

Kuramochi M. and H. Ueda, 2023: Two types of wintertime teleconnection patterns over the western North Pacific associated with regionally different heating anomalies. *J. Meteor. Soc. Japan*, **101**, 21-37.

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Plain Language Summary: In the first half of winter 2020/21, air temperature anomaly over East Asia was lower than normal, however, it turned into higher condition in the second half of the winter. This study showed that the anomalous coldness in the first half of the winter was due to enhanced convection around the South China Sea, while the warmth was associated with eastward-shifted anomalous convection over the Philippine Sea. We also demonstrated that the teleconnection pattern caused by the anomalous heating around the South China Sea is regionally phase-locked because of the background convergence of the upper-tropospheric winds.

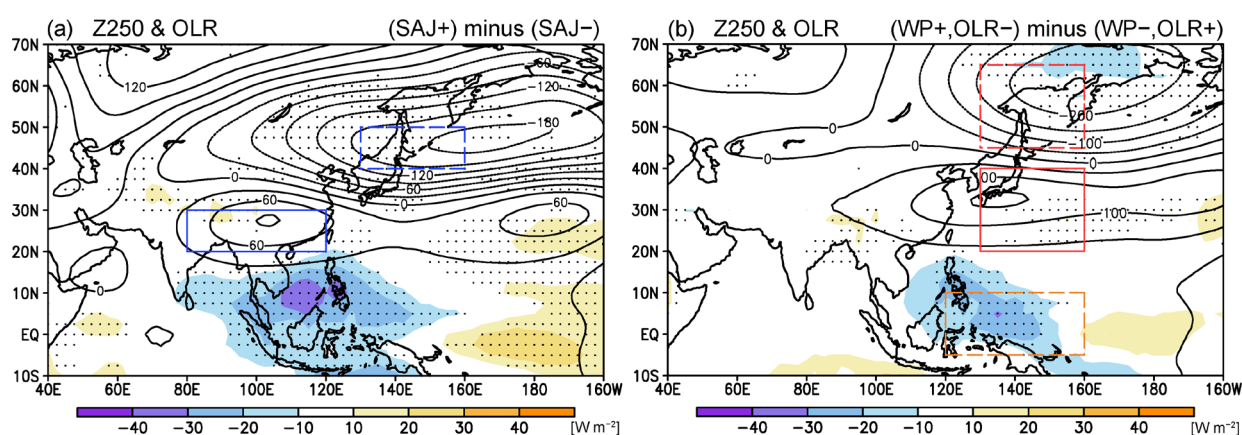


Figure. (a) Composited deviations of geopotential height (contours; m) at 250 hPa and OLR (shading; W m^{-2}) between the 20 strongest positive months and the 21 negative months of the SAJ index. (b) Same as (a), but for the deviations between the 11 strongest positive months and the 9 negative months of the WP-like index which satisfied the criteria of tropical convection. Rectangles indicate regions used for the indices.

- A turnabout of air temperature anomalies over East Asia between the first and second halves of winter 2020/21 was explained by the two types of teleconnection patterns caused by regionally different heating anomalies in the tropics.
- The wintertime teleconnection pattern excited by the anomalous diabatic heating around the Maritime Continent was different from that in summer (Pacific–Japan [PJ] pattern), which was newly referred to as Southeast Asia–Japan (SAJ) pattern.
- The vorticity budget analysis suggested that the presence of upper-tropospheric background convergence of winds to the southeast of the Tibetan Plateau is conceivable for the in situ localization of the SAJ pattern due to vortex stretching effects.