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On monsoon character of circulation over the Barents and Kara Seas

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This study analysed the monsoon features of atmospheric circulation in the Barents and Kara Seas, the variability of atmospheric circulation, and anomalies in temperature, precipitation, and wind speed. In a cold period, the extreme winds are southerly winds that develop in the eastern parts of cyclones. In the warm season, the extreme speeds correspond to a northerly wind in the western periphery of cyclones. The regional circulation systems were divided into ten circulation weather types, separately for each sea. Their frequencies were compared with different indexes, describing the main modes of variability for the arctic region (the North Atlantic Oscillation, the summer North Atlantic Oscillation, the Scandinavia teleconnection pattern, the Siberian High). In the winter season, the monsoon currents from land to sea occur only when the North Atlantic Oscillation index is positive. With the prevalence of other modes of variability, the direction of the winds can be different, and this causes the monsoon regularity to be stochastic. In summer, the northern streams move on the western periphery of cyclones, regenerating and stabilizing over the Kara Sea.

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