The cycling of biogenic elements in the marine environment. Determination the efficiency of carbon, nitrogen and phosphorus burial rate of bottom sediments in two fjords of the West Spitsbergen (Hornsund and Kongsfjord).
Obieg pierwiastków biogenicznych w środowisku morskim. Ocena wydajności zagrzebywania węgla, azotu i fosforu w osadach dennych dwóch fiordów Zachodniego Spitsbergenu (Hornsund i Kongsfiord).

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Arctic fjords play an important role in the biogeochemical cycle of carbon, nitrogen and phosphorus (C, N and P) - basic biogenic elements. One of the C sources and the main one of N and P in sediment is organic matter (OM), originating from the runoff and/or primary production. A significant part of the deposited OM is buried in the subsurface sediments, which excludes biogenic elements from the current cycle.

The studies are carried out in two fjords of the West Spitsbergen, which are considered as different in terms of hydrology, the intensity of primary production and characteristics of sedimentation regimes. The main aim of this study is to determine the efficiency of C, N and P burial rate of bottom sediments in two fjords: Hornsund and Kongsfjord. Additionally, C, N and P concentrations will be estimated, especially in the context of distance from rivers and glaciers. Based on the C/N/P ratios and the stable isotopes of C and N, the contribution of allochthonous OM will be determined. Moreover, based on the results from sediment cores, it will be estimated how this contribution has changed over the past decades.

During the presentation, I will focus on the selected results of the analyses, which were planned for the 2015/2016: (i) accuracy and precision of the analytical methods used in my research and (ii) spatial differences in total, organic and inorganic carbon and total nitrogen concentrations and the stable isotopes composition of C and N in surface sediments.