



Baseline measurements and results from the Greenland Summit Environmental Observatory

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Year-round measurements of snow and atmospheric chemical species at the Summit Greenland Environmental Observatory (GEOSummit) are providing a long-term view of processes and atmospheric variability for aerosol species, reactive gases and snow-atmosphere exchange processes. Ongoing core measurements include: i) snow accumulation and its spatial variability, ii) ions and trace species in surface snow and snow pits, iii) atmospheric trace gases, iv) atmospheric aerosol composition and number, v) meteorology and energy balance, and vi) other properties of the snow and atmosphere at this 3,100 m elevation observatory. Atmospheric aerosol samples indicate sources of air masses, with distinct events from various distinctive Arctic source areas. Samples also correlate with snow analyses, providing insight into year-round deposition and preservation of species in ice cores. We also report on other science results from ongoing programs, current activities and enhancements planned for GEOSummit over the next 2-5 years. Support for baseline measurements at GEOSummit is currently provided through the U.S. NSF and NOAA, with research investigators from both the United States and Europe active at the site.