



Research station «Ice Camp «Cape Baranova» (79N, 101E) - possible candidate to BSRN

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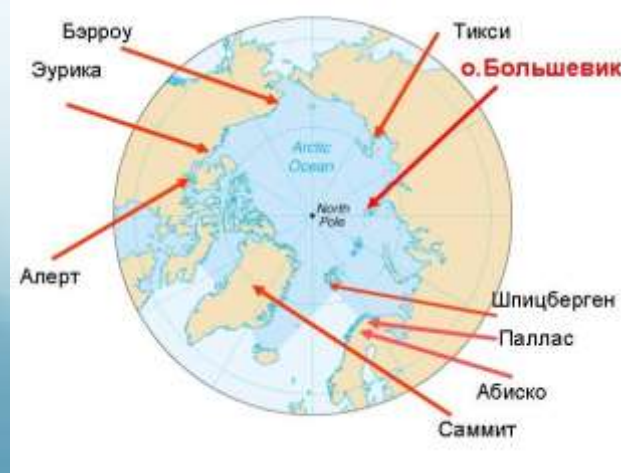
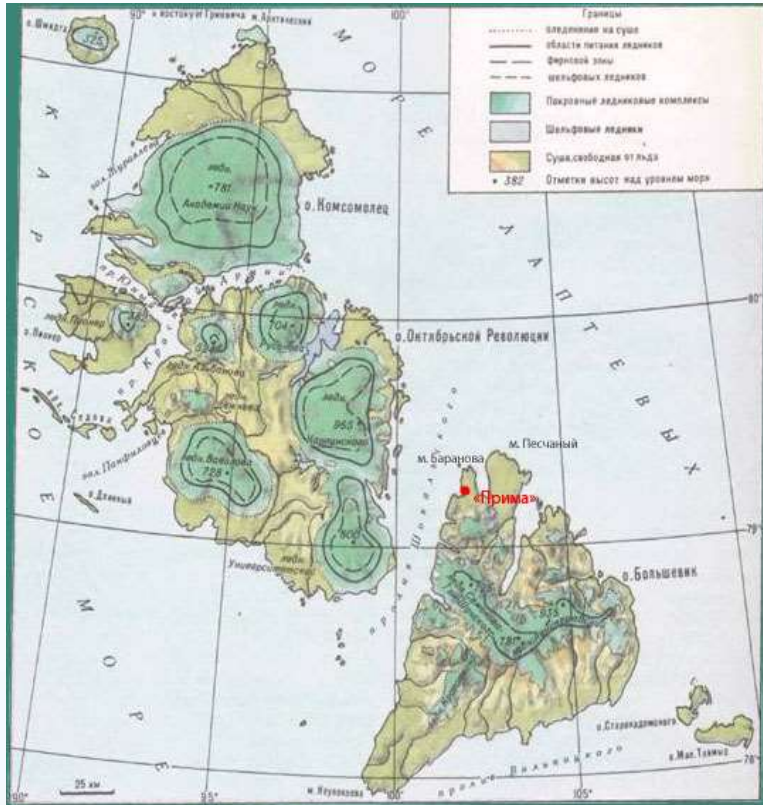


Re-opened in June 2013

Under development



Topographic map of Severnaya Zemlya archipelago and MODIS satellite imagery



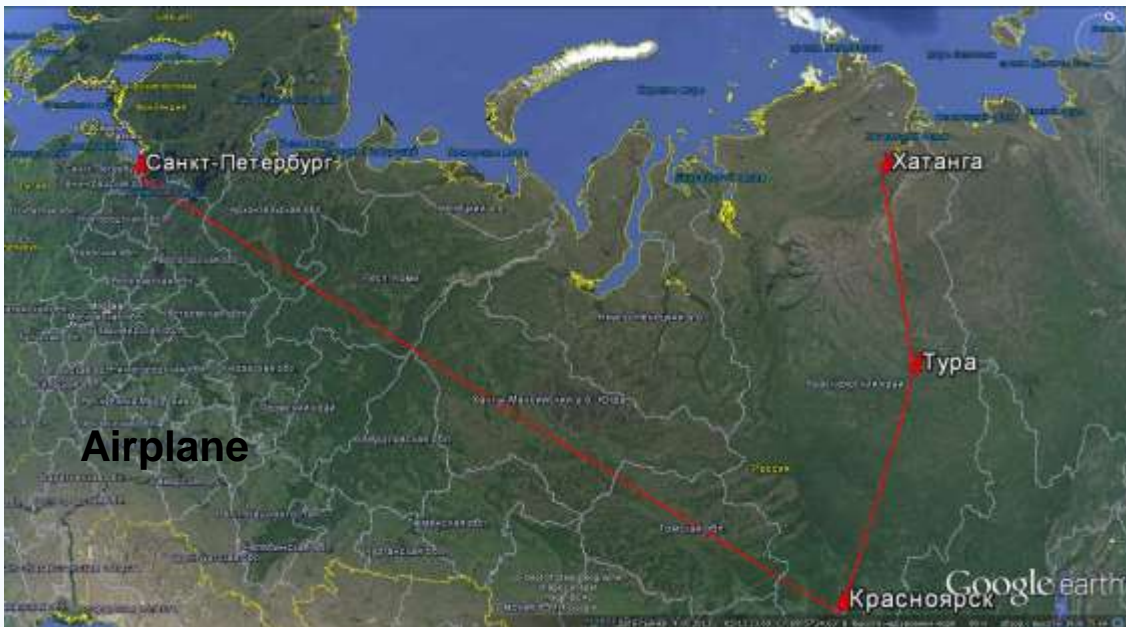
Area of the ice base is one of the least investigated regions of the Arctic Ocean. Pending the whole complex of meteorological be installed, the Ice Base “Cape Baranov” may pretend for a full partnership in the network of the International Polar Observatories, similar to Tiksi with a perspective to become a second regional station in the Russian Arctic and further as a global station in the GAW.

Main goal of establishment Observatory "Ice Base Cape Baranova" is to identify the causes and consequences of climate change in the Arctic with special attention to the comprehensive studies of interrelated components of the Arctic climate system:

- surface heat and radiation balance;
- cloudiness and aerosol components of the atmosphere;
- processes of gas - and mass transfer;
- chemical composition of atmosphere and hydrosphere;
- melting of permafrost;
- study of drifting, fast and lake ice;
- characteristics of hydrological regime of the Shokalski Strait and western Laptev Sea
- dynamics of glaciers.



The route from Saint Petersburg to “Ice Base Cape Baranova”



Refueling at the Cape Cheliuskin



Bolshevik Island



Observatory "Ice Base Cape Baranova" from height 500 m



Observations and studies beginning May 2014



Standard meteorological observations

Standard and advanced solar radiation observations

Route surveys of spectral albedo

Upper-air observations

Monitoring of greenhouse gases

Heat balance observations

Studies of physical - mechanical properties of fast ice

Testing of new devices for measurements of freshwater and sea ice thickness

Oceanographic investigations in the Shokalski Strait

Organization of polygon for glaciological investigations at the glacier Mushketov

Hydrological studies





Standard meteorological observations with automatic station MAWS – 420



Instruments for special meteorological observations

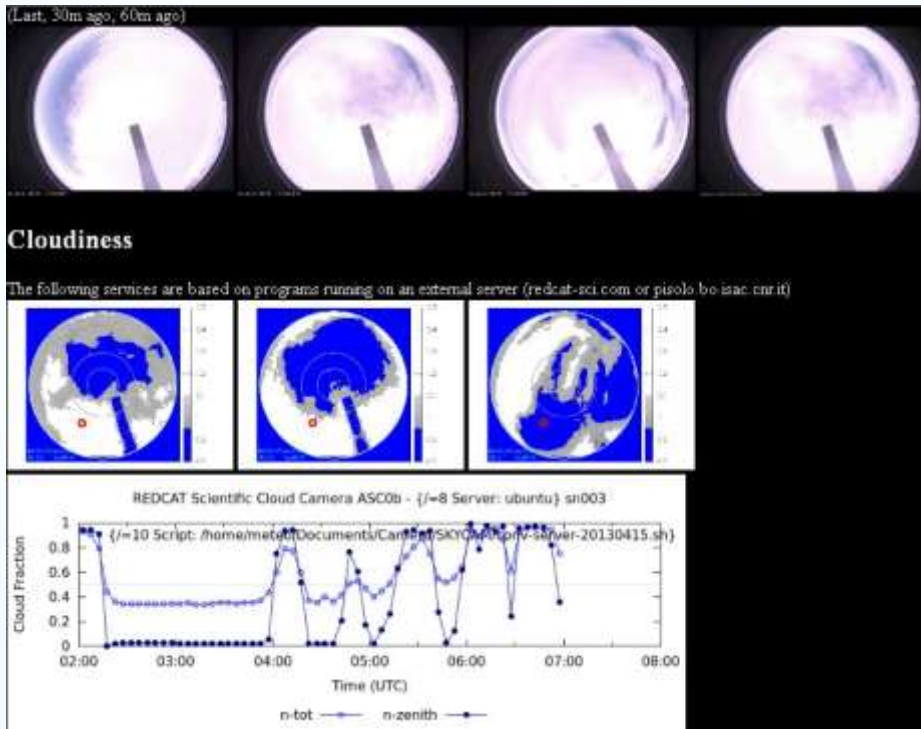


V.Vlasov

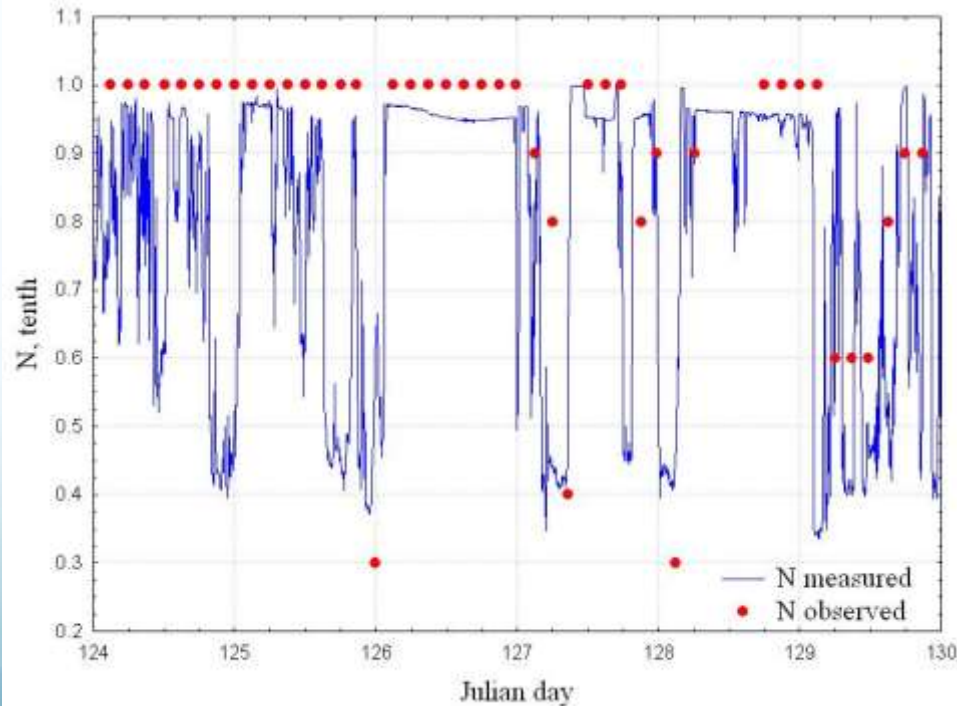
Installations for spectral albedo, turbulent fluxes and reflected short and long-wave radiation



Cloud camera "Red Cat" screen shot

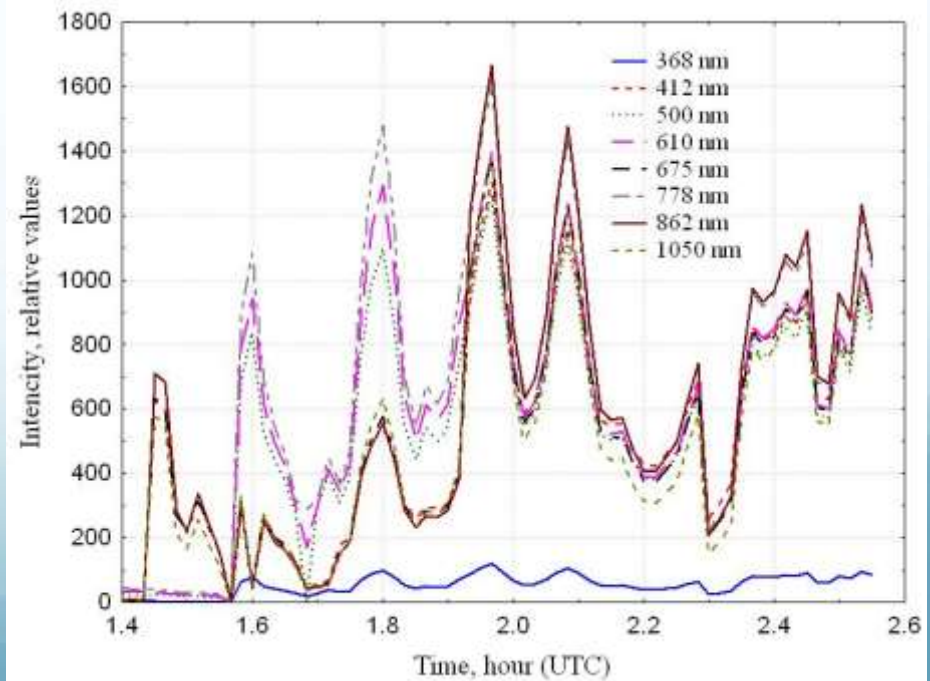


Comparison of cloud camera data with data of visual observations

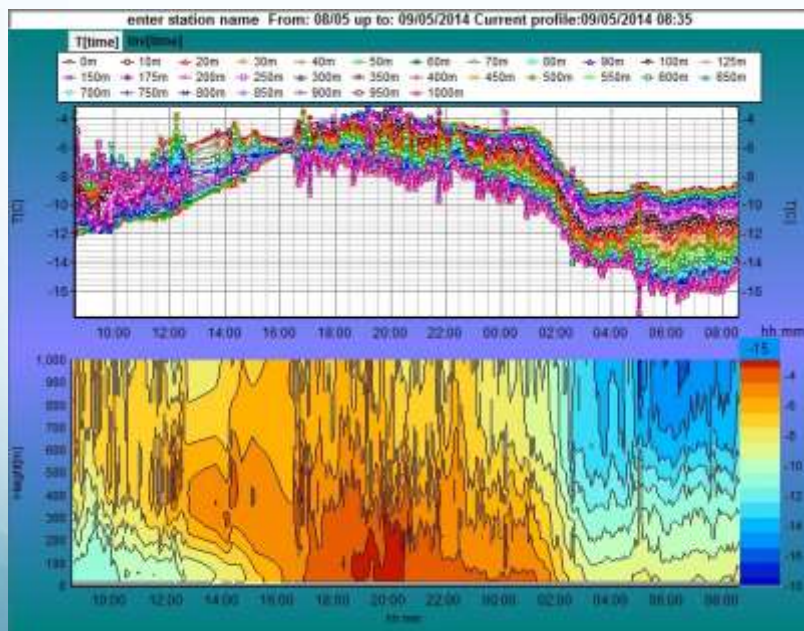
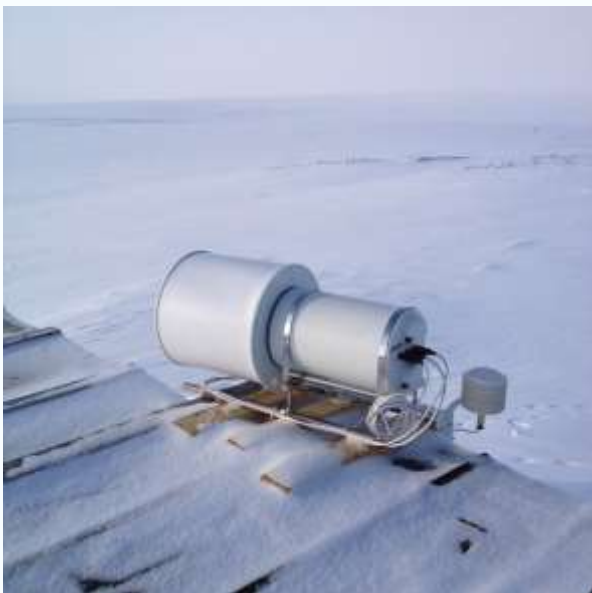




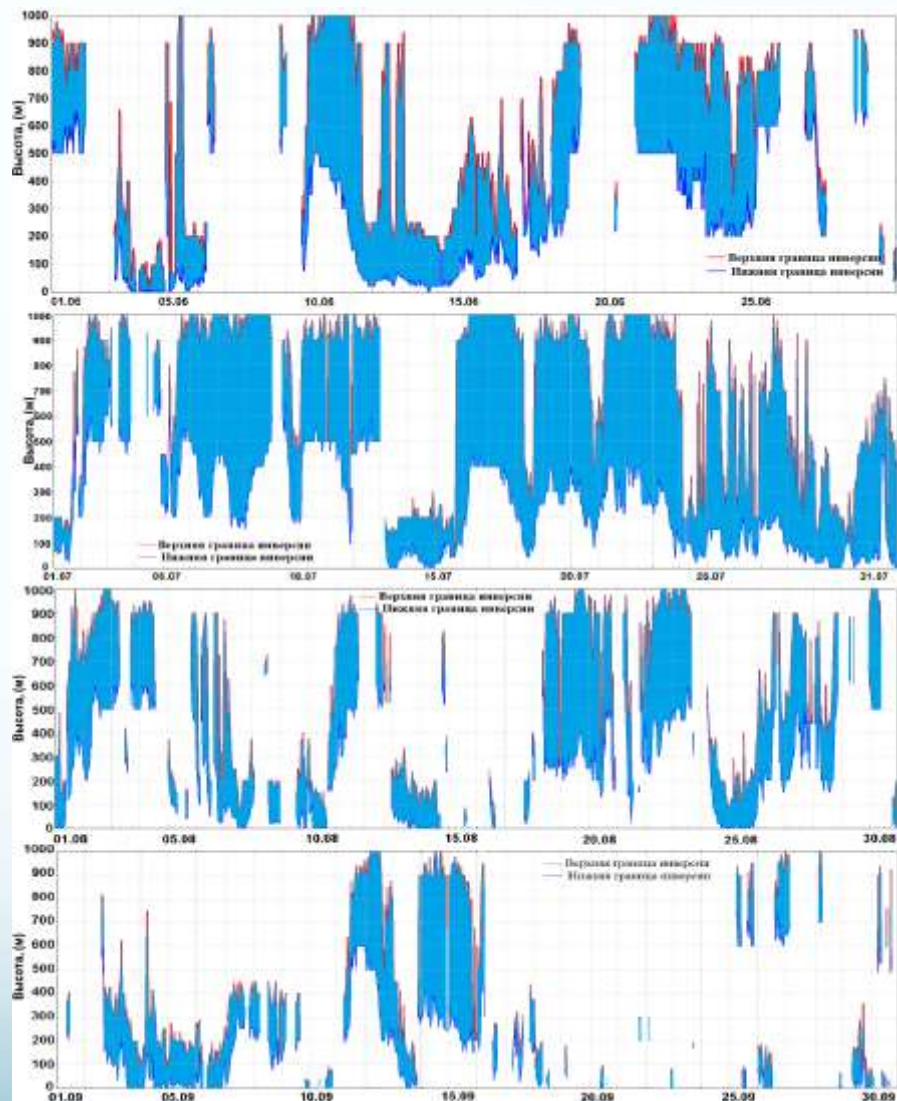
Measurements of short-wave and long-wave radiation balance and spectral intensity of direct solar radiation



Measurements of atmospheric boundary layer temperature with profiler MPT-5

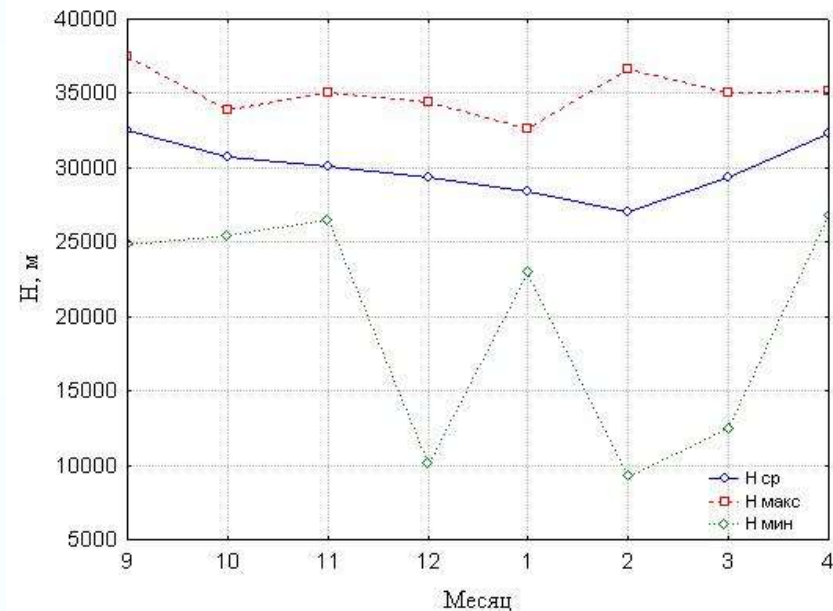


Interface of MPT-5PE

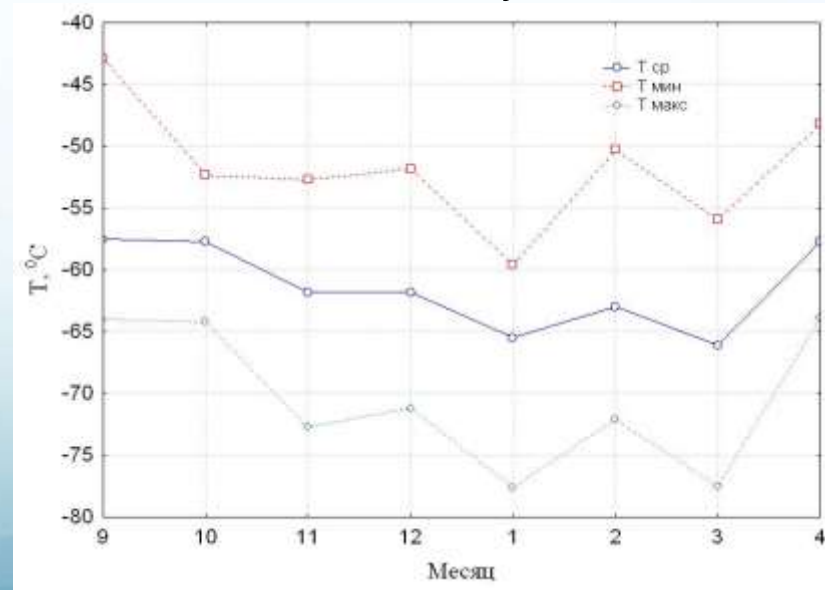
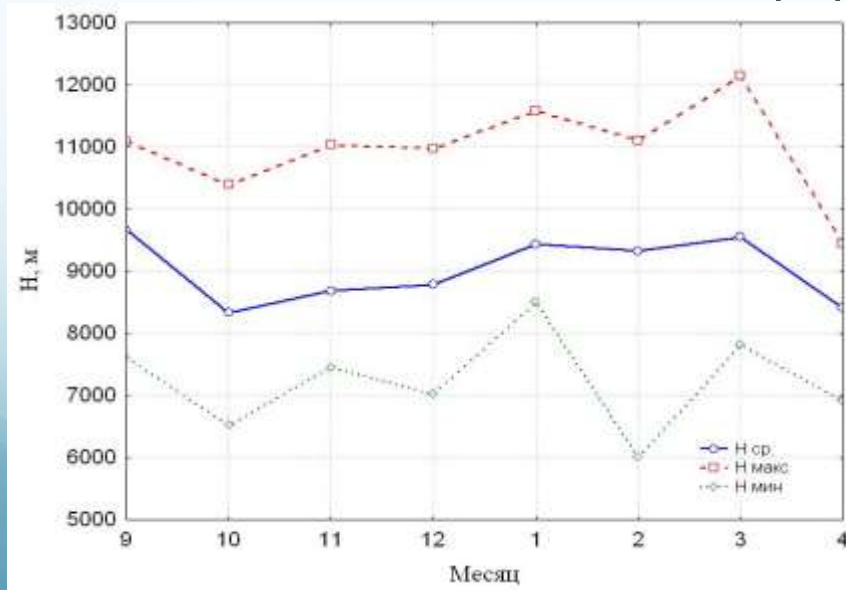


Inversions in ABL (0 – 1000 m) in June - September 2015

Upper-layer observations (Radiosoundings and Ozone soundings)



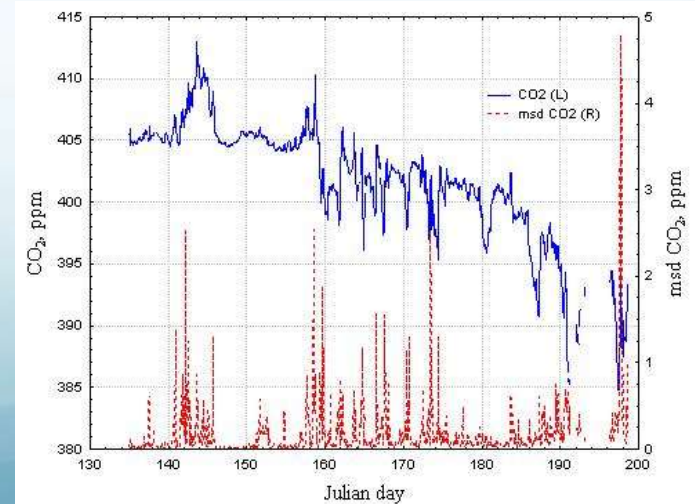
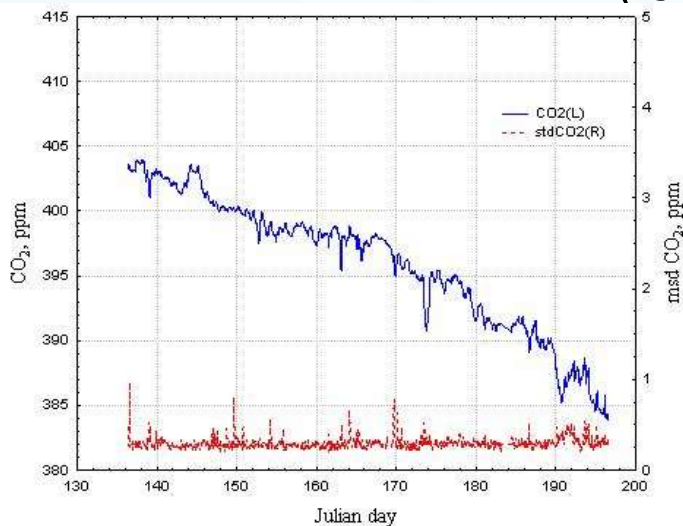
Characteristics of tropopause seasonal variability



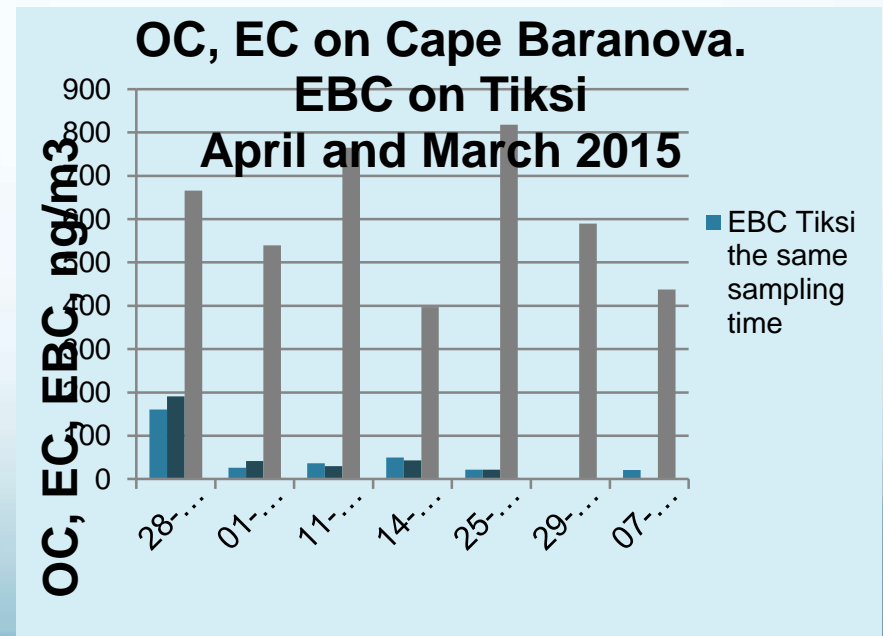
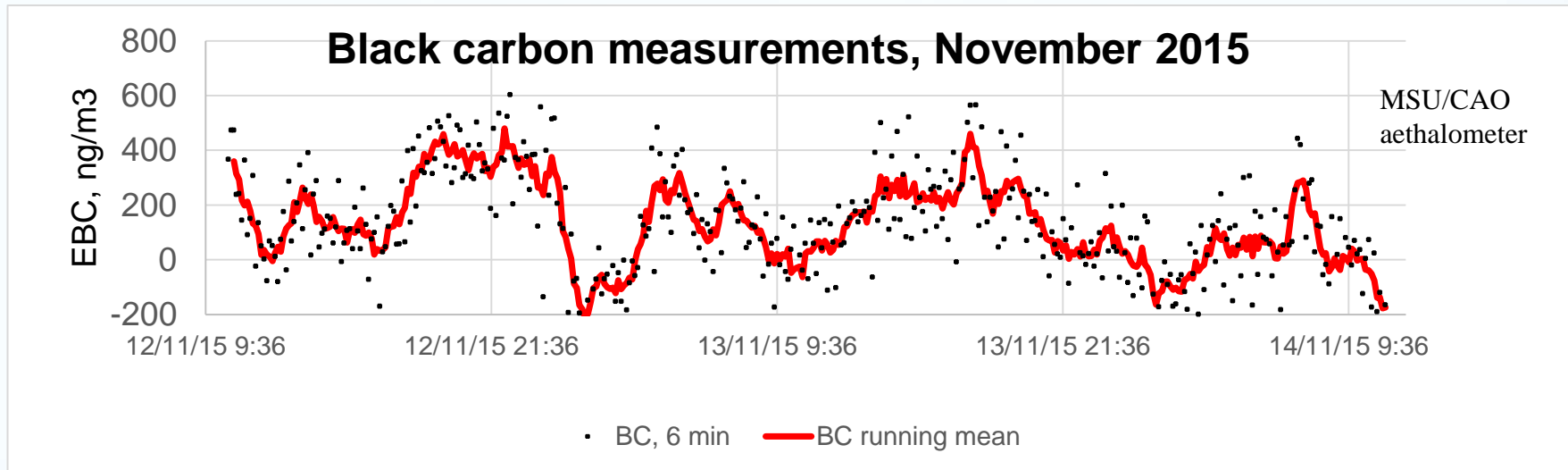
Study of greenhouse gases and aerosol at the “Ice base cape Baranova” (left) and HMO Tiksi (right)



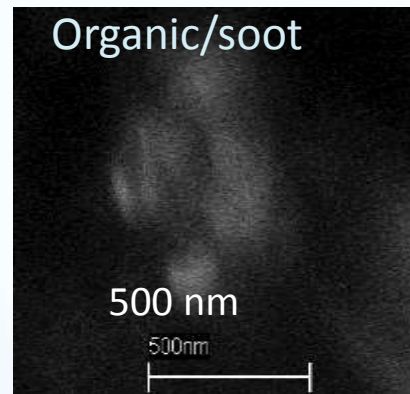
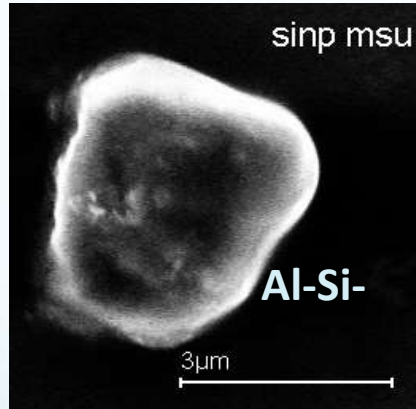
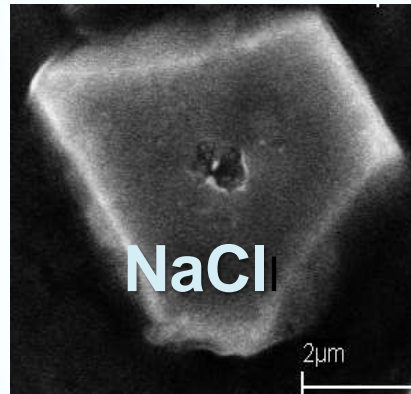
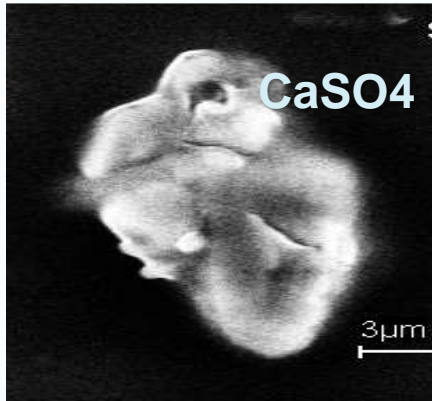
Temporal variability of carbon dioxide at the “Ice base cape Baranova” (left) and HMO Tiksi (right)



First results of BC measurements at the Cape Baranova



Characterization of physico - chemical properties of aerosol in the Arctic



PARTICULATE POLLUTION PROGRAMM

BC measurements;

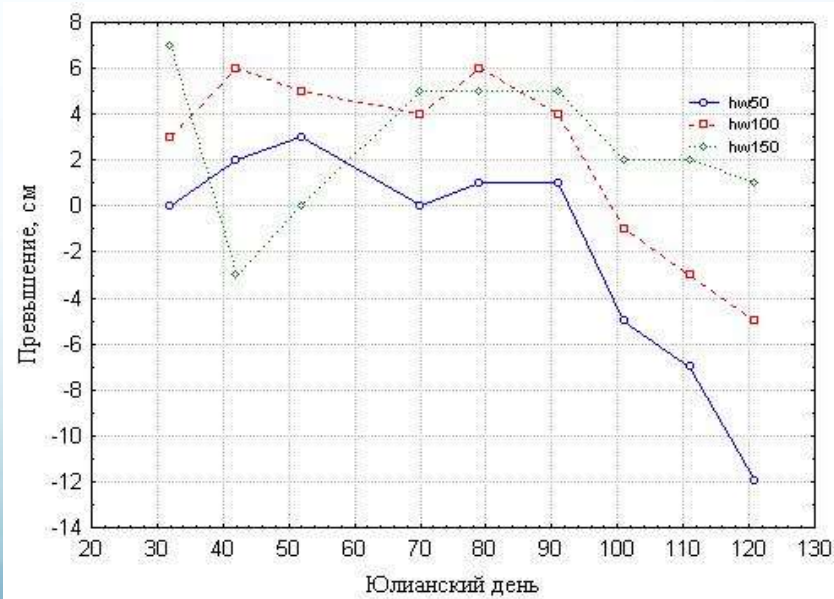
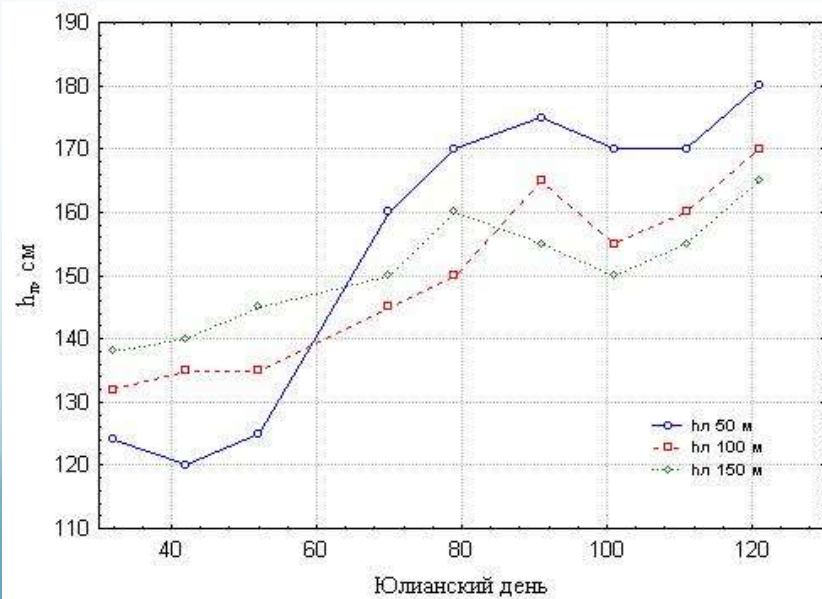
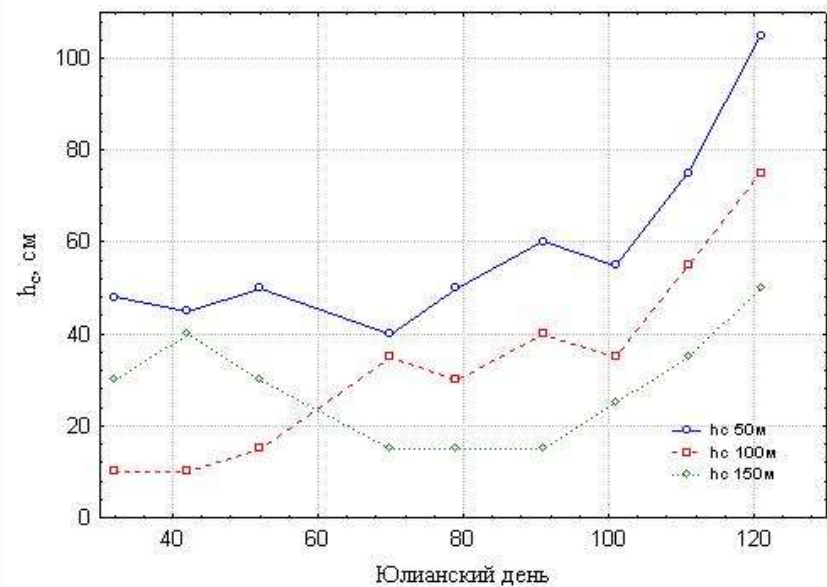
Aerosol characterization:

- individual particle analyses,
- organic and elemental carbon,
- ion components,
- chemical markers of pollution.

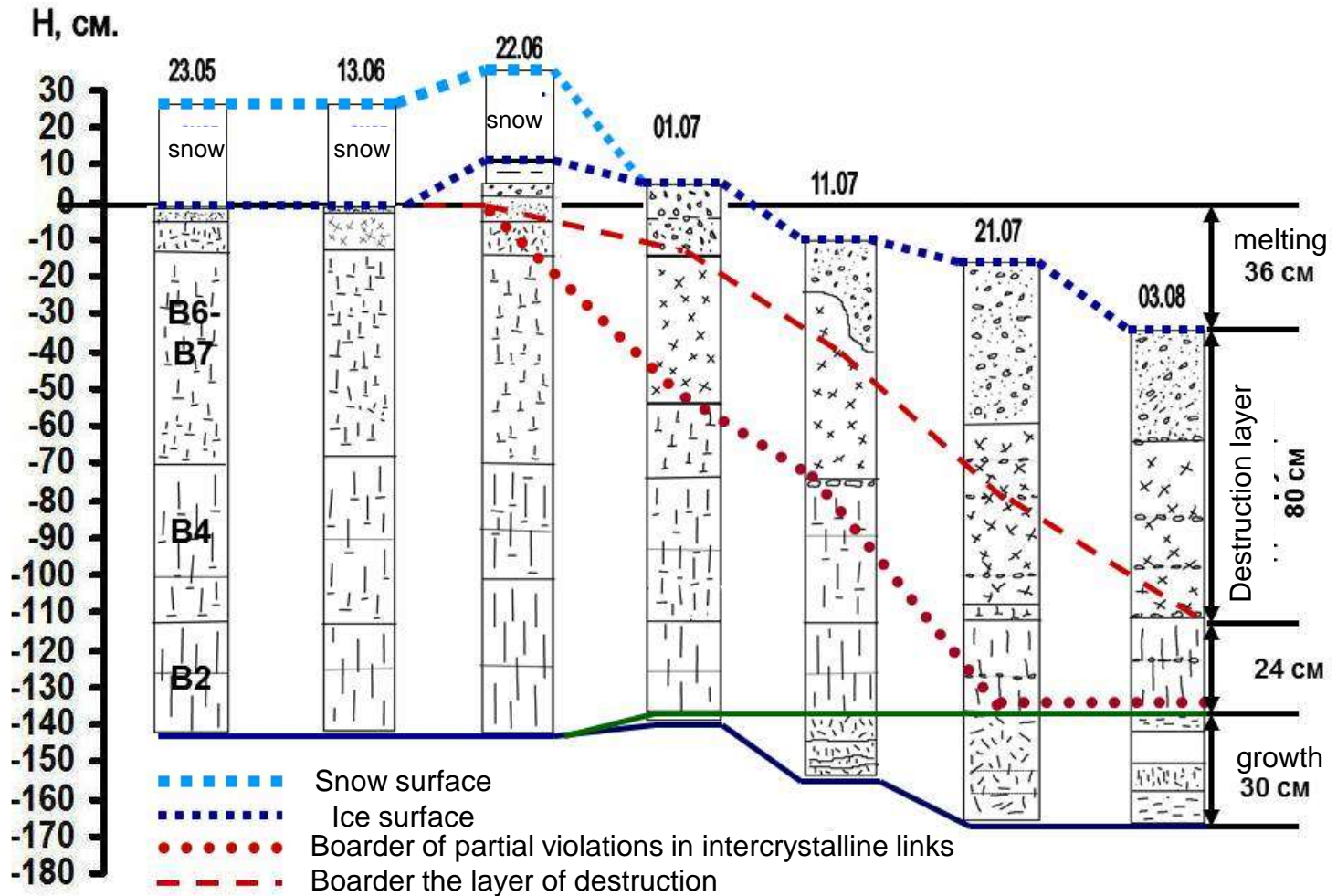
Fast ice formation in area of "Ice base cape Baranov" in 2013



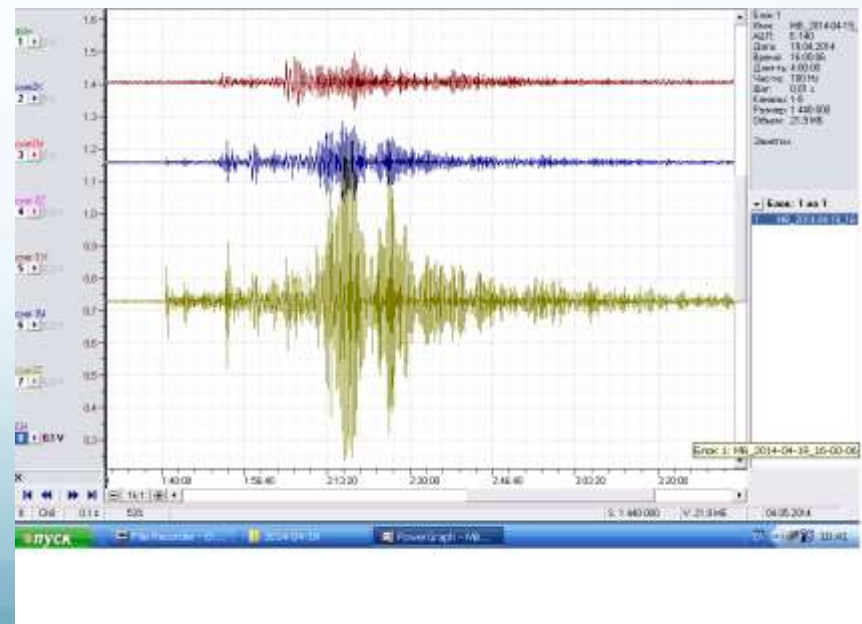
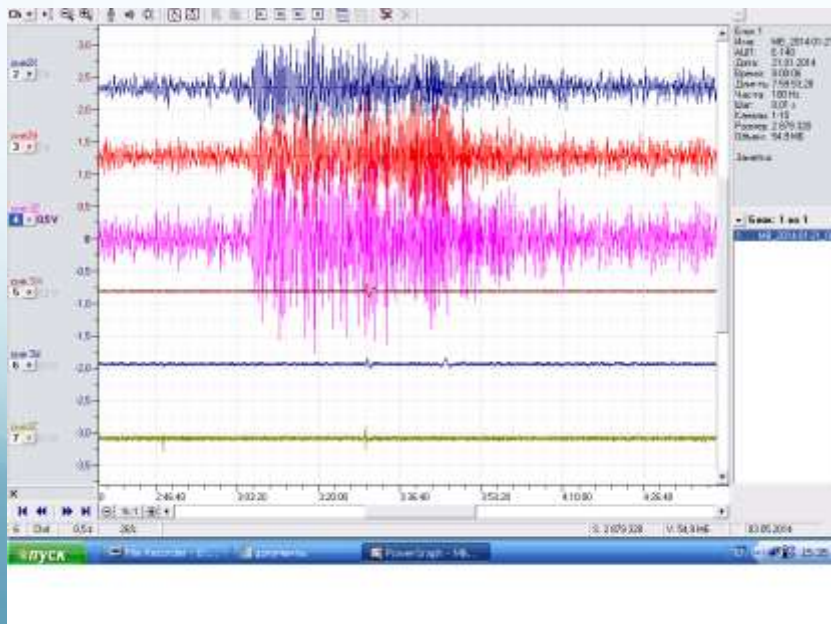
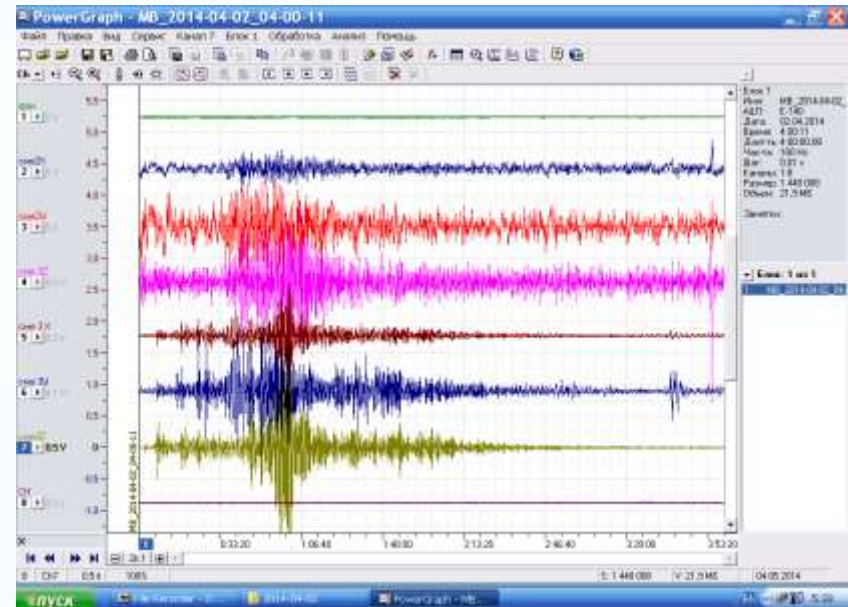
Morphometric characteristics of fast ice in the station area



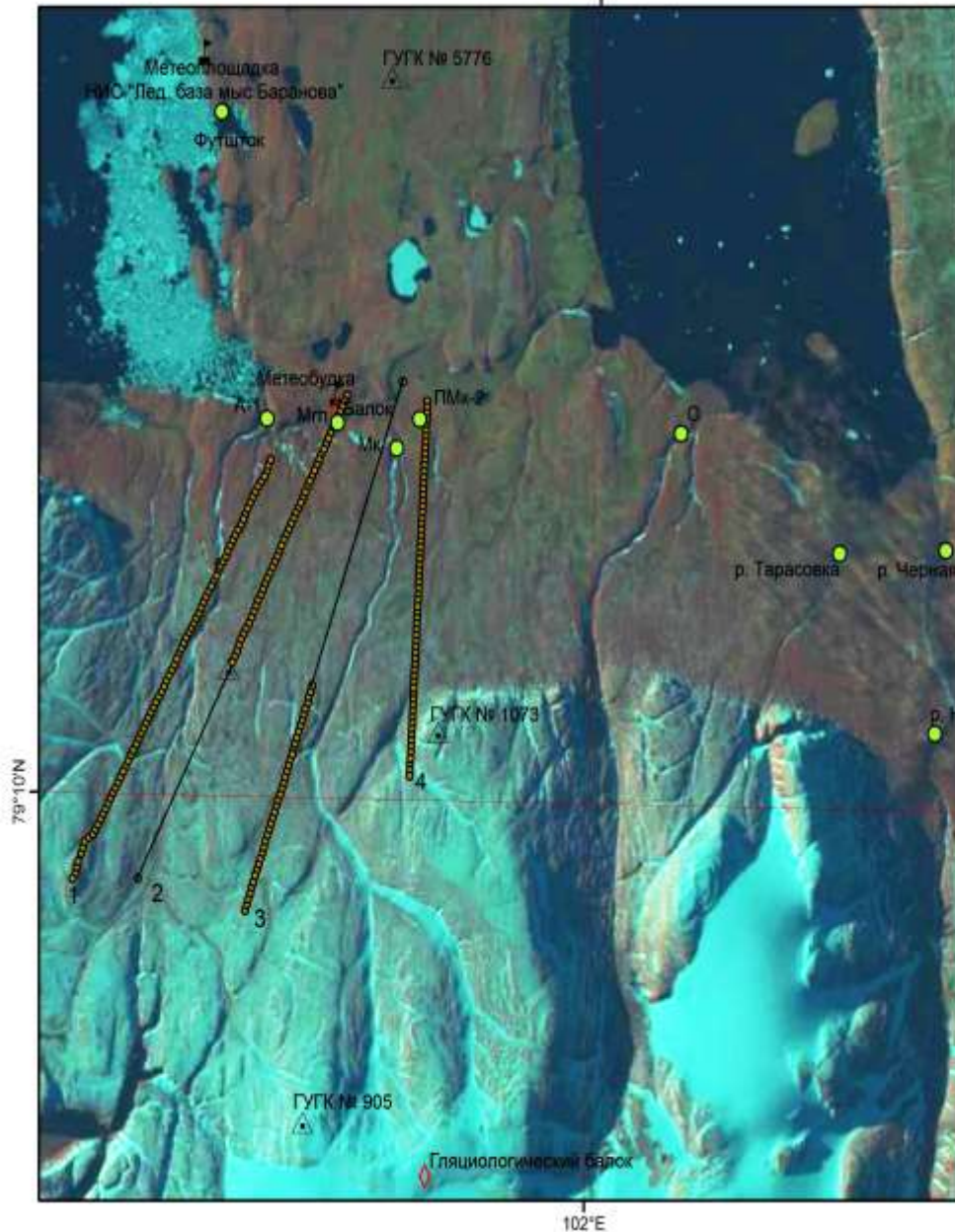
The structure of level fast ice and its temporal variability in summer



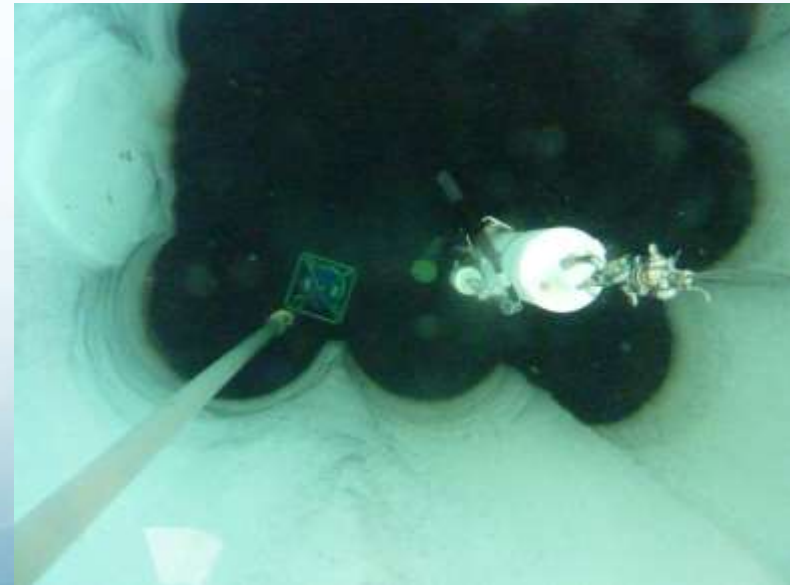
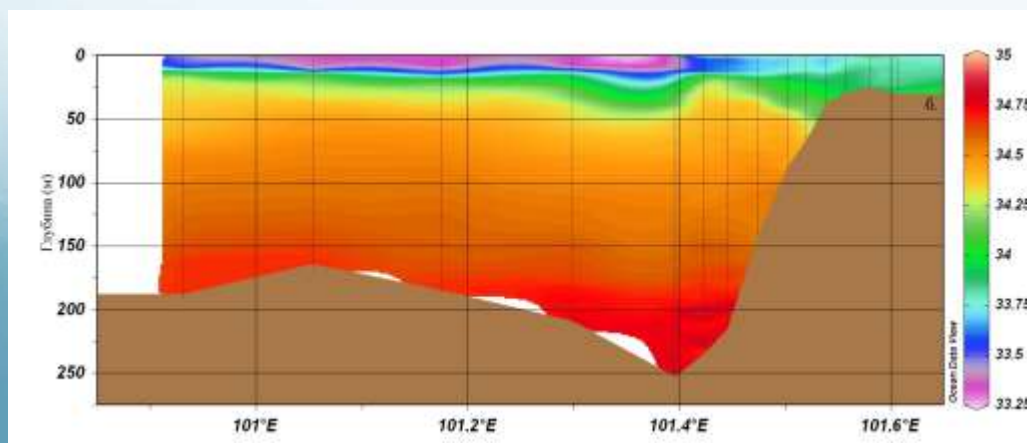
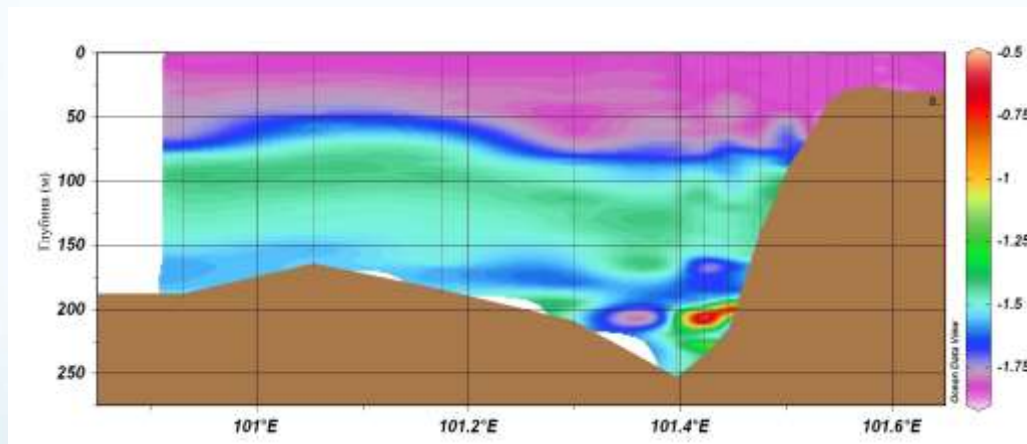
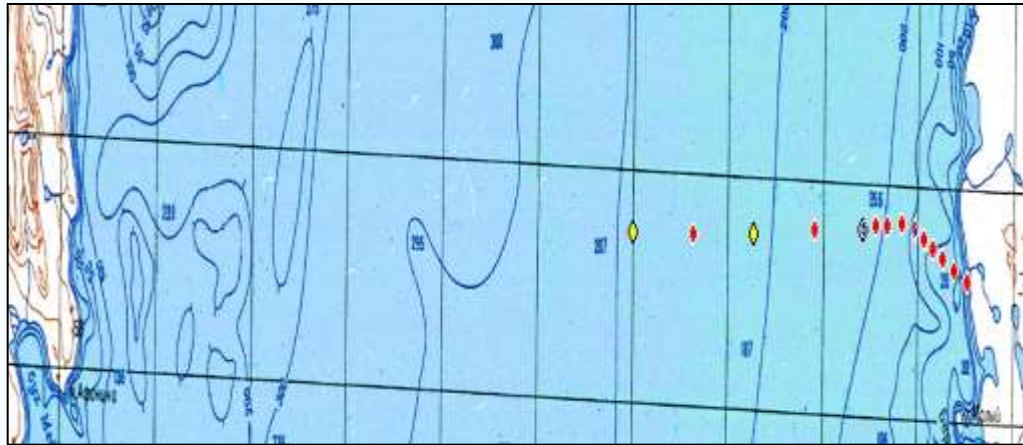
Waves in fast ice and on the Island Bolshevik shore



Hydrological studies



Oceanographic section in the Shokalski island



Welcome to Observatories "Tiksi" and "Ice Base Cape Baranova"

