

Improve satellite measurements of surface temperature in the infrared and the microwave range.

- ✚ Validate exchange coefficients in aerodynamic bulk formulas and the surface roughness parameter with respect to the type of surface and meteorological conditions.
- ✚ Estimate Arctic cloud radiative forcing.
- ✚ Measure CH₄ and CO₂ concentrations along the Arctic continental shelf, where methane hydrate deposits are predicted; validate satellite methane data.
- ✚ Investigate time-space variability of atmospheric ozone and aerosols including optical, microphysical, and chemical properties of Arctic aerosols.

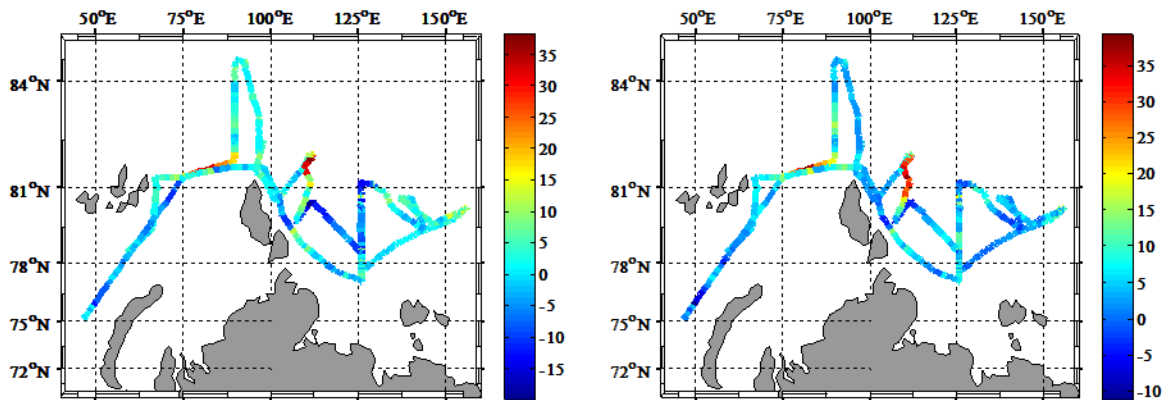


Figure 12. Sensible (left) and latent (right) heat fluxes (W/m^2) measured during the NABOS 2013 cruise.

Ola Persson stressed that regular standard radiosonde observations, complemented by measurements of surface heat fluxes, should be an essential component of an Arctic observational program, including NABOS. Measurements of boundary layer parameters and gas concentrations would also benefit the program.

ENHANCING ICE COMPONENT. *Igor Polyakov* stressed the potential link between measurements of ice thickness, drift, and sea level conducted by NABOS and similar information derived from satellite measurements. *John Kemp* and *Rob Pinkel* suggested a closer association between the Russian team of ice observers aboard of the ship and the US team. *Don Perovich* and *Irina Repina* mentioned the possibility of a joint analysis of IMB measurements and atmospheric heat flux measurements from the ship.

GEOMAR LAPTEV SEA PROGRAM was described by *Heidi Kassens*. Heidi presented an overview of the Russian-German research project „Laptev Sea System: the Transpolar System of the Arctic Ocean" which aims to assess how climate change will affect the highly sensitive Arctic environment and in how far the changes will be of consequence for Europe. Research areas are the Laptev Sea as the most important area of sea-ice production and the Fram Strait as the only deepwater and intermediate water connection between the Arctic Ocean and the Atlantic Ocean (Figure 13). The Transpolar Drift connects both regions. At the same time, the Russian partner institution, the State Scientific Center of the Russian Federation the Arctic and Antarctic Research Institute, St. Petersburg, implements multidisciplinary investigations in the

Central Arctic Ocean as the key research topic of their research program „Arctic Basin Cluster“.

She presented some scientific highlights of the TRANSDRIFT expeditions to the Laptev Sea and she informed about the upcoming expedition TRANSDRIFT XXII onboard Viktor Buynitskiy in August and September 2014. She is proposing a NABOS/System-Laptev-Sea workshop in 2015 to merge the results of the projects.

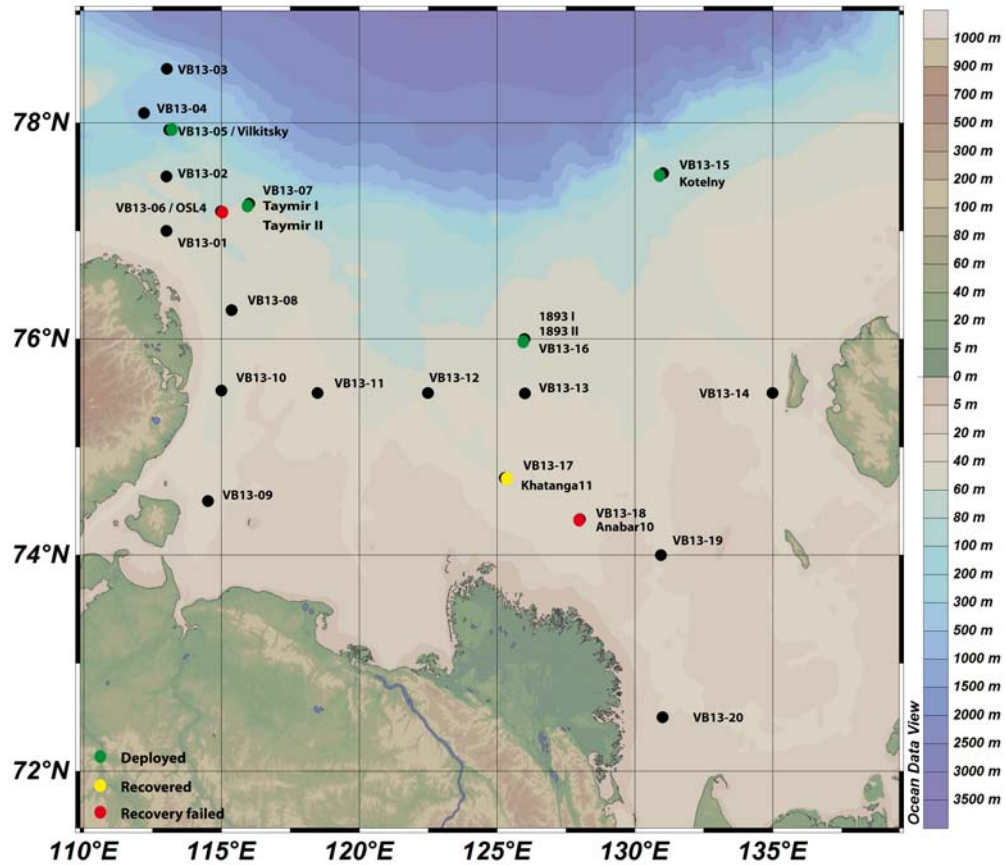


Figure13: Station map of TRANSDRIFT XXI (22.8. – 20.9.2013)

AWI ARCTIC OCEAN PROGRAM. Markus Janout reported that the System Laptev Sea program is a ~20 year ongoing collaboration between different German (such as the Alfred-Wegener-Institute, AWI) and Russian Institutions, with a focus on the Laptev Sea shelf (Figure 14). The Laptev Sea shelf work has a clear overlap with the NABOS program (see Figures 14 and 2), and a joint data analysis may be beneficial for both programs. In his presentation, Janout provided an overview of different ongoing oceanographic activities in the Arctic carried out by AWI scientists, centered mainly around work aboard the German research icebreaker RV *Polarstern*. Further, he presented highlights from the 2013 German-Russian Laptev Sea expedition TRANSDRIFT-21.

Workshop

Near-slope observations in the Eurasian and Makarov Basins of the Arctic Ocean

April 23-24, 2014, Arlington, Virginia

REPORT



Organizer

International Arctic Research Center, University of Alaska Fairbanks, USA

