EARTH SYSTEM RESEARCH LABORATORY

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Non-CO_2 Climate Gases: *Wrap-Up and Future Plans*

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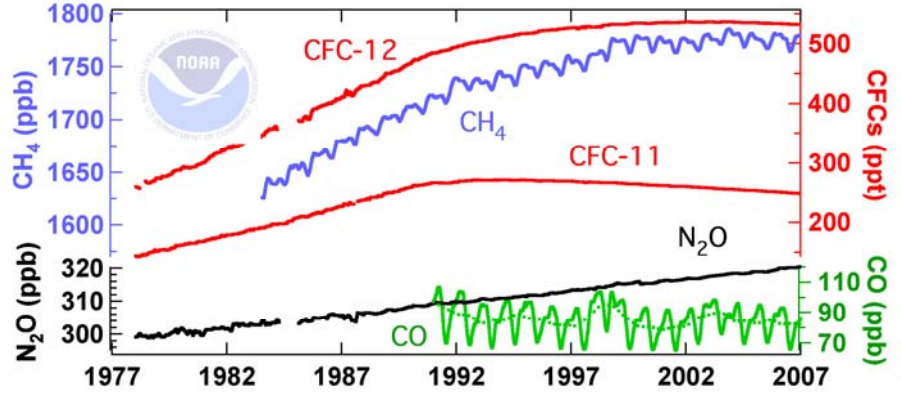
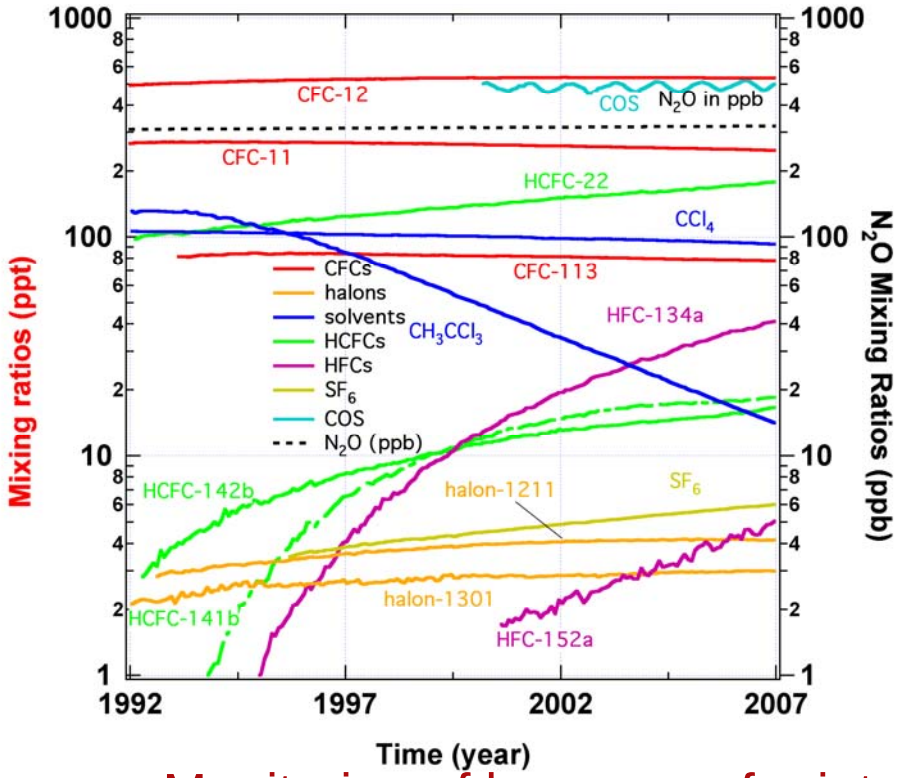
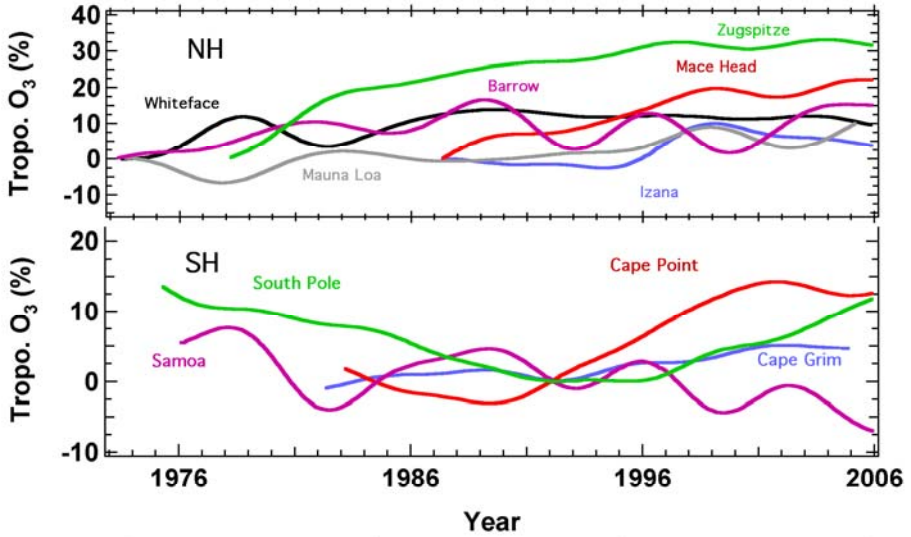
ESRL Atmospheric Chemistry Review

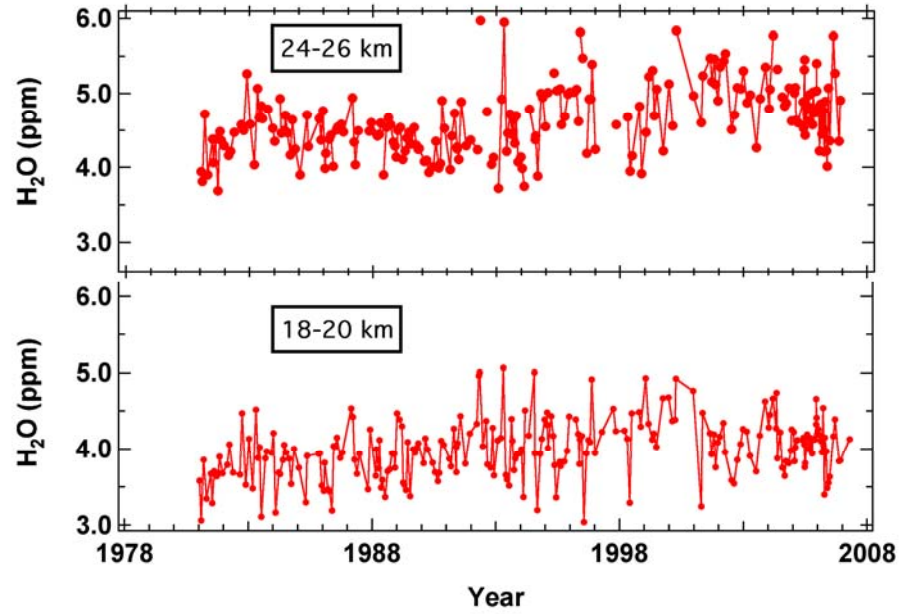
January 29-31, 2008 ~ Boulder, Colorado

NOAA/ESRL Trends of Non-CO_2 Climate Gases









Monitoring of key gases for international & national assessments.

Highlights of Non-CO_2 Climate Gases

- Monitoring of key non-CO_2 climate gases for trends and distributions provides key physical inputs to the international scientific assessments on stratospheric ozone depletion and climate.
- Emission studies from airborne and mobile platforms provide useful information on the banks of chemicals and their surface fluxes.
- Process studies help in our understanding of how pollutants, like ozone and CO, are transformed and transported in the environment.
- Water vapor measurements remain essential for climate research because water vapor is an important feedback to the climate system with major implications to stratospheric ozone and climate.

Non-CO_2 Climate Gases Future Plans

- Add important non-CO_2 climate gases (e.g., PFCs, NMVOCs) to the ESRL flask and in-situ gas-chromatograph halocarbon network. Develop an improved calibration system.
- Participate in a new global sampling strategy for non-CO_2 climate gases using the NCAR HIAPER aircraft: NSF **HI**APER **P**ole-to-**P**ole **O**bservations of Greenhouse Gases (HIPPO).
- Provide regional estimates of North American emissions of CFCs, HCFCs, HFCs, and PFCs.
- Water Vapor: 1) Complete accuracy assessment to reconcile existing water vapor data; 2) Lab analysis of the frost point technique; and 3) Addition of more polar and tropical stations.
- Add in situ ozone instrumentation to NOAA/ESRL Carbon Cycle aircraft to understand the processes and emissions that affect radiative forcing.