

## 2004~2006年奄美大岛以东的琉球海流

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**摘要** 基于2004~2006年12个航次的水文资料, 用逆方法计算得到了奄美大岛以东AE断面琉球海流的流速和体积流量. 再次证实琉球海流具有较稳定的次表层流核结构, 流核位于110~600 m深度, 并沿AE线分布于 $27.2^{\circ} \sim 28.2^{\circ} \text{N}$ , 流核的最大流速为 $15.1 \sim 80.0 \text{ cm} \cdot \text{s}^{-1}$ . 12个航次的平均流速断面显示了一个完整的次表层流核, 其流核的最大流速为 $21.3 \text{ cm} \cdot \text{s}^{-1}$ , 流核的垂直和水平尺度分别为800 m 和 30 km. 观测结果表明, 2004~2006年之间, 琉球海流冬季、春季、夏季、秋季和年平均的流量分别为 $10.9, 10.1, 5.9, 23.9$ 和 $12.7 \times 10^6 \text{ m}^3 \cdot \text{s}^{-1}$ , 秋季最强, 夏季最弱. 日本以南黑潮净流量为 $52.7 \times 10^6 \text{ m}^3 \cdot \text{s}^{-1}$ , 其中源于吐噶喇海峡黑潮和琉球海流的流量平均比为0.40.

**关键词** [琉球海流](#) [黑潮](#) [次表层流核](#) [流速](#) [体积流量](#)

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## The Ryukyu Current east of Amami-Ohshima during 2004 to 2006

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**Abstract** An inverse calculation using twelve repeat hydrographic section data collected from 2004 to 2006 yields velocity structures and volume transports (VTs) of the Ryukyu Current (RC) in the region east of northern Ryukyu Islands. The results show that the RC is dominated by subsurface velocity core with maximum velocities varying from  $15.1$  to  $80.0 \text{ cm} \cdot \text{s}^{-1}$ . The positions of subsurface maximum velocity core distribute between 110 and 600 m and  $27.2^{\circ} \sim 28.2^{\circ} \text{N}$  along the AE line. The mean velocity section exhibits a perfect subsurface velocity core with a mean maximum velocity of  $21.3 \text{ cm} \cdot \text{s}^{-1}$ , and vertical and horizontal dimensions of 800 m and 30 km, respectively. The seasonal mean velocity sections exhibit that the RC is the strongest in autumn and the weakest in summer. The mean VT for winter, spring, summer, autumn, and all twelve observations are 10.9, 10.1, 5.9, 23.9, and  $12.7 \times 10^6 \text{ m}^3 \cdot \text{s}^{-1}$ , respectively. The mean net VT of the Kuroshio south of Japan is estimated to be  $52.7 \times 10^6 \text{ m}^3 \cdot \text{s}^{-1}$ . The rate of Kuroshio VT supplied by the Kuroshio from Tokara Strait and by the RC from the region southeast of Amami-Ohshima is 0.40.

**Key words** [Ryukyu Current](#); [Kuroshio](#); [Subsurface maximum velocity core and volume transport](#)

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