Geophysical Research Abstracts
Vol. 15, EGU2013-11819, 2013
EGU General Assembly 2013

Integrated Studies of Atmosphere-Surface Exchanges and Processes at the Tiksi Hydrometeorological Observatory in the Russian Far East

Taneil Uttal (1), Alexander Makshtas (2), and Tuomas Laurila (3)

(1) NOAA, ESRL, Boulder, United States (Taneil.Uttal@noaa.gov), (2) Arctic and Antarctic Research Institute, Saint Petersburg, Russian Federation (maksh@aari.ru), (3) Finnish Meteorological Institute, Helskinki, Finland (Tuomas.Laurila@fmi.fi)

The Tiksi Hydrometeorological Observatory facility has been developed over the last 6 years through a partnership between Russian, U.S. and Finnish agencies responsible for environmental monitoring. The current facility has a clean air facility, a 20 meter tower and an upgraded weather station. Measurements are being made of LW/SW radiation, climate grade meteorological parameters, turbulent fluxes, CO_2, methane, aerosols, H_2O, greenhouse gases (via flask sampling), black carbon, ozone, surface temperatures and permafrost active layer temperature profiles. Tiksi is located in a boundary region at the confluence of Atlantic and Pacific influences on the Arctic atmosphere; this results in a wide variety of air masses with variable cloud, aerosol and pollutant characteristics in the vicinity of the Tiksi Hydrometeorological Observatory creating a natural laboratory to study the influence that the various source regions of Russia, Northern America, Europe and Central Asia have on regional boundary layer processes. Tiksi is on the edge of the Laptev Sea that is an area of such large ice production that it has been termed “the ice factory of the Arctic Ocean” providing much of the sea ice in the Arctic Ocean. Thus the observatory sensors are frequently influenced by the maritime as well as continental air which is already showing up in multiple data lines as having distinctive properties. An integrated picture is emerging of ozone depletion events, black carbon on snow impacts, methane and CO_2 flux seasonal variability, and short-lived temperature events that can be interpreted in the context of feed-backs with the local off-shore ice conditions and on-shore active layer morphology. This presentation summaries preliminary results with an emphasis on identifying linkages being study lines that are typically conducted separately.