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Title: *Modeling of the Spitsbergen fjords.*

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Recent climate changes have the main reflection in the Arctic ice conditions. In 2007 ice extension has the smallest area in last several decades. One of the most important process that have influence on Arctic ice cover is oceanic heat transport into the Arctic by West Spitsbergen Current (WSC). But WSC also can have impact on the ecosystem of Spitsbergen fjords. There are two fjords that could be under influence of WSC – Hornsund and Kongsfjorden and each of them has different local biological state.

This work is focused on helping to understand influence of climate changes on local state of those fjords and modeling is one of the tool. MIKE 3D has been configured for diagnosis what is the main driver of the states of fjords – WSC (or other current in example Sorkap Current) or local fresh water discharges. Model domains have been extended for covering fjords and shelf area. Based on archival data together with in situ measurements, numerical simulation will provide part of the study of the complex ecosystems. Model integration will provide spatial and temporal variability of the main physical quantities and it will help for better understanding of the fjords ecosystem.