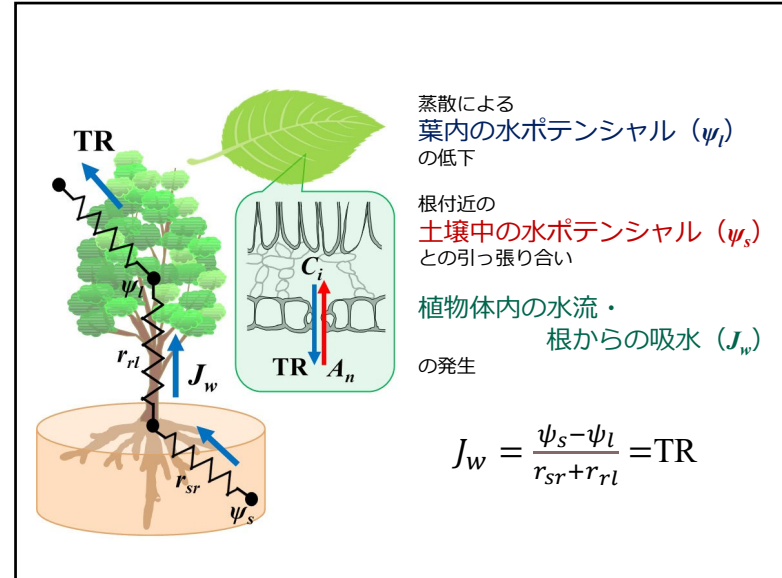
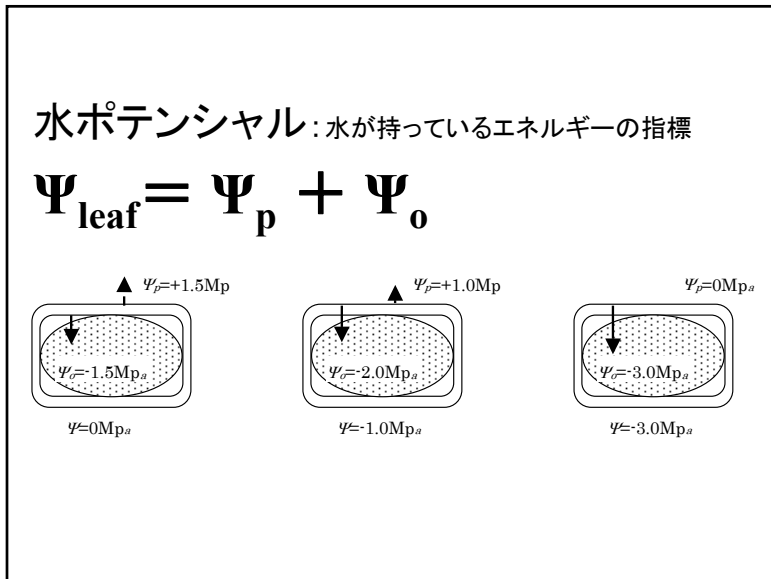


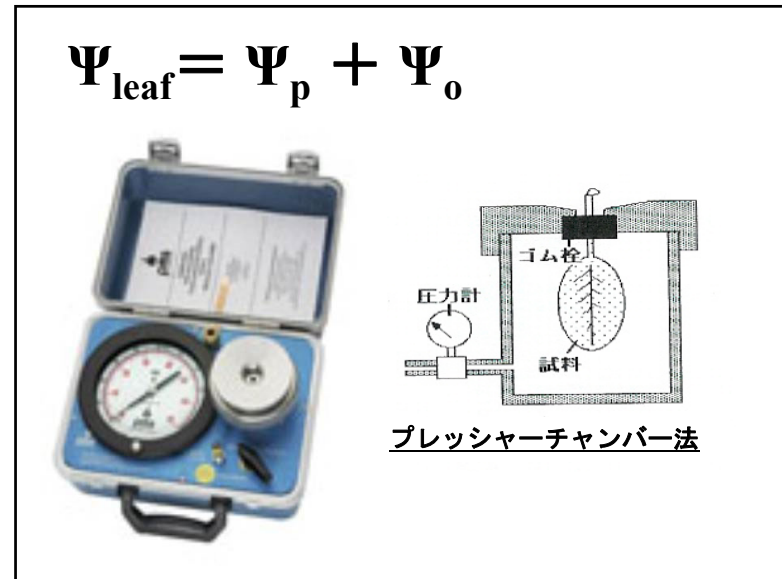
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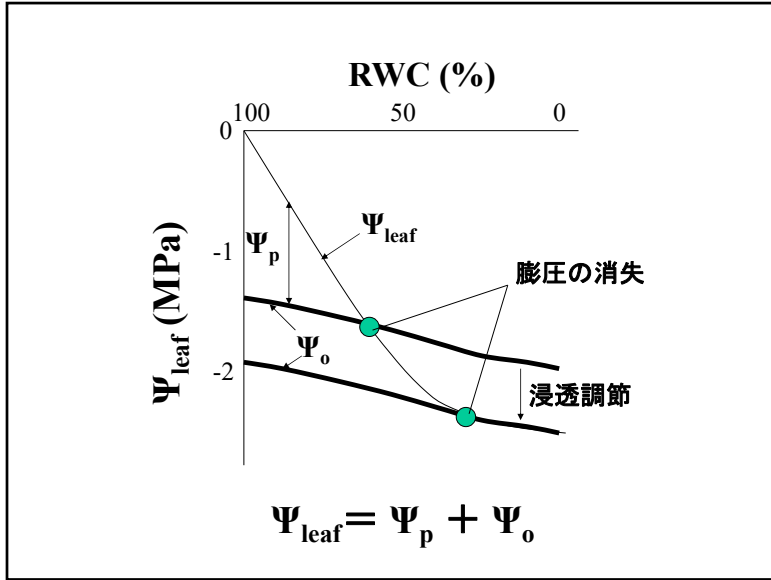
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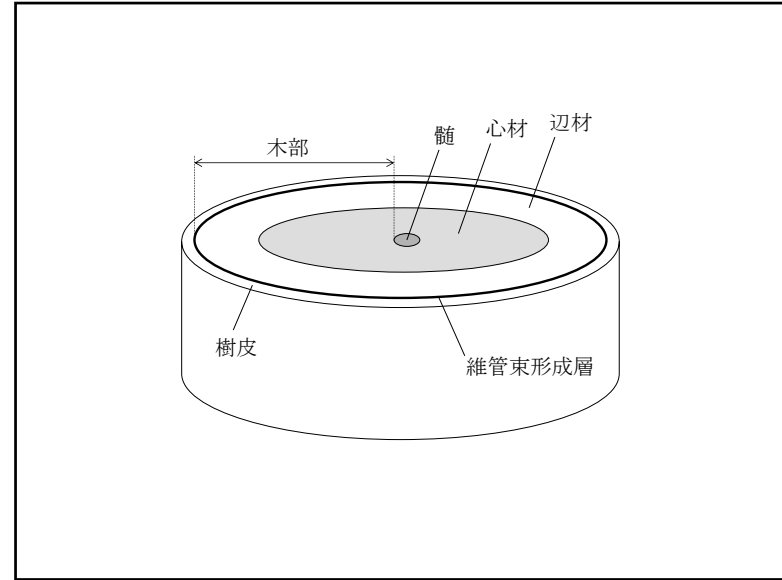
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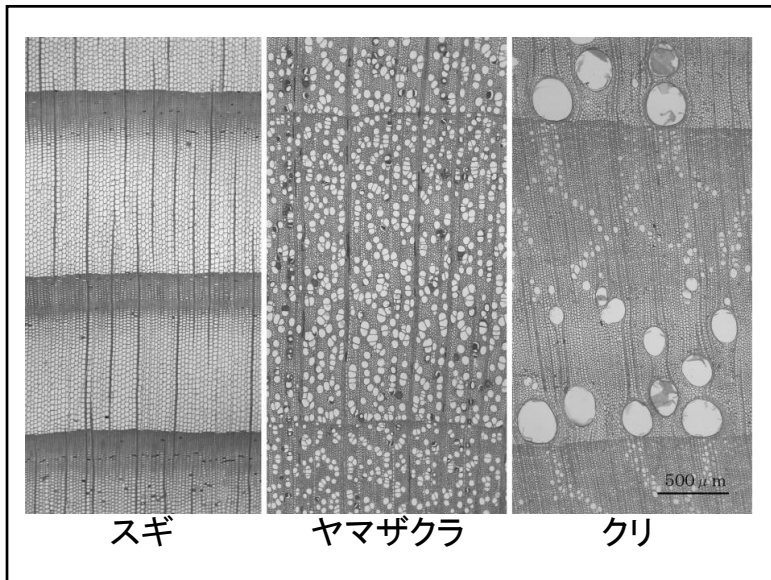
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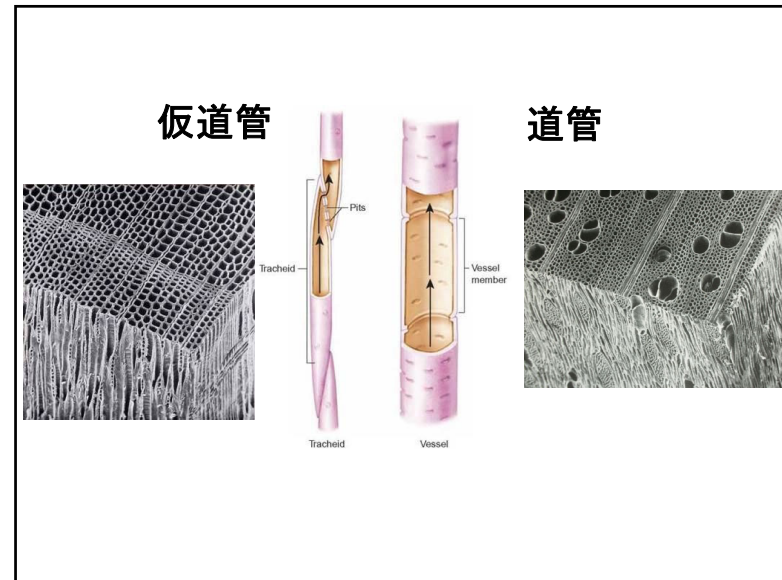
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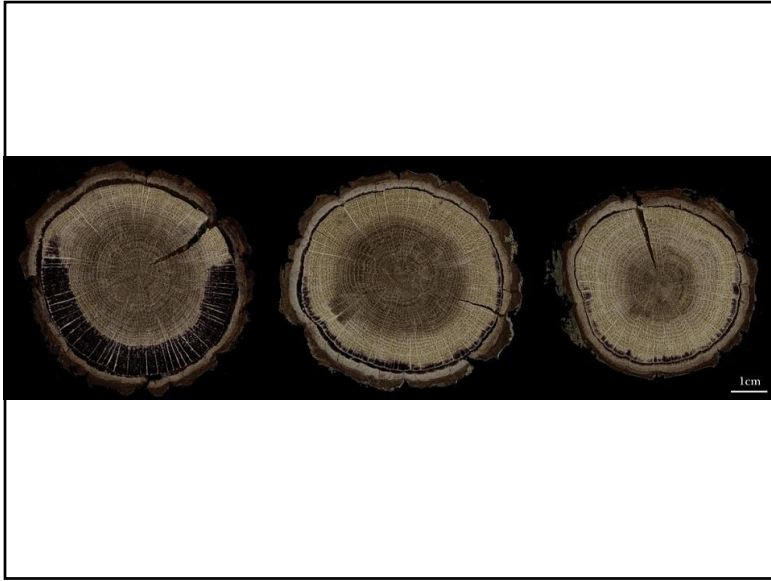
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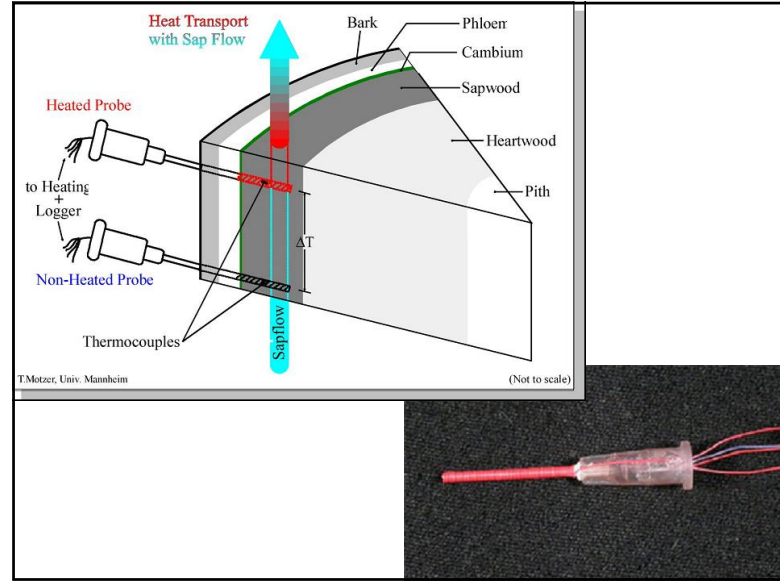
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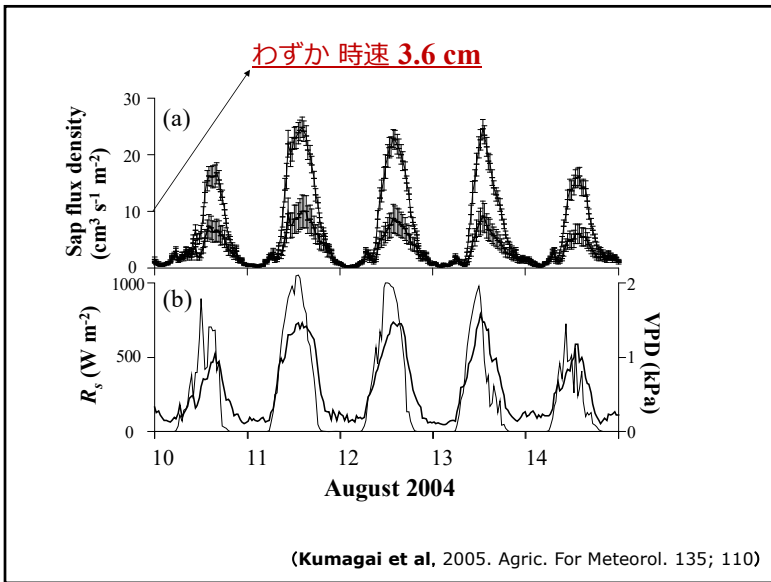
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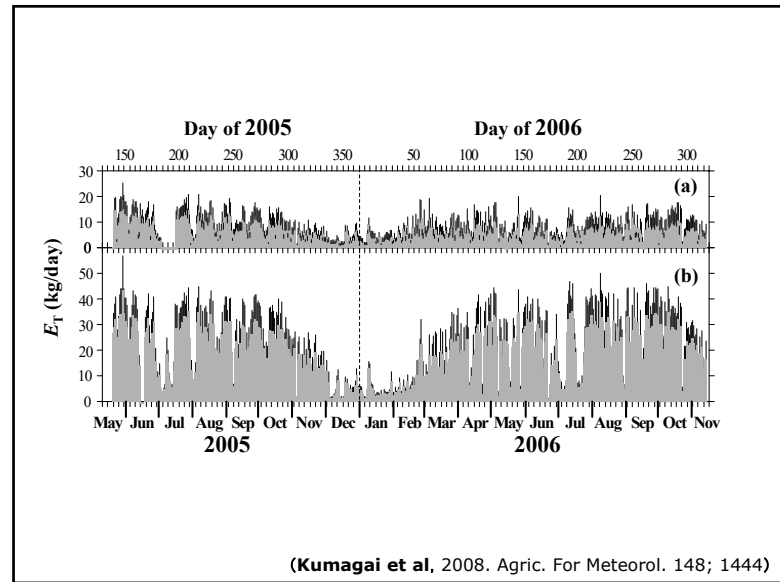
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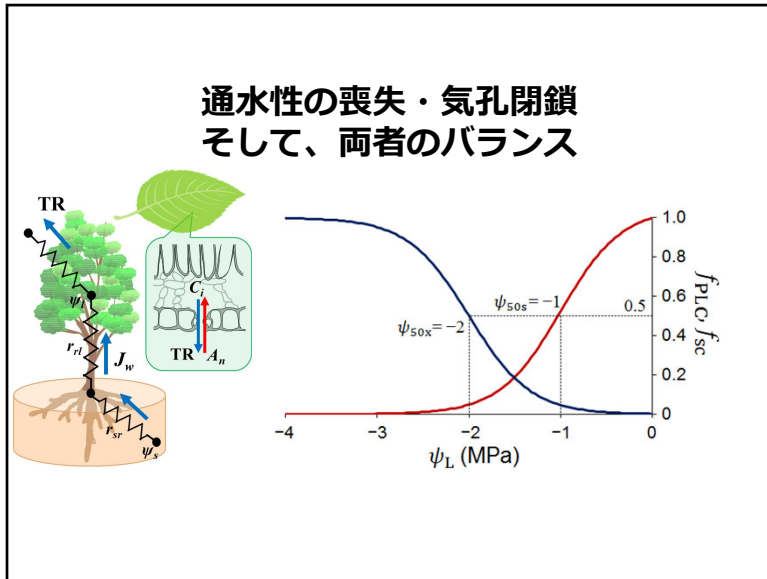
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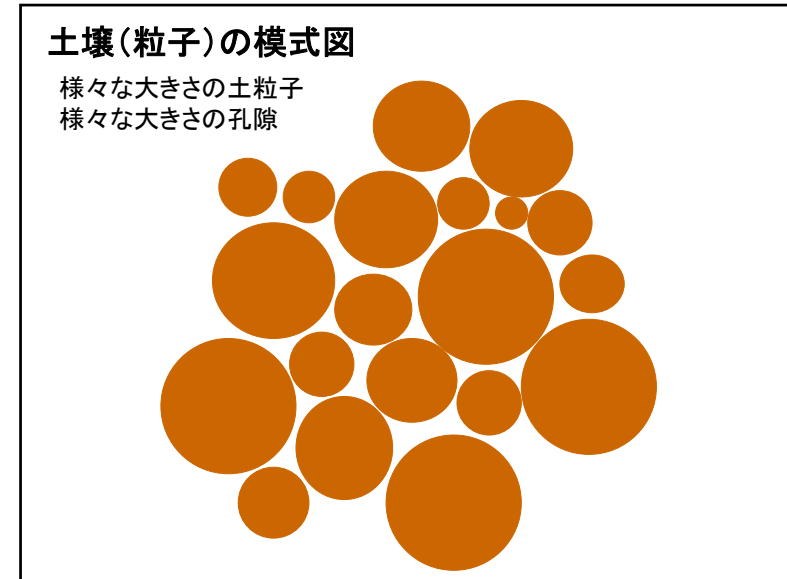
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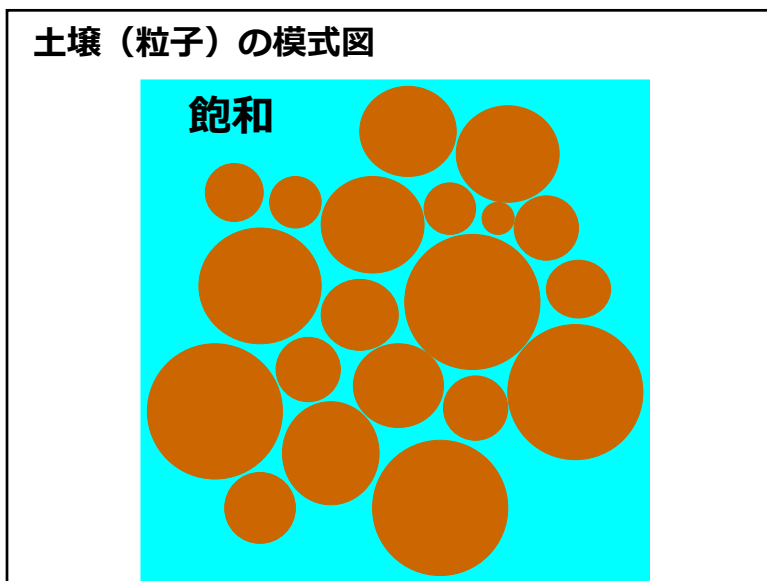
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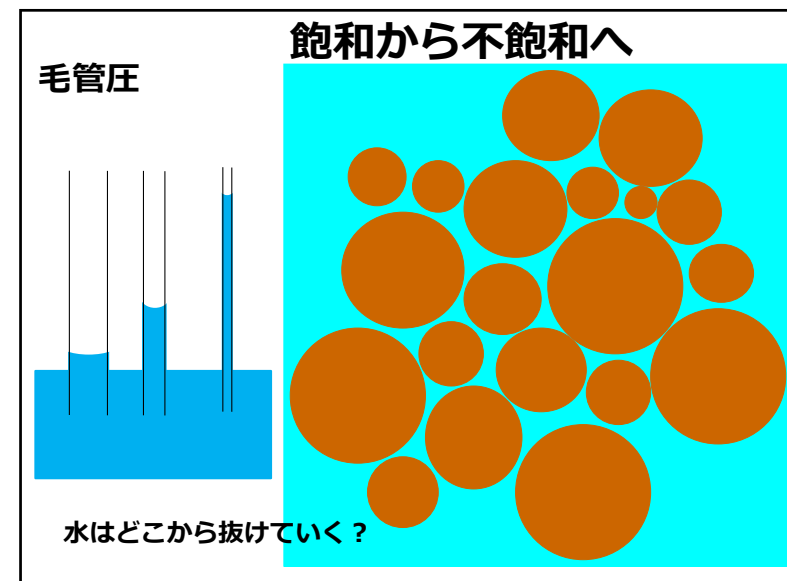
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14

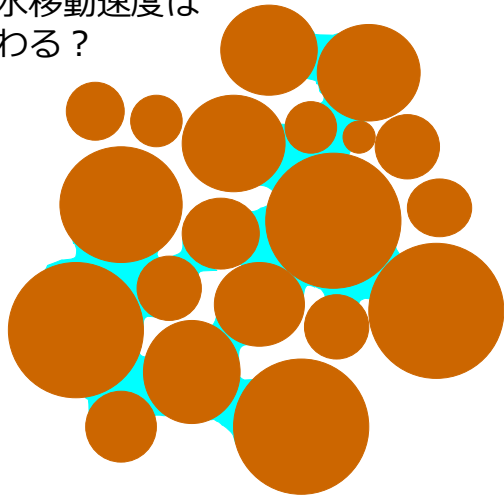


15



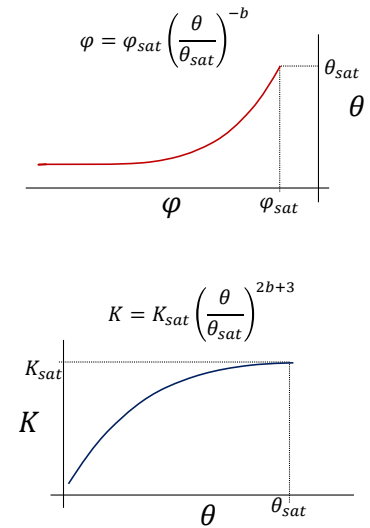
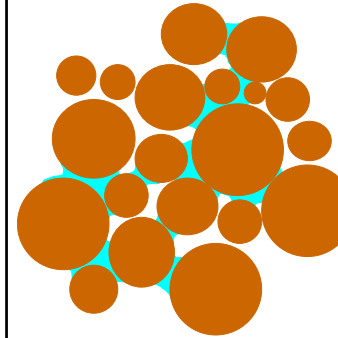
16

不飽和：土が乾いていくと  
土中の水移動速度は  
どう変わる？



17

土壤水分特性曲線と  
飽和不飽和透水係数



18

Soil-Plant-Atmosphere Continuum (SPAC)

$$TR = g_{sh}\{H_{sat}(T_s) - H_s\} = 1.6g_{sc} \frac{D}{p} \quad (1)$$

$$A_n = g_{sc}(C_a - C_i) \quad (2)$$

$$TR = \frac{\psi_s - \psi_l}{r_{sr} + r_{rl}} = J_w \quad (3)$$

(1)、(2)より $g_{sc}$ 消去で $A_n$ にまとめる。  
これに、(3)を代入。

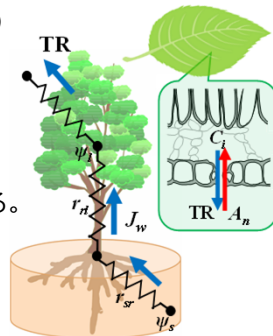
➡ (4)の完成。

仮定：

$\psi_l$ は $\psi_{tl}$  (通水性が低下し始める $\psi_l$ ) より下がらない。

$$\psi_l = \psi_{tl} \quad (5)$$

$$r_{rl} = \frac{1}{G_{rlmax}} \quad (6)$$

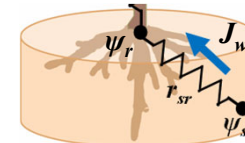


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$$J_w = \frac{\psi_s - \psi_r}{r_{sr}} \quad J_{soil} = -K \frac{d\psi}{dz}$$

$$J_w = \frac{GA \times l_r}{LA} \times 2\pi \int_{r_s}^{r_r} J_{soil} dz$$

を利用して  $r_{sr}$  (7) を得る。

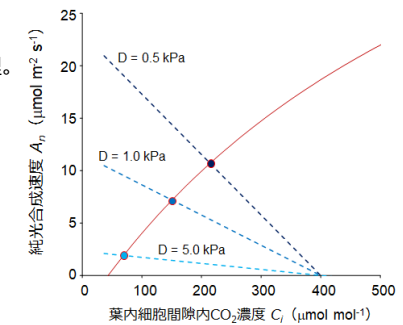


$$\pi r_s^2 \times l_r = z_{rs}$$

(5)、(6)、(7)を利用して(4)を整理。

$$A_n = \gamma^*(C_a - C_i)$$

$$A_n = \min(A_v, A_j) - Rd$$



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