At the Eureka site (80.0 N, 85.9 W) located near the coast of the Arctic Ocean (Canadian territory of Nunavut) many instruments were installed in summer 2007. These include, but

constraints.

funding the level of technical support at the site has been increased to provide an enhanced measurements of events that are rapidly evolving or have fallen outside normal operational level of operations and greater operational flexibility, both necessary to pursue

d) soil heat flux (plates A and B) observed at Eureka

temperature at 2, 6, and 10 m (RTD sensors), (c) soil

downwelling and upwelling radiation, (b) long-wave (LW)

Seasonal and Latitudinal Variations of Surface Fluxes and Meteorological Variables at Arctic Terrestrial Sites

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Eureka Observatory

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Solar Radiation: Eureka versus Tiksi

Eureka generally receives the least cumulative amount of net solar radiation than Tiksi over the entire year. However, Eureka receives more the incoming solar radiation than Tiksi in the middle of Arctic summer. In other words, annual mean of the incoming solar radiation is larger at Tiksi whereas a daily mean in summer is larger at Eureka.


Tiksi Observatory

Russian Tiksi weather station located in East Siberia (71.6 N, 128.9 E) was established at the Polyarka settlement on August 12, 1932 by the chief management of the northern sea route that began collecting geophysical data. The “Polyarka” observatory is located five miles out of town Tiksi. This is now the location for a new Intensive Arctic Observatory site representing a partnership between the National Science Foundation (NSF), the National Oceanic and Atmospheric Administration (NOAA), and the Russian Federal Service for Hydrology and Environmental Monitoring (Roshydromet). This facility supports the research needs of the International community, across disciplines including supporting Global Atmospheric Watch measurements as well as other climate observations.

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Annual Cycle at Eureka (2011)

Annual cycle of (a) wind speed at 3, 8 (twin anemometers), and 11 m in (wind vane), (b) air temperature at 10, 20, 30, 45, 70, and 120 cm, and (d) soil heat flux (plates A and B) observed at Eureka in 2011. The data are based on 1-hour averaging.

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Annual Cycle at Tiksi (2012)

Annual cycle of (a) wind speed at 3.7, 9.2, 15.5 m (wind vane), (b) air temperature at 3.8, 8.1, 11.8, 19.9 m (RTD sensors), (c) soil temperature at 10, 20, 30, 45, 70, and 120 cm, (d) soil heat flux (plates A and B) observed at Tiksi in 2012. The data are based on 1-hour averaging.

Annual cycle of (a) wind speed at 3, 8 (twin anemometers), and 11 m in (wind vane), (b) air temperature at 10, 20, 30, 45, 70, and 120 cm, and (d) soil heat flux (plates A and B) observed at Eureka in 2011. The data are based on 1-hour averaging.

Annual cycle of (a) short-wave (SW) downwelling and upwelling radiation, (b) long-wave (LW) downwelling and upwelling radiation, (c) SW balance, LW balance, and net radiation, and (d) albedo (reflectivity of a surface) observed at Eureka in 2011.

Annual cycle of the solar radiation at the top of the atmosphere (TOA) at (a) Eureka-5 min and 1-day averaged, (b) Tiksi (1-min and 1-day averaged), and (c) Eureka and Tiksi (daily mean TOA flux). Annual cycle of (a) short-wave (SW) downwelling radiation and (b) net radiation observed at Eureka in 2009-2011 and Tiksi in 2012-2014. The net radiation in the bottom panel is defined as the balance between incoming (positive quantity) and outgoing (negative quantity) SW and LW radiations. The data are based on 5-day averaging of 1-hr radiation measurements.

Annual cycle of (a) wind speed at 3, 8 (twin anemometers), and 11 m in (wind vane), (b) air temperature at 10, 20, 30, 45, 70, and 120 cm, and (d) soil heat flux (plates A and B) observed at Eureka in 2011. The data are based on 1-hour averaging.