

Interannual to decadal variability of the southern hemisphere blocking

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The variability of Southern Hemisphere (SH) blocking events is examined using the National Centers for Environmental Prediction–National Center for Atmospheric Research (NCEP–NCAR) reanalysis data and hybrid blocking index. The hybrid index combines two widely used indices, the Dole–Gordon and the Tibaldi–Molteni indices, in a simple way (E. Dunn–Sigouin, S.–W. Son, and H. Lin, 2012). The 40–year data, from 1966 to 2005, are used to generate a long–term climatology of blocking frequency in this study.

In the analysis of annual mean blocking frequency, the primary location for blocking occurrence is present over the southern central Pacific Ocean throughout the year. The blocking frequency maximum is located between 120 and 150°W and it is extended into the southern Indian and Atlantic Oceans. In contrast to the obvious seasonal variability of blocking frequency in Northern Hemisphere, there is no significant variability of the blocking frequency depends on the season in SH. However, the principle regions of blocking occurrence is shows difference between seasons. It moved toward east in southern pacific ocean during summer (DJF). The number of blocking events decrease almost exponentially as blocking duration increase. Only a few events are found with a time scale of over 10 days.

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