

spring tide period than that during neap tide. On the contrary, saltwater intrusions were weaker and stronger during neap tide period than spring tide period in the Modaomen and Huemn inlets in summer, respectively. The model results indicated that the current was controlled by seaward current driven by river discharge in Modaomen Inlet rather than the gravitational circulation and tide-induced current due to this large river flow during neap and spring tides period in summer. However, the gravitational circulation in Humen Inlet was strengthened due to the strongest stratification during neap tide in the wet season.

Seasonal variability of saltwater intrusion in the Pearl River Estuary

Hongzhen XU * & Jing LIN

State Key Laboratory of Estuarine and Coastal Research, East China Normal University, 3663 North Zhongshan Road, Shanghai, China
E-mail: hzxu@sklec.ecnu.edu.cn

The seasonal variability of estuarine circulation, salinity stratification and saltwater intrusion in the Pearl River Estuary (PRE) were investigated in the study by a three-dimensional numerical model. The model was calibrated against with observed data during December, 2007 including salinity, current velocity and surface elevation. Some model experiences representing seasonal varying river discharge in different seasons were conducted. The model results shown that the PRE was dominated by a two-layer circulation with seaward current at surface and landward current at bottom. The saltwater intrusions in the PRE became worse during winter (dry season) and slight during summer (wet season). The differences of saltwater intrusion between spring and neap tide periods in winter and summer were studied as well. In winter, saltwater intrusion during neap tide was stronger than that during spring tide in Modaomen Inlet, however, saltwater intrusion was weaker during former period than that during latter period in Humen Inlet. The circulation and salinity stratifications in Modaomen Inlet shown that the gravitational circulation was strengthened due to the stronger stratification during neap tide that brought more saltwater landward in winter. But the circulation in the Humen Inlet was dominated by tide-induced current in this dry season indicated that saltwater intruded landward more easily during spring tide period than that during neap tide. On the contrary, saltwater intrusions were weaker

and stronger during neap tide period than spring tide period in the Modaomen and Huemn inlets in summer, respectively. The model results indicated that the current was controlled by seaward current driven by river discharge in Modaomen Inlet rather than the gravitational circulation and tide-induced current due to this large river flow during neap and spring tides period in summer. However, the gravitational circulation in Humen Inlet was strengthened due to the strongest stratification during neap tide in the wet season.

Vegetation and the sedimentary patterns in various environments along the drainage area of the Red River, Vietnam

Jie LI ^{1*}, Zhen LI ¹, Dang Xuan PHONG ² & Eiji MATSUMOTO ³

¹State Key Laboratory of Estuarine and Coastal Research, East China Normal University, Shanghai 200062, China

* E-mail: jieli0128@hotmail.com

²Institute of Geography, Vietnamese Academy of Science and Technology, Hanoi, Vietnam

³Graduate School of Environmental Studies, Nagoya University, Nagoya 4648601, Japan

The evolutions of delta and estuarine are firmly correlated to the water and sediment discharge of rivers, on which vegetation, climate, and human activities impact along the drainage area. The Red River, one of the large rivers in the Asian monsoon region, is necessary to know the sediment patterns relating to the various environments along the river. Data from 76 sampling stations in the field investigation, including vegetation, sedimentary environment, soil, physiognomy, and data of palynological, magnetic parameter and grain size analyses on samples in laboratory were compiled and analyzed to know the potential effects of vegetation, climate and human activities by the cooperated group of China, Japan and Vietnam. This paper specially summarized the results of the parameters of vegetation compositions, topography, magnetic susceptibility and grain size to show how the vegetation impacts on the sediment in various environment conditions.

The vegetation and sedimentary patterns clearly distinguished three basic subsystems along the drainage of the Red River, including the mountainous areas, the channel-floodplain-bank of river and the delta plain-flat. In the subsystems of mountainous areas, the primeval vegetation