study illustrate the importance of understanding particle-scale association of hydrophobic organic contaminants for explaining bioavailability difference among sediments; however the further study is needed. In this work, we also found that the PBDE concentrations in sediments from Luju river and Dagu estuary were five times higher than Qikou estuary sediment, it may be that they were located in Tianjin Lingang Industrial Area where human activities are increasing rapidly in these areas.

Nutrient pollution in Tianjin Bohai Bay, China

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The paper studied the contaminative levels of biogenic elements, the historical evolvement trend and the eutropication of Tianjin Bohai Bay through the investigation of biogenic elements of surface seawater in Bohai bay as well as the collection and analysis of historical data concerned. The result indicated that the surface seawaters were under the bad nitrogen contaminative conditions. Beitang and Dagu estuary appeared to be the two main contaminative sources of inorganic nitrogen and phosphorus pollution. Historical evolvement trends of DIN and DIP closely related to the annual runoff into the ocean, especially the notable relation in the coastal areas of Dagu estuary where the contents of DIN and DIP were proportional to the annual runoff into the sea, indicating of the land sources of inorganic nitrogen and phosphorus around Bohai bay. Influenced by the increasing contents of inorganic nitrogen in the offshore area of Bohai bay in Tianjin, the nutrient structure of the offshore area of Bohai bay in Tianjin had been remarkably changed from 1985 to 2003. It had been changed from nitrogen limitation in 1985 to phosphorus limitation, thus greatly affecting the phytoplankton community structure in waters.

A simulation of the accumulation process of suspended particles derived from rivers flowing into Ariake Bay, Japan

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Ariake Bay is the one of the best-known semi-closed sea located in southwest Japan. In this bay, the decrease of fish hauls and bivalve larvae, the increase of red tides and incidences of oxygen deficiency and a change for the worse of the bottom sediment were all observed recently. Now, numerous scholars, government offices and others are performing research for the clarification of these environmental change factors. In the future, greater efforts for the restoration and preservation of the environment will be needed.

In order to evaluate the transport and accumulation of the suspended particles from the rivers flowing into Ariake Bay, the authors simulated the movement of the particles discharged from the main rivers and Isahaya Reservoir by using a computer simulation. The

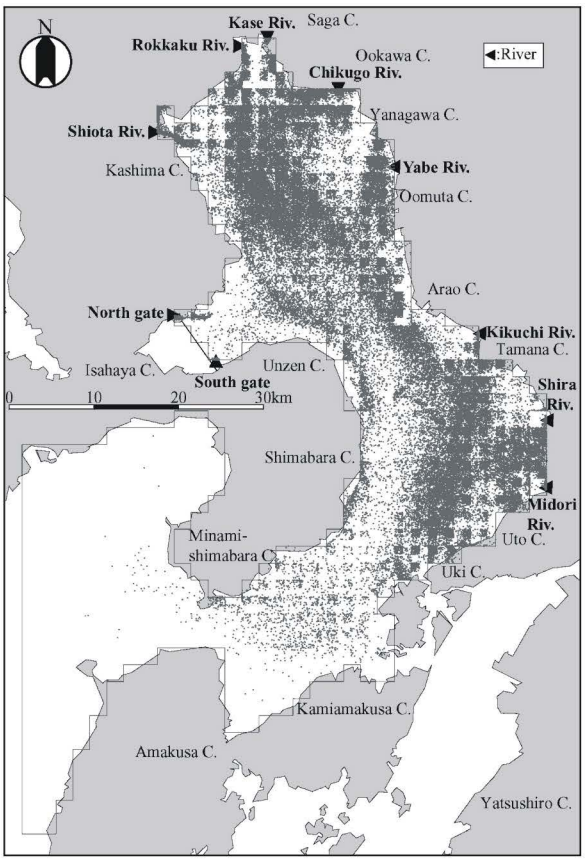

Fig.Distribution of accumulated particles in Ariake Bay sediment which derived from the rivers.

numerical model was created by combining both a hydrodynamic model and a particle tracking model. The particle tracking model used the Euler-lagrange method (Yanagi et al, 1989) combining the settling and resuspension process of the particles. The size of particles from rivers were divided into 12 categories. The settling rate of the particles was set up by Stokes equation. The resuspension process assumed that particles less than silt size (0.074 mm) which had accumulated on the bottom sediment were resuspended when the bottom friction force of the seawater flow was more than the critical shear stress.

As a result, the particles discharged from the rivers located at the head of Ariake Bay were moved in water columns and accumulated on the bottom sediment along the seawater flow towards the mouth of the Bay. Most of the particles which accumulated on the bottom sediment were supplied from the Kikuchi River, Sira River and Midori River which were all located in Kumamoto Prefecture. This model was able to quantitatively estimate the spatio-temporal behavior of particles during the process of accumulation on the sea bottom and subsequent resuspension in water columns. Hereafter, we will attempt to validate this model with a collection of real data from each of the locations that was simulated, while also estimating the contribution of particles from each source into the bay. Once validated, this simulation model could be useful for tracking the movement of plankton during red tides, as well as the journey of pelagic bivalve larvae.

Study on natural environmental characteristics of the Sone tidal flat in the Suo sea, Japan

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1. Introduction: The Sone tidal flat in Kitakyushu city has a dry flat of about 517ha during ebb tides, as shown in Fig. 1. It is one of the largest flat in the city and the nicest spots for the wild bird observation throughout four seasons. It is also famous as the breeding ground of Horseshoe crab (*Tachypleus tridentatus*). A construction of an artificial island for a new airport about 3 km offshore started in 1994, which was completed in 2006. A fishing port is under construction in the center of the tidal flat. There is therefore possibility that natural environments of the tidal flat may change. Although several large-scale landfills have been recently constructed surrounding the Sone tidal flat, number of Horseshoe crab breeding pairs laying eggs have been increasing. The aim of this study is to understand characteristics of the natural environments of the Sone tidal flat and to identify changes in wave environments due to the large-scale landfills through a numerical wave model.

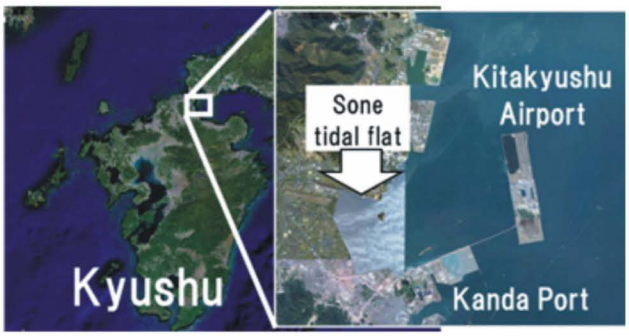

Fig.1 Location of the study site

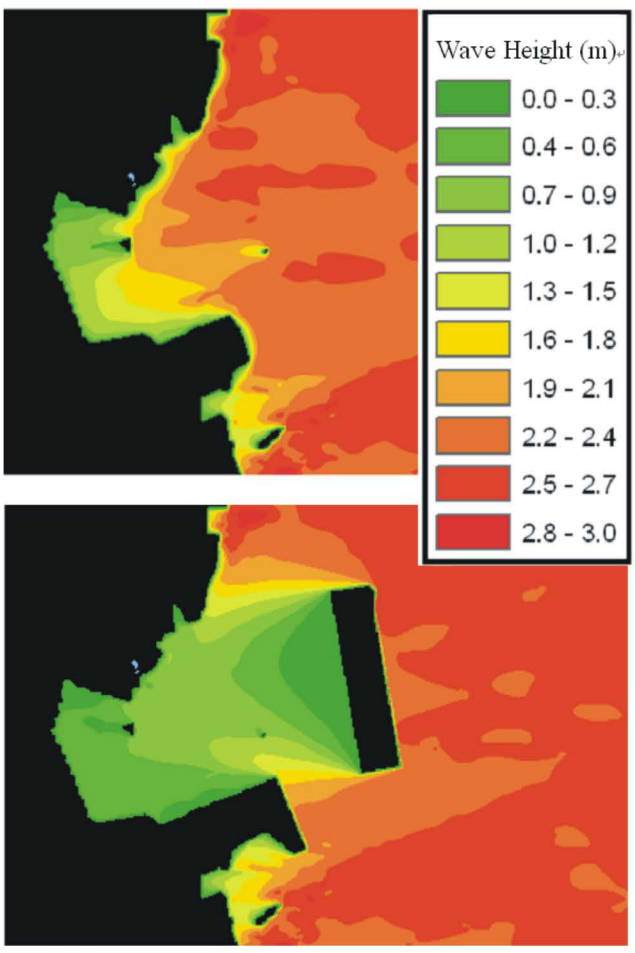

Fig.2 Computed wave height