



Trends of Extreme Wave Height in the Barents Sea

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The analysis of long-term wind wave height variability in the Barents Sea is fulfilled. Series of average annual and maximal parameters of wind wave heights is estimated based on considerable heights' four-term values of the ECMWF re-analysis data for the period of 1957-2002. The long-term significant wave heights are estimated monthly and their trends are calculated. Wind wave considerable trend is found out for the period from 1957 to 2002 for December - January period. The features of systematic wind wave heights' increase for the stormiest periods of the year are revealed. As for the central point being the closest to the Stockman's deposit field (72.5° N, 45° E), the increase of extreme wave maximal values on linear trend made up 1.61 m. for the 45-year period of time. It can be explained by the fact that the climatic data available nowadays indicate an air temperature increase, sea ice and permafrost degradation and indications of air temperature in Arctic. The rise in temperature will steadily lead to enlargement of Arctic Seas' defined areas of water free of ice, wind waves and storm increase. Increase of extreme wave heights can be also expected. Should the tendency of wind wave height increase remain, then up to the year of 2015, the increase of extreme wave maximum values in the point closest to the Stockman's deposit field (72.5° NL 45° EL) will be equal to 2.12 m. (in comparison with 1957) or appr. 1.3 m. (or in 2.5 m. for maximal waves (0.1%), which should be taken into consideration at projecting design) in comparison with the average values for the period from 1958 to 2002.

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