How well do state-of-the-art Atmosphere-Ocean general circulation models reproduce atmospheric teleconnection patterns?

Supplementary Material

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Figure 1. Taylor plots for EA/WR of fields of $Z_{500}$ CMIP3/AMIP3 model runs and NCEP/NCAR and ERA40 reanalysis, DJF. (a) CMIP from 1958-1999, (b) CMIP/AMIP from 1979-1999.
**Figure 2.** Taylor plots for SCAN of fields of $Z_{500}$ CMIP3/AMIP3 model runs and NCEP/NCAR and ERA40 reanalysis, DJF. (a) CMIP from 1958-1999, (b) CMIP/AMIP from 1979-1999.
Figure 3. Taylor plots for EP/NP of fields of $Z_{500}$ CMIP3/AMIP3 model runs and NCEP/NCAR and ERA40 reanalysis, DJF. (a) CMIP from 1958-1999, (b) CMIP/AMIP from 1979-1999.
Figure 4. Taylor plots for POL of fields of $Z_{500}$ CMIP3/AMIP3 model runs and NCEP/NCAR and ERA40 reanalysis, DJF. (a) CMIP from 1958-1999, (b) CMIP/AMIP from 1979-1999.
Figure 5. Taylor plots for TNH of fields of $Z_{500}$ CMIP3/AMIP3 model runs and NCEP/NCAR and ERA40 reanalysis, DJF. (a) CMIP from 1958-1999, (b) CMIP/AMIP from 1979-1999.
Figure 6. Taylor plots for NAO of fields of $Z_{500}$ CMIP3/AMIP3 model runs and NCEP/NCAR and ERA40 reanalysis, DJF. (a) CMIP3 from 1958-1999, (b) CMIP3/AMIP3 from 1979-1999. The red lines are the skill score isolines defined by Eq. 2 with $R_0 = 0.96$ (see Table 3.)
Figure 7. Taylor plots for unfiltered time-series of NAO of fields of $Z_{500}$, CMIP3 model runs and NCEP/NCAR and ERA40 reanalysis, DJF. (a) CMIP from 1958-1999, (b) CMIP from 1979-1999, AMIP from 1979-1999.
Figure 8. Taylor plots for unfiltered time-series of PNA of fields of $Z_{500}$, CMIP3 model runs and NCEP/NCAR and ERA40 reanalysis, DJF. (a) CMIP from 1958-1999, (b) CMIP from 1979-1999, AMIP from 1979-1999.
Figure 9. Summary of the NAO patterns and their relation to ATL-\textit{u}-EOF1 for ERA40 reanalysis (a-d), UKMO HadGEM1 (e-h), CCCma CGCM3.1 (T47) (i-l). DJF-data from 1958-1999. From left to right: the NAO pattern (a,e,i); the regression pattern of the global geopotential height field at 500hPa onto ATL-\textit{u}-PC1 at 250hPa (b,f,j); the regression pattern of the global zonal wind field at 250hPa onto ATL-\textit{u}-PC1 at 250hPa (colours with overlaid Atlantic mean jet) (c,g,k); the vertical profile of explained variance between the NAO-index and the sectoral ATL-\textit{u}-PC1 at each height (d,h,l).
Figure 10. Summary of the EA patterns and their relation to ATL-u-EOF2 for ERA40 reanalysis (a-d), UKMO HadGEM1 (e-h), CCCma CGCM3.1 (T47) (i-l). DJF-data from 1958-1999. From left to right: the EA pattern (a,e,i); the regression pattern of the global geopotential height field at 500hPa onto ATL-u-PC2 at 250hPa (b,f,j); the regression pattern of the global zonal wind field at 250hPa onto ATL-u-PC2 at 250hPa (colours with overlaid Atlantic mean jet) (c,g,k); the vertical profile of explained variance between the EA-index and the sectoral ATL-u-PC2 at each height (d,h,l).
Figure 11. Summary of the PNA patterns and their relation to PAC-\(u\)-EOF1 for ERA40 reanalysis (a-d), MIROC3.2(hires) (e-h), CNRM-CM3 (i-l). DJF-data from 1958-1999. From left to right: the PNA pattern (a,e,i); the regression pattern of the global geopotential height field at 500hPa onto PAC-\(u\)-PC1 at 250hPa (b,f,j); the regression pattern of the global zonal wind field at 250hPa onto PAC-\(u\)-PC1 at 250hPa (colours with overlaid Pacific mean jet) (c,g,k); the vertical profile of explained variance between the PNA-index and the sectoral PAC-\(u\)-PC1 at each height (d,h,l).

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Figure 12. Summary of the WP patterns and their relation to PAC-u-EOF2 for ERA40 reanalysis (a-d), MIROC3.2(hires) (e-h), CNRM-CM3 (i-l). DJF-data from 1958-1999. From left to right: the WP pattern (a,e,i); the regression pattern of the global geopotential height field at 500hPa onto PAC-u-PC2 at 250hPa (b,f,j); the regression pattern of the global zonal wind field at 250hPa onto PAC-u-PC2 at 250hPa (colours with overlaid Pacific mean jet) (c,g,k); the vertical profile of explained variance between the WP-index and the sectoral PAC-u-PC2 at each height (d,h,l).