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Interannual tropical Pacific sea surface temperature anomalies teleconnection to Northern Hemisphere atmosphere in November.

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We investigate the Northern Hemisphere atmospheric circulation anomalies associated with the sea surface temperature anomalies that are related to the eastern-Pacific and central-Pacific El Nino-Southern Oscillations in the late autumn (November). This research is motivated by the need for improving understanding of the autumn climate conditions which can impact on winter climate, as well as the relative lack of study on the boreal autumn climate processes compared to winter. The main analyses are carried out using observational and reanalysis data. We found that there are two possible major atmospheric responses; one is a hemispheric-wide wave number-4 pattern, another has a more annular pattern; both of these project on the East Atlantic pattern (southward-shifted North Atlantic Oscillation) in the Atlantic sector. Which of the patterns is active is suggested to depend on the background mean flow, with the annular anomaly active in the most recent decades, while the wave-4 pattern in the decades before. This switch is also associated with a change of correlation sign in the North Pacific. We will discuss the robustness of this finding. The ability of two atmospheric general circulation models to reproduce the teleconnections is also examined. Evidence provided will show that the wave-4 pattern and the East Atlantic pattern signals can be reproduced by the models, while the shift from this to an annular response for the recent years is not found conclusively.