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论文

应用九层全球大气格点模式进行跨季度短期气候预测系统性试验

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摘要 利用中国科学院大气物理研究所9层大气环流模式（IAP9L AGCM）对夏季气候进行了30年（ 1970～1999年）集合回报试验，并采用统计学分析方法对跨季度夏季短期气候的可预测性问 题进行了初步探讨. 结果表明，该模式对对流层中、高层大气环流的预测能力强于低层，位 势高度场和表面气温的可预测性最大，而降水的可预测性则相对较小. 对流层中、高层位势 高度场的可预测性基本呈带状分布，越靠近赤道可预测性越高；而降水的可预测性基本局限 于赤道东太平洋及热带个别区域. 由此可见，降水的预测极为困难和复杂，订正系 统的研究和寻找新的预报物理因子非常重要.

关键词 IAP9L AGCM 集合回报 跨季度短期气候预测 可预测性

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Extraseasonal short term predictions of summer climate with IAP9L AGCM

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Abstract 〓This study examines the predictability of extraseasonal short term climate during boreal summer by statistic method. The results are based on ensembles of JJA simulation carried out with the 9 level A tmospheric General Circulation Model developed in the Institute of Atmospheric P hysics (IAP9L AGCM) for the years 1970～ 1999. It follows that the ability o f the model in predicting atmospheric general circulation in mid and upper tro posphere is better than that in low level. Of all analyzed variables, the predic tion skill of geopotential height and surface air temperature (precipitation) is the highest (lowest). The correlation coefficient of geopotential height in the mid and upper troposphere is somewhat more zonal in spatial distribution and generally drops off away from the equator, while the prediction skill for preci pitation is almost limited in equatorial eastern Pacific and a few small regions in tropics. This is an indication that accurate forecasting of precipitation is extremely difficult and complicated. Moreover, it is of considerable importance to seeking for effective correction system and new physical prediction factors in the following studies.

Key words IAP9L AGCM;Extraseasonal sho rt term climate predictions;Ensemble hindcasting;Predictability

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