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利用 Argo 数据计算吕宋海峡以东海域水文特性参数和流场 *

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摘要 利用2006年Argo浮标资料分析吕宋海峡以东海域水团季节特性和混合层的月平均变化规律; 并分别利用Argo多年季节平均资料与2006年资料, 以秋季为例, 基于*P*矢量方法计算该区域流场; 同时考虑风生流的影响, 将所得结果分别与利用Levitus和高度计资料计算的流场进行比较。结果表明, 水团特性季节变化不明显, 春冬季表层水团与夏秋季比较表现为低温高盐; 次表层、中层和深层季节变化不大; 混合层深度明显表现为冬季最深、夏季最浅的季节性变化。利用2002—2009年Argo季节平均资料基于*P*矢量方法能得到地转流场的基本结构, 与Levitus资料的计算结果相比较, 除可以反映黑潮, 还可以反映一些涡旋结构; 利用2006年秋季Argo资料计算流场与高度计资料计算的地转流场比较, 其流场结构位置吻合得比较好, 但存在流速偏小等不足, 这可能与Argo资料较少且分布不均以及插值误差等有关, 但其可以获得流场的三维结构, 而利用高度计资料计算只能得到表层流场结构。

关键词: Argo 水团分析 混合层深度 *P*矢量方法 吕宋海峡 流场

Abstract: The seasonal characteristics of water masses and the monthly variation of mixed layer depth are studied using Argo profiling floats in 2006 east of the Luzon Strait. The temperature-salinity relation indicates the seasonal variation of water masses is not obvious. Compare to those in summer and fall, the surface temperature is lower and the surface salinity is higher in spring and winter; they change little in deeper layers. Seasonal variation of the mixed layer depth is obvious; it is the deepest in winter with a value over 160 m, whilst it is the shallowest in summer with a value of 20 m. Based on the *P* -vector method, the current field in fall is calculated using Argo seasonal mean data between 2002 and 2009, Levitus data and Argo data in 2006, respectively. The wind-driven Ekman drift current is also computed. The result obtained by Argo seasonal mean data is significantly better than that by the Levitus data; the Argo data can show the structure of Kuroshio and eddies. The coupled current structure obtained by Argo data in 2006 and Ekman drift current is similar to that by the altimeter data, except that the velocity of the former is less, which may be related to the coarse and unevenly distribution of Argo profiling floats and the subsequent interpolation error. However, a three-dimensional structure of flow field could be obtained by the Argo data, whilst only the surface current field can be obtained by the altimeter data.

Keywords: Argo, water mass analysis;mixed layer depth, *P* -vector method;Luzon Strait, current field

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