

Distribution and behavior of trace metals (U, Mo, V) in the porewater of estuary wetland of the Yellow River

JIANG XUEYAN,^{1,2,3} SHANG TIANWEI¹, YIN XIA³, ZHANG TONG¹

¹ College of Chemistry and Chemical Engineering, Ocean University of China, Qingdao 266100, P. R. China

² Key Laboratory of Marine Chemistry Theory and Technology, Ministry of education, Ocean University of China, Qingdao 266100, P. R. China

³ College of Environmental Science and Engineering, Ocean University of China, Qingdao 266003, P. R. China

As the terrestrial-marine interfaces, the estuary wetlands play important roles in the transportation of terrestrial elements from the land to the sea. The biogeochemical reactions occur in these areas may significantly alter the forms and mobilities of some trace metals, especially the redox sensitive elements like Uranium, Molybdenum and Vanadium. Yellow River is one of the most turbid river in the world. The high sedimentation rate makes the wetland of Yellow River estuary one of the youngest wetland in the world.

Two sampling sites were chosen on the wetland of Yellow River Estuary. One located on the barren sand and on the other one grew plenty of hydrophyte. Porewaters were sampled with Rhizon samplers in situ with a vacuum box. A 60cm length sediment core was sampled in each site. Trace metals (U, Mo, V), nutrients (NO_3^- , NO_2^- , NH_4^+ , PO_4^{3-}), Fe^{2+} , Mn^{2+} , SO_4^{2-} , S^{2-} , DOC of the porewaters were measured to make the vertical profiles of these elements. Combined with the $^{210}\text{Pb}_{\text{xs}}$ and the grain size distribution of the sediment cores, the behavior of the trace metals in the terrestrial-marine transition zone were described.