



## **Impacts of decaying eastern and central Pacific El Niños on tropical cyclone activities over the western North Pacific in summer**

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We investigate the influences of the decaying eastern Pacific El Niño (EP - El Niño) and central Pacific El Niño (CP - El Niño) on tropical cyclone (TC) activities in the western North Pacific (WNP) during July, August and September (JAS). During this period, TC geneses and tracks are reduced in the central and eastern WNP. However, TC tracks reaching the Philippines increase, and more TC geneses appear west of 145°E during EP - El Niño. During CP - El Niño, tracks reaching the South China Sea (SCS) and southeast coast of China increase, and positive anomalies of TC genesis are found in the southern part of the central WNP and southern SCS. It is possible that the different variation of the anomalous anticyclone over east of the Philippines in the WNP induced by El Niños are instrumental to different TC variations in the two types of decaying El Niños during JAS. Compared with EP - El Niño, strengthening and northward expansion of the anomalous anticyclone during CP - El Niño cause a westward shift of the western Pacific subtropical high in summer, which is responsible for more westward TC tracks over the SCS and southeast coast of China. This northward expansion can cause the center of suppressed TC geneses in the central WNP to migrate further north during CP - El Niño. A decreased magnitude of vertical shear dominates the southern part of the central WNP and southern SCS, which enhances TC formation in these regions during CP - El Niño.