
[JJ] Eveningポスター発表 | セッション記号 A (大気水圏科学) | A-OS 海洋科学・海洋環境

[A-OS17]沿岸域の海洋循環と物質循環

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沿岸域は生物多様性に富み生物生産の極めて高い海域である。一方、人間活動の場と近いため富栄養化、赤潮、貧酸素水塊など様々な環境問題を抱えている。このような沿岸域での物質循環や様々な現象を理解し、持続的に沿岸域の環境を維持するためには、個々の分野による研究だけでなく学際的な研究による総合的な理解が必要となる。本セッションでは、沿岸海洋学に関わる様々な学術分野の研究者が集って、沿岸域における海洋循環や海洋物質循環さらにはそれらの変化に伴う海洋生物の応答動態など幅広く学際的に議論するとともに、分野間での知見の共有化を図る。調査研究対象とする海域や手法は限定せず、幅広い内容の発表を歓迎する。

[AOS17-P03]大槌湾沖の陸棚における海洋観測

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The Sanriku ria coast is located on the eastern coast of northeastern Japan facing North Pacific. Fisheries such as farming of seaweeds and shellfish are active in this area. Therefore, the topic of water circulation and exchange is important for the fishery and recovery from the disaster of the 2011 tsunamis, in addition to scientific interests. Otsuchi Bay is one of the bays in this area at about 39°20' N, whose size is about 8 km in east-west and 3 km in north-south and up to 70 m in depth. This study aims to reveal water circulation in the shelf area off Otsuchi Bay by a hydrographic observation. Within Otsuchi Bay, baroclinic circulations are revealed by observations (e.g. Otobe et al., 2009; Tanaka et al., 2017; Ishizu et al., 2017). In summer, baroclinic tidal currents are observed with offshore/inshore upper current and inshore/offshore lower current. Together with a thin surface layer of a few meters, it makes a three-layer structure (Tanaka et al., 2017). However, it is not clear how this current reaches the mouth of the bay because observations in the offshore shelf area is inadequate. This study makes the three-dimensional observation with finest resolution ever in a shelf area in the Sanriku ria coast.

Hydrographic observation was done with R/V Yayoi in the area of 4.3 km in east-west and 5.6 km in north-south, where the depth is between 50 m and 125 m. It was on July 26, 2017 in the morning (8:11-11:00) and the afternoon (1:12-2:13). In the morning, three-dimensional CTD observation was made. In the afternoon, observation is limited on the coastal meridional line with a finer horizontal resolution. Measurements of the velocity by a shipboard ADCP (300 kHz) are also made during the cruise. A nearby location, Kamaishi had a low tide at about 11:30 am with an intermediate tidal range. So, the morning/afternoon cruise corresponds to ebb/flood tide at the coast near the site.

Observed distribution of the salinity and temperature has two haloclines with salinity of about 33.60 and 33.70, respectively. The former lies at the depth of a few meters. The depth of the latter varies from 20 m to 60 m. The salinity and temperature of the lower halocline and the water below is categorized in the Tsugaru Warm Current water system of Hanawa and Mitsudera (1987). Distributions of the zonal velocity by the shipboard ADCP shows baroclinic structure with upper offshore flow and lower inshore flow. The boundaries between them correspond to the lower halocline in CTD observations. These results are consistent with the three-layer structure in inshore Otsuchi Bay revealed by Tanaka et al. (2017). The morning and afternoon observations of the coastal meridional line show significant salinity increase and temperature decrease in the deeper portion, especially in its northern part. The morning observations in the offshore area suggest that the water with high salinity and low

temperature came from offshore region with upslope movement.

References.

Hanawa and Mitsudera, 1987, JOSJ, 42.

Ishizu et al., 2017, JO, 73.

Otobe et al., 2009, Coast Mar Sci, 33.

Tanaka et al., 2017, JO, 73.