

Tidal modulation on the extent of saltwater intrusion into the Mekong River, southern Vietnam

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A three-dimensional numerical simulation using ROM has been undertaken to examine the impact of tides on the extent of salinity intrusion to the Mekong River in the Mekong River Delta, where streamwise gradient of the water-level is extremely low. The model predicted 3-d current speeds and salinity in the Co-Chien distributary of the Mekong River for both dry and wet seasons by specifying boundary values such as temperature, salinity, and hourly water levels which were obtained by referring to CTD data and to water level records at tide-gauge stations. It was found that during the dry season when the river discharge is low and the extent of the salinity intrusion is much more apparent than during the wet season, the location of the salinity front, defined as a section where the salinity of 0.5psu was observed, may shift for more than 10 km in upstream and downstream direction in a tidal cycle. This result indicates the importance of considering such a large and short time-scale temporal variability in the location of the salinity front which has not been considered in previous studies.

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