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Some issues on water resources system of the Changjiang River Delta in China

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Water resources system is a complicated large system, which contains certain regional background, as well as specific framework, function and dynamic balance. The Changjiang River Delta is a very important area in China. As the local water resources are concerned, the Delta is an area lack of water as a matter of fact. The water resources system of the Delta experiences a long, intricate and degenerate period. The lacking of water due to resources shortage in 1950's changes into that due to water quality from 1980's. Furthermore the status of water shortage sharpens gradually. The representations are summarized as follows: firstly, the discharge amount of wastewater and polluted water is large all along. Secondly, the pollution status of rivers, which involve the Changjiang River, the Grand Canal, the rivers in city and the rivers in small towns and villages, is noticeable. Thirdly, water quality of Taihu Lake is worth of more attention. Therefore, the countermeasures on the reconditioning and regulating of water resources system in the Delta demands the following new strategies, such as to

treat the rivers, the lakes and the seas as an overall system, to improve, harmonize and counterpoise water resources system carrying capacity, to implement the integrated management of water resources, which means the integrated management of drainage area along with the regional area, especially the integrated management of city water, and to carry on water saving and scientific using to increase the efficiency of water use, and so on. Consequently, human can coexist with water harmoniously in the Delta. And the objective to ensure the sustainable social and economic development with the sustainable usage of water resources can be implemented.

Simulation of coastal currents and river discharges in the South-eastern Black Sea

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In this study, development and evaluation of buoyant river plumes under the influence of the coastal currents and the guidance of topography in the south eastern Black Sea coast (Solaklı and Sürmene) rivers were analyzed. For simulation, the rivers are inputted as source of zero salinity in computer based simulation model CARDINAL, which uses depth averaged shallow water equation for two-dimensional conditions and the equations of non-steady boundary layer for three-dimensional conditions. The river plumes are examined with realistic topography and idealized wind conditions. In order to check accuracy of the simulation, temperature, salinity, current speed and directions were measured in 22 stations and then density was calculated by using UNESCO formulae. Comparison of the measurements and modeling of currents showed good agreement. When both buoyancy and wind are employed as external forcing, the circulation is influenced by the opposing tendencies for stratification. The present findings suggest that transport of low salinity waters depends on buoyancy in the vicinity of rivers and wind components away from river mouths.

Remotely-sensed suspended sediment dynamics in the Yangtze River Estuary

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