

**Spatial structure  
from PMIP3 ensemble**  
 $\mu_1, \dots, \mu_k, \Sigma_{\text{emp}}$

**Model parameters**  
 $\mathbb{P}(\vartheta)$

**Past climate**  
 $\mathbb{P}(C_p|\vartheta) \sim \text{Gaussian}$

**Modern climate**  
 $C_m$

**Fossil pollen**  
 $\mathbb{P}(P_p|C_p, \theta) =$   
 $\prod_s \prod_{T(s)} \mathbb{P}(P_p^T(s)|C_p(x_s), \beta^T)$

**Transfer function  
parameters**  
 $\theta = (\beta_i^T, i = 1, \dots, 6, T \in T(P))$   
 $\mathbb{P}(\beta_i^T) \sim \mathcal{N}(0, 10),$

**Modern pollen**  
 $\mathbb{P}(P_m|C_m, \theta) =$   
 $\prod_T \prod_s \mathbb{P}(P_m^T(s)|C_m(x_s), \beta^T)$

