

INTERANNUAL VARIABILITY OF PLANETARY WAVE ACTIVITY IN THE SOUTHERN HEMISPHERE (ABSTRACT)

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The interannual variability of the seasonal evolution in the southern hemisphere is investigated, using the global analyses for 1979–92 provided by the U.S. National Meteorological Center (NMC). As M. SHIOTANI *et al.* (Q. J. R. Meteorol. Soc., **119**, 531, 1993) indicated, the seasonal march of the zonal mean wind and the wave-1 amplitude at the 1 hPa level can be classified into two categories—HLJ (high-latitude-jet) years and LLJ (low-latitude-jet) years—for the 1980's but not for other years.

As a measure of planetary wave activity, we calculated wave-1 Eliassen-Palm (E-P) flux for HLJ years and LLJ years. In LLJ years, E-P vectors in the troposphere become large in April, that is earlier than in HLJ years when planetary waves grow in May. The development of this tropospheric wave-1 corresponds to the amplification of the wave-1 planetary waves at 1 hPa level. In July–August, tropospheric E-P vectors in LLJ years are larger than in HLJ years. However, tropospheric planetary waves of smaller amplitude in HLJ years are likely to propagate well into the stratosphere compared with that of larger amplitude in LLJ years. This efficient propagation in HLJ years results in the larger E-P flux convergence at mid-latitude and the earlier movement of the westerly jet in the upper stratosphere than in LLJ years.

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