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Application of Remote Sensing and Other Space Technology to Hydrology and water resources
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During the second phase of the Dragon Project, the major attention is paid to the distributed hydrological watershed rainfall-runoff model (the Xinanjiang Model) and hydraulic (1D and 2D) models used for water resources assessment and management. The test areas include the Huaihe River Basin , the Dongting Lake and the Poyang Lake. The data needed for the part of the upper basin of the Changjiang River is collected. The conception of the FEST-EWB Model from the European team based on energy balance is fully exchanged between the Chinese team and the European team, and decided to be used in China. The input data for this model is being prepared, including hydrological, topographic, meteorological data and historical data of remote sensing images. The main objective is improvement of the Xinanjiang Distributed Model which is very widely used in China and based on water balance through the introduction of energy balance in order to further improve the accuracy of water resources assessment. It is a basis for the third phase of the Dragon Project. By means of the 1D and 2D hydraulic model, the effect of operation of the Three Gorge Hydropower Plant on the Dongting Lake is analyzed and compared with the result from remote sensing. The following conclusion is obtained. The water released from the Three Gorge Reservoir is clear water with lower sediment concentration, the scour and filling conditions are changed in the Changjiang River, due to sand mining on outlet of lake, the bed slope and the discharge from the lake to the Changjiang River increased. Water pollution monitoring, prediction and assessment is made in the Huaihe River and the Yellow River on the basis of remote sensing data and mathematic model. Based on remote sensing image and DEM, 3-D visual display is realized. It is very helpful for water pollution warning and management.

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