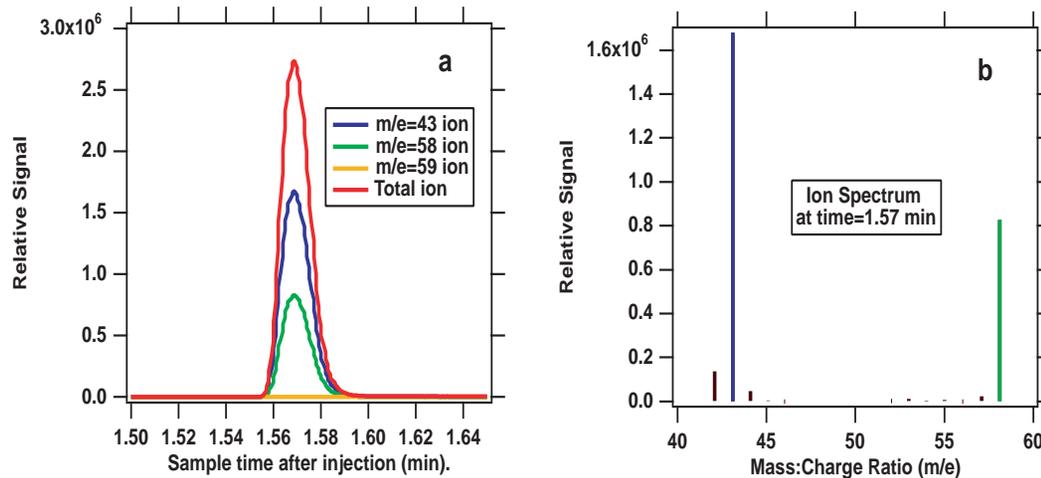


PAN and Trace Hydrohalocarbon Experiment (PANTHER)

Elkins & Moore, NOAA/CMDL

Acetone by Mass Spectrometry



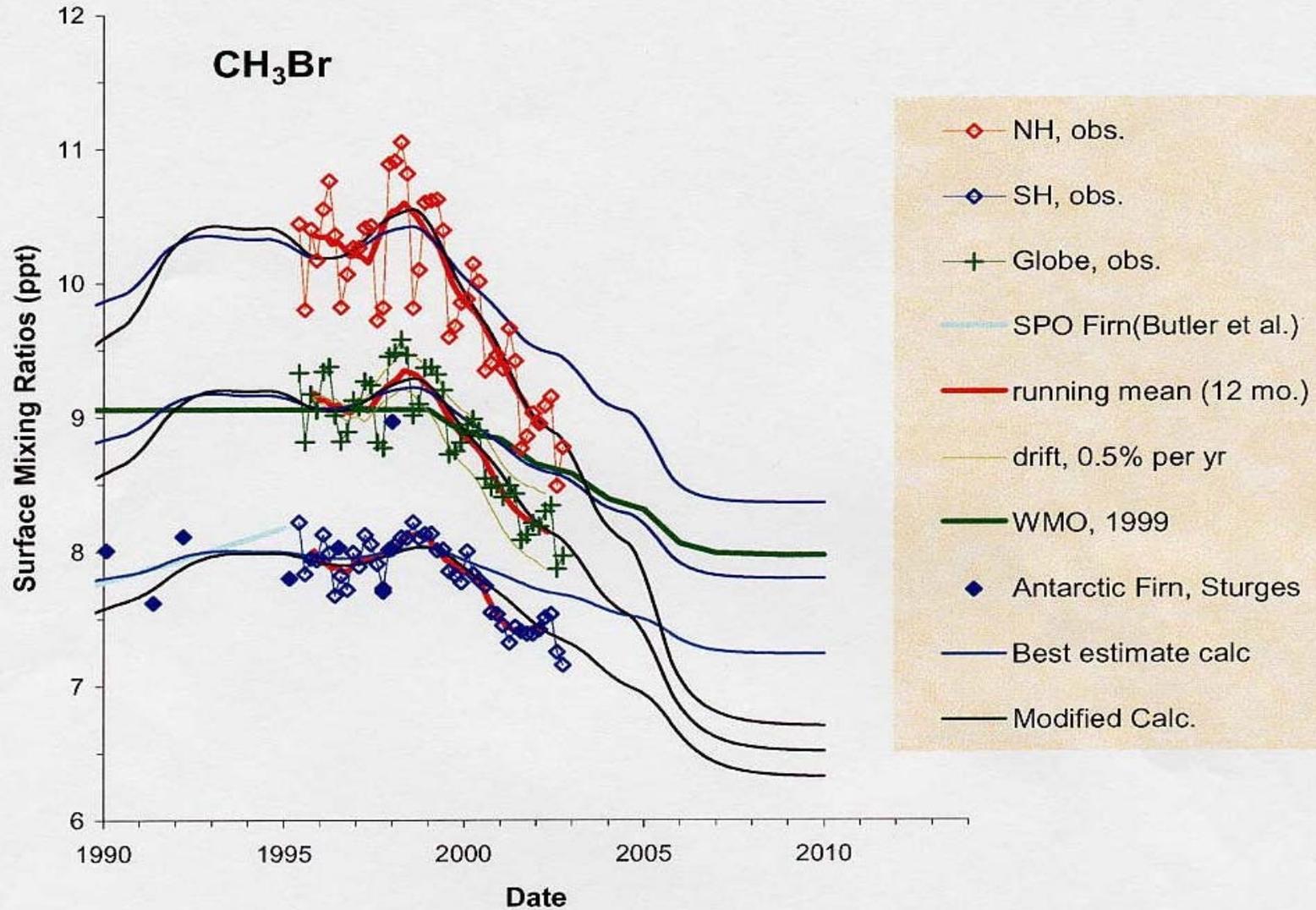
- **Target Molecules:** HCFC-22, CH₃Cl, CH₃Br, HFC-134a, HCFC-141b,-142b, H₂, CH₄, CO, N₂O, SF₆, CFC-11, -12, halon-1211, MC, CT
- **Method:** Mass Spectrometry and Gas Chromatography, including 1 Mass Selective Detector and 4 Electron Capture Detector channel gas chromatograph
- **Instrument Details:** Station 9, 200 lbs., 24" w x 28" l x 15" h, 1 kw (2 kw peak)
- **Sampling frequency:** 60-500 seconds
- **Accuracy:** 2% or better **Precision:** 1% or better
- Development funded by NASA Instrument Incubator and NOAA's Climate and Global Change Programs

Science Issues

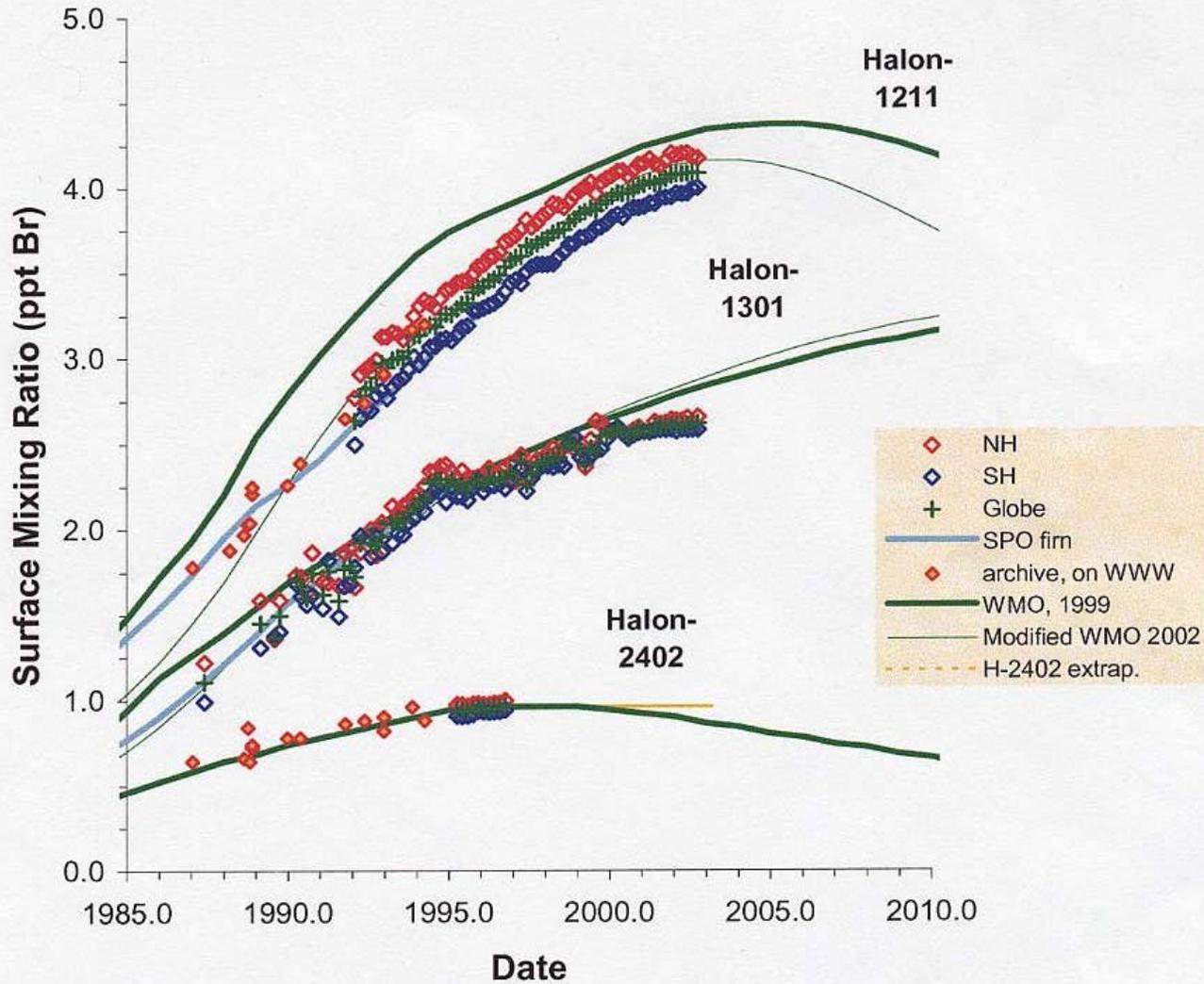
- Cal-Val: Inter-comparisons with DACOM, Mk IV, others.
- Vertical descent compare with SOLVE [Ray et al., 2002].
- Total Cl and Br.
- Age of the air mass above tropopause.
- Isolation of polar vortex from the midlatitudes.
- COS, source of stratospheric sulfate aerosol layer.



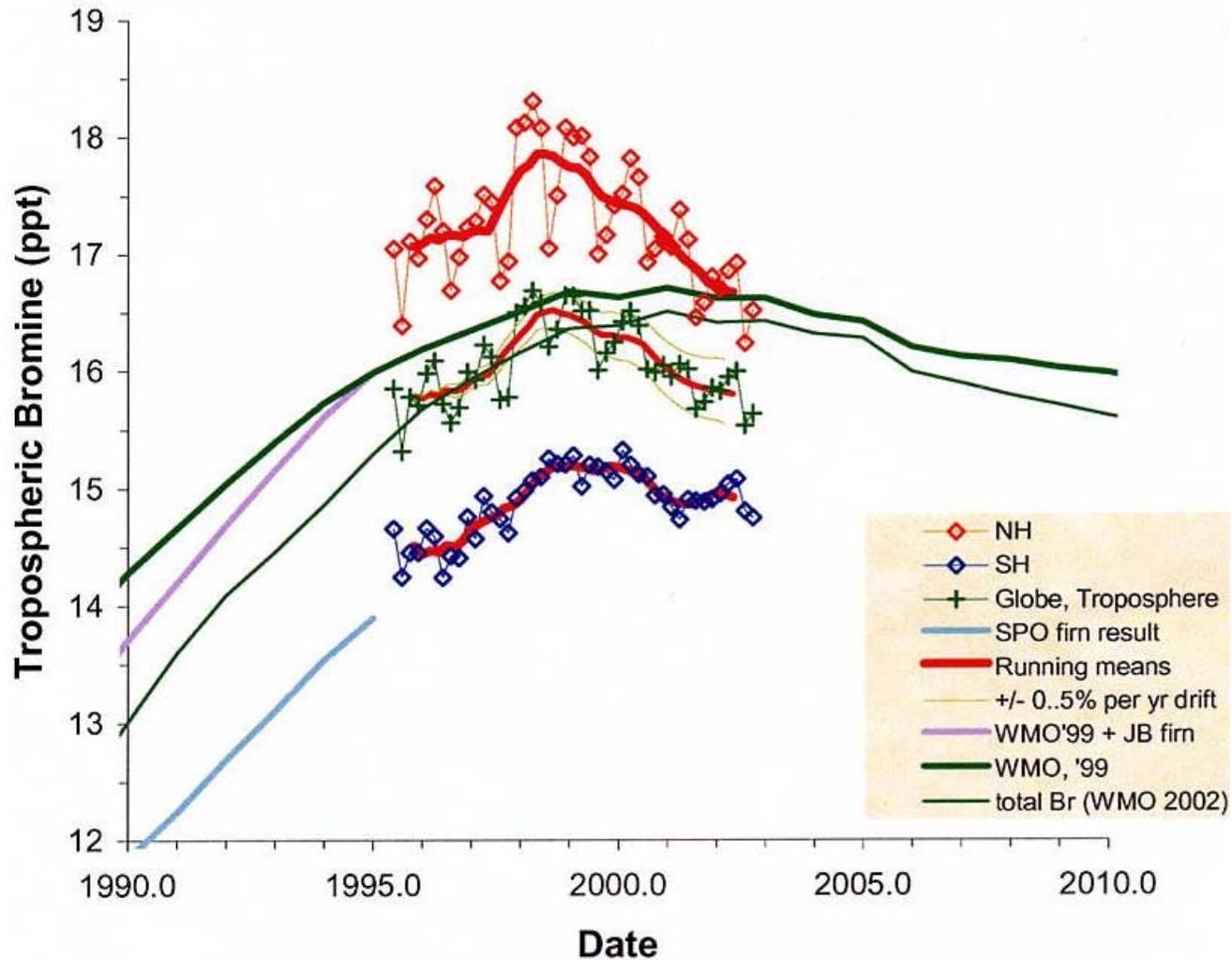
Methyl Bromide Decreasing



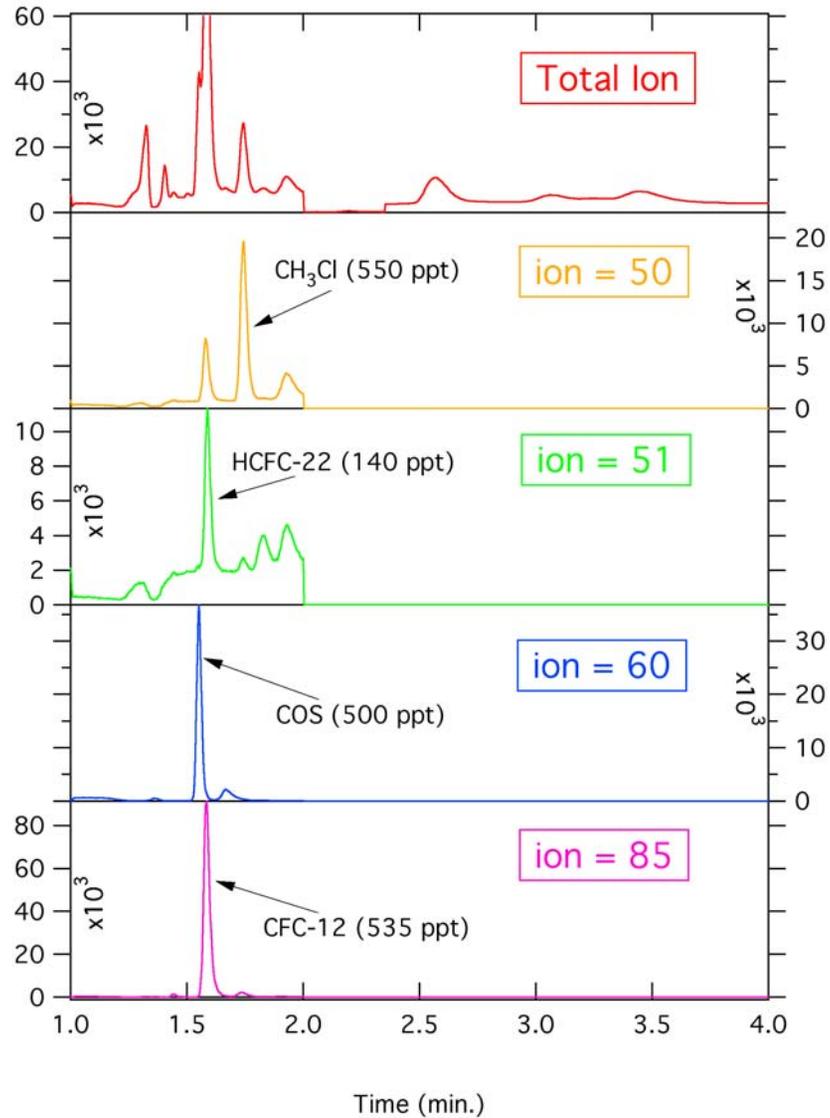
Halons are still increasing, but



Tropospheric CBry is going down.



Higher concentration halocarbons



Lower concentration halocarbons

