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The paper presents an analysis of wind wave parameters in the Laptev, East Siberian and Chukchi seas based on the results of numerical experiments with the WAVEWATCH III wave model for a period from 1979 to 2021. Wave modeling was carried out using an unstructured computational grid with a high resolution (up to 800 m) in the coastal zone. The NCEP/CFSR/CFSv2 reanalysis was used as wind forcing. The maps of the long-term mean values of the wave height, wave length and period were obtained. For the several points in the central part of each sea, the mean annual values of wave heights are calculated and the analysis of interannual variability is carried out. The maximum significant wave height was 5–6 m in the Laptev Sea, 6–7 m in the East Siberian Sea, and 7–7.5 m in the Chukchi Sea. The analysis of interannual variability showed that there is a positive trend in wave height for all seas under consideration. The largest increase in the annual mean wave height is observed in the East Siberian Sea (from 0.4 to 1.4 m in the ice-free period).

Keywords: Laptev Sea, Chukchi Sea, East Siberian Sea, wave modeling, Arctic wind waves, WAVEWATCH III

Fig. 9. Ref. 22.