General Questions
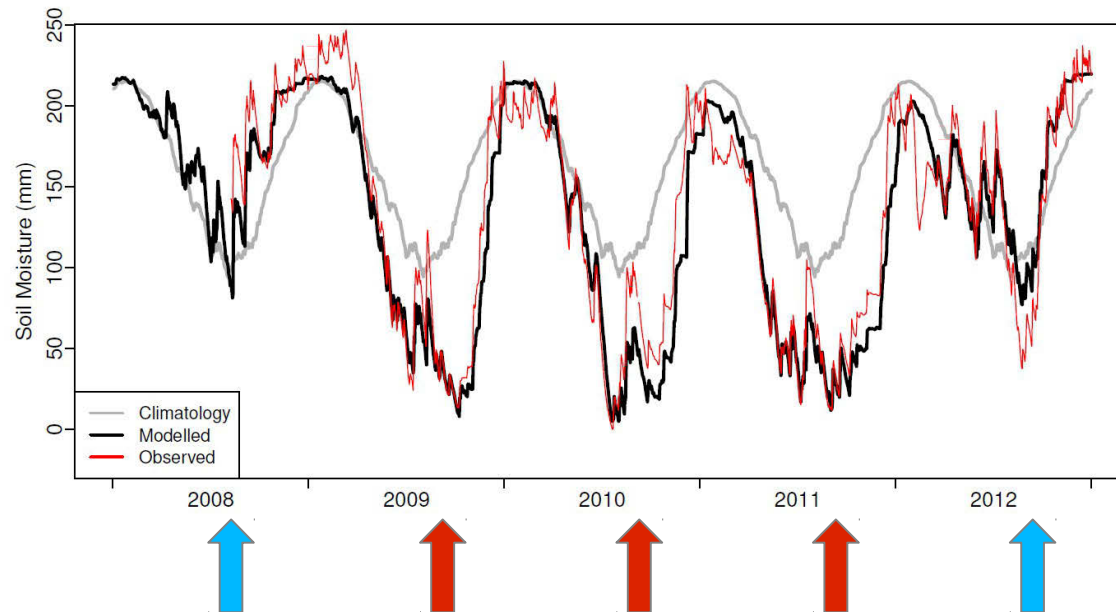
1) Is the simple water balance model performing well at the investigated site?

2) Which of the years 2008-2012 were rather dry, and which were wet according to the soil moisture content?
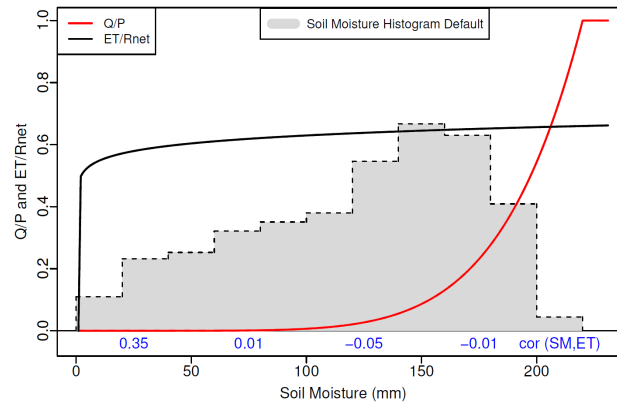
Runoff and ET functions

1) The ET function does not reach 1, that means not all available energy is used for ET. What happens with the remaining energy?

Sensible heat

2) How would you classify the regime of Payerne?

Energy limited

3) Which of the functions has more influence on the wet end of the soil moisture distribution and vice versa? What about the SM-ET coupling?

Play

1) How to modify the functions to impact SM-ET coupling??

   stronger under dry conditions

2) How to modify the functions to impact SM memory?

   strongest for a uniform distribution

3) Different sign of change of soil moisture memory in spring and summer? Why?

   More runoff ⟹ overall drier conditions, higher IV in spring

Soil moisture memory

1) Which are the main controls of soil moisture memory?

σ(SM)/σ(P) and cor(SM,P)

2) Is the seasonal cycle of the soil moisture memory at Payerne representative for Switzerland?

yes, for the flat regions but not for the Alps

3) Why is the memory at Payerne weak in spring and strong in summer?

Take home messages

- Using a conceptual model is convenient to study soil moisture memory

- Soil moisture anomalies can persist for weeks and even months

  ⟹ Soil moisture memory

- Strength depends on SM interannual variability (IV).

  - Low IV ⟹ low memory

  - High IV ⟹ potentially high memory