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Two Years of High-Resolution Surface Energy Budget Measurements at the Alert SEARCH Site: Atmosphere-Snow-Soil Interactions

O. Persson(1), R. Stone (2)
(1) CIRES/NOAA/ESRL, University of Colorado (2) CIRES/NOAA/ESRL

Over two years of complete surface energy budget data with 1-minute resolution and ancillary atmospheric, snow, and soil data have been collected at the Alert Global Atmospheric Watch (GAW) Laboratory near Alert, Nunavut. In addition, nearby operational rawinsoundings have been done two times per day. These data have been analyzed to quantitatively reveal the flow of energy between the atmosphere, the snow, and the soil at this high-Arctic site on time scales ranging from less than an hour to the annual cycle. The impact of common atmospheric phenomena and processes on the snow and soil during all seasons are examined, including the changes occurring during the summer melt season and the fall freeze-up. Specific case studies of especially interesting periods will be presented.