

## Core Atmospheric Measurements at the Summit, Greenland Environmental Observatory

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This project involves long-term measurements of the Arctic atmosphere, snow and other Earth system components at the Summit, Greenland Environmental Observatory (GEOSummit), located at an elevation of 3100 m on the Greenland ice sheet. GEOSummit was the site of the Greenland Ice Sheet Project 2 (GISP2) ice core studies, completed in 1993, and has been a site of atmospheric, snow, and other geophysical measurements ever since. It is currently the only high-altitude site for atmospheric and related measurements in the Arctic. Many of these measurements, previously made intermittently at GEOSummit, will resume on a continuous basis beginning in summer 2003. These core atmospheric and snow measurements also provide a baseline for the continued operation of GEOSummit as a long-term site for year-round disciplinary and interdisciplinary measurements and research. This presentation highlights past year-round measurements (Figures 1 and 2) and details future plans.

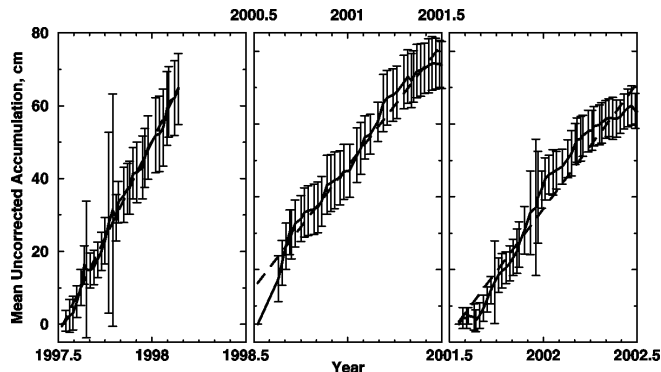


Figure 1. Year-round measurements of net snow accumulation at Summit for 1997/1998, 2000/2001, and 2001/2002. Shown are the 100-stake mean (solid) and standard deviation and a linear fit (dashed). Note that whereas mean accumulation was approximately linear with time in 1997/1998, it was significantly nonlinear in 2000/2001 and 2001/2002.

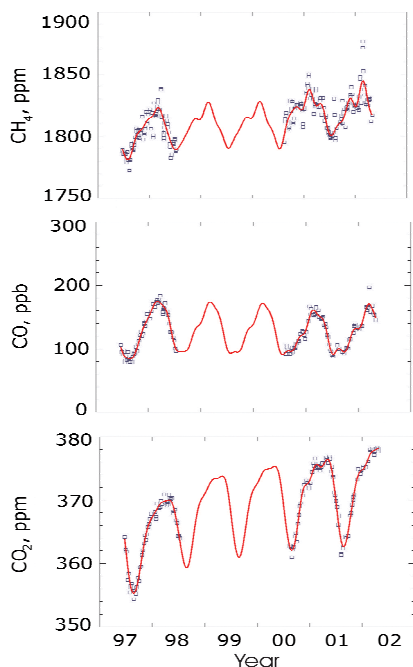


Figure 2. Individual year-round flask measurements of CH<sub>4</sub>, CO, and CO<sub>2</sub> from Summit (symbols) and after smoothing and interpolation (solid red) (data from T. Conway, CMDL).