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FIELD OBSERVATION ON PHYSICAL CHARACTERISTICS OF ABUKUMA RIVER ESTUARY IN SENDAI BAY
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Higher amount of radiocaesium transport from Abukuma river into Pacific Ocean, especially during the extreme events, has already estimated. The current study aims to clarify the following: i)to survey estuary mixing processes during freshwater and turbidity intrusion from Abukuma river mouth, largest river basin affected fallout, where annual radiocaesium flux reached 10 Terabecquerel during our observation in 2011-2012; ii) To identify bottom-sediment contamination along the river mouth by sediment sampling. Field observation was conducted both in March 18 and September 2-3 in 2013 in Sendai Bay. Vertical temperature and turbidity, together with the salinity field are observed using fishing vessel. We analyzed also vertical velocity profile using ADCP to identify the current movement of the bay. The velocity fields in Sendai Bay of the observation date are illustrated using JCOPE2 program.Figures 1 illustrates observation points, vertical salinity, turbidity and temperature field in each points, and vertical velocity profile observed in 18 March 2013 . The eastward surface current was observed in each transection line. At near bottom of the sea, westward current was observed, indicating estuary circulation. Southward surface current was observed in most of latitudinal section, weak northward bottom current was also found Freshwater intrusion was observed on some of the stations in transection A which is located near the mouth of Abukuma River.In most of the station, turbidity peak was observed in near bottom of the sea, except in some station in transection A where the peak of turbidity was found in surface similar to the location of freshwater intrusion. Higher concentration of radiocaesium in the bottom sediment near the Abukuma river mouth is observed where fine argilliferous soil are found, much higher than that in surrounded area, giving important evidence of radiocaesium in particulate form supplied from Abukuma River. Peaks of turbidity near the river mouth were found at slightly lower position than the freshwater-saline boundary at stations 1 and 3 (March 20), implying that the occurrence of coagulation of suspended particulate matter through mixing with saline water, supporting the observed concentration found in (1).

キーワード: Abukuma river, Coastal zone, Estuary circulation, Mixing zone, Radiocaesium
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