

Local water balance outputs

A local water balance for a HYPE model can be set up differently depending on what assumptions were made when the model was set-up. The local water balance consists of precipitation, evapotranspiration and runoff, which ideally should fulfill the water balance equation $P-E-Q=0$. This is not always the case since e.g. water management or percolation to deeper groundwater is not included. For HYPE, the choice of output variables must be consistent so that matching precipitation and evapotranspiration variables are used. For runoff also several choices of output variables exist.

Figure 1 illustrates different output variables for precipitation. You can for example choose to use the precipitation reaching the models surface (*cprc*), or the precipitation before corrections due to land uses (*psub*). Figure 2 and the first table describe which precipitation and evapotranspiration variables goes together. The second table describes the different local runoff output variables available. Figure 3 illustrates the same variables.

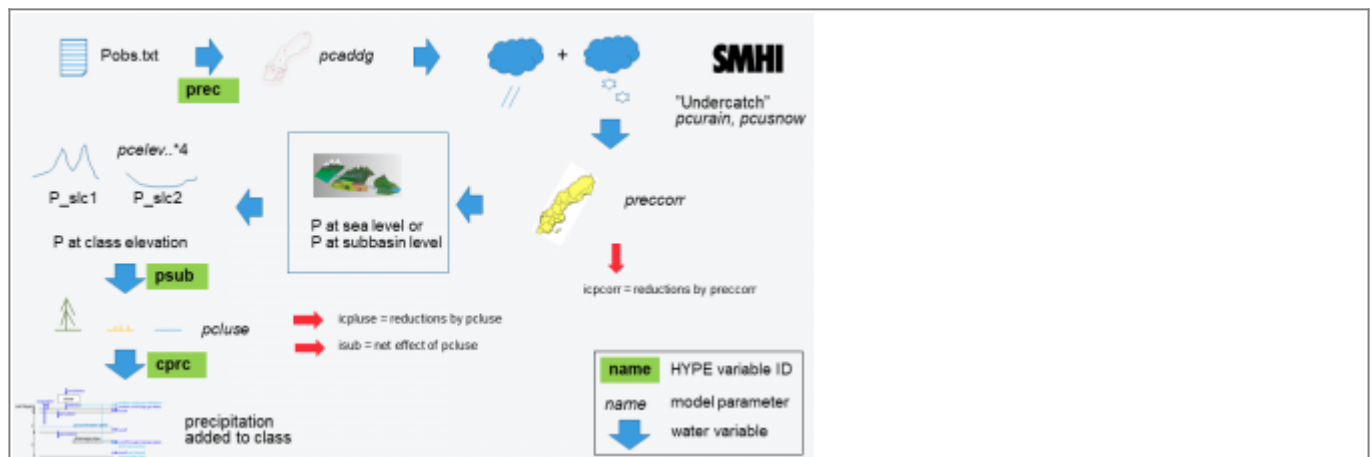


Figure 1. HYPE variable IDs for precipitation and related variables. Precipitation correction possibilities and parameters.

Precipitation/Evapotranspiration combinations

HYPE variable IDs	Description
cprc and evap	These variables are determined at the surface of the land classes and the water classes. They give what water is actually added/removed from the soil, river or lake water stores of the HYPE model.
psub and esub	These variables are determined before the effect of landuse on precipitation is applied. The landuse corrections can be positive or negative. For some models the landuse correction can be simulating interception losses. The corrections are added to the evapotranspiration output.
psim and evpt	These variables are calculated with the assumption that losses of precipitation by corrections in the HYPE model are interception losses, and should not be removed from the precipitation output. Thus losses of precipitation with the landuse correction or the regional correction parameters are included. These corrections are added to the evapotranspiration output.

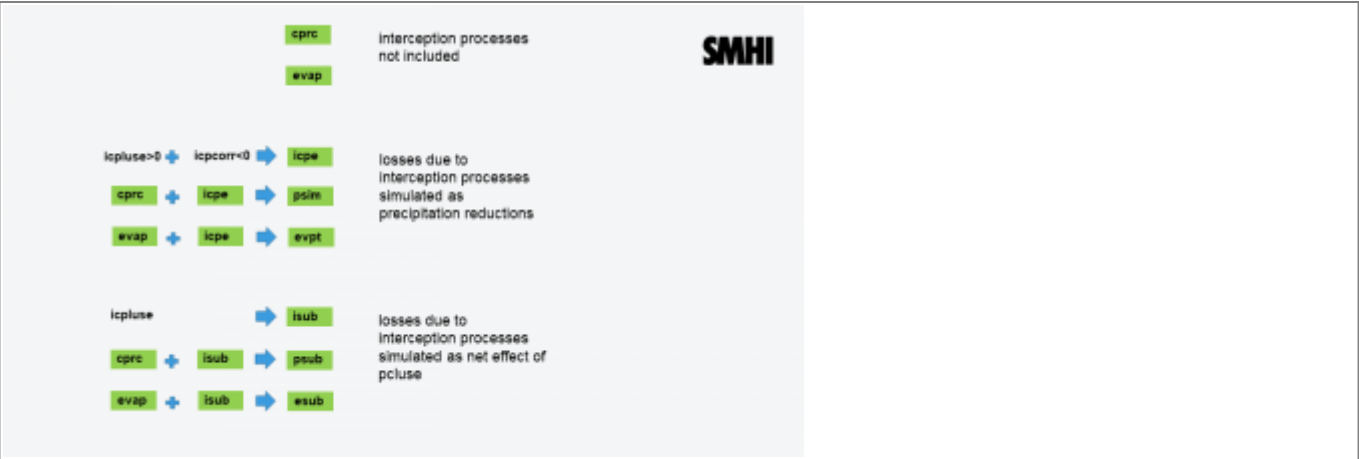


Figure 2. Definition of precipitation and evapotranspiration HYPE output variables under different model assumptions.

Local runoff options

HYPE variable ID	Unit	Description
crun	mm/period	simulated local runoff from land area. Note that this is not the same as the flow to the local stream if floodplains are used. subbasin land area
loff	L/km2/s	computed local runoff from land area. Note that this is not the same as the flow to the local stream if floodplains are used. subbasin land area (same as crun other unit)
cloc	m3/s	local flow from subbasin to its main river subbasin area without olake and main river (and floodplains)
clof	m3/s	local flow of subbasin (m3/s) (outflow of local river and lake, plus P-E for surface waters) subbasin area

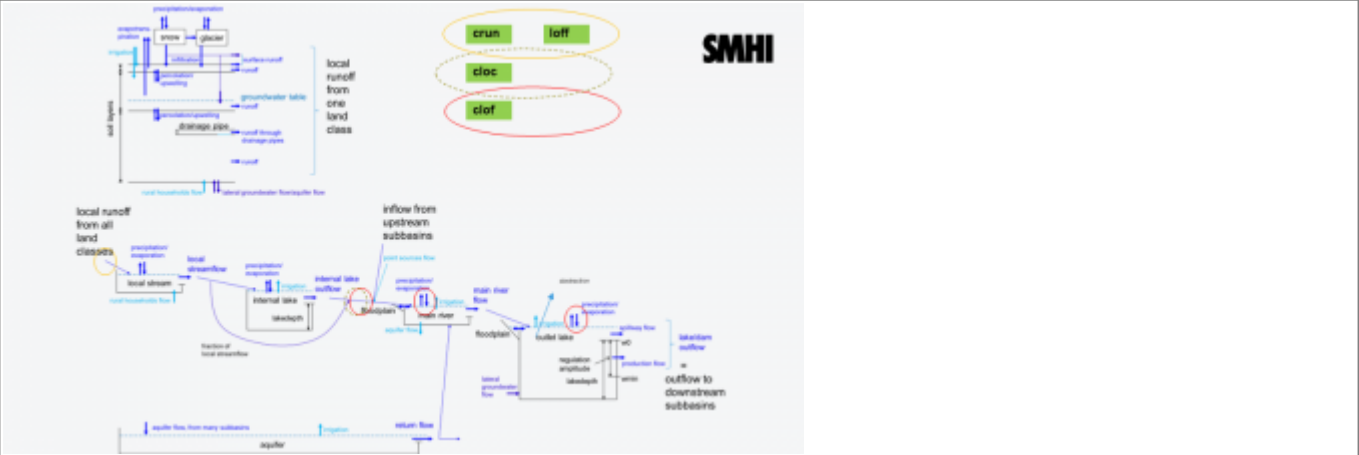


Figure 3. Illustration of where local runoff HYPE variable IDs are located in the HYPE schematic picture.