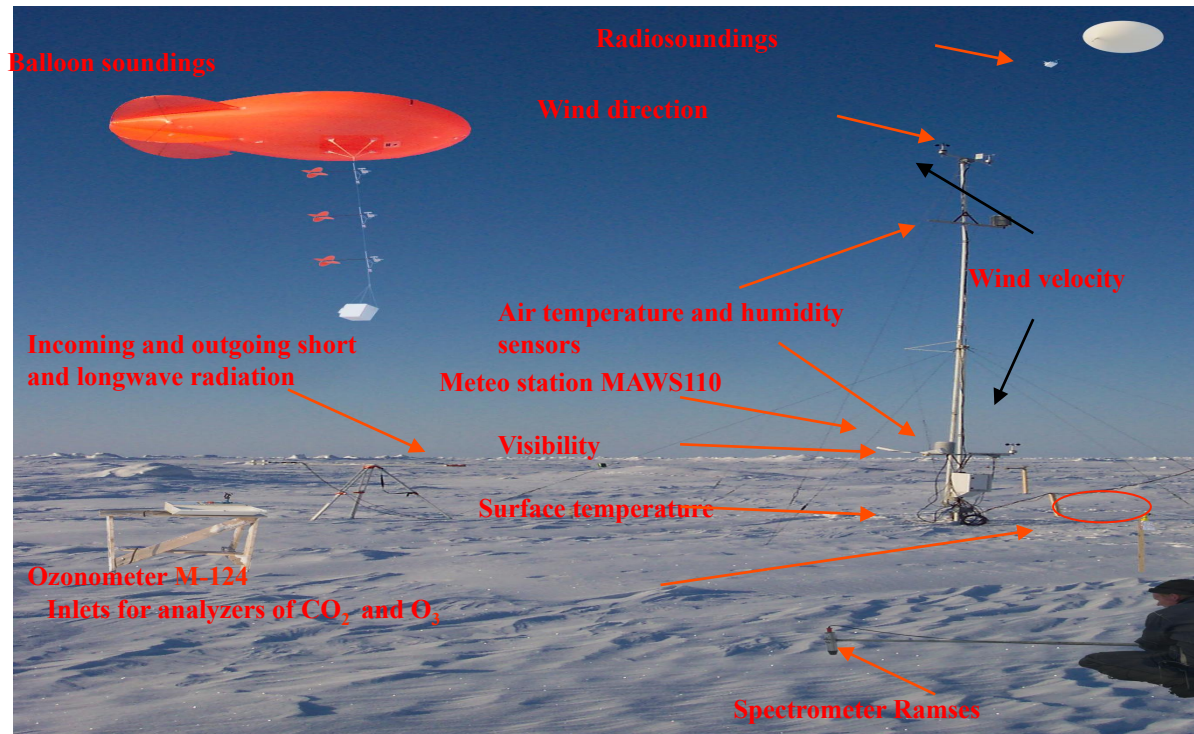


**Modeling the characteristics of the earth
surface in the Arctic using the regional
model WRF and dynamic-thermodynamic
model of sea ice cover**

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Purposes of work:

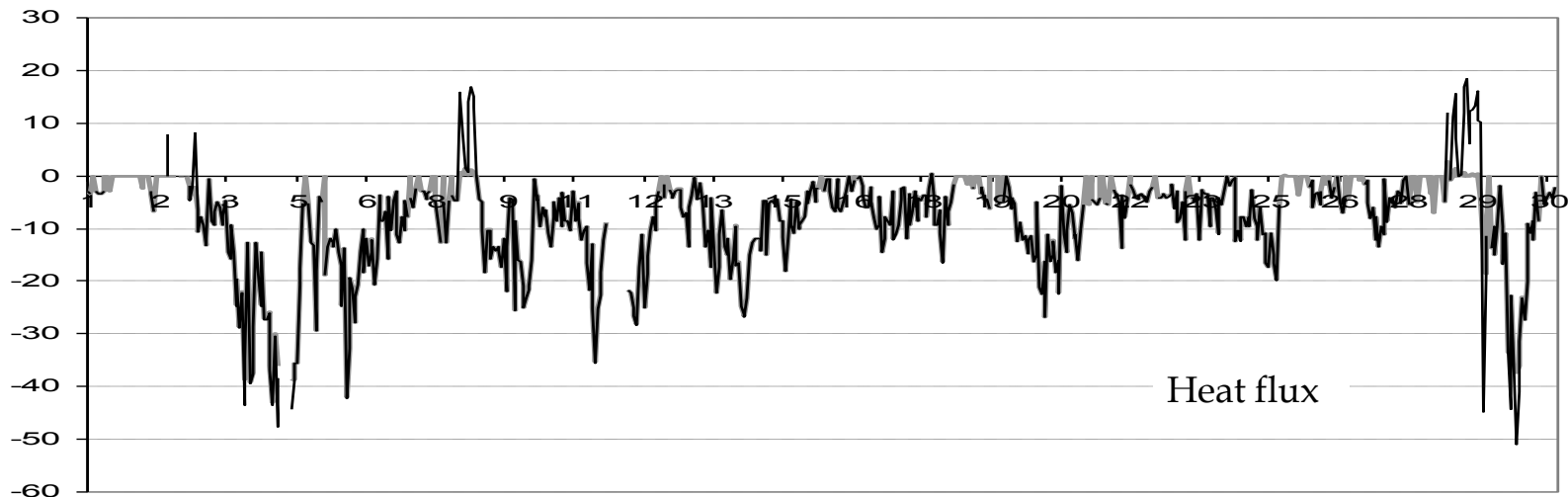
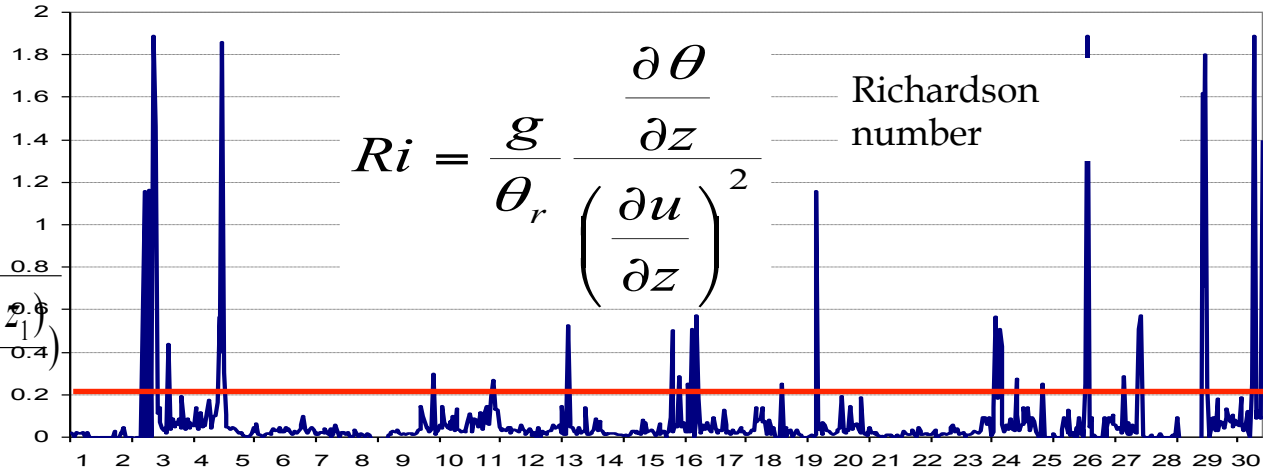
- To adapt the mesoscale meteorological model WRF to conditions of the observation polar region, based on a unique data archive of the annual cycle of observations in free atmosphere, the boundary layers of the atmosphere and ocean snow and ice cover, performed in 2007-2008 on the drifting stations “North Pole - 35” and “North Pole - 36”
- To perform validation thermodynamic and dynamic-thermodynamic models of sea ice cover for the Arctic Basin.



The variant with parameterization of radiation RRTMG, turbulence - Moninu-Obuhovu-Janichu scheme, boundary layer - Buzho-Lokareru scheme has appeared the best.

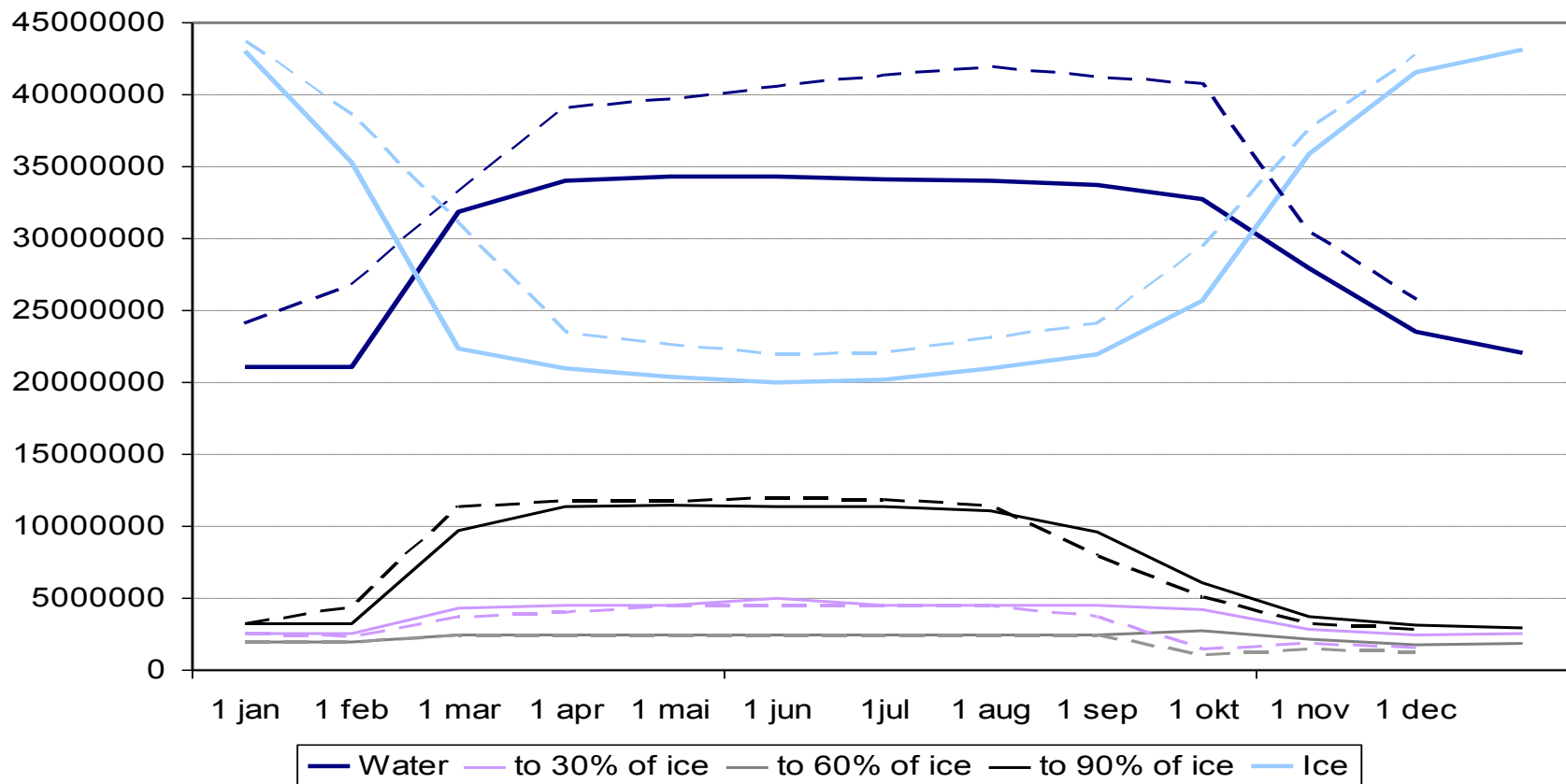
$$U_* = \frac{\chi \Delta U + \chi a_u N(z_2 - z_1)}{\left(\ln \frac{z_2}{z_1} + \beta_u \frac{z_2 - z_1}{L}\right)}$$

$$\theta_* = \frac{\chi \Delta \theta}{\left(\ln \frac{z_2}{z_1} + C_0 \frac{z_2 - z_1}{L} + C_0 C_N \frac{Fr^3(z_2 - z_1)}{L}\right)}$$



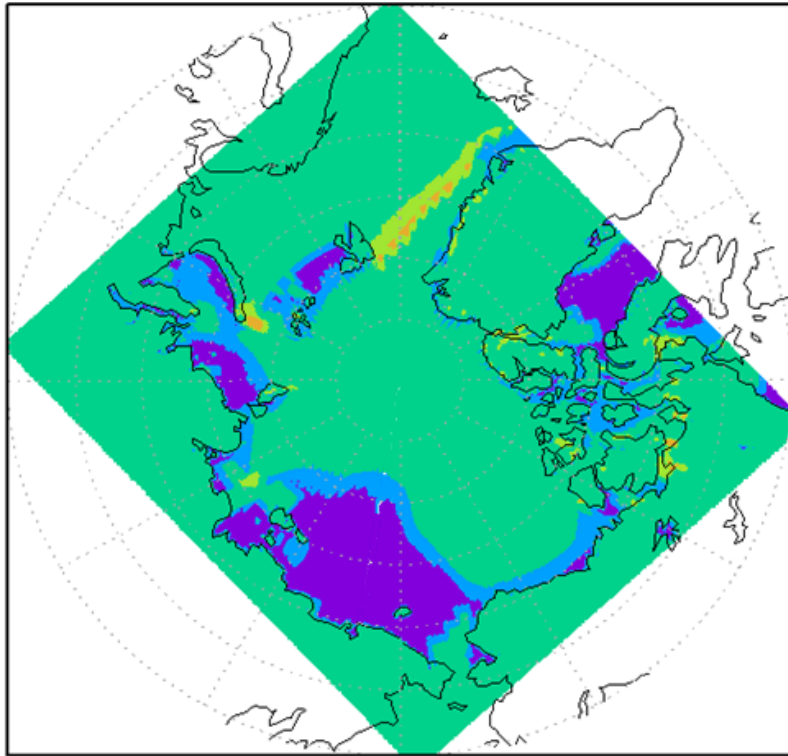
— HFX(N) — HFX

We used the dynamic-thermodynamic model of sea ice cover (Institute of Arctic and Antarctic). The model calculates the spatial and temporal characteristics of snow and ice, the turbulent fluxes, sensible and latent heat, short-and long-wave radiation balance. The computational domain is 50x50 km, centered at the North Pole. We used the following output fields: the average cohesion of ice (with areal weights of level ice and ice ridges) and a sign of the cell (water or ice).

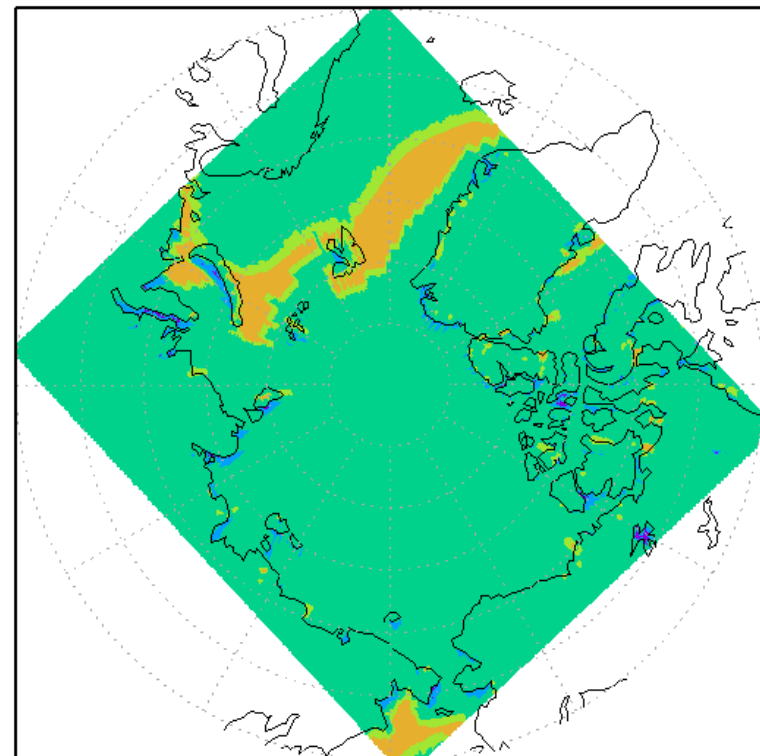


Ice cohesion changing during 2007 year by 2 models
AARI (continuous line) and NCAR (dashed line)

Difference of ice cohesion between AARI and NCAR 1.06.2007 and 31.12.2007



2011-07-07-14



2011-06-20-16:37

Thank you for attention.
Waiting for the question near the
poster.