

Nakanishi, R., M. Kuramochi, and H. Ueda, 2025: Summertime convection jump over the subtropical western North Pacific and its relation to Rossby wave breaking near the Asian jet exit region. *J. Meteor. Soc. Japan*, **103**, <http://doi.org/10.2151/jmsj.2025-001>.

Plain Language Summary: We showed that the convection jump (CJ) is influenced by extratropical upper-tropospheric variations as well as the coupled atmosphere–ocean system in the subtropical western North Pacific. Rossby wave breaking (RWB) near the Asian jet exit region, together with southward high-potential vorticity (PV) intrusion and westward-moving cutoff lows play an encouraging role in the occurrence and maintenance of CJ through the dynamical-induced ascent.

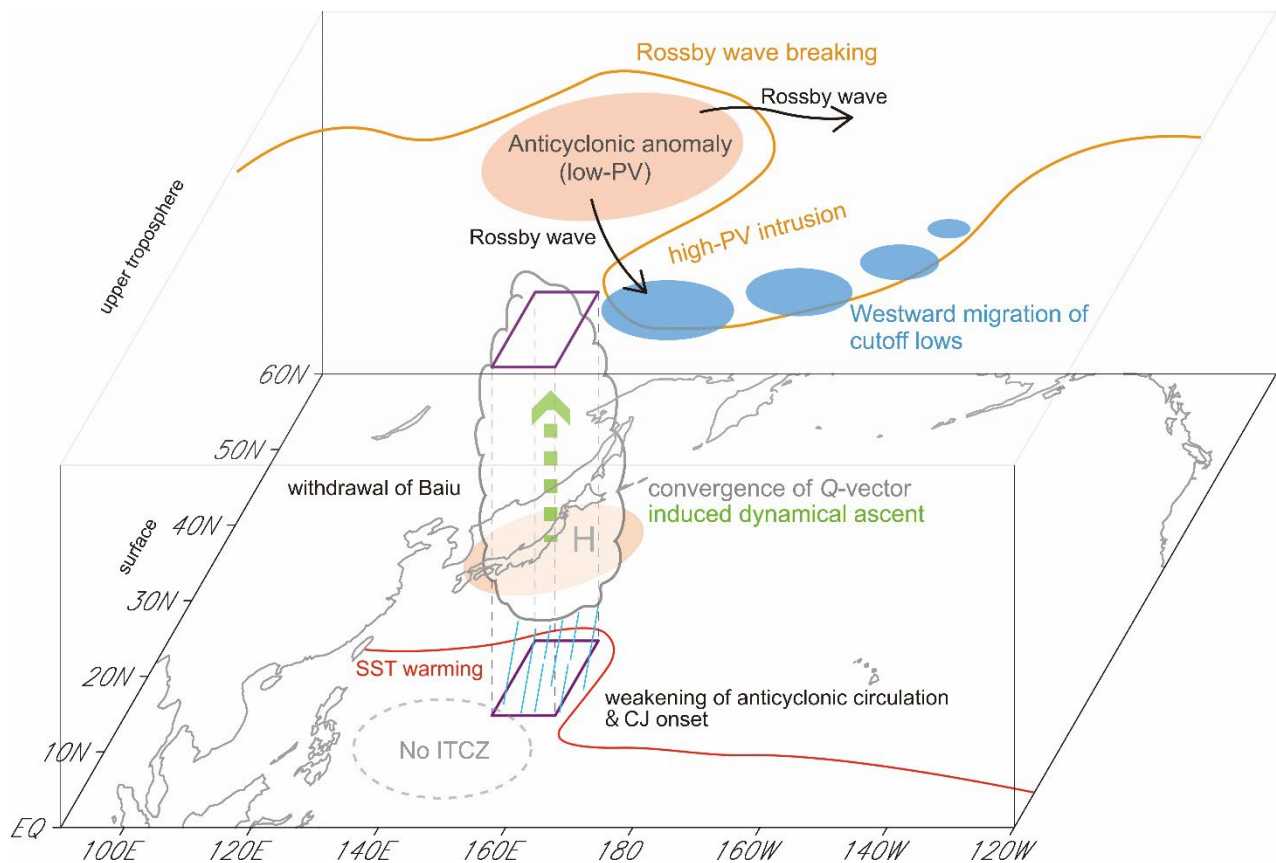


Figure 1. Schematic illustration of CJ onset mechanisms over the subtropical western North Pacific.

- On the CJ onset, RWB near the Asian jet exit region induces the southwestward intrusion of high-PV airmass toward the northeast of the CJ region, which is concurrent with the enhancement of convective activity.
- The Q-vector analysis and PV budget analysis showed the close relationship between the high-PV intrusion and vertical motion accompanied by convection activity.
- The comparison between typical and atypical CJ years suggested that both the coupled atmosphere–ocean system and upper-tropospheric variations can be responsible for the emergence of typical or atypical CJ years.