



Differences in the wave guide characteristics of the jet stream in positive and negative phases of the NAO

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Jet streams are known to act as waveguides. In this study we compare the structure of the Northern Hemisphere winter jet streams during positive and negative phases of the NAO. Differences are found in the strength, width and zonal asymmetries of these jet structures. Calculations of Rossby wave dispersion using the barotropic vorticity equation in the sphere with these jets as basic states show marked differences in the response to low latitude vorticity sources. Meridional wind anomalies are examined as signatures of zonally extended waves trapped in the jet stream wave guide. We find that the observed zonal waves in the North Atlantic region are well reproduced by the barotropic calculations during the negative NAO phase only. We hypothesize that the jets during positive NAO phase are more unstable and therefore cannot act as barotropic wave guides.