Elements of the Local Water Budget

P ***PRECIPITATION*** This is the rain (and snow) that falls in a particular area in a month

Ep ***POTENTIAL EVAPOTRANSPIRATION*** Think of this as the energy available to evaporate water. This energy will "look" for water from P and from st

P-Ep Precipitation minus the potential evapotranspiration.

When P-Ep >0 it means that there is water left over after the Ep does its work..

2 things can happen to that water:
It can soak into the ground
or
It can run off into streams

When P-Ep<0, it means that there is still energy left over after all the P is evaporated.

That energy will "look" for water in the soil.

Δst The change in soil storage of water.

If water soaks into the soil, Δst is **(+)** and we say the soil is being ***RECHARGED***

If the Ep is evaporating water from the soil, Δst is **(-)** and we call that ***USAGE***

st ***STORAGE*** - The amount of water stored in soil

st increases during RECHARGE, and decreases during USAGE

Ea ***ACTUAL EVAPOTRANSPIRATION*** -The actual amount of water evaporated.

Ea can be big if there is a lot of P and plenty of Ep to evaporate it.
Ea is small if *either* P or Ep is small.

D ***DEFICIT*** Any energy that never "found" water.

If there is any Ep left over after P is evaporated and st is empty, we call that situation a DEFICIT

S ***SURPLUS*** Any water that runs off into streams is considered SURPLUS water.

Water Budget Questions

NAME_____

1. During what season in New York will the Ep be the greatest?_____

2. If soil storage is full, and P>Ep, what situation exists_____

3. If st is empty, and P>Ep, what situation exists?_____

4. If P<Ep, and soil storage is empty, what situation exists?_____

5. Under what conditions will a water SURPLUS exist?
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6. Under what conditions will USAGE occur? _____

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7. Under what conditions is soil storage (-)_____

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8. During August in New York, P-Ep is usually <0 and soil storage is empty. What condition exists?

9. In January and February in New York, is Ep going to be HIGH or LOW?_____

Explain your answer

_____

10. From your experience, is there a reasonable amount of P in New York during the winter?____

11. Consider your answers to questions 8 - 10 above, and explain why the reservoir system in New York is necessary and how it works.

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