
Title:

The identification of critical source area of total nitrogen in Chao river basin with SWAT model

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The Background

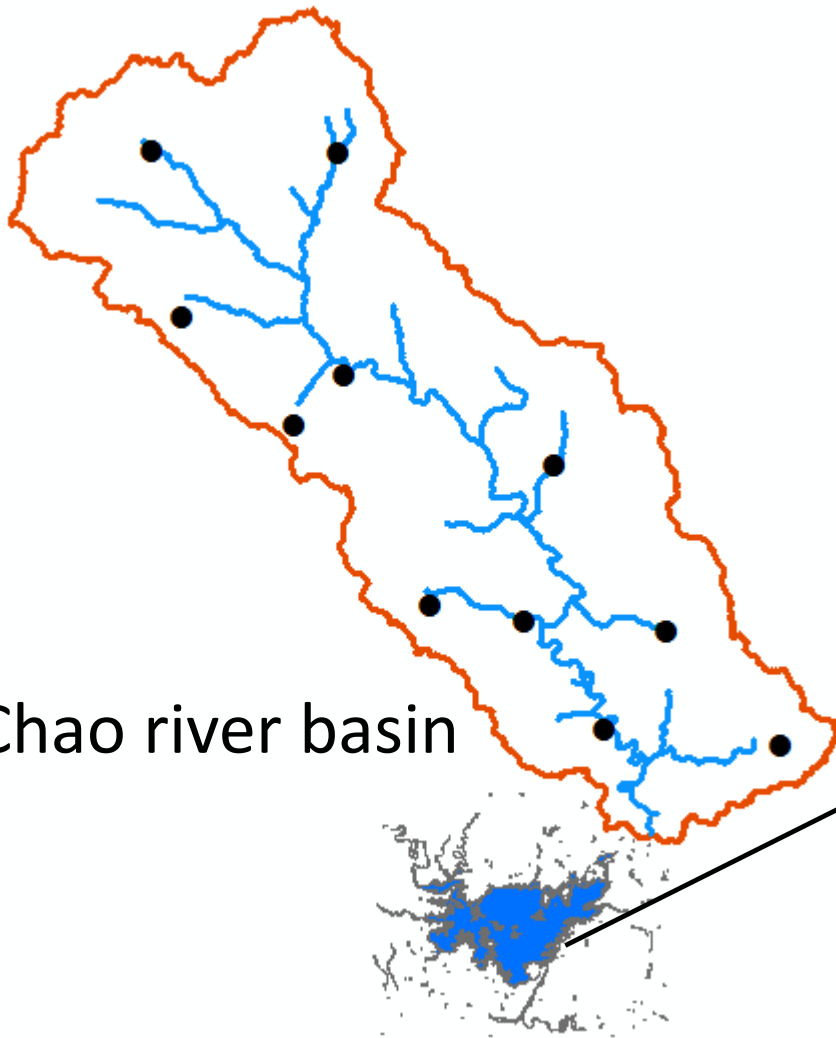
Eutrophication



1. The total nitrogen loss to receiving water bodies is the primary cause of surface water deterioration.

2. To improved the efficiency of water quality protection, the identification of critical source areas(CSAs) is extremely important for the TN loss.

The Study Area

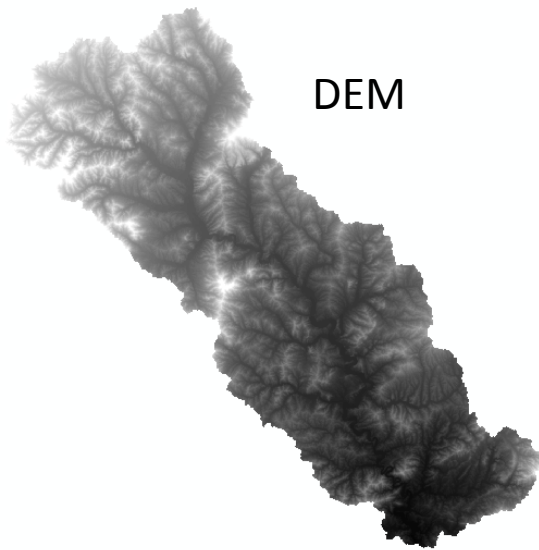


Miyun reservoir

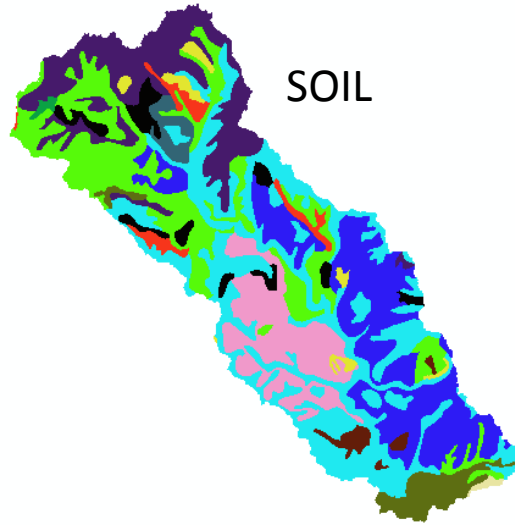


The nonpoint source pollution has been the major contributor, and the total nitrogen pollution is most severe according to the field monitor water quality data.

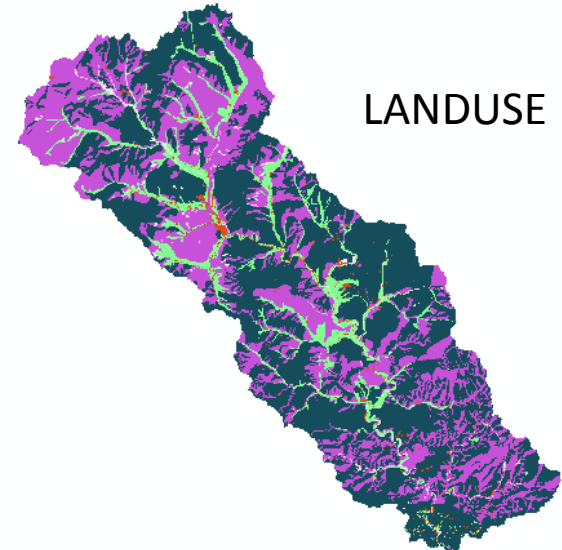
SWAT Setup



DEM



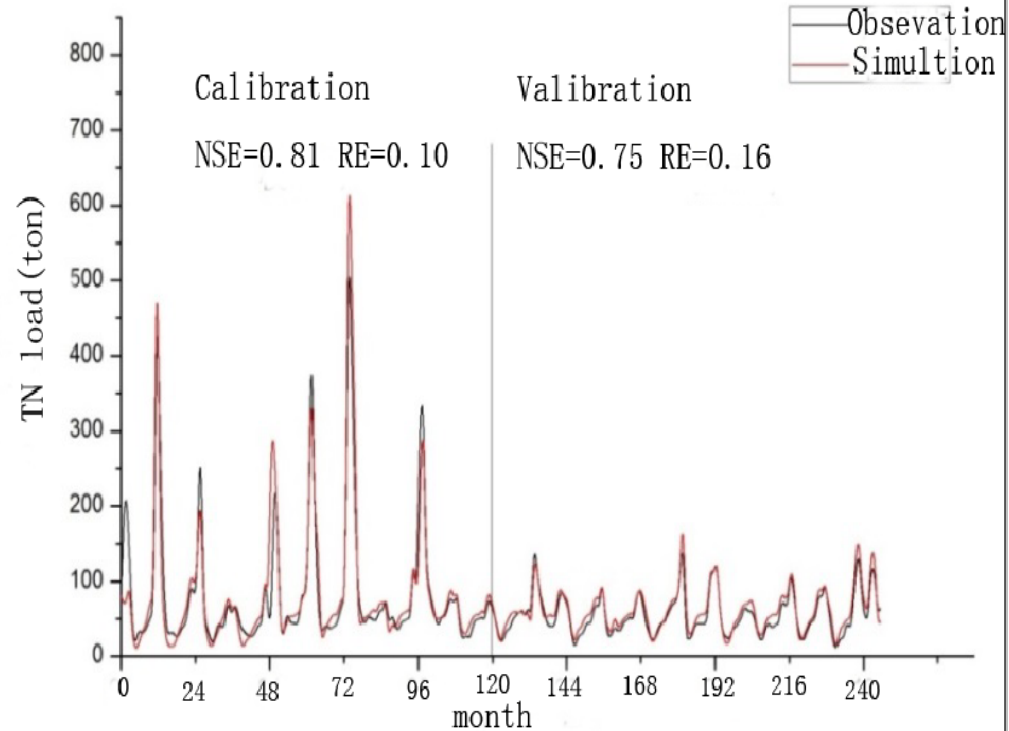
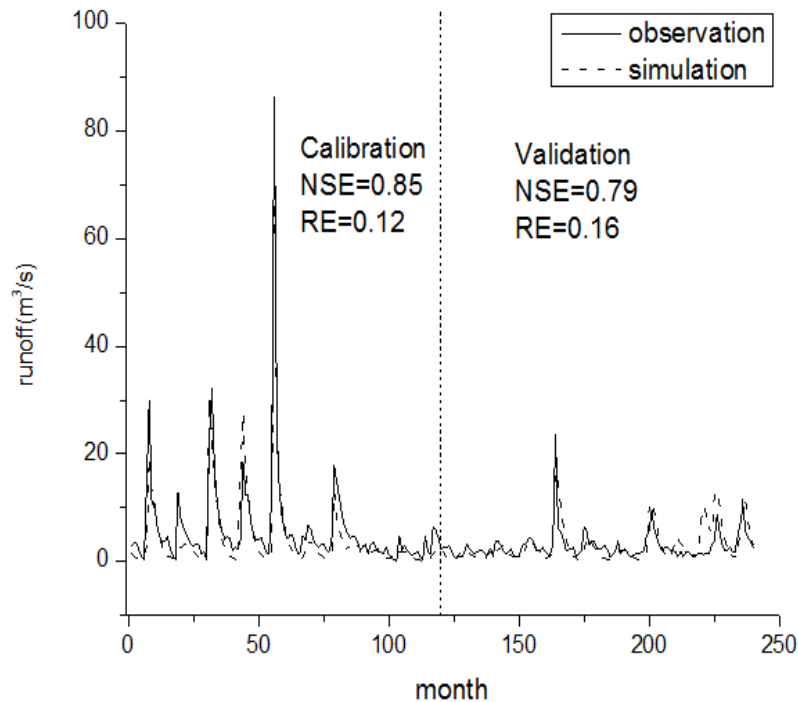
SOIL



LANDUSE

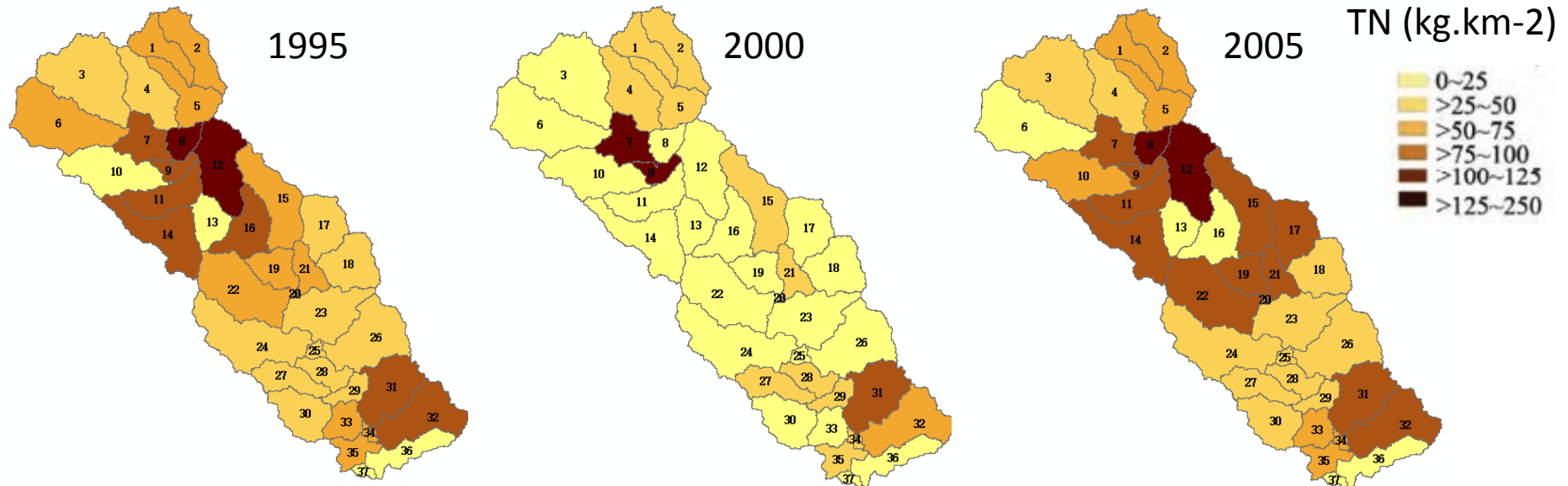
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1. The meteorological data were collected from China Meteorological Administration including precipitation, temperature, wind speed, solar radiation, and relative humidity from 1990 to 2011.
 2. Soil attribute was obtained for the Harmonized World Soil Database provided by FAO (Food and Agriculture Organization)

Calibration and Validation



NOTE: The results of calibration and validation show that the SWAT model can be used to predict the nutrient load evaluation under various scenarios.

The Distribution of CSAs of TN



NOTE: The CSAs of total nitrogen are mainly located in the upstream part of Chao river basin within the year of 1995, 2000, and 2005, respectively.

The Major Reasons of TN Loss

- **1.** Based on the statistical technique, the intensive agricultural activities and anthropogenic living pollution are recognized as the principal reasons with the processes of soil erosion and nutrient loss.
- **2.** Some conservation practices should be installed to reduce the TN loss and landscape pattern might be the potential path to prevent TN loss in this watershed.

- **Thank you for you attention!**