

Water Table Levels

National Soils Handbook lists over 30 land uses decisions that are dependent upon the depth to the SHWT

- **Construction**
- **Wetland delineation**
- **On site waste disposal (ISDS)**

Water Table Levels

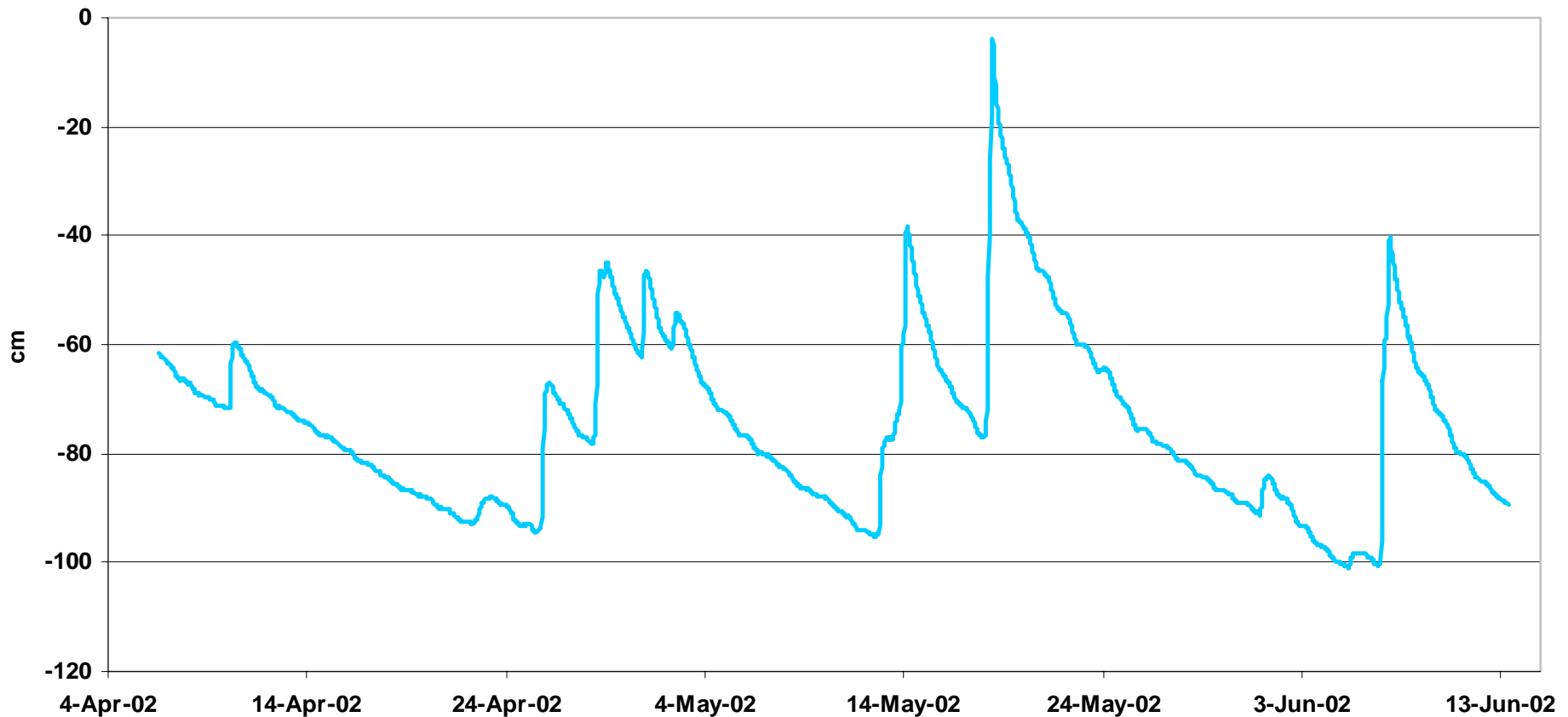
Dictates whether you can use the land

**And if you can use the land how much
is it going to cost**

What is the Seasonal High Water Table (SHWT)

What is the SHWT?

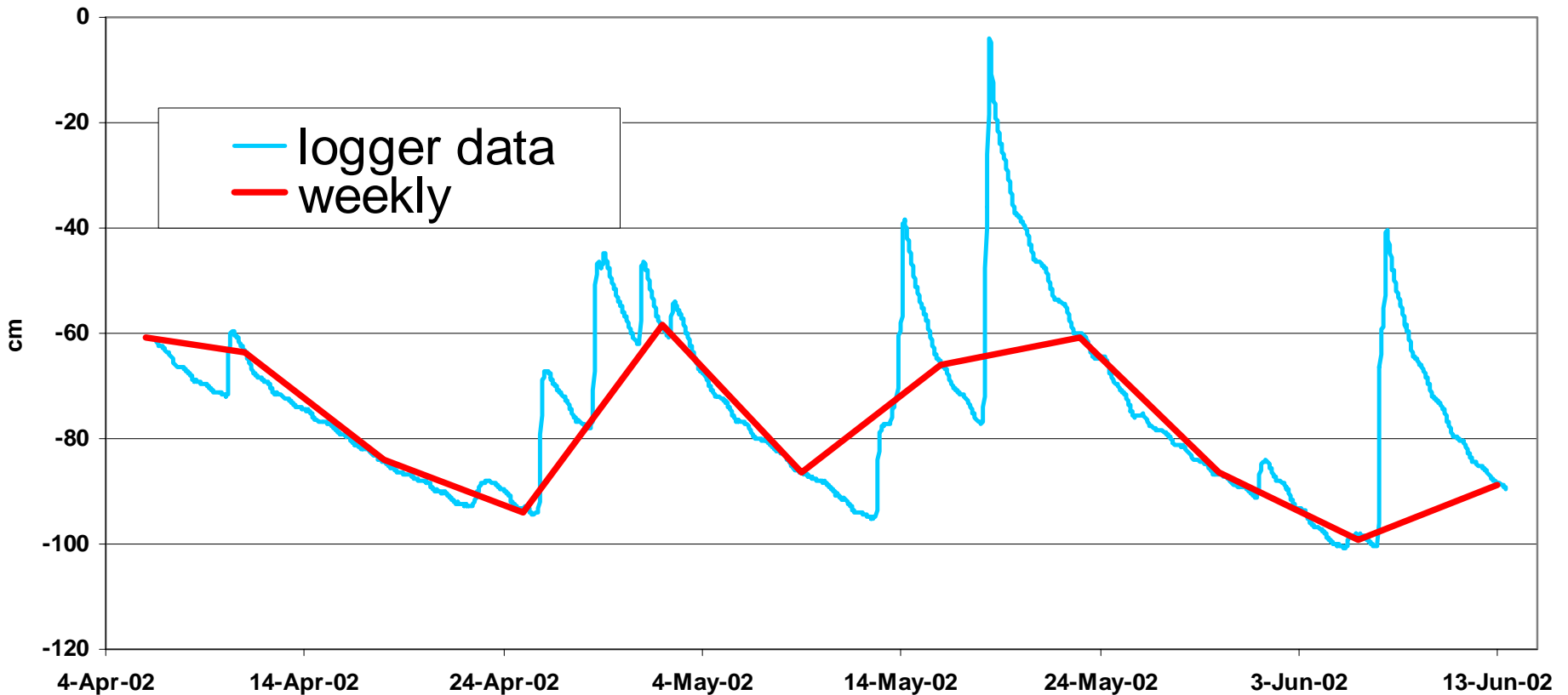
Water table fluctuations monitored every half hour



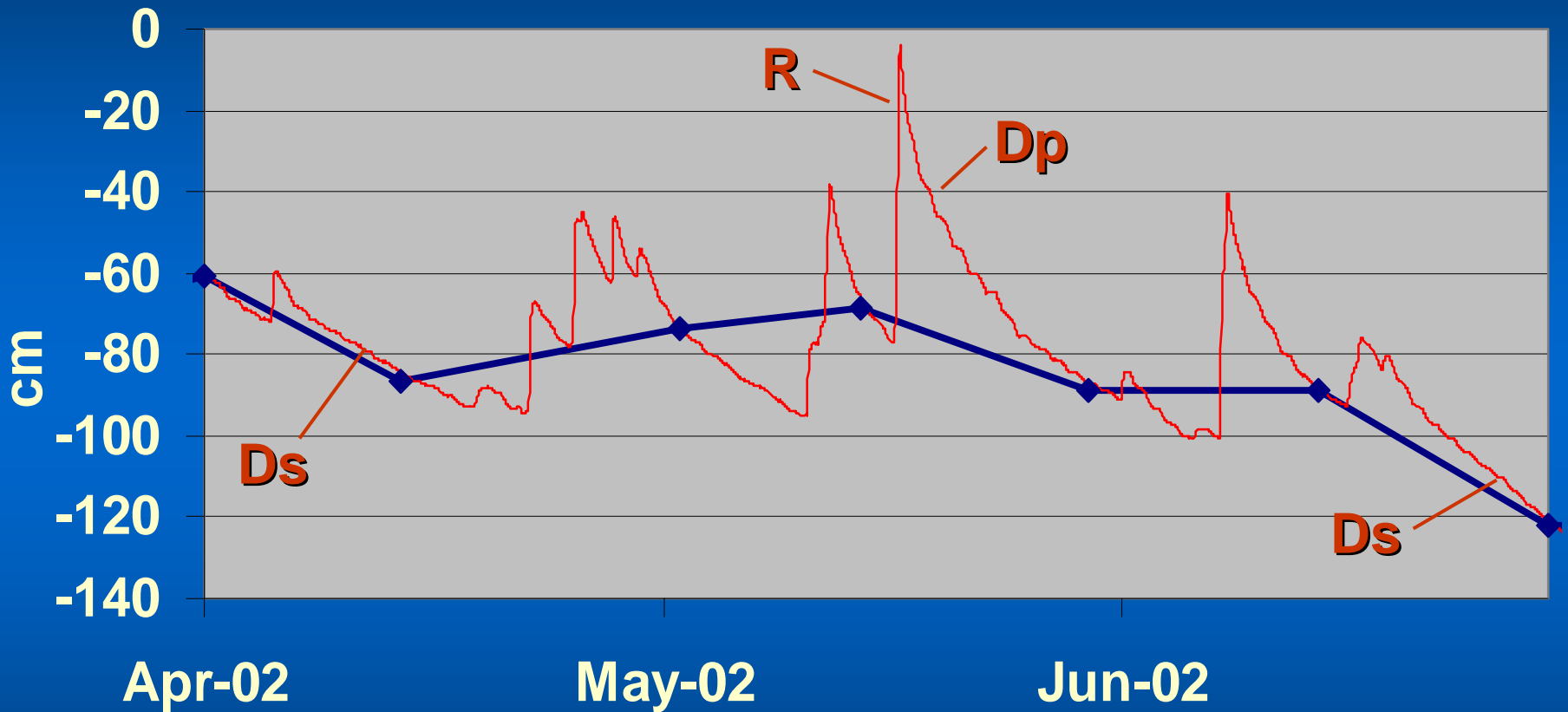
How do you measure the water table?

How do you measure the water table?

Weekly data vs logger data



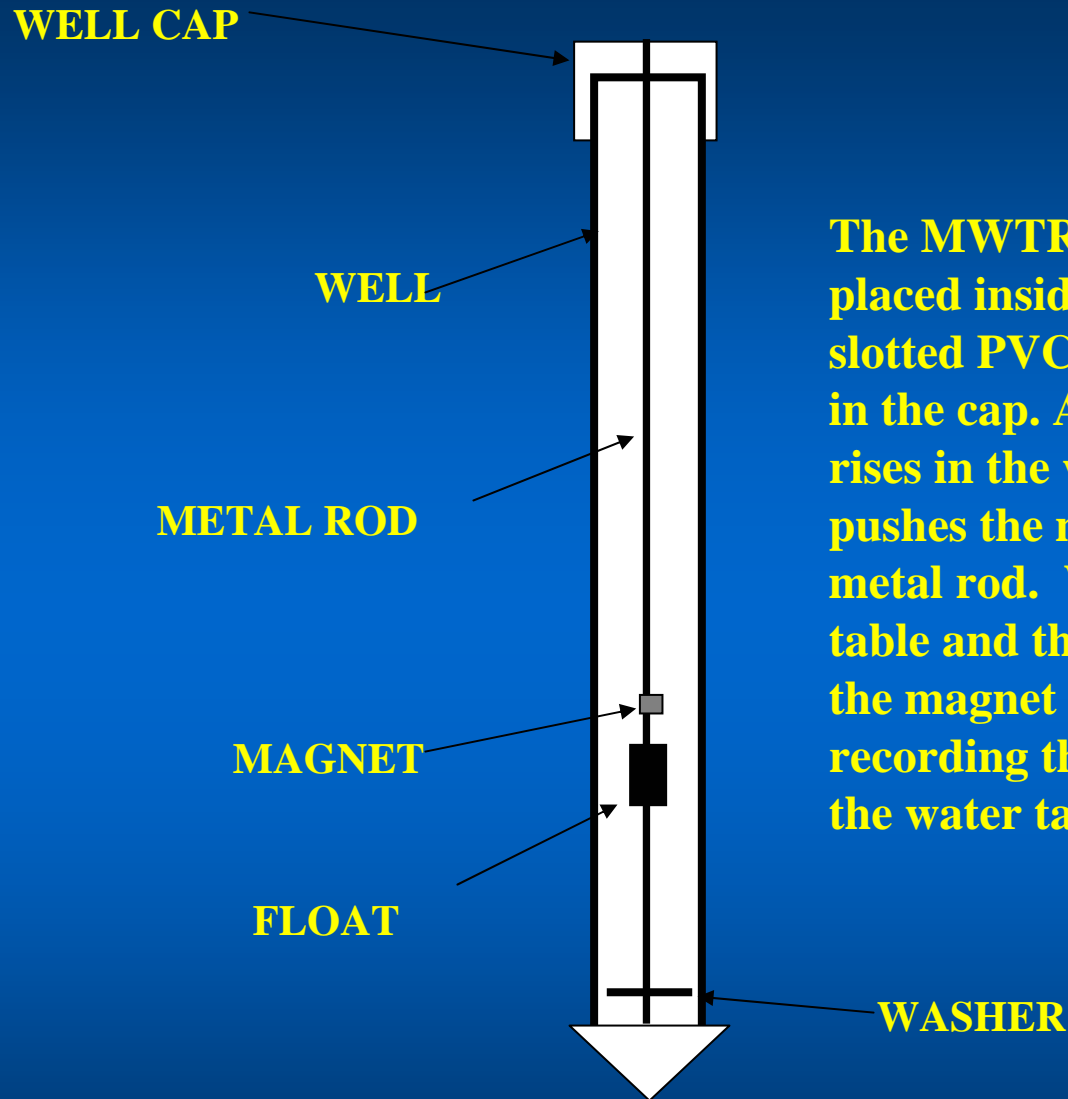
Three components of water table fluctuation



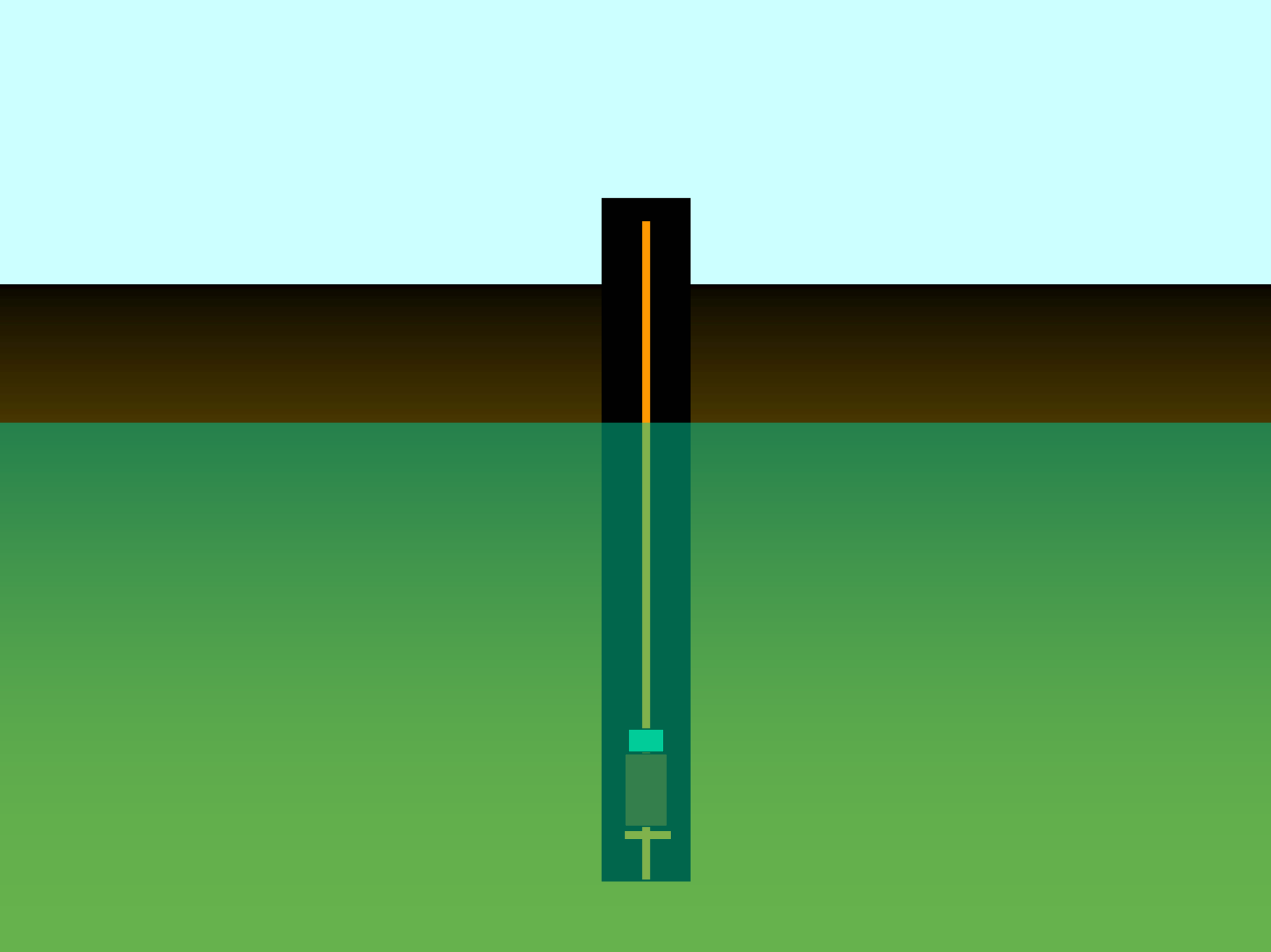
R = rate of rise due to precipitation

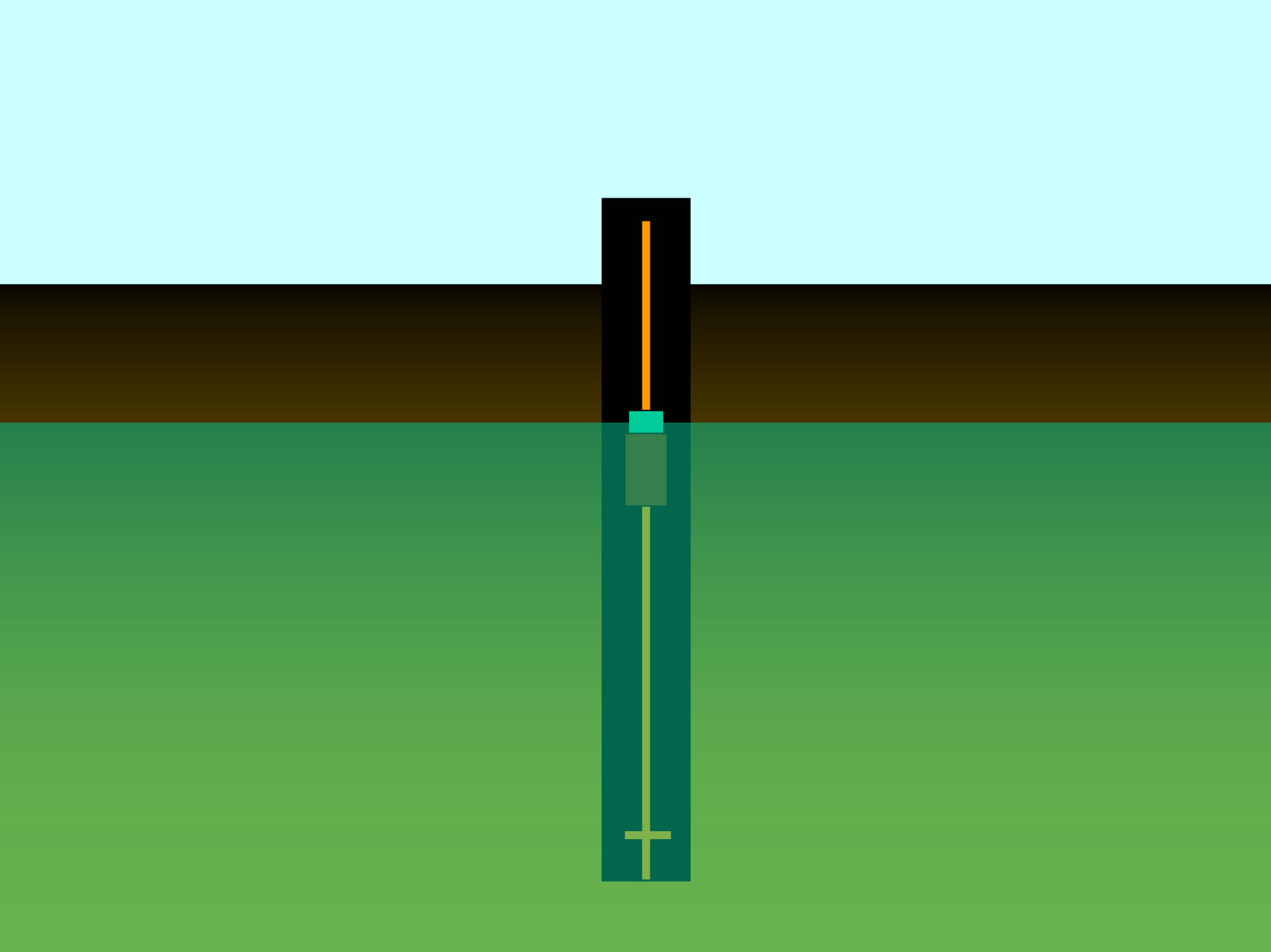
Dp = rate of decline in water table after precipitation

Ds = rate of decline due to deep seepage

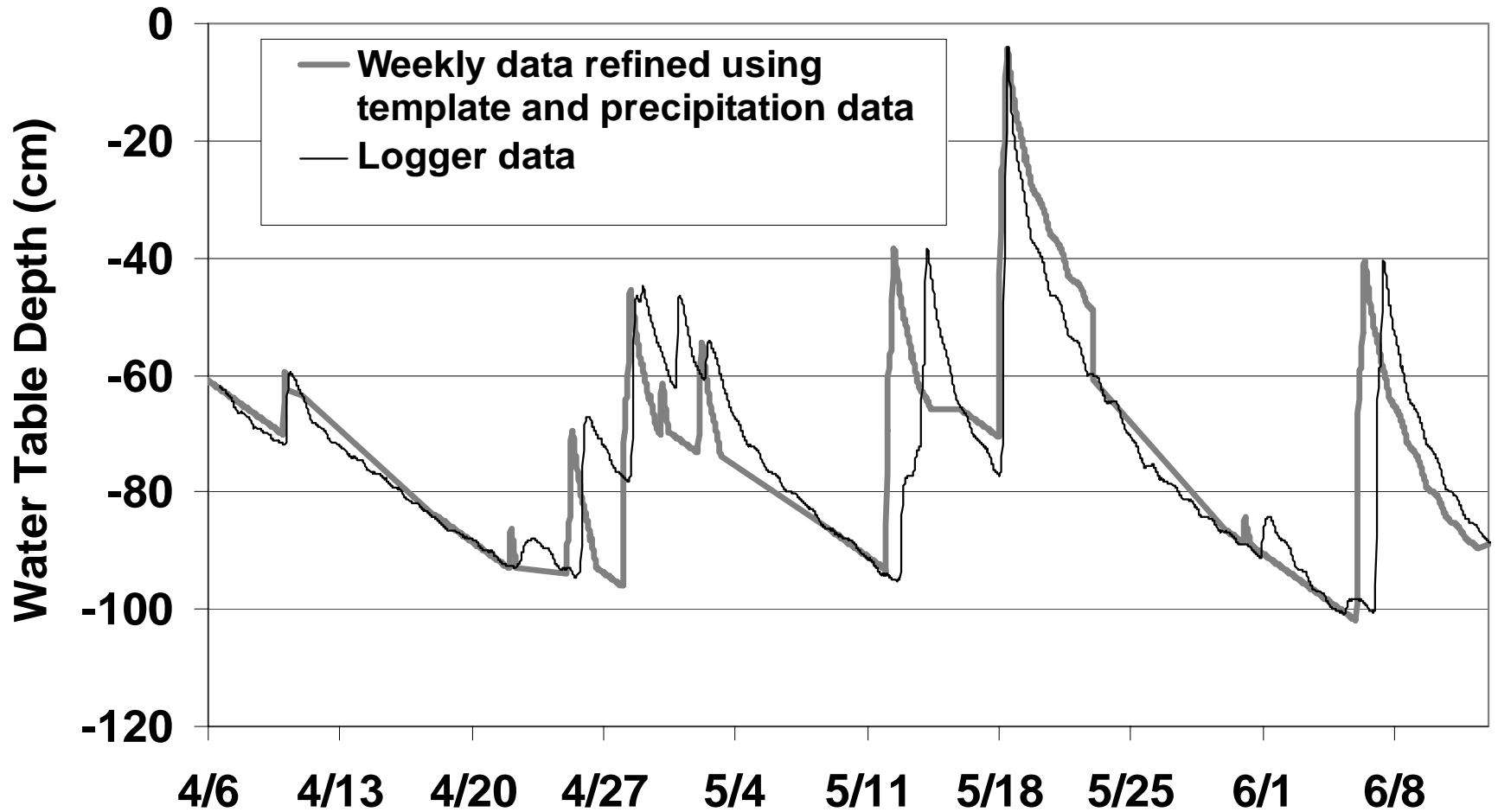


The MWTRD (Gizmo) is placed inside a 3.2 cm I.D. slotted PVC well with a hole in the cap. As the water table rises in the well, the float pushes the magnet up the metal rod. When the water table and the float decline the magnet remains in place recording the highest level the water table reached.





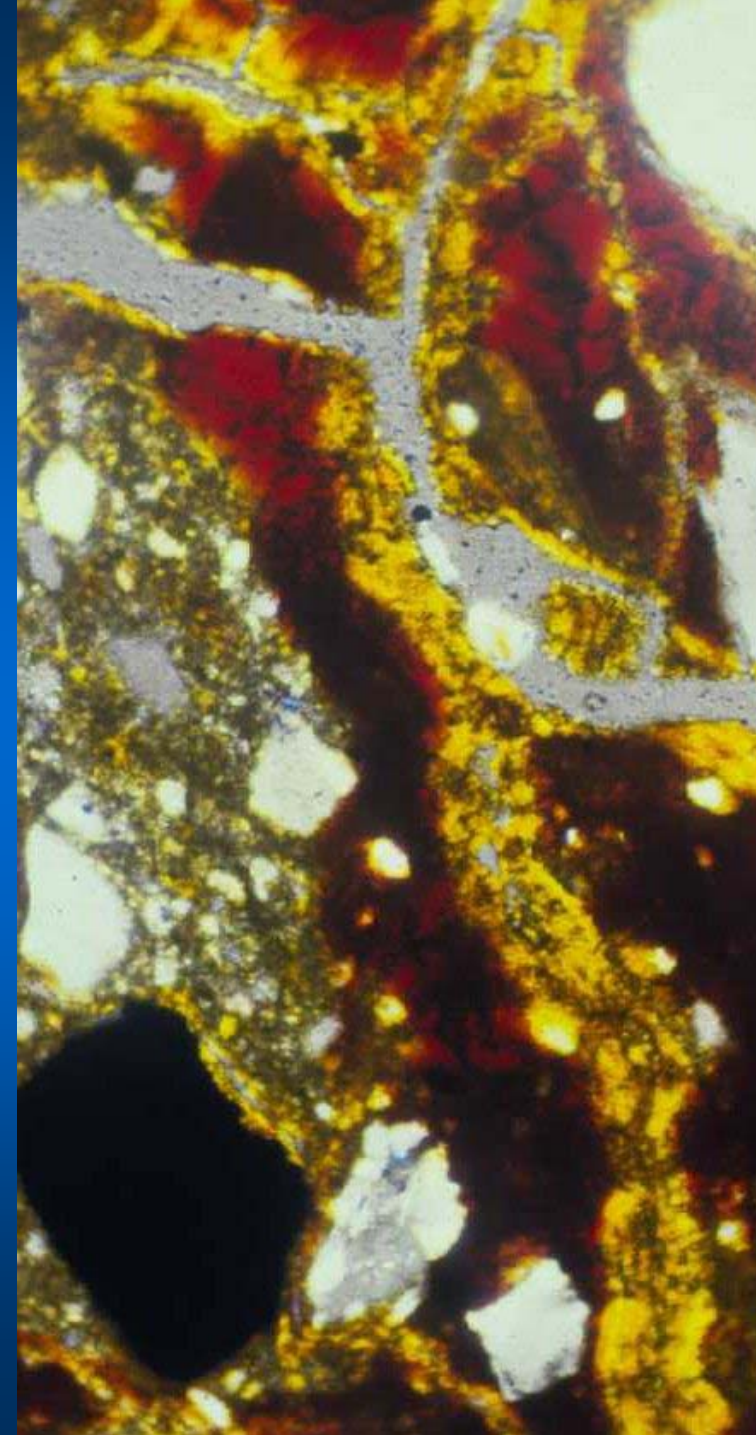
Weekly Data with Spikes added for Each Precipitation Event



**WHAT DO YOU DO WITH THE
WATER TABLE FLUCTUATION
DATA ONCE YOU HAVE
COLLECTED IT?**

**Examine Soil Morphology-Water
Table Relationships**

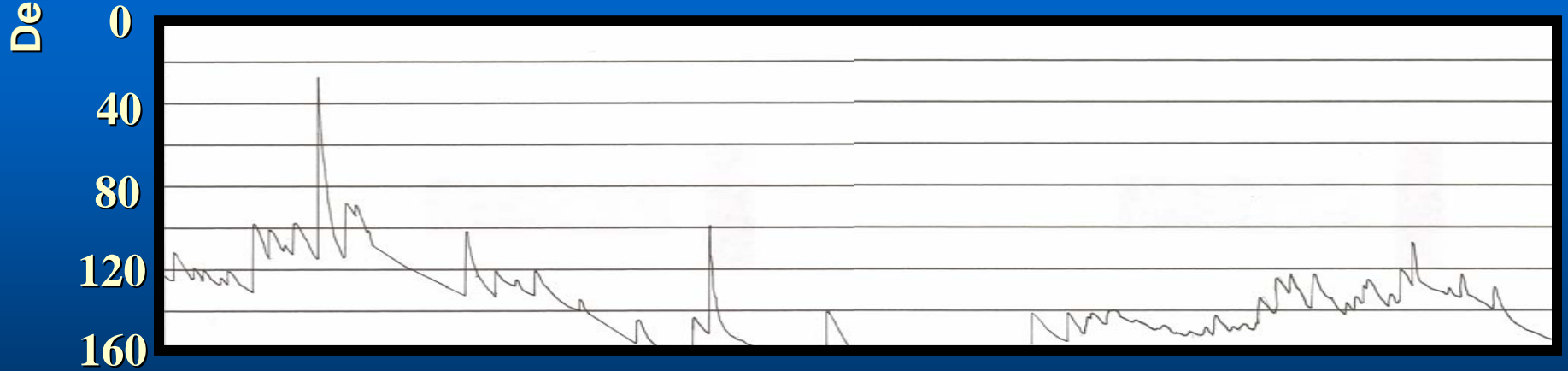
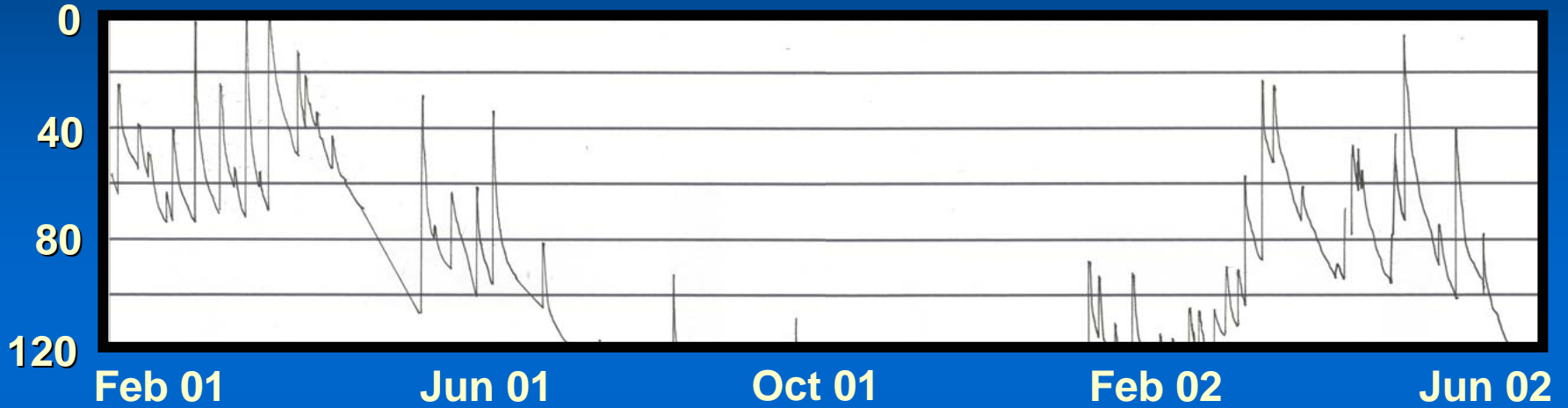
Redoximorphic Features (RMFs)



What do these patterns mean in relation to water table fluctuation?

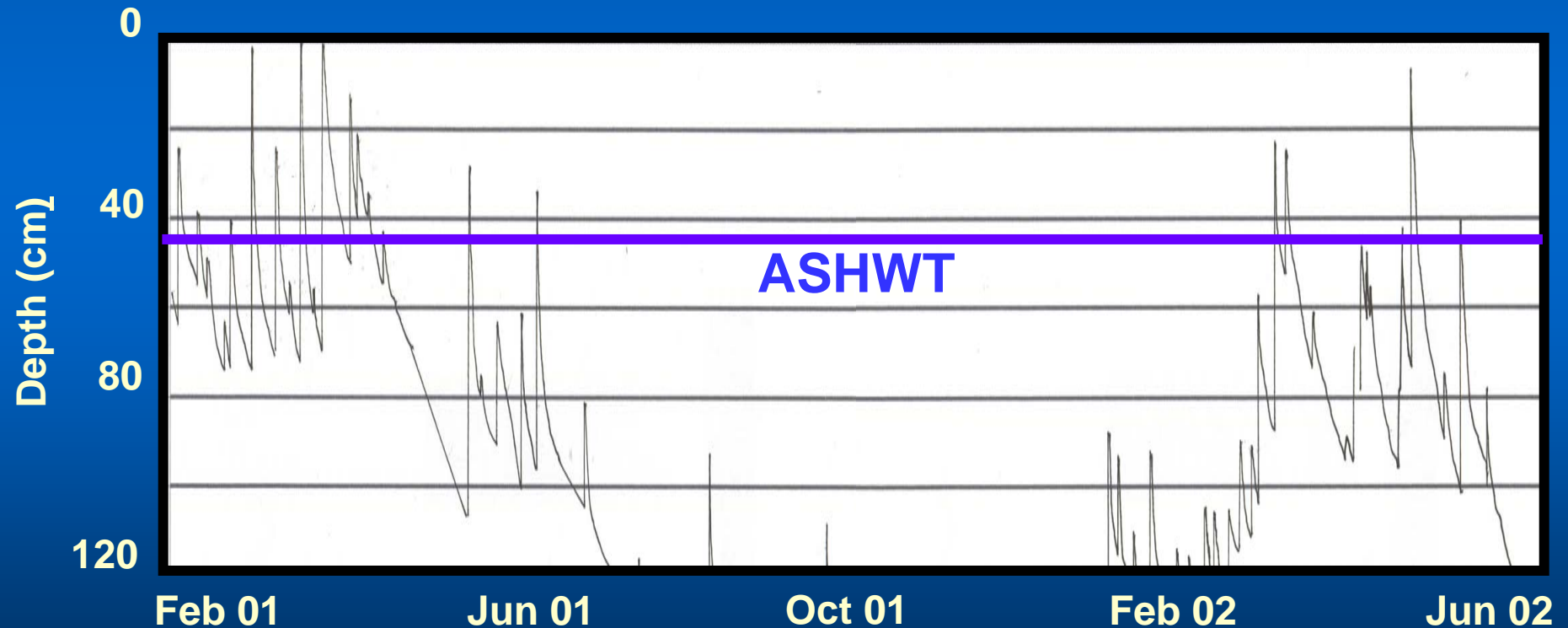


Defining the SHWT

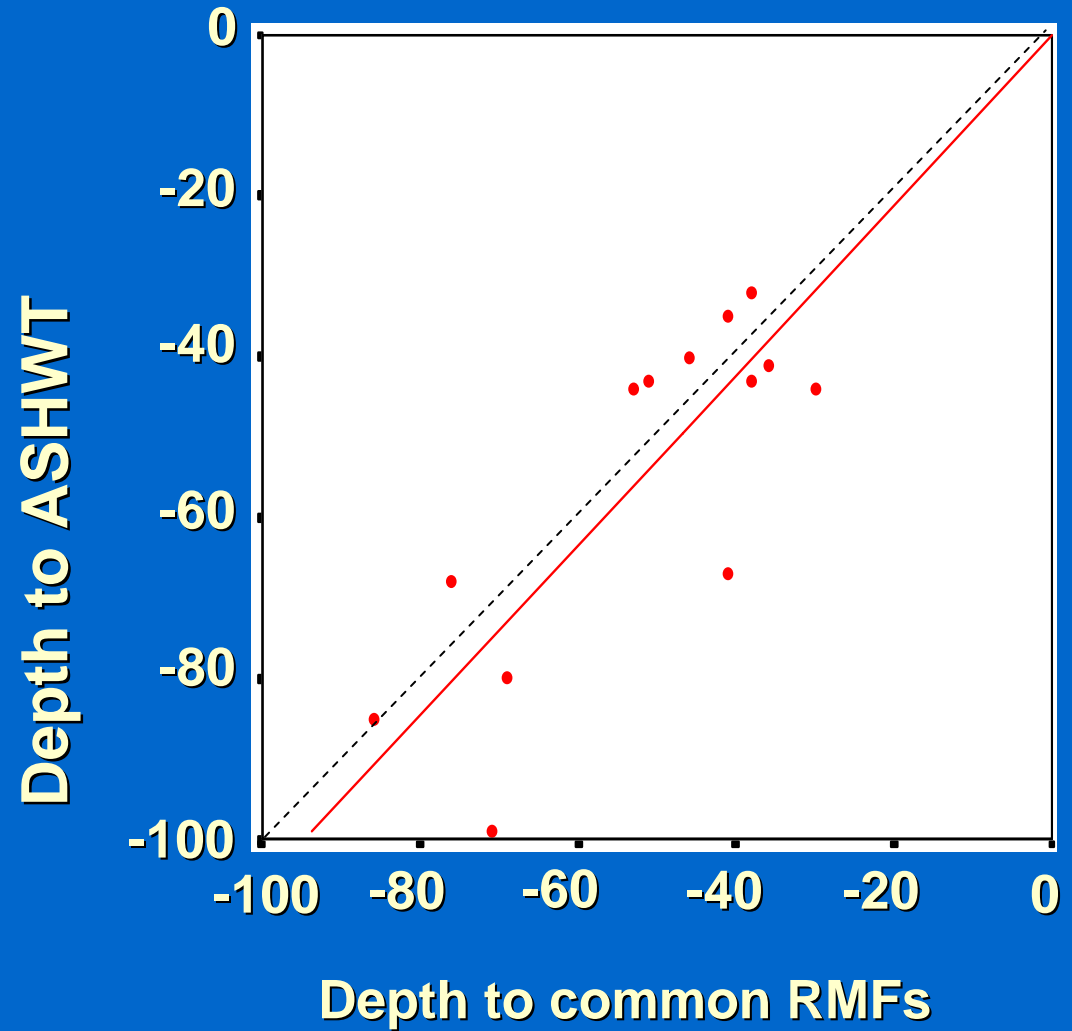


Average seasonal high water table (ASHWT)

Average of the highest and lowest water table depths recorded during the two and a half month period of each year when water tables were at their highest.

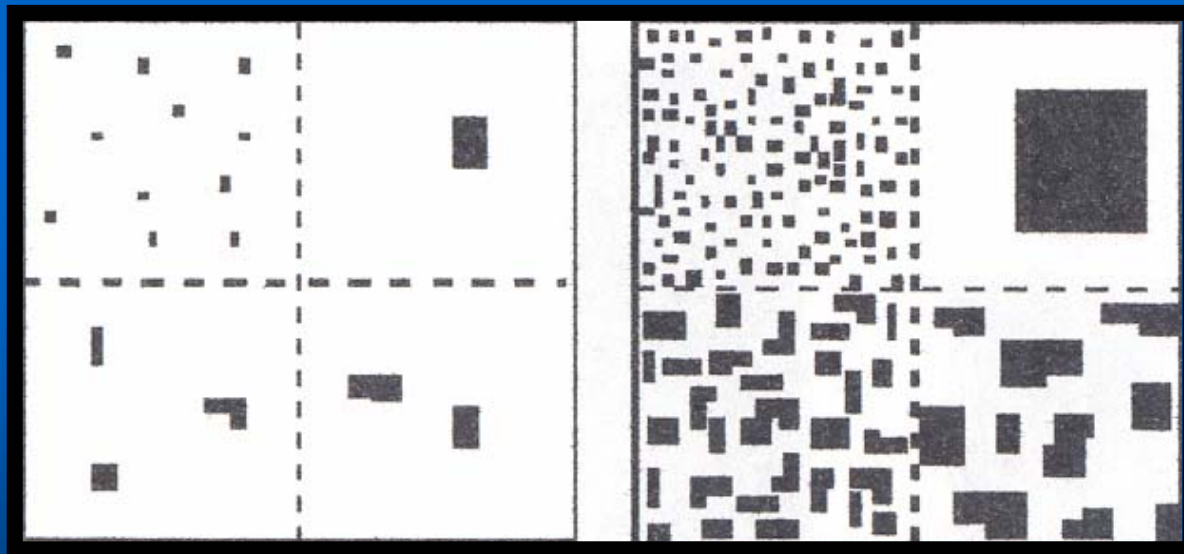


Relationship between depth to the ASHWT and the depth to the first loamy textured horizon with common (or greater) RMFs.



Redoximorphic feature abundance classes as described in the *Soil Survey Manual*, USDA-NRCS

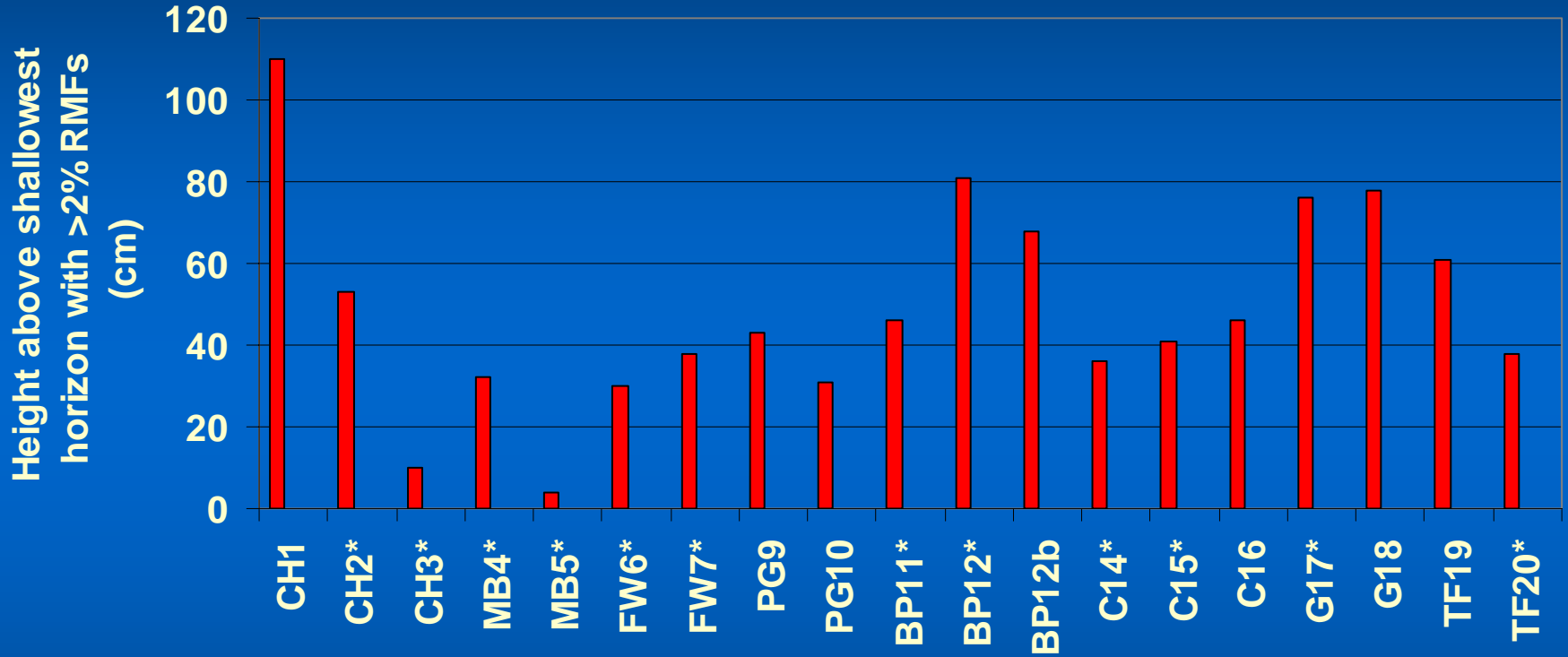
- Few <2% of surface area
- Common 2-20% of surface area
- Many >20% of surface area



2%

20%

Maximum water table height above first horizon with common RMFs at each site.



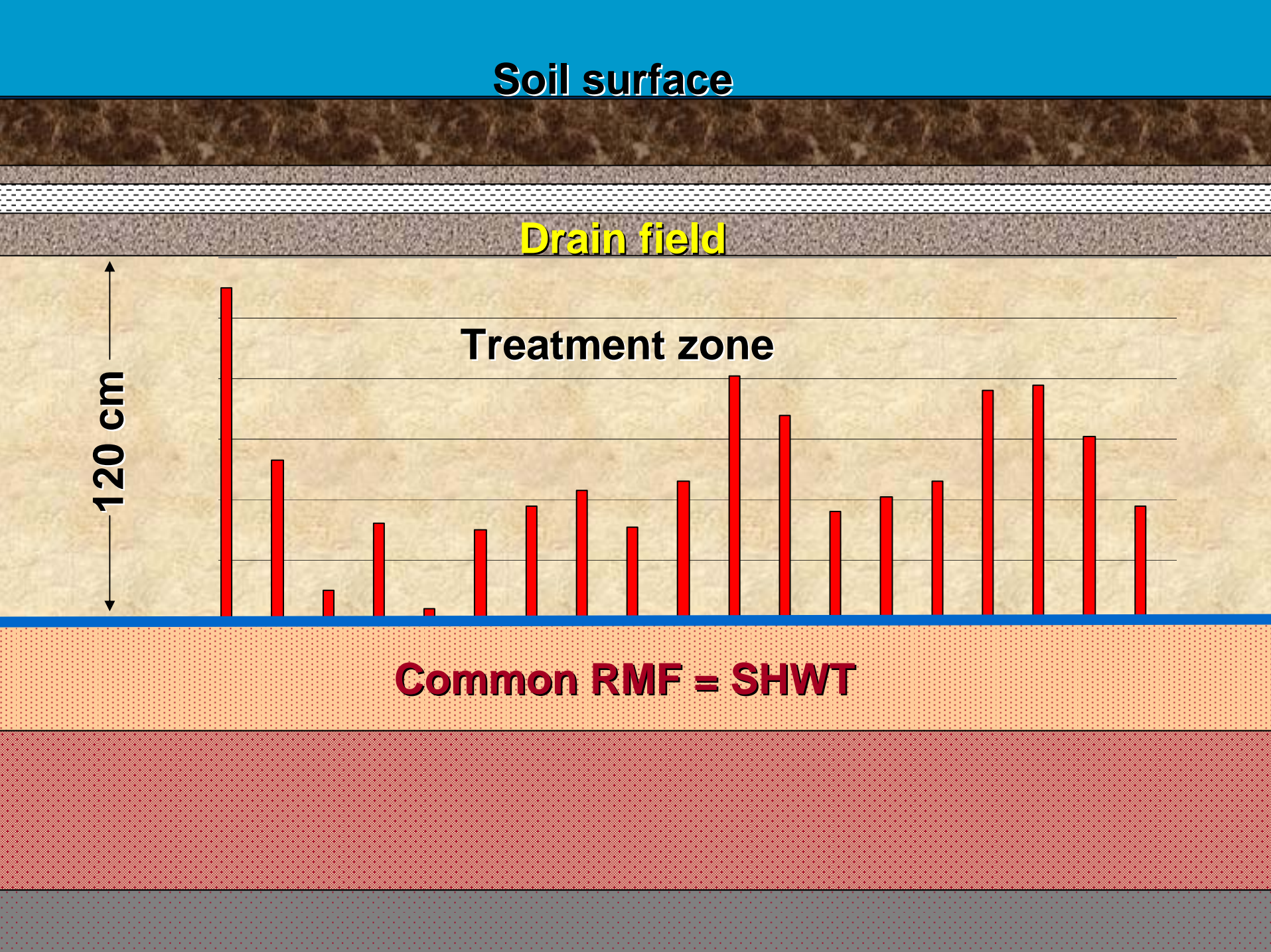
Soil surface

Drain field

120 cm

Treatment zone

Common RMF = SHWT





**Any
Questions?**