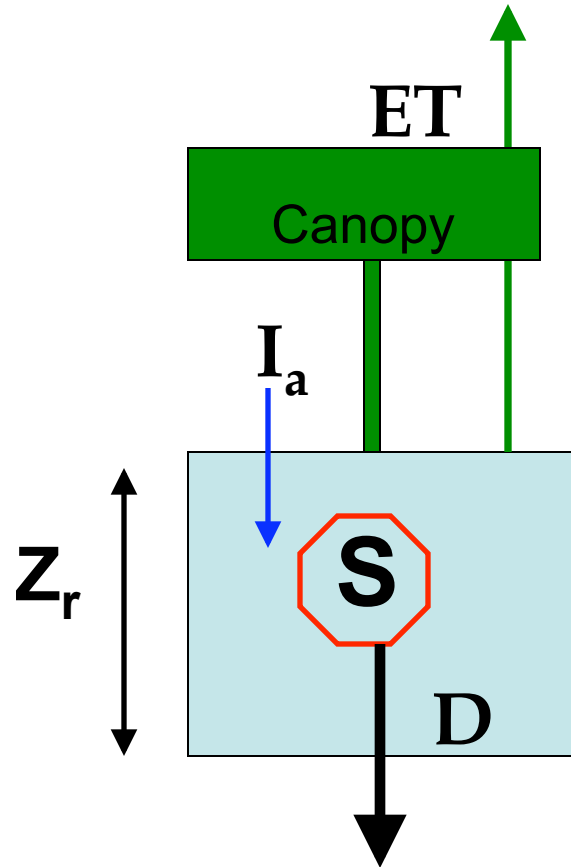
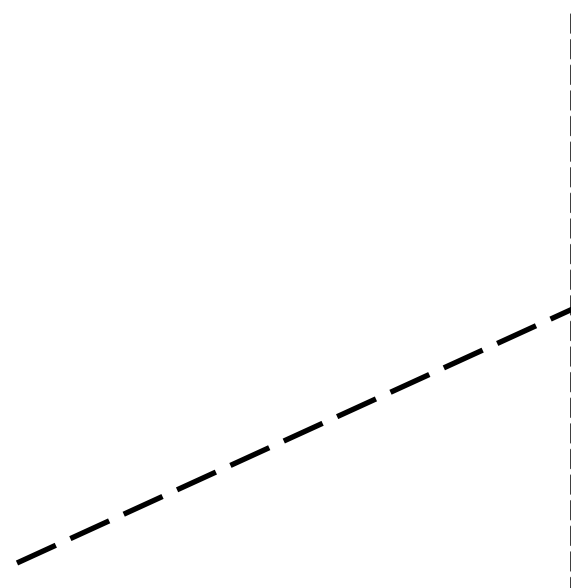


A Bucket-type Ecohydrology model: Water Balance



$$nZ_r \frac{ds}{dt} = I_a(s, p, V) - ET(s, V) - D(s)$$



Tracking Grassland Dynamics

Net Primary Productivity: $NPP = ET_a WUE \rho_v \omega$

Green Biomass, B_g : $\frac{dB_g}{dt} = NPP \phi_a - k_{sg} B_g - k_{sf} \xi B_g$

Root Biomass, B_r : $\frac{dB_r}{dt} = NPP(1 - \phi_a) - k_{dr} B_r - k_{sr} B_r$

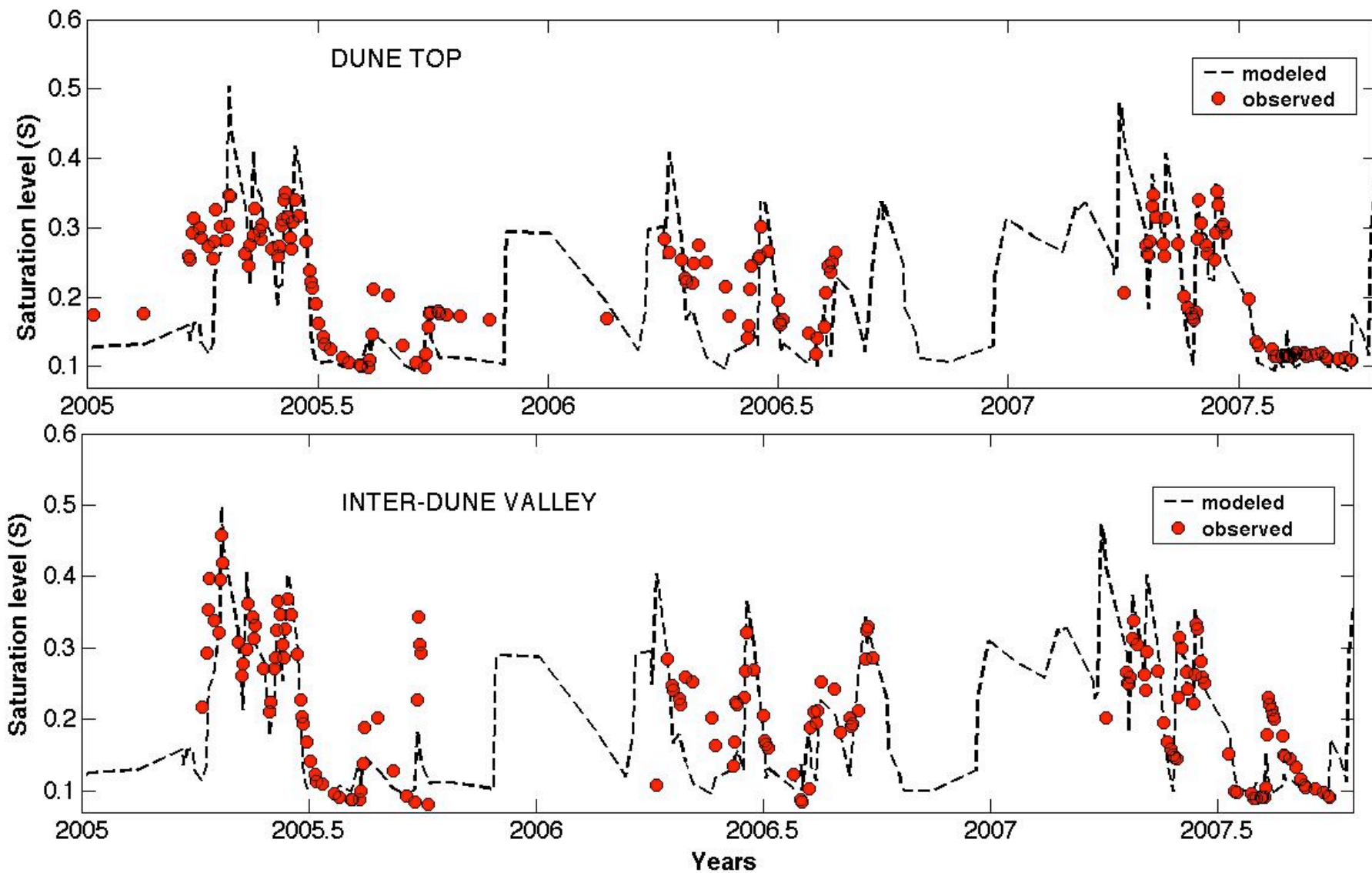
Dead Biomass, B_d : $\frac{dB_d}{dt} = k_{sg} B_g - k_{dd} B_d$

Allocation coefficient: $\phi_a = \left(1 - \frac{LAI_g}{LAI_{g\max}} \right)$

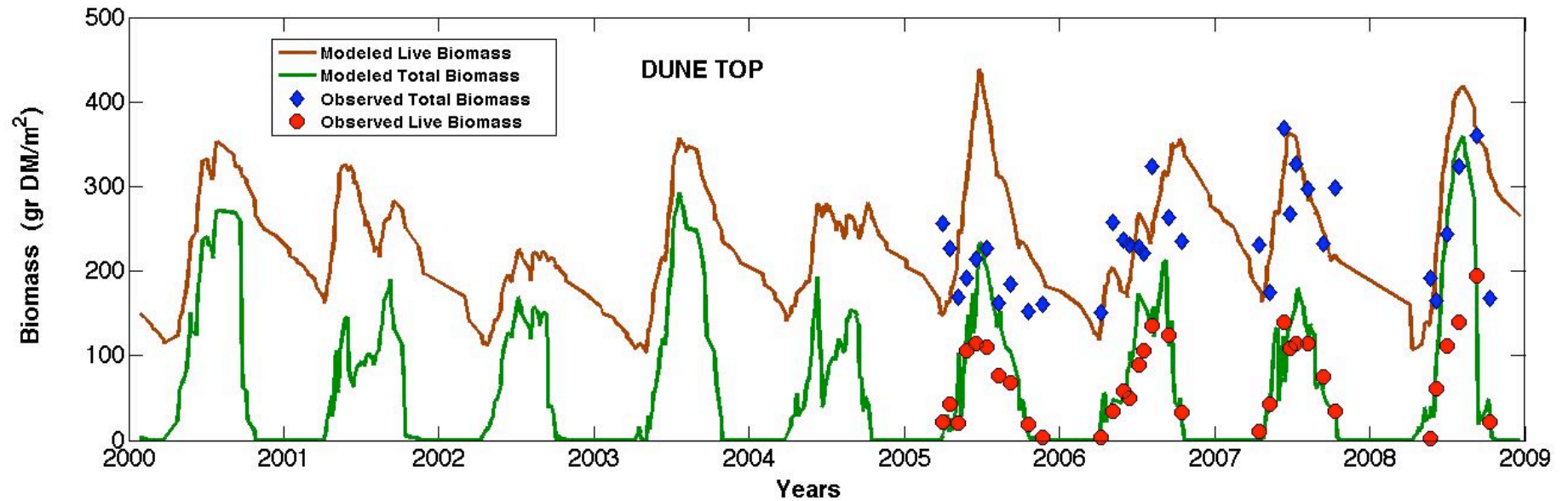
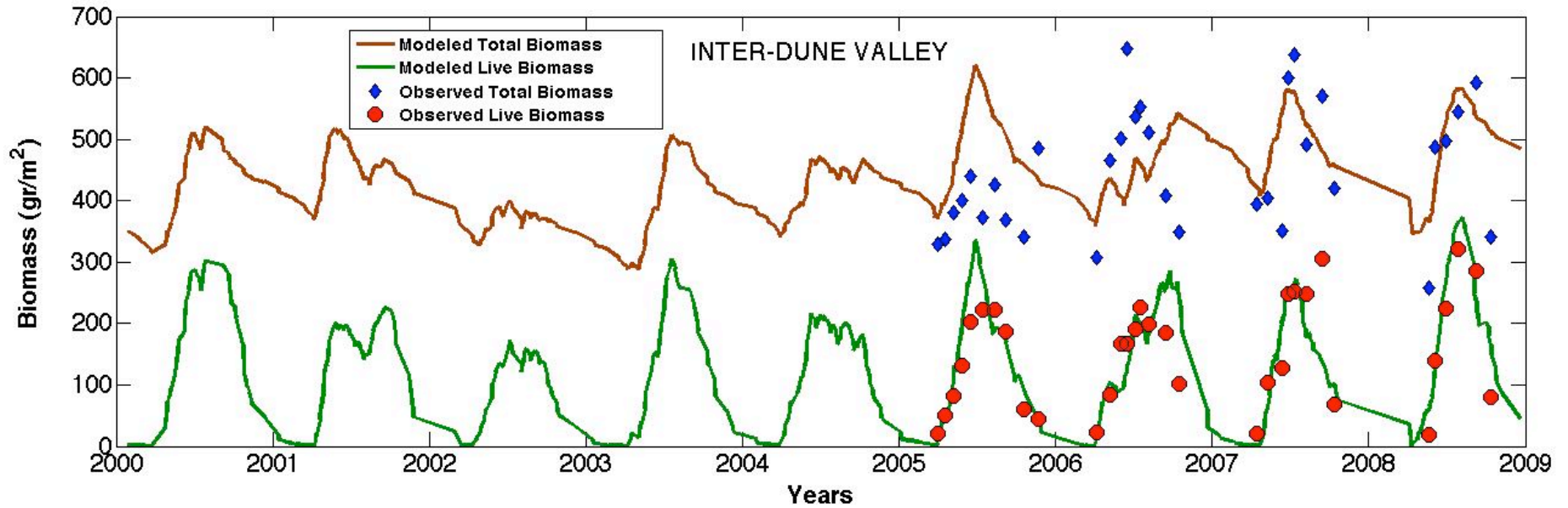
WUE: Water use efficiency taken as constant

K_x : Decay coefficient for variable x.

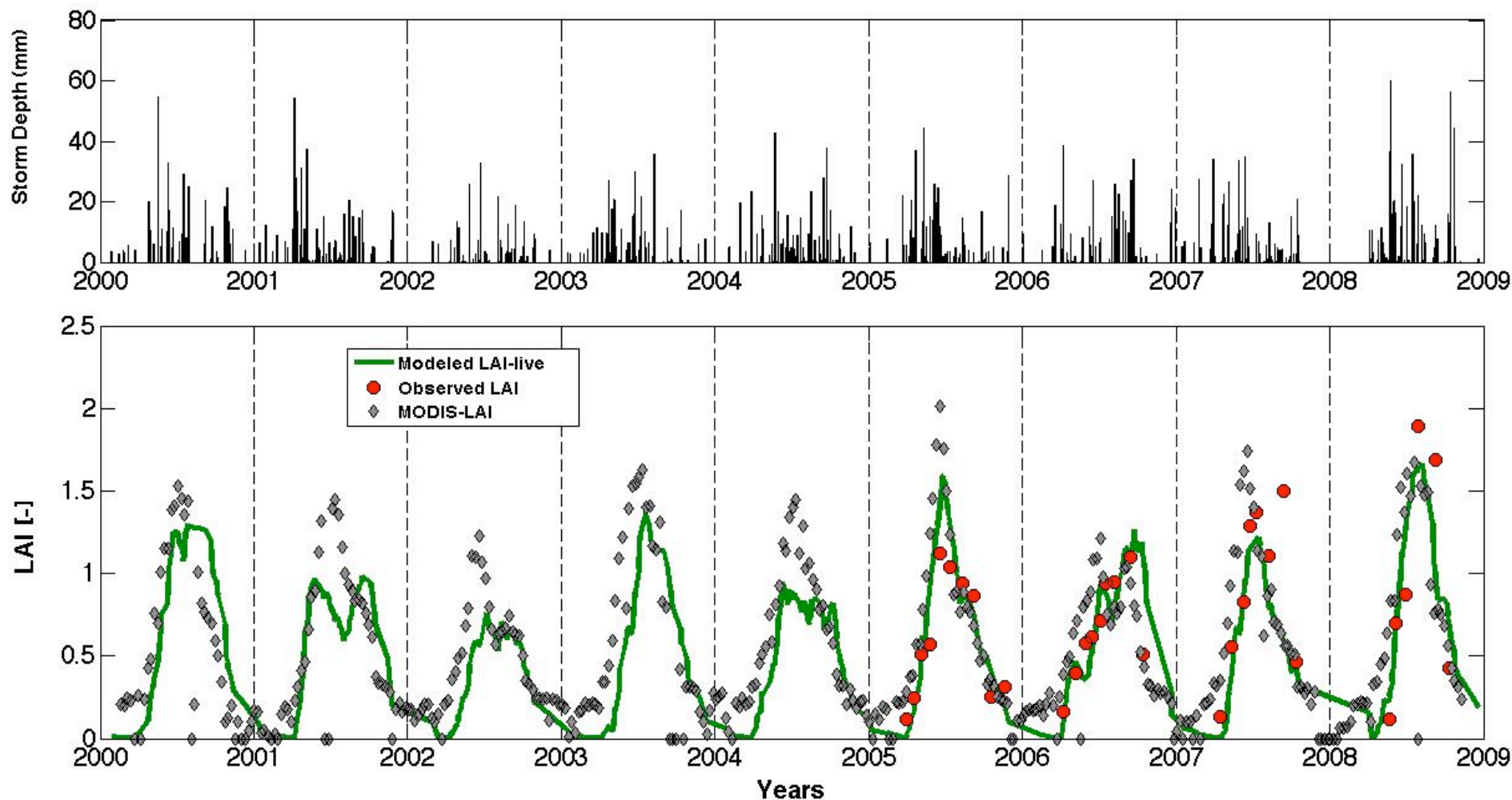
MODEL PREDICTIONS: SOIL MOISTURE



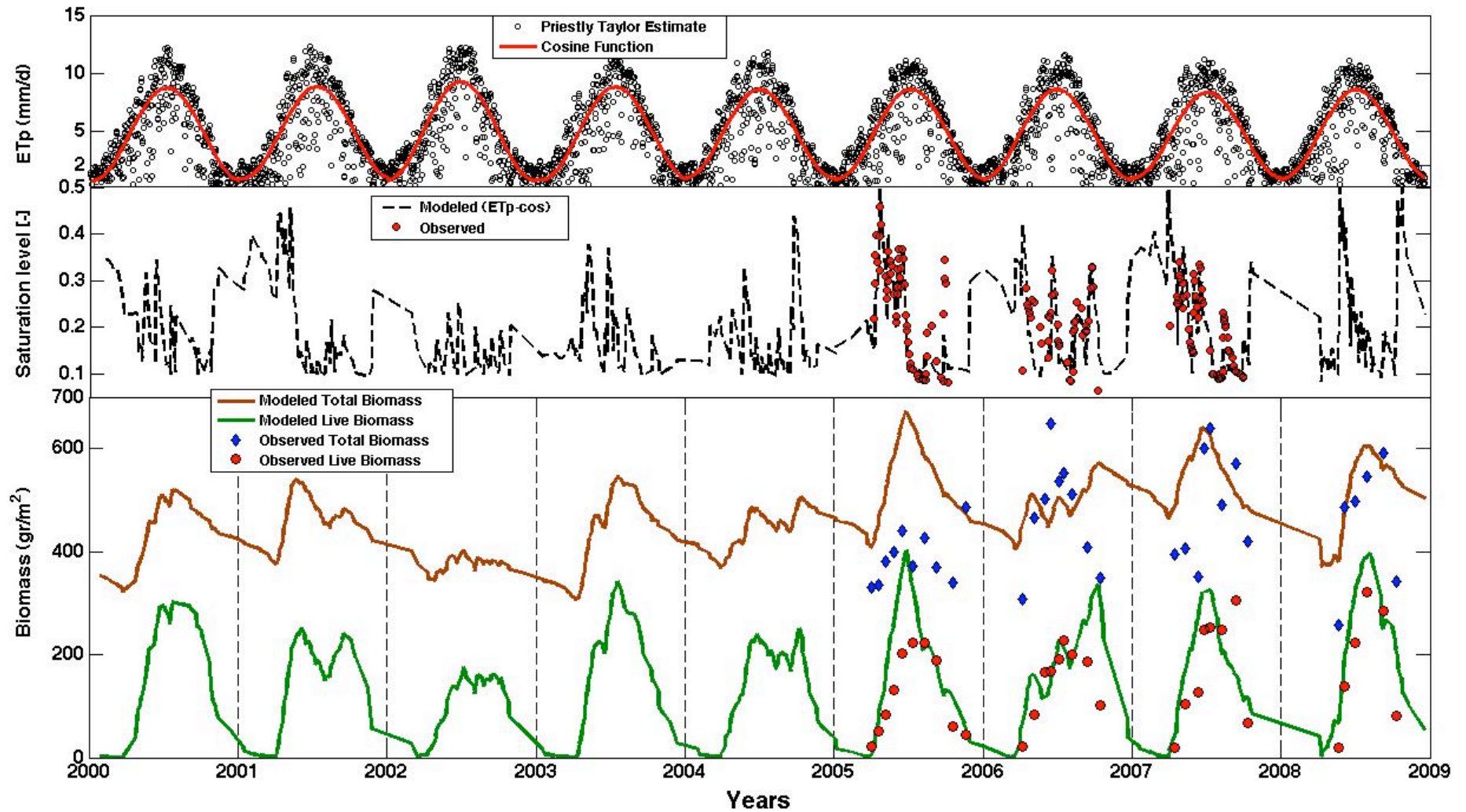
MODEL PREDICTIONS: VEGETATION BIOMASS



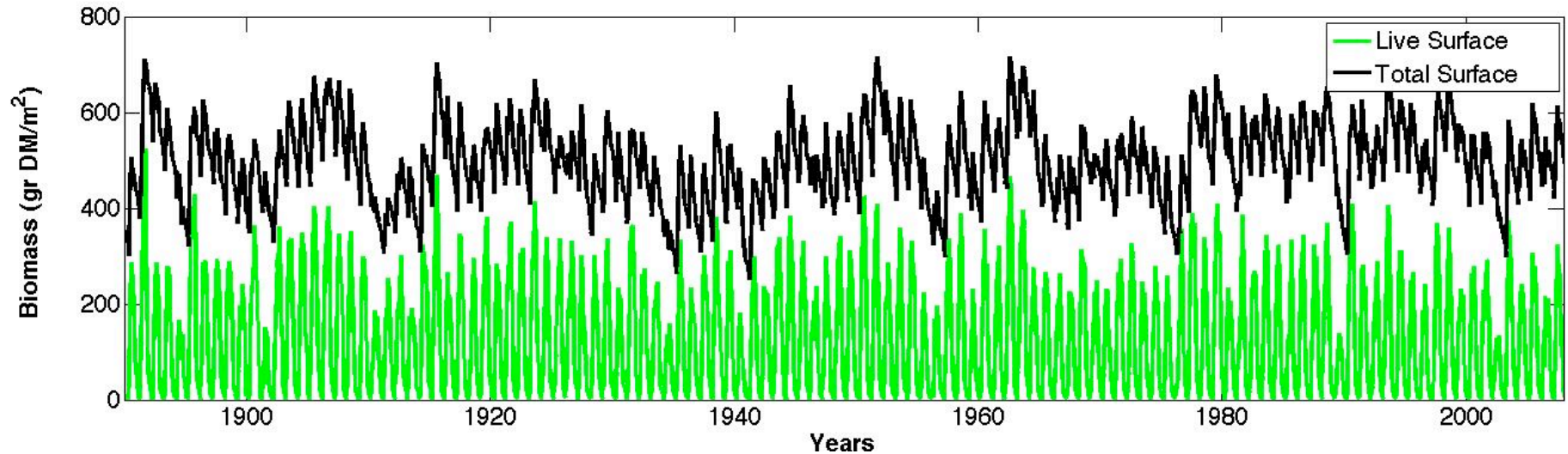
MODEL PREDICTIONS: VEGETATION LIA



MODEL PREDICTIONS - ET SINUSOIDAL FUNCTION



MODEL PREDICTIONS (1890 - 2007)



POISSON PULSE STORM FORCING W/ SEASONALITY

