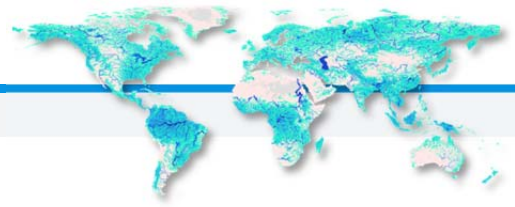


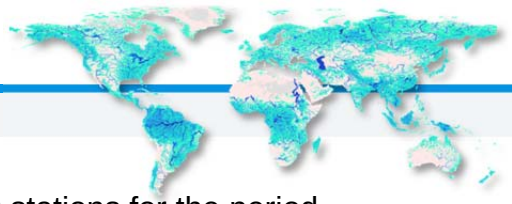
India-HYPE version: 1.0
HYPE model version: HYPE 4.5.0
Geographical domain: Drainage basins of the Indian subcontinent

User community:
The model has been used to study the potential effects of environmental change (i.e. climate, land use and population) on water availability; and to connect this to adaptation strategies. Together with Indian partners (universities, and water authorities) and key international institutions, we have been exploring have been exploring the possibility of using the tool for water resources management with the results contributing in national initiatives to assess the impacts of environmental change.

Table 1. Data sources and characteristics of the India-HYPE v.1.0 model setup.

Characteristic/Data type	Info/Name	Provider
Total area (km2)	4.9 million	-
Number of sub-basins	6010 (mean size 810 km2)	-
Topography (routing and delineation)	Hydrosheds (15 arcsec)	Lehner et al. (2008)
Soil characteristics	Harmonised World Soil Database (HWSD)	FAO et al. (2012)
Land use characteristics	Global Land Cover 2000 (GLC2000)	Bartholomé et al. (2002)
Reservoir and dam	Global Reservoir and Dam database (GRanD)	Lehner et al. (2011)
Lake and wetland	Global Lake and Wetland Database (GLWD)	Lehner and Döll (2004)
Irrigation	Global Map of Irrigation Areas (GMIA)	Siebert et al. (2005)
Discharge	Global Runoff Data Centre (GRDC; 42 stations)	GRDC (2012)
Precipitation	APHRODITE (0.25° x 0.25°)	Yatagai et al. (2012)
Temperature	AphroTEMP (0.5° x 0.5°)	Yasutomi et al. (2011)
Potential evapotransp.	MODIS PET (1 km)	Mu et al. (2011)

Calibration:



Stepwise, simultaneous calibration using discharge at 30 stations for the period 1971-1975
Calibration of potential evapotranspiration parameters using remote sensing data over the entire domain for the period 2000-2005.

Validation:
30 stations for the independent period 1976-1979 (temporal validation)
12 independent stations for the independent period 1971-1979 (spatiotemporal validation).

Publications:
Pechlivanidis, I. G., & Arheimer, B. (2015). Large-scale hydrological modelling by using modified PUB recommendations: the India-HYPE case. Hydrology and Earth System Sciences, 19, 4559–4579. doi:10.5194/hess-19-4559-2015

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Pechlivanidis, I. G., Arheimer, B., Donnelly, C., Hundecha, Y., Huang, S., Aich, V., … Shi, P. (2017). Analysis of hydrological extremes at different hydro-climatic regimes under present and future conditions. Climatic Change, 141(3), 467–481. https://doi.org/10.1007/s10584-016-1723-0

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Contact person:
For further information, please contact Ilias Pechlivanidis Funding:The model application was developed in the context of a collaborative project by the Swedish International Development Cooperation Agency (SIDA; grant no. AKT-2012-022).

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