

a

Observed daily precipitation at $1/8^\circ$ resolution (P^{obs}_t)

+

b

NLDAS-2 hourly forcing variables ($forcings_t$)

- Net SW/LW radiations (Q^{sw}_t)
- Specific humidity (q_t)
- Surface pressure (P^s_t)
- U/V wind components (v_t)
- Potential evapotranspiration (PET_t)

+

NOAH3.2

c

ECHAM4.5 monthly forecasted precipitation at 2.8° resolution (P^{fcst}_{t+1})

PCR: spatial downscaling to $1/8^\circ$ resolution

K-NN: temporal disaggregation from monthly to daily resolution

+

d

Climatological forcing variables ($forcings_{t+1}$)

+

I

IHC_t

NOAH3.2

II

SM forecast (SM_{t+1})