



Turbulent fluxes and transfer of carbon dioxide in Arctic at the SEARCH station Eureka, Canada

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Eureka site (80.0 N, 85.9 W) is a long-term research observatory near the coast of the Arctic Ocean (Canadian territory of Nunavut). Eureka was established in 1947 as part of Arctic weather stations network and currently has been identified for enhanced instrumentation to monitor the changing Arctic climate. Beginning in 2004, remote sensors and in-situ instrumentation were installed at Eureka in framework of the Surface Fluxes at Study of Environmental Arctic Change (SEARCH) Program. Turbulent fluxes and mean meteorological data are continuously measured and reported hourly at various levels on a 10-m flux tower. Sonic anemometers are located at 3 and 8 m heights while high-speed Licor 7500 infrared gas analyzer (water moisture and carbon dioxide measurements) at 7.5 m height. Turbulent fluxes are based on the eddy-covariance technique. The thermal profile is measured by several slow T/RH sensors and differential temperature pairs at 2, 5 and 10 m heights. Surface characteristics are measured by thermal soil probes, an infrared surface temperature sensor, and a sonic snow-depth sensor. This study focuses on the dynamics of turbulent fluxes including water vapor and carbon dioxide transfer based on long-term measurements made at Eureka.