The Predictive Ecosystem Analyzer

Data

Data Collection

Priors

β_{0t}

Figure 2

Meta-analysis

$\Theta_k = \beta_0 + \beta_{\text{site}i} + \beta_{\text{tr}|\text{site}_{ij}} + \beta_{\text{gh}}I(i)$

Meta-analysis Posteriors

Figure 3

Θ_k

$\sigma_k \leftarrow \sigma_Y$

$10 \quad 20$

0

$Y_k \quad n \quad se_k$

Ecosystem Model

β_{0t}

Figure 4

Sensitivity Analysis

Model Ensemble

Variance Decomposition

Ensemble Posterior

$f(\boldsymbol{\beta_0})$

Figure 5

Heaton et al. 2008, n = 4
Wang et al. 2010, n = 1902
ED2 prior ensemble
ED2 ensemble
ED2 ensemble
ED2 prior ensemble
spline ensemble
Wang et al. 2010

$g_t(\beta_{0t})$

Figure 6

$$Var(f(\boldsymbol{\beta_0})) = \sum_{t=1}^{m} Var(g_t(\beta_{0t})) + \omega$$

Figure 7

Growth Respiration
Fine Root Allocation
Leaf Turnover Rate
Specific Leaf Area
Vcmax
Seedling Mortality
Mortality Coefficient
Reproductive Allocation
Photosynthesis min temp
Quantum Efficiency
Root Respiration Rate
Seed Dispersal
Root Respiration Rate
Stomatal Slope
Leaf Width