



## **Impacts of Atlantic multi-decadal oscillation to summer atmospheric circulation in the northern mid-latitude**

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Previous studies indicated that Atlantic multi-decadal oscillation (AMO) has significant impacts on regional and global climate. The impacts of the AMO on the summertime atmospheric circulation over the mid latitudes of the Northern Hemisphere and possible mechanisms were investigated through observational analysis and numerical experiments by AGCMs. The results show that the interdecadal oscillation pattern of land surface temperature in the mid-latitudes are highly associated with the AMO. The eastern Europe, East Asia and the United States were warmer, while central Asia and northwest of the North America were cold during the positive phase of the AMO. Associated geopotential height anomalies is dominated by a barotropic wave train propagating along the jet stream, with zonal wavenumber 4 or 5. Basically, positive (negative) geopotential height anomalies correspond to warm (cold) anomalies of land surface temperature. The wave train pattern is called as interdecadal circumglobal teleconnection pattern. Idealized numerical experiment by AGCMs indicates that the AMO-related SST anomalies tend to induce the teleconnection pattern, which was primarily forced by extratropical component of the AMO.