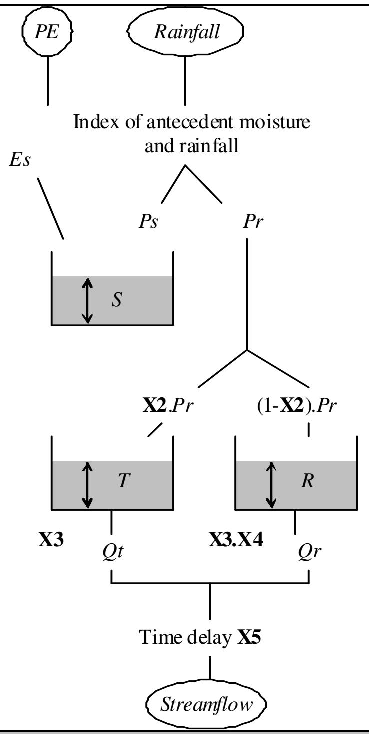
Fact-sheet IHAC

In: Görgen, K., Beermsa, J., Brahmer, G., Buiteveld, H., Carambia, M., de Keizer, O., Krahe, P., Nilson, E., Lammersen, R., Perron, C. & D. Volken (2010): Assessment of climate change impacts on discharge in the Rhine River Basin: Results of the RheinBlick2050 Project. CHR Report No. I-23. pp. 175-177.
Download: http://www.chr-khr.org/files/CHR_I-23.pdf.

1. General Information	
Model name	IHAC (modified version of the IHACRES model proposed by Jakeman et al., 1990)
Version	Proposed by Cemagref (see Perrin, 2000)
Author(s) / First publication	Perrin (2000)
Contact person (name, email)	Charles Perrin charles.perrin@cemagref.fr
Institute	Cemagref
Web site	www.cemagref.fr/webgr
General modelling objectives	flow simulation
Domain of applicability (catchment types and climate conditions)	Model version widely tested on French catchments
2. Model description	
Model type (empirical, conceptual, physically-based, others)	Conceptual model
Continuous or event-based	Continuous
Possible running time steps	Daily
Spatial discretization (lumped, semi-distributed, distributed)	Lumped
Short description of model structure detailing main function (evaporation, soil moisture accounting, groundwater, routing, snowmelt, etc.)	The model structure can be divided into a production module and a transfer module. The production module consists of: - a correction factor of rainfall and potential evapotranspiration - a non linear soil moisture index to determine (i) the part of raw rainfall that will become effective rainfall and (ii) the actual evapotranspiration; The transfer module consists of: - two flow components (fast and slow) with two linear stores in parallel with an optimised splitting coefficient; - a pure time delay. A degree-day snowmelt module is used for application in catchments influenced by snow.

Scheme of model structure	

3. Model parameters	
Distribution of model parameters (yes/no)	No
Number of free parameters	6 free parameters
Procedure of model parameter estimation (measurement, manual or automatic algorithm, etc.)	Automatic calibration
4. Model inputs / Model outputs	
List and characteristics of input variables (type, time step, spatial resolution, etc.)	Daily series of potential evapotranspiration and catchment areal rainfall Daily series of temperature for snowmelt
List and characteristics of output variables (type, time step, spatial resolution, etc.)	Daily streamflow
5. Examples of previous model applications	
Catchments, objectives, etc.	Application on French catchments
Results of existing comparisons with other models	Perrin et al. (2001)
6. List of 5 selected references	

Jakeman, A.J., Littlewood, I.G. and Whitehead, P.G., 1990. Computation of the instantaneous unit hydrograph and identifiable component flows with application to two small upland catchments. Journal of Hydrology 117, 275-300.

Perrin, C., 2000. Vers une amélioration d'un modèle global pluie-débit au travers d'une approche comparative. Thèse de Doctorat, INPG (Grenoble) / Cemagref (Antony), 530 pp.

Perrin, C., Michel, C. and Andréassian, V., 2001. Does a large number of parameters enhance model performance? Comparative assessment of common catchment model structures on 429 catchments. Journal of Hydrology 242(3-4), 275-301.