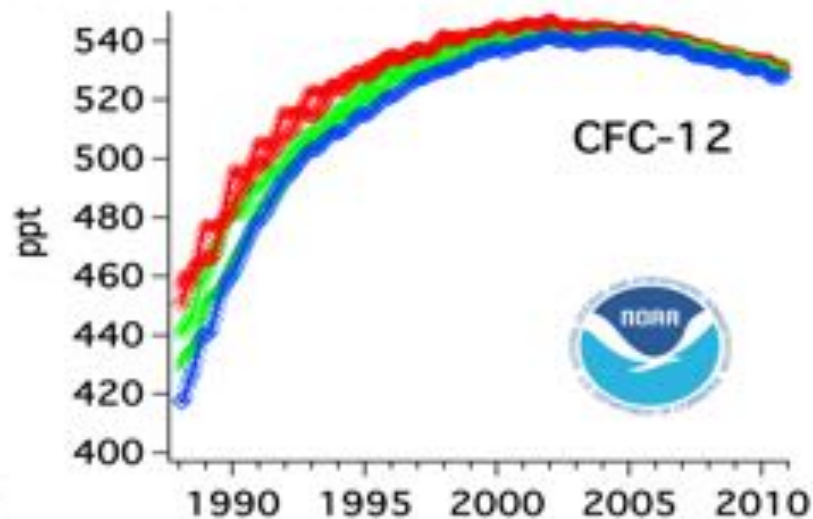
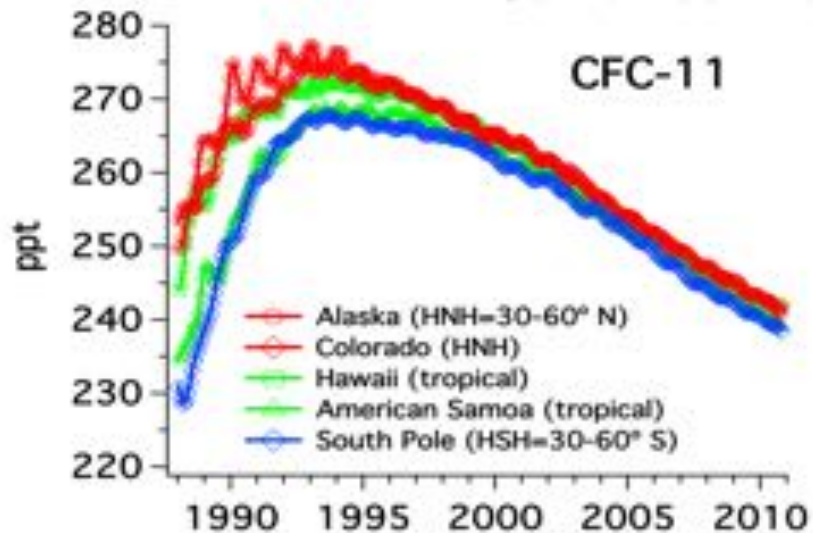


Global Carbon Dioxide Cycle



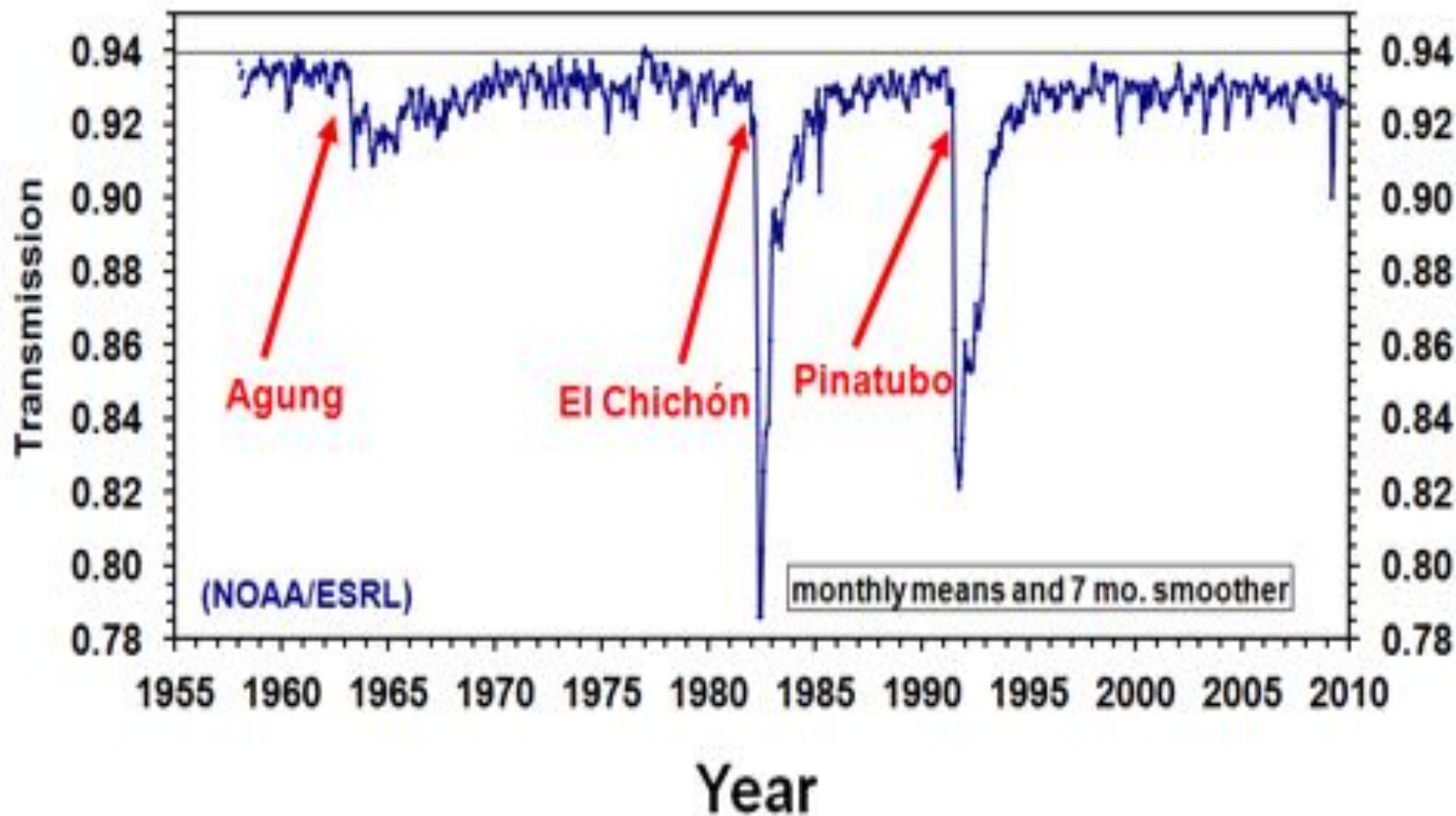
Ozone Depleting Chemicals Are Decreasing

Combined in situ and flask results

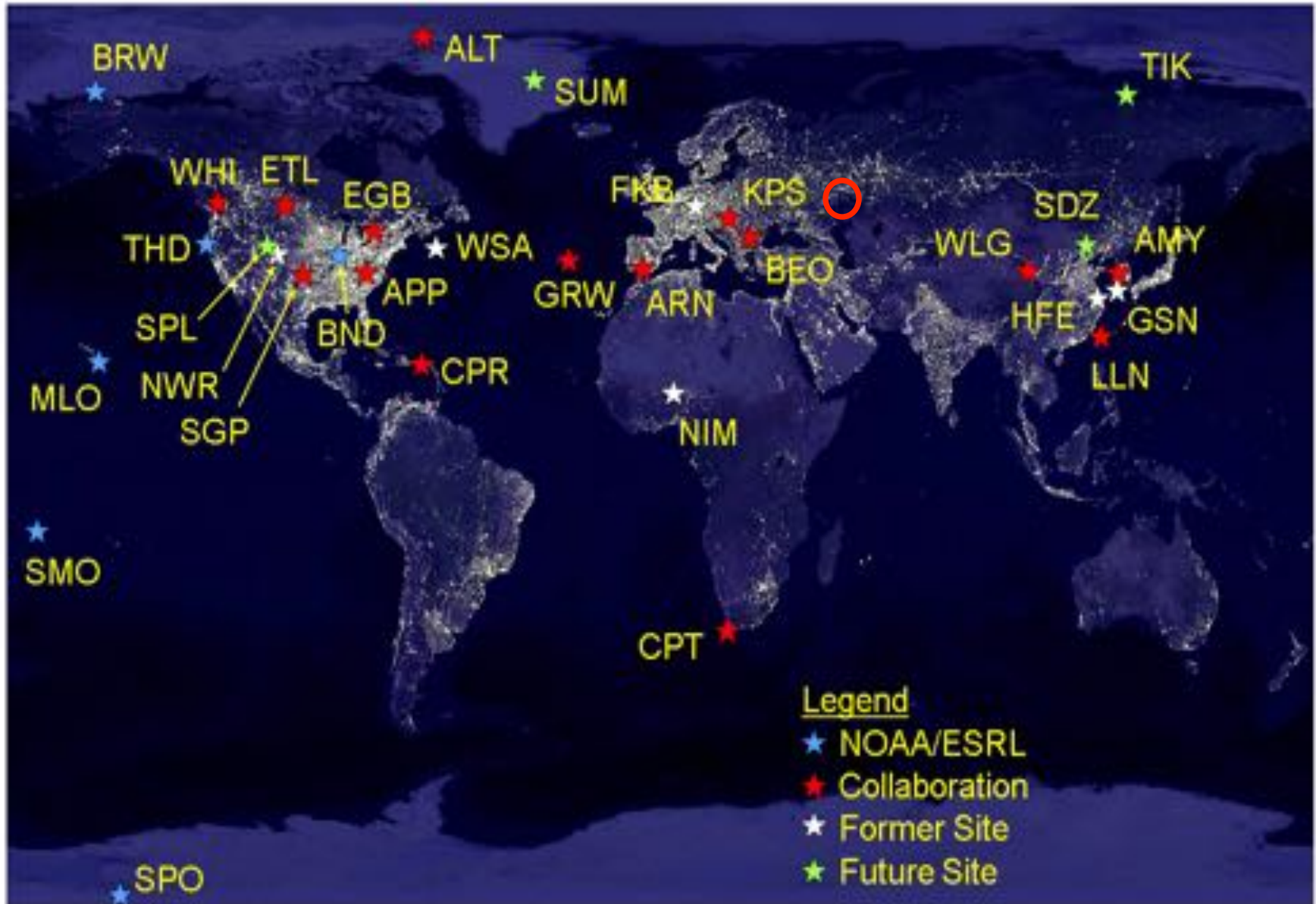


Mauna Loa Clear Sky Solar Transmission

(from direct solar beam ratios, per Ellis and Pueschel, 1971)



NOAA Global Cooperative Aerosol Monitoring Network



NOAA Measures Trace Gases From the Surface, Tall Towers and Light Aircraft

8 Tall Towers

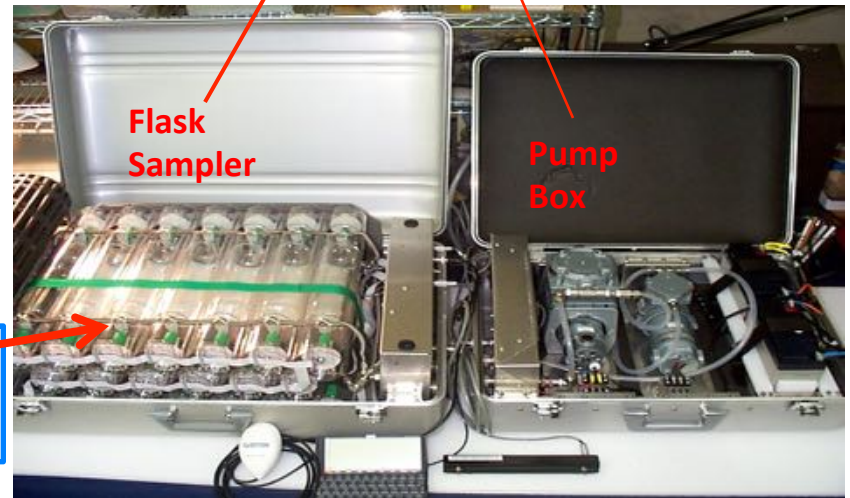


16 Contract Aircraft

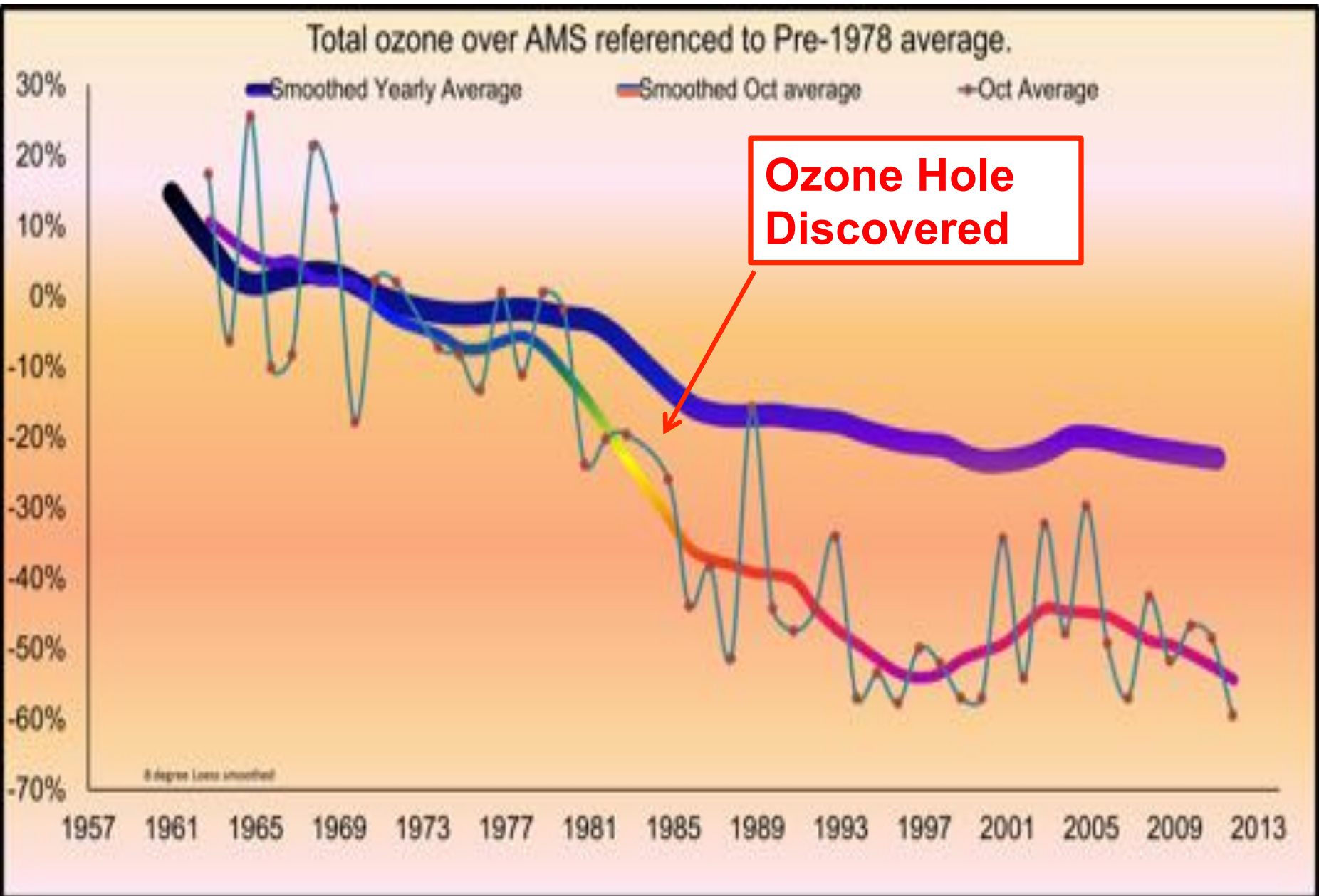


Flask
Sampler

Pump
Box

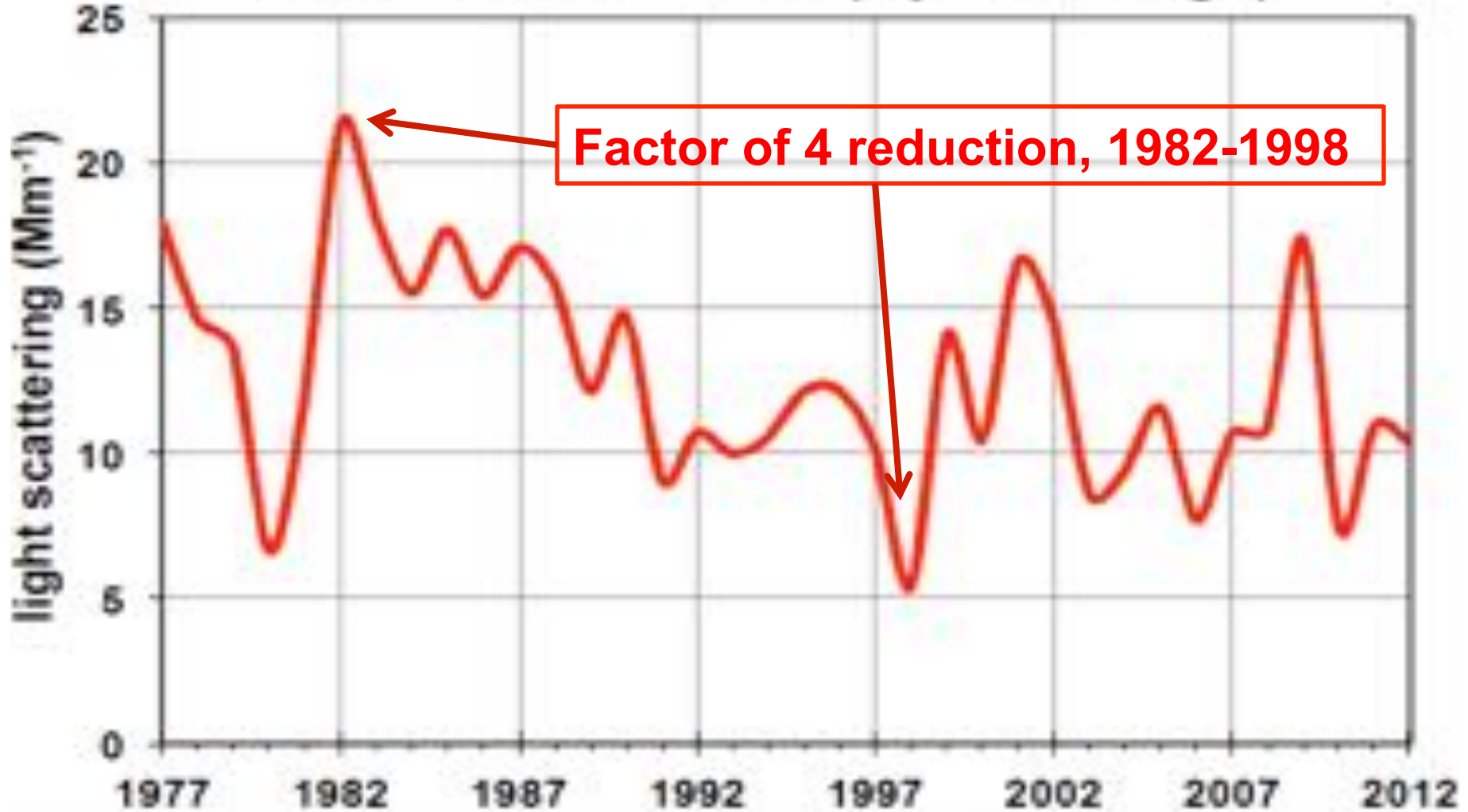


NOAA South Pole Stratospheric Ozone Record



Alaskan Arctic Aerosol Trends

Arctic Haze at Barrow (April average)



Summary:

- **NOAA has 100's of lower atmosphere/upper ocean measurement systems.**
- **Some have been in operation for 100+ years.**
- **To access information on these systems and data, do a web based search within the NOAA Home Page (<http://www.noaa.gov>).**