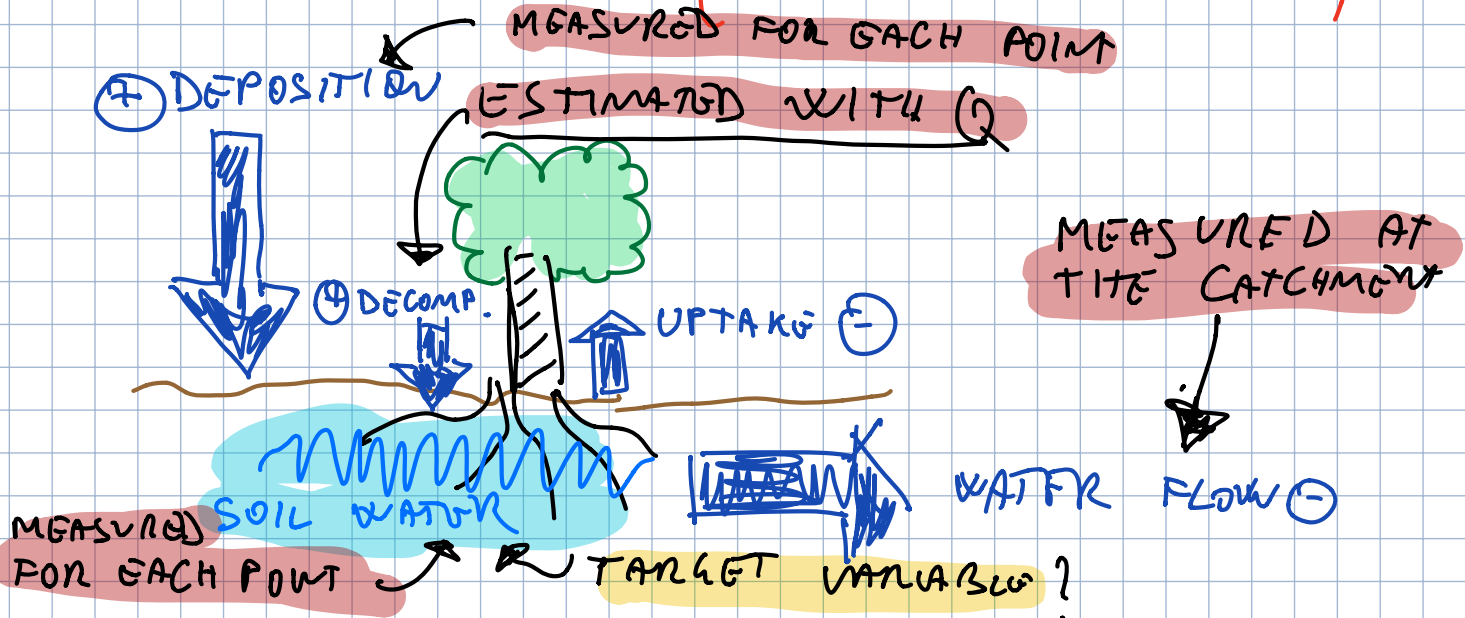
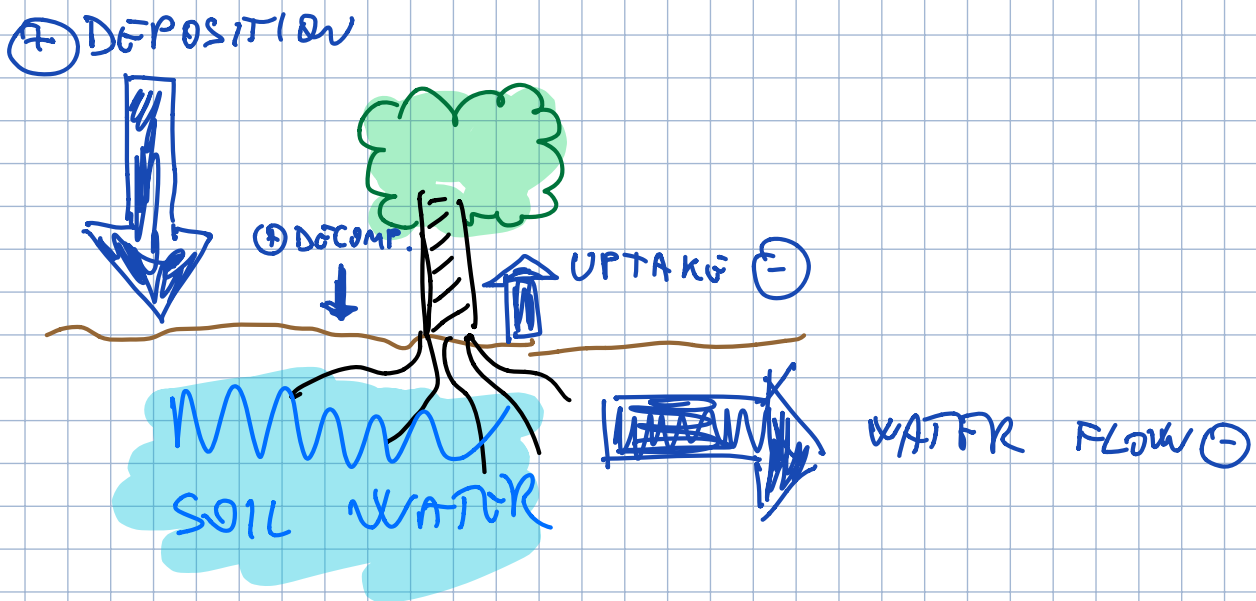


NATURAL RESERVE (MODEL CALIBRATION)



WE CALIBRATE ON THE OUTPUT, OPTIMIZING THE UPTAKE/DECOMPOSITION RATIOS

UTILIZATION (REDUCED DECOMPOSITION FLOW)



WE THEN JUST APPLY THE CALIBRATED MODEL TO UTILIZATION SCENARIOS

WE MODEL THE WHOLE CATCHMENT

- CUMULATED DEPOSITION (OWN SPACE)

- AVERAGE SOIL WATER Ca^{++}

- CUMULATED OUTPUT (ALREADY MEASURED)

SOIL SOLUTION Ca^{++} IS THE TARGET VARIABLE.

IT IS PROPORTIONAL TO ALL FLUXES.

WE COULD USE LINEAR PROPORTIONALITY COEFFICIENTS?

$S = \text{SOIL SOLUTION } \text{Ca}^{++} \rightarrow \frac{dS}{dt} = \text{Ca}^{++} \text{ CONCENTRATION}$

$$\frac{dS}{dt} = +\delta \cdot D^{\text{Ca}^{++}} + \gamma \cdot C^{\text{Ca}^{++}} - u \cdot U^{\text{Ca}^{++}} - b \cdot S^{\text{Ca}^{++}}$$

$D = \text{DEPOSITION}$

$C = \text{DECOMPOSITION}$

$U = \text{UPTAKE}$

$S = \text{STREAM}$

MEASURED

THIS WILL BE ESTIMATED WITH Q

THIS IS ESTIMATED WITH BIOMASS AND ALLOMETRIES

MEASURED

How to aggregate the soil
solution over space?
Average?

There is autocorrelation. Or is it?

Test for autocorrelation due to
lateral flow