Applying knowledge to improve water quality
National
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Semi-distributed Land Use based Runoff Processes (SLURP).

SLURP is a basin model which simulates the hydrological cycle from precipitation to runoff including the effects of reservoirs, dams, regulators, water extractions and irrigation schemes. The model may be used to examine the effects of proposed changes in water management within a basin or to see what effects external factors such as climate change or changing land cover might have on various water users. The model may use locally-available climate data or may be run using only public domain data sets available on the internet. Satellite images may be used in the model for land cover mapping, vegetation indices (leaf area index and for evapotranspiration calculations), cloud cover (to distribute precipitation), snow extent and snow water equivalent. The model initially divides a basin into hydrological sub-basins and then divides each sub-basin into its component land covers using public domain topographic analysis software. The model then simulates the vertical water balance at each element of the sub-basin/land cover matrix using daily climate data. The climate data may be obtained from ground stations, from the output of global circulation models or numerical weather prediction models or from on-line datasets. Runoffs from each matrix element are then routed through each sub-basin to the basin outlet taking account of reservoir regulation, diversions, groundwater extractions and water exports from the basin.

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