Tidal and seasonal water-level variability in the Mekong River delta in Vietnam

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The interactions of tides and river flows in the Mekong River delta regions in Vietnam has been investigated by analysing the water-level datasets and by conducting numerical experiments with idealised settings. Tidal harmonic analyses of the observed water levels indicated a large seasonal change in tidal amplitudes. For example, the M2 tidal amplitude at Tan Chau near the Vietnam-Cambodian border was about a half of that at the river mouth in May whereas less than one-tenth in October. It was also found that seasonal changes in non-tidal water levels in the middle delta were caused not only by floods propagated from upstream but also by changes in sea levels along the deltaic coast. It was suggested that an intrusion of saline water from the sea is regulated by the spring-neap tidal cycle while the timing on the emergence of high-salinity water depends on the discharge rate of the river. These results suggest that it is important to take into account the effect of tides when evaluating the behavior of sediments in the lowest section of large rivers.

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