



## **East Asian winter temperature variation associated with the combined effects of AO and WP pattern**

Hye-Jin Park and Joong-Bae Ahn

Pusan National University, Atmospheric Science, Korea, Republic Of (chaos35i@pusan.ac.kr)

The combined effects of the Arctic Oscillation (AO) and Western Pacific (WP) teleconnection pattern on the East Asian winter monsoon (EAWM) over the last 56 years (1958/59-2013/2014) were investigated using NCEP/NCAR reanalysis data (Park and Ahn, 2015). The study results revealed that the effect of the AO on winter temperature in East Asia could be changed depending on the phases of the WP pattern in the North Pacific. The negative relationship between the EAWM and the AO increased when the AO and WP were in-phase with each other. Hence, when winter negative (positive) AO was accompanied by negative (positive) WP, negative (positive) temperature anomalies were dominant across the entire East Asia region. Conversely, when the AO and WP were out-of-phase, the winter temperature anomaly in East Asia did not show distinct changes. Furthermore, from the perspective of stationary planetary waves, the zonal wavenumber-2 patterns of sea level pressure and geopotential height at 500hPa circulation strengthened when the AO and WP were in-phase but were not significant for the out-of-phase condition. It explained the possible mechanism of the combined effects of the AO and WP on the circulation related to EAWM.

### Reference

Park, H.-J., and J.-B. Ahn (2015) Combined effect of the Arctic Oscillation and the Western Pacific pattern on East Asia winter temperature, *Clim. Dyn.* DOI:10.1007/s00382-015-2763-2.

### Acknowledgements

This work was funded by the Korea Meteorological Administration Research and Development Program under grant KMIPA2015-2081.