

Cao, X., and R. Wu, 2018: Comparison of different time scale contributions to tropical cyclone genesis over the western North Pacific in 2015 and 2016. *J. Meteor. Soc. Japan*, **96**, 317-336.

Special Edition on Tropical Cyclones in 2015–2016

<https://doi.org/10.2151/jmsj.2018-038>

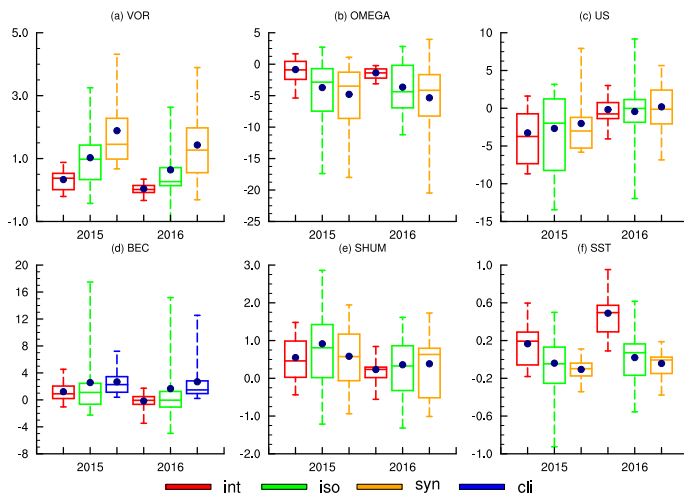


Figure 1. The anomalies of (a) relative vorticity, (b) vertical motion, (c) vertical zonal wind shear, (d) barotropic energy conversion, (e) specific humidity, and (f) SST on interannual (red), intraseasonal (green), synoptic (orange), and climatological (blue) time scales for 18 TCs in 2015 and 21 TCs in 2016. The dot indicates the average value. The horizontal lines from top to bottom indicate the maximum, upper quartile, median, lower quartile, and minimum, respectively.

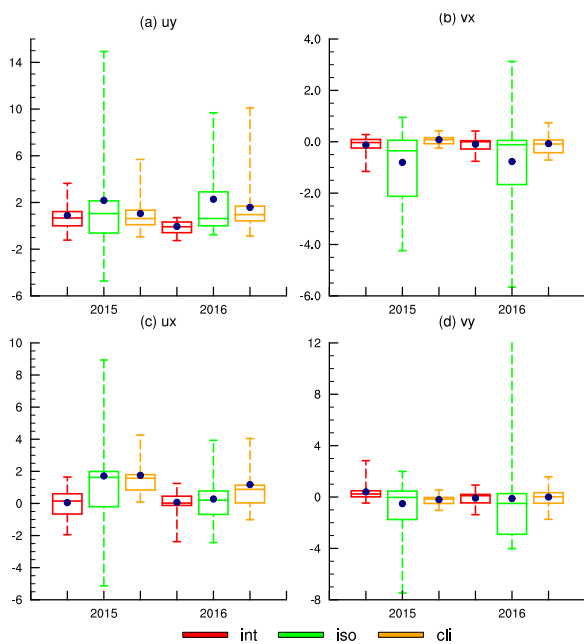


Figure 2. The four terms of the barotropic energy conversion related to (a) the meridional shear of zonal wind, (b) the zonal shear of meridional wind, (c) the zonal convergence of zonal wind, and (d) the meridional convergence of meridional wind. The notations are the same as Fig. 1.

- A local instantaneous view of conditions for the TC genesis is adopted in the present study, which is distinct from previous studies of large-scale temporal averaged conditions.
- The positive contribution of lower-level vorticity and mid-level specific humidity is larger in 2015 than in 2016 on all the three time scales; the contribution of the barotropic energy conversion in relation to the meridional shear of interannual variations of zonal wind and the zonal convergence of intraseasonal variations of zonal wind are larger in 2015 than in 2016.
- The vertical wind shear on all the three time scales and sea surface temperature on the interannual time scale have a larger positive contribution to the TC genesis in 2016 than in 2015.