**MODELING THE INFLUENCE OF SEA LEVEL RISE ON THE TURBIDITY MAXIMUM OF THE QIANTANG ESTUARY**

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The estuary is one of the most important ecosystems on the earth surface. Due to the joint roles of the river discharge and tide, it is easy for the fine sediment in an estuary to form the turbidity maximum, where suspended sediment concentration is relatively high compared with other part of the estuary. The turbidity maximum plays an important role in capturing and filtering the sediment, nutrients and pollutants, and hence plays an important role in the evolution of estuarine ecosystem. According to the prediction of IPCC, the global sea level will rise by 0.3-1.3 m by the end of the 21st century, and the sea level rise under the high emission scenario may exceed 2.0 m. Sea level rise will lead to the inundation of coastal wetlands, the intensification of salt water intrusion, and the increase of marine disaster risk. Many scholars have predicted the impact of sea level rise on estuarine hydrology and sedimentary ecology based on numerical models. Especially in the last one or two decades, several studies have been carried out to analyze the of sea level rise on the evolution of estuarine morphology based on long-term morphodynamic model. However, so far few focused on the influences of sea level rise on the estuarine maximum turbidity zone. The Qiantang Estuary on the East China Sea coast is overwhelmed by a large sand bar. The bar is about 130 km long, and the highest part is about 10 m higher than the estuarine bottom. Therefore, the turbidity maximum of the estuary is related to the evolution of the large bar. This study attempts to predict the influences of sea level rise on the large bar development and the turbidity maximum using an idealized morphodynamic model. The results show that under different SLR scenarios such as 0.5 m, 1.0 m and 2.0 m in the future, the high and low water levels and hydrodynamic conditions along the Qiantang Estuary would change to a certain extent, and the sand bar would move landwards. The distance of the bar movement is related positively to the magnitude of SLR. Accordingly, the turbidity maximum of the estuary also moves landwards. Under the scenario of 1 m SLR, the turbidity maximum would move about 12 km landwards, and the maximum sediment concentration would increase by 0.3 kg/m3. These results provide scientific basis for the sustainable estuary management in the future.