3PG: The Basics

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Aug XX, 2025

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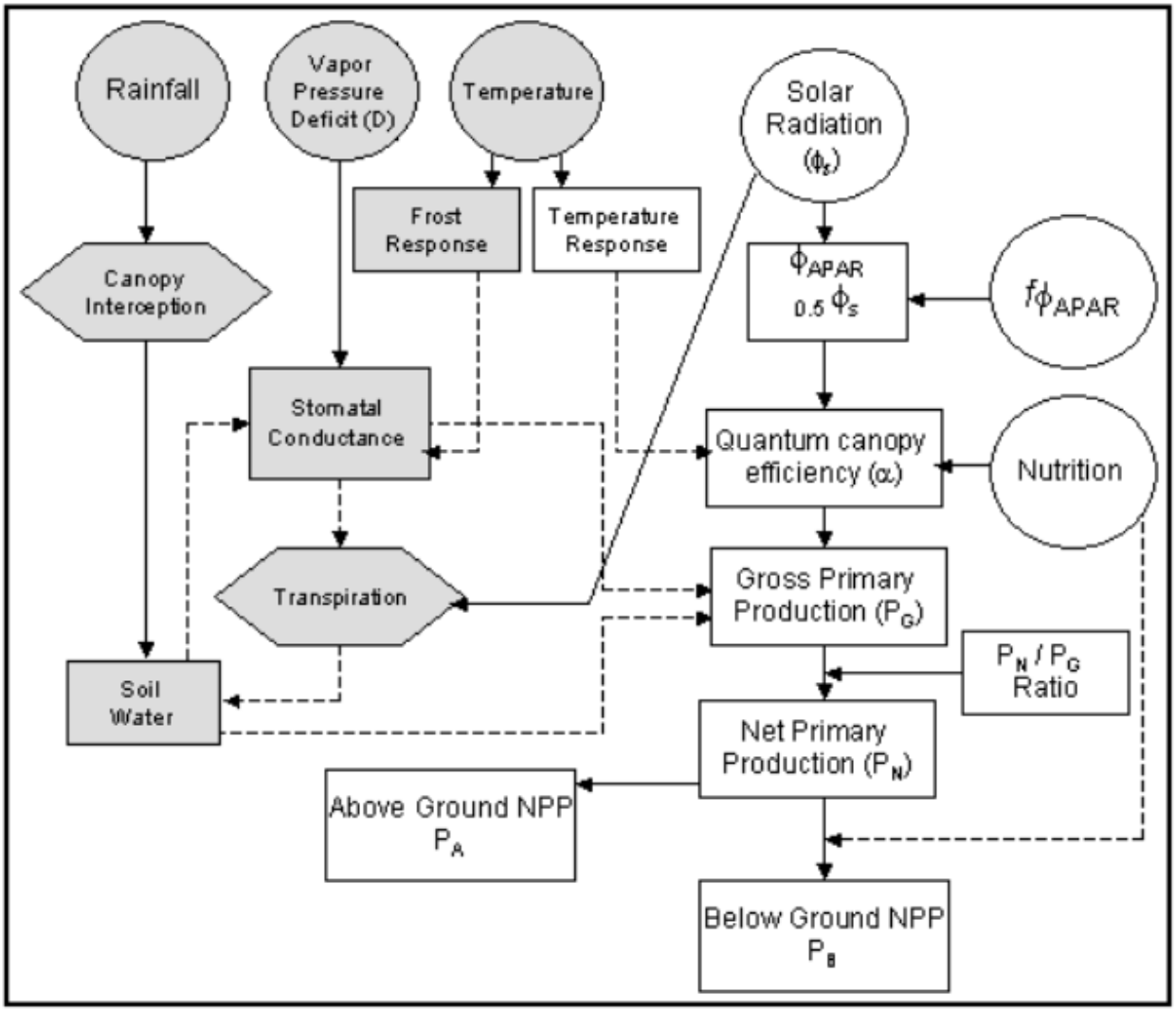
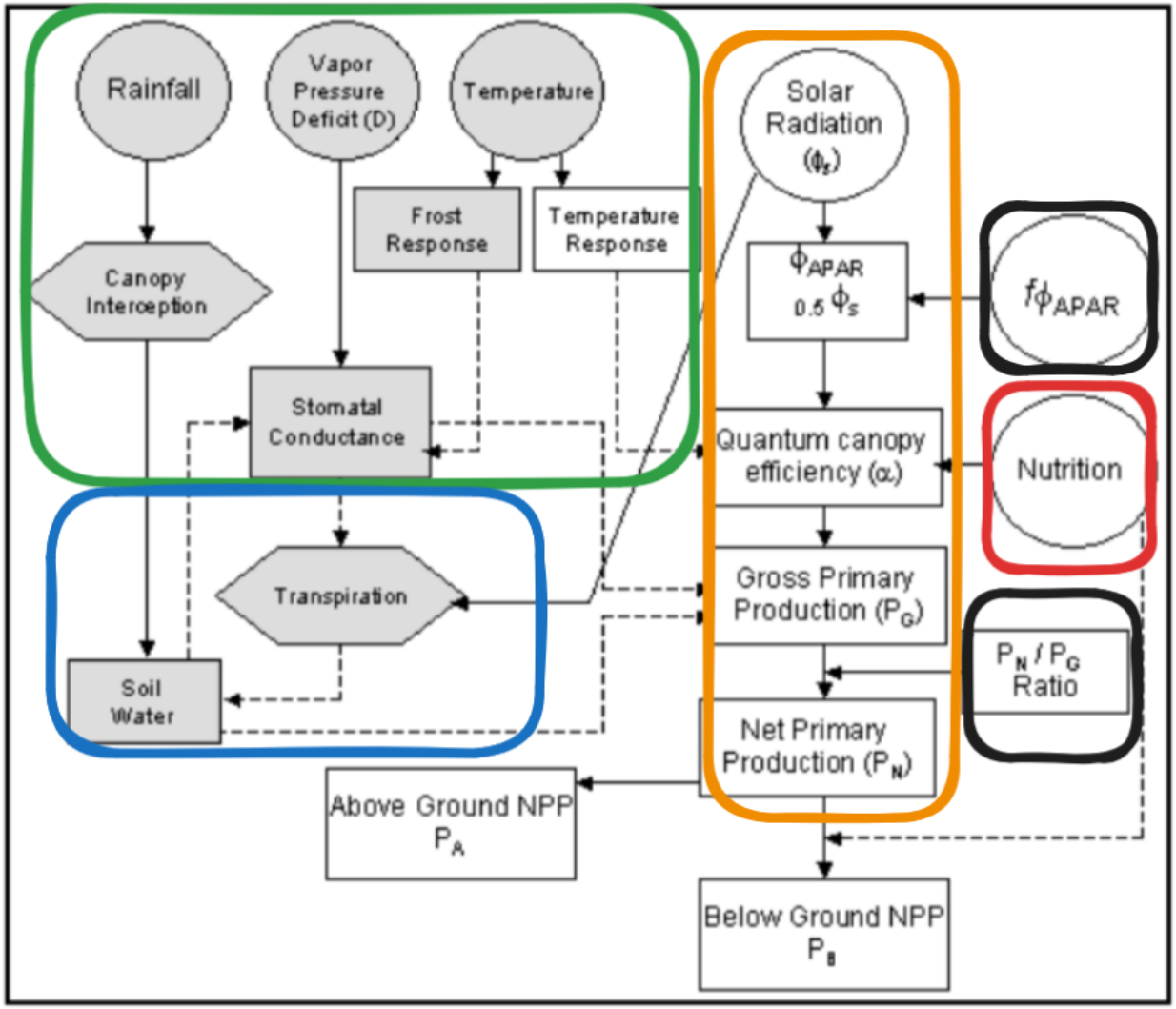
Outline

What is 3PG?

The Big Picture



The Big Picture



The Engine of 3PG

1. 3PG begins with taking **incoming solar radiation**, and converting it into **Photosynthetically Active Radiation (PAR)**.

$$PAR = 0.5(GR)$$

Where PAR and GR are in MJ per m per day.

2. PAR must then be converted into **GPP**.

$$P_g = \alpha_c(1 - e^{-kL})Q_0$$

Where P_g is GPP (MJ per m per day), α_c is canopy quantum efficiency, $(1 - e^{-kL})Q_0$ is Beer's Law.

3. GPP is then converted into **NPP** using a constant fraction of 0.47.

r3PG

1. An R package developed by Volodymyr Trotsiuk et al. based on code from Peter Sands Excel extension of 3PG and 3PG-mix.
2. Can do stand level and spatial level simulations.
3. Highly complex in terms of data preparation and formatting. Highly data frame dependent.

R Code Example

`head(out_3PG)`