

Impact of soil water potential pattern on root water uptake distribution and leaf water potential

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Background

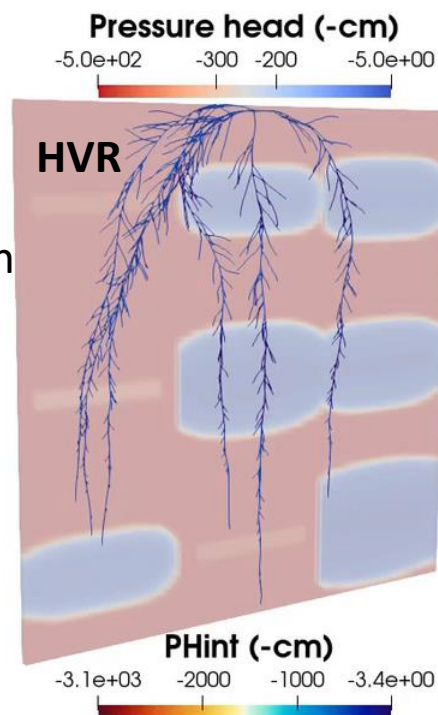
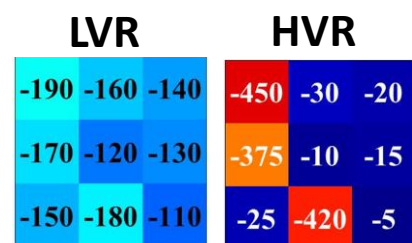
The knowledge of root hydraulic properties (**RHPs**) including radial (**Kr**), axial (**Kx**) conductivity, root system equivalent (**Krs**) and compensatory root water uptake conductance (**Kcomp**) and standard uptake fraction (**SUF**) are of great importance to support models.

Objective

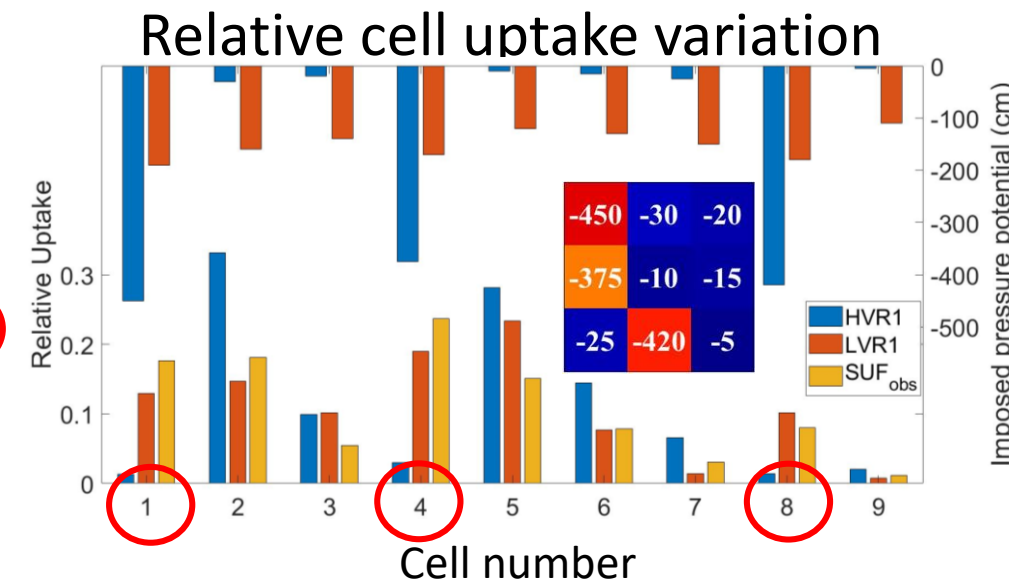
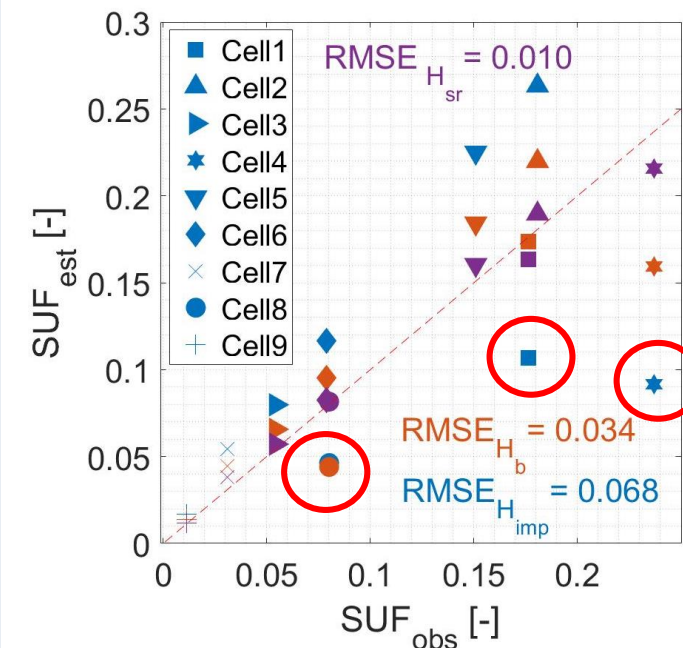
Inversely estimate RHPs profile for maize plant using information obtained from rhizotron experiment

Rhizotron

- Imposed pressure head at cells (**Himp**)
- Soil water content in cells using light transmission imaging (**Hb**)



Estimation of Macro Parameters

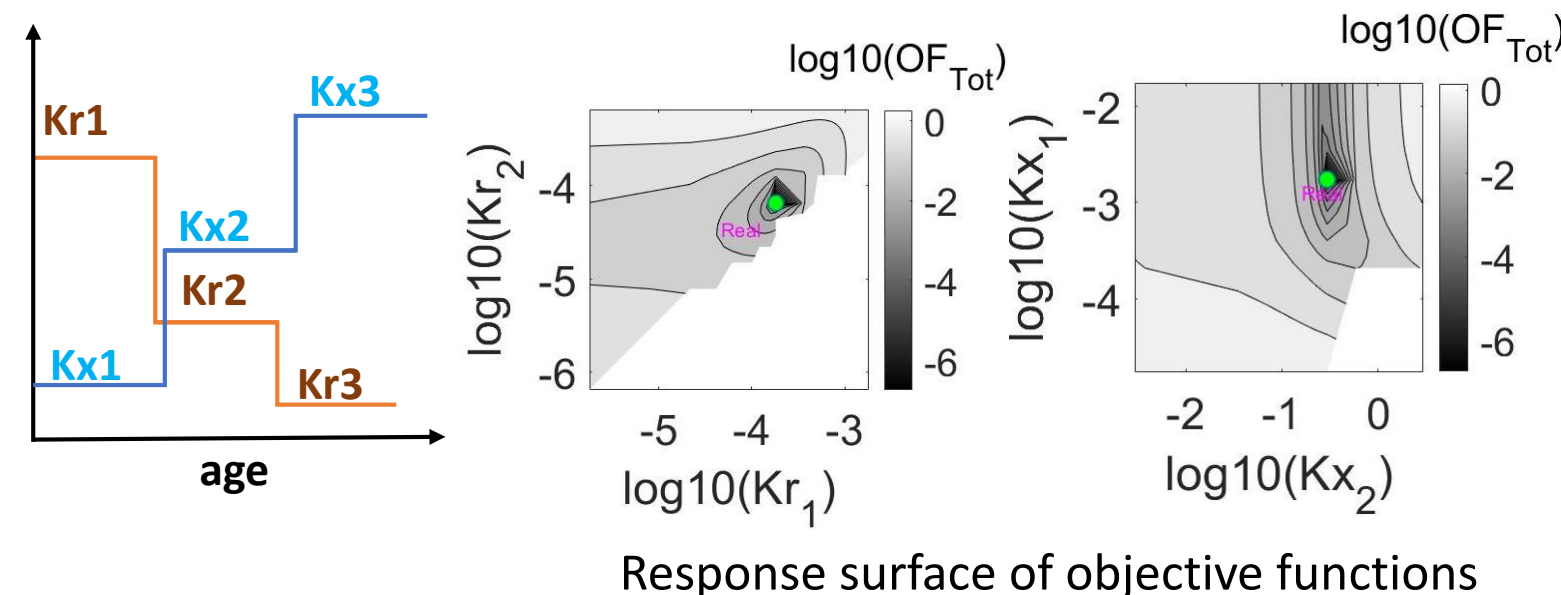


➤ Underestimation of SUF in driest cells

H	log10(Krs)	log10(Kcomp)
Himp	-1.890	-1.231
Hb	-1.861	-1.287
Hsr	-1.723	-1.676
Obs	-1.684	-1.679

➤ The more accurate information on soil pressure potential, the better estimation of SUF and conductances.

Estimation of Kx and Kr



➤ Shapes of RS demonstrate the global minimum and can be used to find insensitive parameters

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