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**Title:** *Variability of the West Spitsbergen Current properties on seasonal to interannual time scale*

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The West Spitsbergen Current (WSC) is one of the main oceanic flows delivering the warm Atlantic Water (AW) to the Arctic Ocean. Cooling of the AW during its northward advection along the WSC pathways results in high heat fluxes to the atmosphere, preconditioning water to convection and deep water masses formation. Therefore spatial and temporal variability of the WSC properties is important for climate on the local to global scales.

Institute of Oceanology Polish Academy of Sciences has investigated the Nordic Seas since 1988. The time series of summer observations in the region between the northern Norway and Fram Strait has been collected since 2000. Two peaks in the AW temperature has been observed, the highest in summer 2006. This warming was associated with the stronger currents and increased activity of the WSC western branch. High correlations were found between AW properties and air temperature as well as ice conditions in the Svalbard region.

During last three summers the AW temperature was close to average with low variability. Simultaneously high values of salinity were found as opposite to the high positive correlation between temperature and salinity usually observed in this region. It may suggest prevailing of the local processes (cooling) over the remote processes (advection) in the AW temperature variation in the last period. Time series obtained by the profiling instruments moored in the WSC core reveal high seasonal variability of the WSC properties at all depths. In winter 2009-2010 convection reached 650 m depth.