Water and nutrients circle response to long term agricultural development and soil response

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Water and nutrients circle response to long term agricultural development

- Location and topography of study area
Calibration and validation of steamflow

![Graph showing observed and simulated steamflow](image1)

Calibration and validation of sand concentration

![Graph showing observed and simulated sand concentration](image2)
Watershed land cover distributions in four observed years
Total nitrogen loading distributions in four observed years
Total phosphorus loading distributions in four observed years
Temporal trend

1995


流域流量 m³/s
流域出口泥沙 / 10⁴t
总氮 / t
总磷 / t
Interaction of NPS pollution with land use and landscape pattern
Monthly trend

1995~2000

TN

TP

1995~2000
Synergistic impacts of land-use change and soil-property variation on non-point source nitrogen pollution

<table>
<thead>
<tr>
<th>Simulation (S)</th>
<th>Simulation period</th>
<th>Year of land use</th>
<th>Year of soil properties</th>
</tr>
</thead>
<tbody>
<tr>
<td>S1</td>
<td>1970-1984</td>
<td>1979</td>
<td>1979</td>
</tr>
<tr>
<td>S3</td>
<td>1995-2004</td>
<td>1999</td>
<td>1979</td>
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<tr>
<td>S4</td>
<td>2005-2010</td>
<td>2009</td>
<td>1979</td>
</tr>
<tr>
<td>S5</td>
<td>2005-2010</td>
<td>2009</td>
<td>2010</td>
</tr>
</tbody>
</table>
Annual watershed NPS nitrogen load from 1970 to 2010

Interannual change of NPS nitrogen loading within two soil properties
Averages and error bars of yearly simulated of NPS organic N and nitrate N in each simulation
Evaluating spatial interaction of soil property with non-point source pollution at watershed scale: The phosphorus indicator in Northeast China

Spatial distributions of eight soil properties indexes at top 20 cm surface

Spatial distributions of eight soil properties indexes at 20-40 cm surface
Spatial interactions of NPS sediment P (Sed-P) and organic P (Org-P) with soil parameters of 0-20 cm surface at subbasins with four kinds of landuses.
Spatial interactions of NPS sediment P (Sed-P) and organic P (Org-P) with soil parameters of 20-40 cm depth at subbasins with four kinds of landuses
Contribution of soil indexes to NPS phosphorus loading assessment from the subbasins of upland and paddy rice
Thanks!