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Title: OA12 Characteristics of the Subtropical High over South Asia and Western Pacific During June and July in 2003 and the Associated Intenal and Extenal Forcing

Abstract: OA12 By comparing with the climatic mean circulations over East Asia, it is demonstrated that before and during the Meiyu period in 2003, the subtropical anticyclone over Western Pacific (SAWP) is stronger than normal and shifted westwards, presenting more dynamic features in its configuration. The rain belt that is located over the northwest of the 500 hPa subtropical high is related to the upper tropospheric subtropical jet and the eastward extension of the South Asia High£¨SAH£©.The negative vorticity advection along the ridgeline of the eastward extended SAH produces the upper layer convergence, in favor of the westward development of the SAWP. The dynamic impacts of the upper layer westerlies and the SAH can also induce the short-term zonal movement of the SAWP. The development of the deep convective precipitation over the northwest of the SAWP intensifies the in situ vertically non-uniform heating, contributing to its westward movement as well. Besides, the development of the deep convection in the tropical monsoon trough also affects the maintenance and intensification of the SAWP. Further diagnosis shows that the anomalous locations of the SAH during the summer in 2003 are closely related to abnormal diabatic heating. It is therefore concluded that the anomaly of the SAWP in the early summer of 2003 is forced dynamically as well as thermodynamically by the interactions among the weather systems in different latitudes and by the abnormal surface sensible heating in the subtropical Asian areas.

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