SSC 120
Homework

For the two locations below, calculate the water balance. Graph the ETp (potential evapotranspiration) and P (precipitation) against months of the year. On each graph identify regions of deficit (D), recharge (R), surplus (S), and utilization (U) of soil water. Remember that the soil will store water up to its WHC (water holding capacity); any excess is surplus (surplus does not accumulate from one month to the next). During utilization of stored water, storage does not go below zero. Once ETp exceeds P, utilization begins.

Identify the probable soil moisture and temperature regimes from Soil Taxonomy. Remember to add 1 °C to the air temperature data to estimate MAST. Compare and discuss the potential for weathering and leaching at the two locations. What are the possible disadvantages of using long-term average precipitation data to predict leaching? Is a comparison between locations of only total precipitation sufficient to predict leaching and weathering potential? Explain.

SOIL A, WHC = 200 mm

	J	F	M	A	M	J	J	A	S	O	N	D	TOT
T °C	23	23	23	24	25	26	26	25	25	24	24	23	
ETp, mm	81	74	94	101	131	144	150	148	130	124	108	97	
P, mm	55	40	52	77	74	61	108	137	182	141	126	98	
P-ETp													
Storage													
Surplus													

SOIL B, WHC = 275 mm

	J	F	M	A	M	J	J	A	S	O	N	D	TOT
T °C	8	9	10	12	14	18	23	22	20	15	9	8	
ETp, mm	20	24	32	48	74	102	124	117	73	47	31	21	
P, mm	221	204	179	94	64	21	0	0	23	47	108	202	
P-ETp													
Storage													
Surplus													