



Midwinter suppression of the North Pacific storm track: local wave activity perspective

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The North Pacific storm track, which is often quantified by band-passed filtered eddy variance, shows a relatively weak magnitude in midwinter than in its shoulder seasons. This midwinter suppression of the North Pacific storm track is better characterized by local wave activity (LWA) and its budget. The LWA variance, applied to 250-hPa geopotential height field, well captured local waviness and its midwinter suppression. Although both cyclonic and anticyclonic wave activities contribute to the midwinter suppression, cyclonic wave activity (deepening of trough, cyclonic wave breaking and filamentation) exhibits much more pronounced subseasonal cycle and explains about 73.6% of the midwinter suppression. The budget analysis of column-integrated LWA, computed for quasi-geostrophic potential vorticity, further revealed that North Pacific LWA is primarily controlled by the convergence of zonal LWA flux with a non-negligible contribution of non-conservative LWA source or sink.