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# SST-forced ENSO response and internally-driven NAO variability in the Northern Hemisphere midwinter

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A set of 4 atmospheric general circulation model (AGCM) simulations, performed prescribing observed sea surface temperature (SST) covering the period 1958-1998, are analyzed with the aim of exploring the El Niño-Southern Oscillation (ENSO) teleconnection to North Atlantic-Europe (NAE) in midwinter (Jan-Feb). As recently reviewed, this ENSO-NAE teleconnection is quite symmetric for El Niño and La Niña, and stationary. At the surface, this canonical teleconnection shows an annular-like signature with anomalies of the same sign over the Aleutian Low and North Atlantic midlatitudes, and reversed anomalies over the Iceland Low.
Assuming that linearity, a correlation analysis is done regressing the ensemble-mean of sea-level pressure anomalies onto the Niño3.4 SST index. All the models (ARPEGE3, ECHAM5, UCLA7.3, SPEEDY) are able to capture the ENSO-NAE teleconnection pattern in close agreement with observations. Ensemble-mean results (SST-forced) suggest that the dominant mechanism is the tropospheric wave-like response to ENSO. This atmospheric response projects onto a dipole-like pattern over NAE, but independent from the North Atlantic Oscillation (NAO) dynamics. Analyses upon the residual from ensemble-mean show that the internal-NAO is tightly represented by the circumglobal, non-annular atmospheric pattern.