



Comparison of climate related changes in two Arctic fjords, Hornsund and Porsanger

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In the Arctic zone the climate change is amplified in comparison to globally averaged trends, and the observed trends are variable spatially. Our research is focused on two Arctic fjords: Porsanger and Hornsund. Porsanger fjord is located in the coastal waters of the Barents Sea. Hornsund is one of fjords located in the western part of Svalbard archipelago. In this presentation we have used data provided by the Norwegian Meteorological Institute for three meteorological stations. Two of them are located in the Porsanger fjord (Lakselv – in the inner part, Honningsvåg – in the outer zone). The third station provides data from the Hornsund fjord. Using these data we have estimated the 33-year trends (1983-2015) of air temperature and relative humidity in each station using linear regression analysis (statistically significant at 95%). In the inner part of the Porsanger fjord (Lakselv) the multiyear trend of increasing annual mean air temperature has been estimated at 0.006°C per year. The monthly trends were statistically significant in May, September and November. The strongest seasonal warming has been observed in spring and autumn. The trends of increasing annual mean humidity was about 0.2% . In Hornsund the air temperature trend (0.2°C per year) is significantly larger than in Porsanger. The trends of air temperature were statistically significant for eight months (except March, April, June and July) and three seasons (besides spring). The trends of relative humidity were not statistically significant. Thanks to this research we can discuss how atmospheric conditions and climate related trends change in time and seasons of the year in two different Arctic regions.

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