**Niger-HYPE version:** 2.0  
**HYPE model version:** HYPE version 4.6.0 was adapted to better represent the Inland Niger Delta in Mali by including a routine to simulate floodplain dynamics and river surface fluxes.

**Geographical domain:** The Niger River basin

Model purpose/User Community: The model is currently used to study the potential effects of climatic changes on floods, droughts and other water-related phenomena; and to connect this to adaptation strategies in West Africa. Together with key institutions in the region we also explore the possibility of using the tool for water resources management, education, and operational hydrological warning services.

Table 1. Data sources and characteristics of the Niger-HYPE v.2.0 model setup.

<table>
<thead>
<tr>
<th>Characteristic/Data type</th>
<th>Info/Name</th>
<th>Provider</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total area (km2)</td>
<td>2.1 million</td>
<td>-</td>
</tr>
<tr>
<td>Number of sub-basins</td>
<td>803 (mean size 2665 km2)</td>
<td>-</td>
</tr>
<tr>
<td>Topography</td>
<td>HydroSHEDS (15 arc-sec)</td>
<td>(Lehner et al., 2008)</td>
</tr>
<tr>
<td>Soil characteristics</td>
<td>Harmonised World Soil Database (HWSD) and WISE</td>
<td>(FAO et al., 2012), (Batjes, 2012)</td>
</tr>
<tr>
<td>Land use characteristics</td>
<td>GlobCOVER</td>
<td>(Arino et al., 2008)</td>
</tr>
<tr>
<td>Reservoir and dam</td>
<td>Global Reservoir and Dam database (GRanD)</td>
<td>(Lehner et al., 2011)</td>
</tr>
<tr>
<td>Lake and wetland</td>
<td>Global Lake and Wetland Database (GLWD)</td>
<td>(Lehner and Döll, 2004)</td>
</tr>
<tr>
<td>Discharge</td>
<td>Global Runoff Data Centre (GRDC), ABN and AGRHYMET</td>
<td>(GRDC, 2012), (ABN, 2008)</td>
</tr>
<tr>
<td>Precipitation</td>
<td>WATCH Forcing Data ERA-Interim (WFDEI)</td>
<td>(Weedon et al., 2014)</td>
</tr>
<tr>
<td>Temperature</td>
<td>WATCH Forcing Data ERA-Interim (WFDEI)</td>
<td>(Weedon et al., 2014)</td>
</tr>
<tr>
<td>Potential evapotranspiration</td>
<td>MOD16 (1 km2)</td>
<td>(Mu et al., 2011)</td>
</tr>
</tbody>
</table>
Calibration:
Joint calibration against 56 daily discharge stations and monthly potential evapotranspiration at 1km2 resolution for the period 1994-2009

Validation:
At the same 56 stations used for calibration for the independent period 1979-1993
At four independent stations for the independent period 1979-1993

Publications


UNESCO, Paris. Click here to download the poster in English. Cliquez ici pour télécharger l’affiche en français.

Contact person
For further information, please contact Jafet Andersson. Funding: The model was developed in the context of collaborative research projects between Swedish and West African scientists funded by the SIDA project “Building resilience to floods and droughts in the Niger River basin - hydrological predictions for sustainable water user and climate change adaptation”, and the EU FP7 project “IMPACT2C”.

References for input data


