Madden-Julian Oscillation (hereafter, MJO) is that convective anomalies migrate eastward with intra-seasonal time scale over the tropics. This leads to perturbation at upper-level circulation, that is Rossby wave train called as teleconnection pattern. Many researches have been carried out because these patterns influence on variation of mid-latitude weather, but the teleconnection patterns have decadal change. Therefore, it is important to examine reasons that cause the decadal change. This study investigates the influence of two factors, tropical forcing and mid-latitude background state, subtropical jet, affecting Rossby wave on the decadal change. Furthermore, contribution of each factor to decadal change of MJO teleconnection pattern is scrutinized using GFDL dry model. The change is analyzed for last 36 years from 1980 to 2015, and 1980-1996 and 1999-2015 are defined as the former and the latter periods, respectively. Boreal winter (Nov.-Mar.) are only considered because the tropical MJO occurs strongly in this season. There are obvious difference of the teleconnection patterns including its intensity and spatial distribution between two periods. These changes are influenced by changes of wintertime subtropical jet and intensity of the intraseasonal OLR variance over the warm pool region. Particularly, Stationary wavenumber, Ks acting as a waveguides shows dominant difference that Ks is expanded east and northward over the eastern Pacific. It is thought that the alteration of background zonal wind at upper-level play a crucial role to the change of MJO teleconnection patterns compared to the tropical forcing.

Key words: Madden-Julian Oscillation, Teleconnection pattern, Decadal change

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