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## ABSTRACT

### **Changes in activity of depression tracks on the Atlantic sector of Arctic (1948-2014)**

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Cyclonic activity at high latitudes is continuously changing, in both seasonal and long-term course. Changes in the circulation regime of the Earth climate system are considered as one of the causes of current climate changes. Intensity and frequency of low pressure systems characterize atmospheric circulation variability. Conditioned by thermodynamic processes low pressure systems play an important role in shaping most of the meteorological elements. Cyclones occurring in the Arctic, are responsible for transport of warm and humid air masses from mid-latitudes, which results in modification of weather conditions within that region. Significant increase in the frequency of storms in the Arctic has been observed in latest decades. The cyclones influencing the Arctic weather either have their origin in lower latitudes or are formed within the Arctic boundaries.

The main purpose of this study is to recognize trends in the frequency of low pressure systems with regards to their origin and intensity.

Average daily values of sea level pressure covering the period 1948-2014 were used in the study. This reanalysis data of a resolution of 2,5° x 2,5°, were derived from NCEP/ NCAR Reanalysis (National Centers for Environmental Prediction/ National Centre for Atmospheric Research). The spatial extent has been confined to the Atlantic Sector of the Arctic, located within 65°N - 90°N and 20°W and 50°E.

The first part of this study concerns the cyclones frequency and their tracks. In the further part of the study the low pressure systems were classified as to the area of their origin into so-called "incoming lows" (those entering the Arctic) and "Polar lows" (formed within the Arctic Basin). Subsequently the lows were divided in terms of their intensity.

The topic undertaken falls into the problems of synoptic climatology.