

The averaged current at the head of Suruga Bay measured by Ferry mount ADCP

*Takaaki Katsumata^{1,3}, Masato Niki², Akihiko Tanaka¹, Hiroyuki Tan^{1,4}

1. Liberal Arts Education Center, Shimizu Campus, Tokai University, 2. School of Marine Science and Technology, Tokai University, 3. NPO, the association for the environmental conservation of the ocean, 4. Japan Unmanned Vehicle exploration Agency

The Suruga Bay is located on a southern coast in the main island of Japan, and the bay facing to the Kuroshio front. Two big rivers flows into the head of the Suruga Bay. The bay has very large depth about 2400 m in bay mouth area and over 1000 m in bay mouth one, i.e., Suruga Trough. Fishery in the bay are strongly influenced by a variables of rivers inflows and intruding of Kuroshio water (Sugimoto et al., 2009; Tanaka et al., 2009; Katsumata, 2016). But we has a little knowledge for these variations. Therefore, we measured the profile of the current by ferry mounted ADCP, at the line of the "Suruga Bay Ferry" cruise cross the bay head from a western coast to eastern coast, i.e., Shimizu Port to Toi Port, since 2008. We currently continuing measuring the current in the bay about near 10 years.

The calculated mean of the whole period and whole layer meridional current, i.e., orthogonal component for cruise line, indicted 0.6 cm/sec of northward and inflow to bay head. Former studies of the current at the bay head was indicated the anticlockwise circulation in bay head area, by used surface current measurement (Inaba, 1981) and by used hydrographic data i.e., temperature and salinity profiles measurements by Shizuoka Prefectural Research Institute of Fishery (Nakamura and Muranaka, 1979). But, former studies was not clarify for vertical and horizontal high resolution properties of the mean current in bay head of the Suruga Bay. We verify to same phenomena of former studies again, i.e., we detected for the anticlockwise circulation in bay head area of the Suruga Bay. Furthermore we clarify the next 2 facts at the first time. #1 The anticlockwise circulation at the bay head of the Suruga Bay has at least 100 m thick from surface layer. #2 The circulation in bay head has clearly seasonal variation, it is relate difference of stratified period and non-stratified one.

Keywords: Suruga Bay, River water, Kuroshio inflow, Mean current

