# 太平洋气候态环流场的数值模拟及其季节性变化特征*

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**摘 要：** 使用两层嵌套的HYCOM数值模式模拟了太平洋区域气候态环流场，模拟结果与实测资料及前人的研究进行比对，结果显示，模式具有较好的模拟能力。利用模式结果构建太平洋年均流场，在定性分析的基础上对流场进行定量分析。对主要流的来源与补充关系进行了探讨：南赤道流来源为秘鲁流与赤道潜流上升流，赤道潜流来源为新几内亚沿岸流回流，北太平洋东边界流在表层流幅较窄、次表层流幅较宽，副热带逆流在南北半球均存在明显的双核甚至多核结构。对流场的季节性变化进行了分析：北赤道逆流来源在冬春季与夏秋季不同、北赤道逆流春季与夏季在表层存在季节性消失现象，西向的赤道中层流仅在秋季存在于日界线以西海域，西太平洋夏秋季流场与冬春季流场存在较大的季节性差异。

**关键词：** 太平洋；环流；HYCOM；数值模拟；季节变化；定量分析
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# Climatological Simulation of Pacific Ocean Circulation and Analysis of Its Seasonal Variability

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**Abstract:** A dual nested Hybrid Coordinate Ocean Model(HYCOM) was used to simulate the climatically Pacific Ocean current system. The modeling results were compared with in-situ measurements and previous studies, It showed that the model had a fine capacity in the simulation in this area. The annually mean current field in the Pacific was constructed with the modeling results, and quantitative analysis was conducted based on the qualitative analysis in the first place. The source and replenishment of the major currents were discussed: the source of the South Equatorial Current came from the Peru Current and the upwelling of the Equatorial Undercurrent; the Equatorial Undercurrent originated from the return flow of the New Guinea Coastal Current; the eastern boundary currents in the north Pacific had a relatively narrow flow range in the surface layer and a wider range in the subsurface layer; the Subtropical Countercurrent featured a two-core or even multiple-core structure in both hemispheres. The seasonal variation of the current was analyzed: the source of the North Equatorial Countercurrent in winter and spring differed that in summer and autumn; the surface layer of the North Equatorial Countercurrent featured seasonal disappearance; the westwards intermediate layer of the Equatorial Current only existed in autumn and west of the international date line; there was a noticeable seasonal discrepancy of the current field in the west Pacific, comparing that in summer and autumn with that in winter and spring.

**Key words:** Pacific Ocean; circulation; HYCOM; numerical simulation; seasonal variation; quantitative analysis

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