Multilayer Model

Upscaling from leaf level to canopy and overview of deposition methods. This documentation gives an overview of where the multilayer approach has been implemented into the DO3SE model. More detailed explanations can be found in specific documentation for each module.

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# General Overview

## Layer number

We count the layer numbers from the top. I.e the top layer is 0.

# Upscaling

Upscaling in the model is performed after we calculate gsto at the leaf level. More details on this can be found in the surface resistance documentation.

# Per layer environment

Local environment is calculated for each layer including solar energy, gas concentration and moisture. The values at each layer take into account per layer resistances calculated by the model.

## Solar Energy

A multilayer model is setup to calculate the PAR at each layer in respect to shadowing and refraction from the canopy above. More details on this can be found in the Meteorological documentation.

## Ozone Concentration

Ozone deposition is calculated per layer in the Ozone Deposition module.

### CO2 Concentration

WIP: This still needs implementing in the model.

## Soil moisture

WIP this still needs implementing.

## Phenology

WIP: The theory for this is being developed.

# Glossary

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# References