

LESSON 1. REFERENCE, POTENTIAL AND ACTUAL EVAPOTRANSPIRATION

Dr. Ir. Christiaan van der Tol

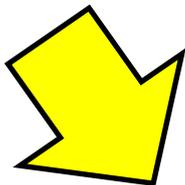


Definitions

- **Reference evapotranspiration:** evaporation plus transpiration from short, *well-watered grass or open water*.
- **Potential evapotranspiration:** evaporation plus transpiration from *any land surface with sufficient soil moisture* such that soil water does not limit evaporation.
- **Actual evapotranspiration:** actual evaporation plus transpiration from water and nutrient limited crop.

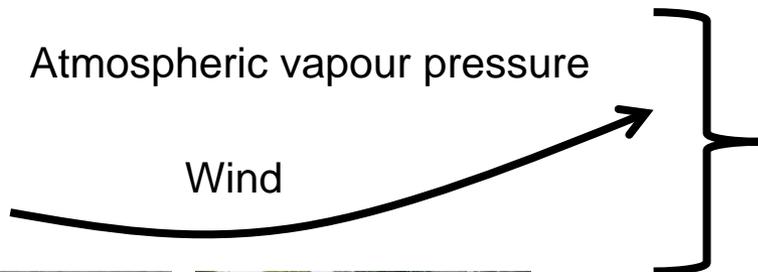


Solar radiation



Atmospheric vapour pressure

Wind

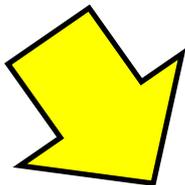


Reference evaporation

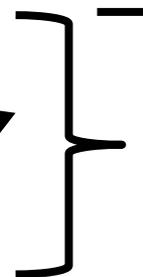




Solar radiation



Atmospheric vapour pressure

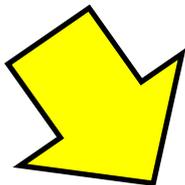


+
Vegetation structure,
Hydraulic properties

Potential
evaporation



Solar radiation

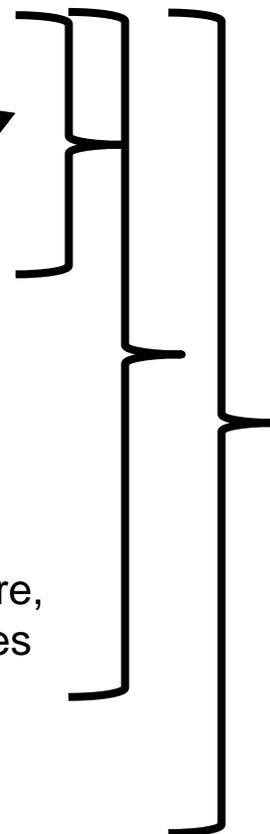


Atmospheric vapour pressure



+
Vegetation structure,
Hydraulic properties

+
Water availability



Actual
Evapo-
transpiration

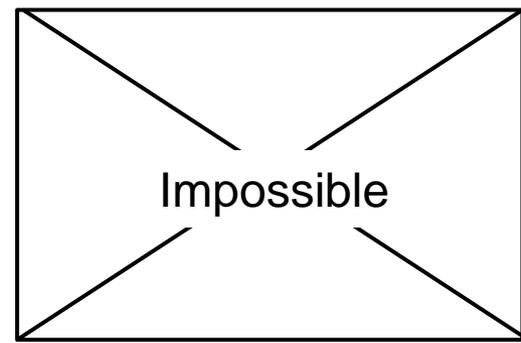


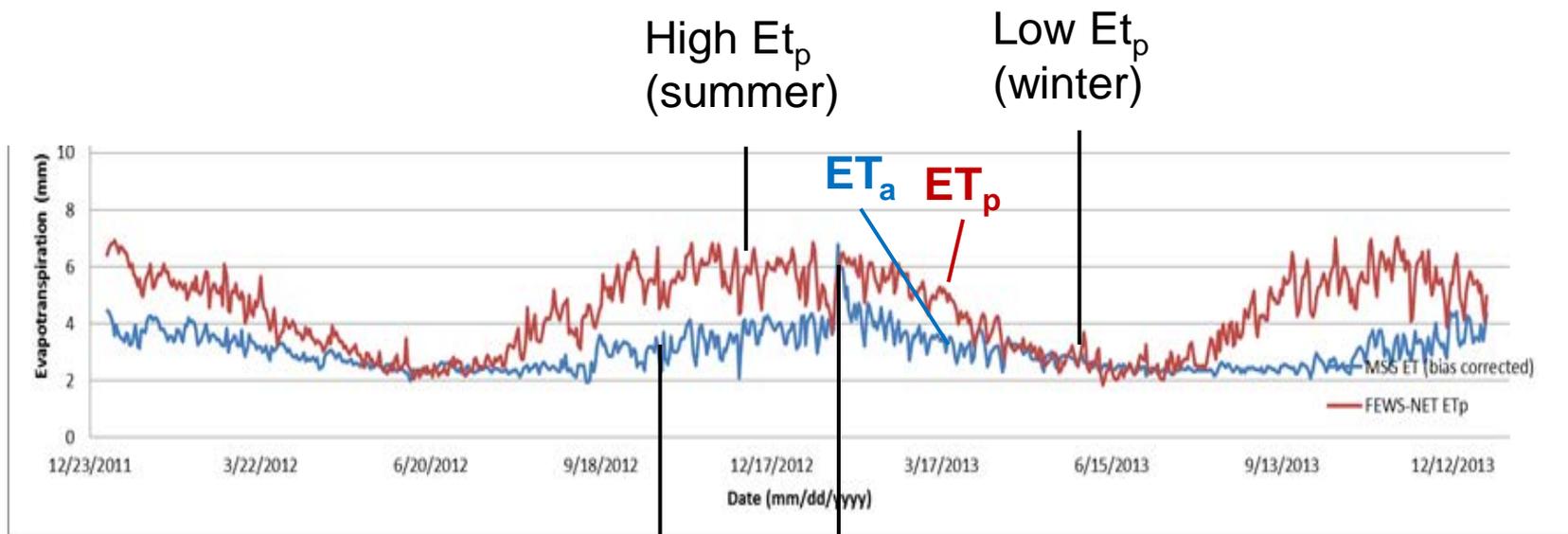
Low ET_a → High ET_a

High ET_p



Low ET_p





Van der Velde, 2015



UNIVERSITY OF TWENTE.





SUMMARY

- Reference ET: determined by atmospheric demand
- Potential ET: determined by atmospheric demand and vegetation/soil type
- Actial ET: determined by atmospheric demand, vegetation/soil type and (soil) water availability



THE END
THANK YOU

