NECTEC
a member of NSTDA

RakNam

A Prediction and Scenario-based System for Saltwater Intrusion

Bangkok metropolis and its vicinity largely rely on the Chao Phraya River in supplying the freshwater. The salinity in the Chao Phraya River is controlled by ocean tides and river discharge thus the interplay between these two factors is crucial in determining the availability of freshwater. Besides, the surges can play an essential role in the enhancement of the salinity concentration during the monsoon seasons.

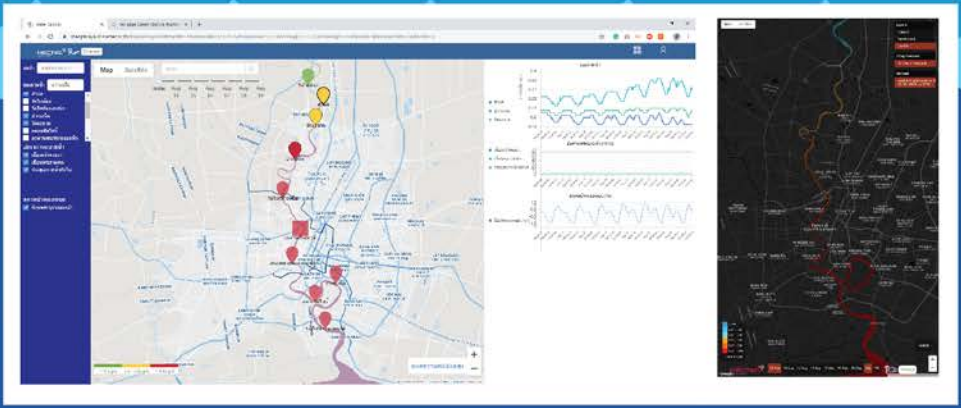
The saltwater intrusion is intensified in the dry season when the demand of fresh water is excessively high affecting various sectors including agriculture, industry and waterworks. The decision support system, RakNam, which includes the saltwater intrusion forecasting andscenario-based planning capabilities, has been developed to help decision makers make critical decisions on the timing of the availability of freshwater in the Chao Phraya River. Specifically, modeling of riverine-coastal ocean hydrodynamics and mass transport process, investigating the regional and local saltwater dynamics in the area, designing an effectiveassimilation scheme and developing a supporting web-application have been established.

Monitor
Provides a single window for saltwater intrusion related data including water quality parameters, rainfalls, discharges and tides

Forecast
Gives high-fidelity seven-day salinity and tides forecasts, updated daily

Scenario
Supports an evaluation of alternative strategies for effectiveness in saltwater intrusion management

Optimize
Seeks for the best practices for tackling saltwater intrusion issue with all concerns taken to account



Seven-day
salinity and tides forecasts