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WAVEWATCH Ⅲ 和 SWAN 模式在南海北部海域海浪模拟结果的对比分析

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摘要 基于1987年9月到1988年8月期间南海北部的一个浮标资料，首先分析了美国环境预报中心(NCEP)和国家大气研究中心(NCAR)联合推出的再分析风场在南海北部海域的适用性，结果表明NCEP/NCAR再分析风场在一定程度上与浮标观测结果相一致。然后利用NCEP/NCAR再分析风场作为海浪模式输入场，评估了WAVEWATCHⅢ(WW3)和SimulatingWavesNearshore（SWAN）这2个海浪模式在南海北部海域模拟海浪的能力，结果表明在季风和季风转换期间，WW3模式和SWAN模式对有效波高的模拟能力几乎一致。在季风期间，WW3模式对平均波周期的模拟能力优于SWAN模式；而在季风转换时期，SWAN模式模拟平均波周期的能力较好。此外，还利用WW3模拟结果分析了南海北部海域海浪的空间分布特征，分析结果表明有效波高受季风影响呈显著的季节变化，平均波周期呈现相对显著的半年变化。

关键词： 南海北部 WAVEWATCHⅢ SWAN 有效波高 平均波周期

Abstract: We study the applicability of the National Centers Environmental Prediction/University Corporation for Atmospheric Research (NCEP/NCAR) reanalysis wind field using the buoy data including the wind speed, significant wave height and mean wave period from September 1987 to August 1988 in the northern South China Sea (SCS). To some extent, the NCEP/NCAR reanalysis wind speed is consistent with the buoy data in the northern SCS. Then we assess the simulations using wave models WAVEWATCH Ⅲ (WW3) and Simulating Waves Nearshore (SWAN) forced by the NCEP/NCAR reanalysis data. The results show that the simulations of the significant wave height (SWH) from the two models are almost the same during the monsoon and monsoon transition periods. The simulation of the mean wave period (MWP) from the WW3 is better than that from the SWAN during the monsoon period, while the results are just contrary during the monsoon transition period. The spatial characteristics from the WW3 simulation in the northern SCS are presented. The SWH affected by monsoon shows significant seasonal change in the northern SCS, while the MWP presents certain semi-annual variability.

Keywords: northern South China Sea;WAVEWATCH Ⅲ ;SWAN, significant wave height;mean wave period

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