

The high-resolution simulations of WRF model in two high-latitude fjords: Porsanger and Hornsund

Paulina Aniśkiewicz ⁽¹⁾⁽²⁾, Małgorzata Stramska ⁽¹⁾

(1) Institute of Oceanology Polish Academy of Science, Sopot, Poland

(2) Centre for Polar Studies KNOW, Faculty of Earth Sciences, University of Silesia,
Sosnowiec, Poland

e-mail: aniskiewicz.paulina@gmail.com

STUDY AREA

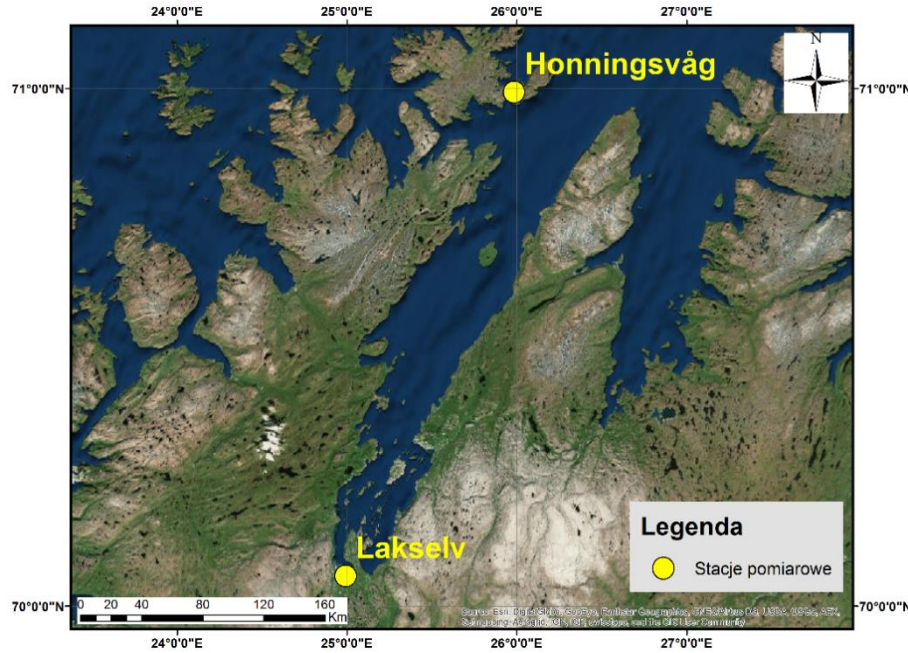


Fig. 1. The Porsanger fjord (www.arcgis.com, www.yr.no).

Porsanger fjord

- Location: 25.0 - 26.5°E i 70.0 - 71.0°N
- Northern part of Norway
- Length: 100 km,
- Width: 15 – 20 km,
- Maximum depth: 310 m
- Divided by three zones:
 - inner (0-30 km)
 - middle (30-70 km)
 - outer (70-100 km)

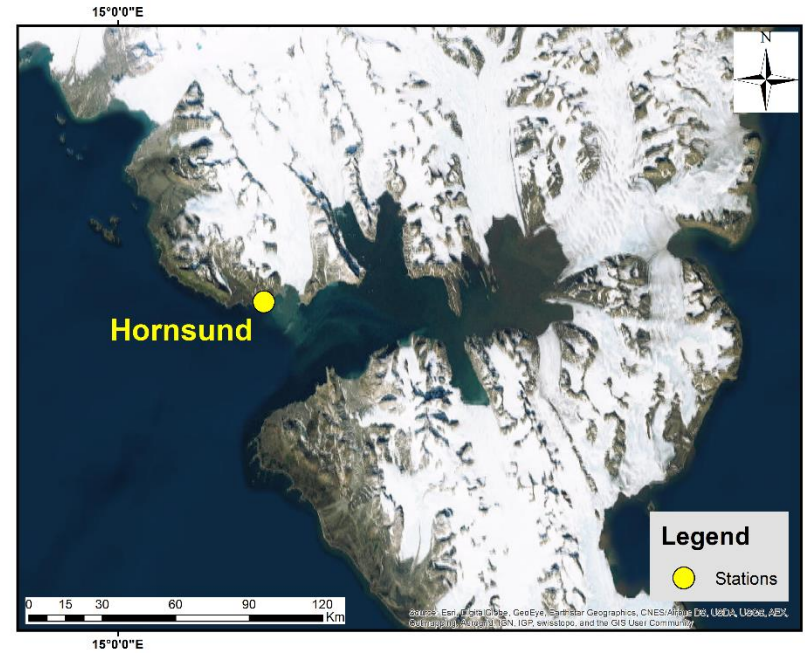


Fig. 2. The Hornsund fjord (www.arcgis.com, www.yr.no).

Hornsund fjord

- Location: 15.5°E-16.75°E, 76.85°N-77.08°N
- South-western part of Svalbard archipelago
- Length: 30 km
- Width: 12 km
- Maximum depth: 260 m
- Many bays and peninsulas

METHODS

1. Horizontal resolution of WRF model (Weather Research and Forecasting Model):

- 20 km x 20 km
- 4 km x 4 km
- 800 m x 800 m

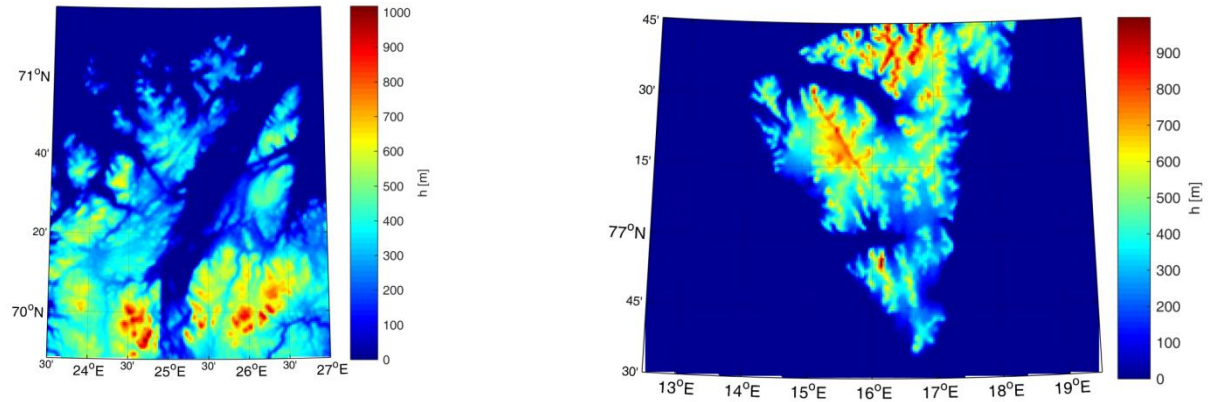


Fig. 3. Terrain height (HGT) for the nested domains with horizontal resolution $\Delta x=800$ m.

2. Simulation period: 1st - 30th June 2014

3. Meteorological stations coordinates to validation:

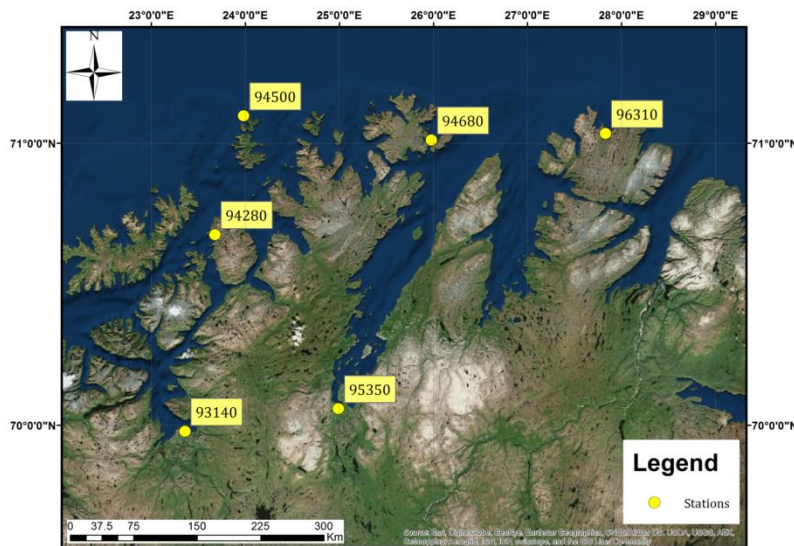


Fig. 4. Meteorological stations around the Porsanger fjord (www.arcgis.com, www.yr.no).

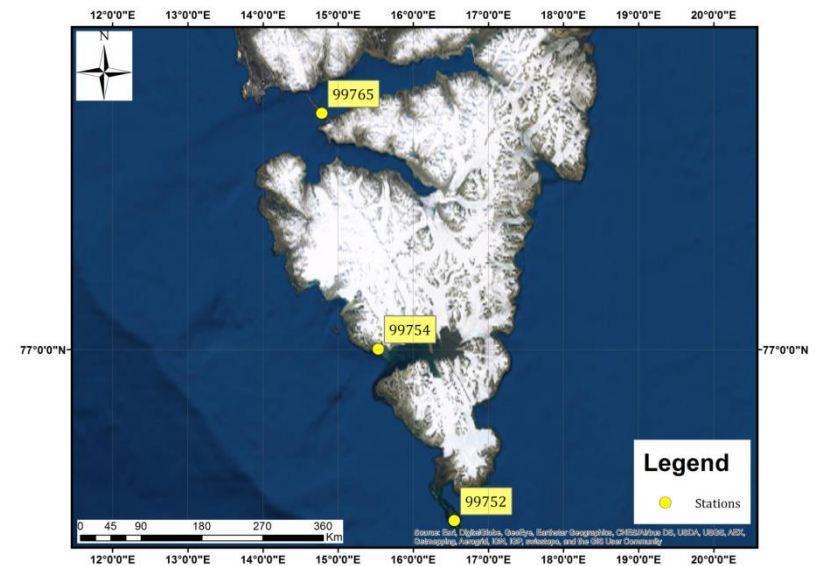


Fig. 5. Meteorological stations around the Hornsund fjord (www.arcgis.com, www.yr.no).

Thank you for your attention 😊