



## **Kongsfjorden-MIKE 3D model**

Anna Przyborska, Szymon Kosecki, and Jaromir Jakacki

The Institute of Oceanology of the Polish Academy of Sciences, Sopot, Poland, office@iopan.gda.pl

Kongsfjorden is a West Svalbard fjord with a surface area of about 210 km<sup>2</sup>. It is obvious that the depths of the outer and central basins are influenced by the open sea, under influence of West Spitsbergen Current (WSC), which carry out warm Atlantic water and cold East Spitsbergen Current, while the shallower, inner basin has a large glacial outflow and its maximum depths do not exceed 100 m. Freshwater stored in Spitsbergen glaciers have strong influence on local hydrology and physical fjord conditions. Both, local and shelf conditions have impact on state of the fjord. External forces like tides, velocities at the boundary and atmospheric forces together with sources of cold and dens fresh water in the fjords will give reliable representation of physical conditions in Kongsfjorden.

Modeling could help to solve this problem and we have hope that we find answer which one is the most important for local conditions in fjord. Calculations of balances between cold fresh water and warm and salt will provide additional information that could help to answer the main question of the GAME (Growing of the Arctic Marine Ecosystem) project - what is the reaction of physically controlled Arctic marine ecosystem to temperature rise.