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利用卫星观测海面信息反演三维温度场

王喜冬 [1, 2], 韩桂军 [2], 李威 [2], 齐义泉 [1]

1. 热带海洋环境国家重点实验室 中国科学院南海海洋研究所，广东 广州 510301; 2. 国家海洋局海洋环境信息保障技术重点实验室，国家海洋信息中心，天津 300171

WANG Xi-dong[1,2], HAN Gui-jun[2], LI Wei[2], QI Yi-quan[1]

1. State Key Laboratory of Tropical Oceanography South China Sea Institute of Oceanology, CAS, Guangzhou 510301, China; 2. Key Laboratory of Marine Environmental Information Technology, SOA, National Marine Data and Information Service, Tianjin 300171, China

摘要 基于历史观测的温盐剖面资料，采用回归分析方法统计出海面温度异常、海面动力高度异常与温度剖面异常之间的相关关系；然后利用高分辨率的卫星遥感海表面温度(SST)和卫星观测海面高度(SSH)信息重构了三维海洋温度场。在台湾岛周边海域建立了时间分辨率为天、空间分辨率为0. 25°×0. 25°的三维温度分析场。通过与实测资料的比较分析，文章所构建的分析场能够较好地描述海洋三维温度场的结构特征，能够较为真实地反映海洋的中尺度变化过程。该分析场可以作为海洋数值模式的初始场，也可以作为“伪观测”同化到海洋数值再分析和预报系统中，进而改善三维温、盐、流的数值再分析和预报。

关键词： 卫星遥感海面温度 海面高度 温度剖面重构

Abstract: The correlation between sea surface temperature (SST) anomaly, sea surface dynamic height (SSH) anomaly and temperature profile anomaly is constructed by using regression analysis, which is based on the historical temperature-salinity profiles. Combined with the correlation, satellite SST and satellite SSH reconstruct a three-dimensional temperature field, whose temporal resolution is daily and spatial resolution is 0.25白0.25? near Taiwan Island. Compared with the observational temperature profiles, the reconstructed temperature field can represent the property and structure of the temperature field and better describe meso-scale variability of the ocean temperature filed. This analysis field can serve as not only the initial field of a numerical model but also pseudo temperature observation, which may be assimilated into the system of ocean reanalysis and forecast in order to improve the output.

Keywords: satellite sea surface temperature, sea surface height, reconstruction of temperature profile

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作者简介: 王喜冬 (1976 —), 河北省唐山市人 ，在职博士研究生 ，从事海洋数据同化研究。

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