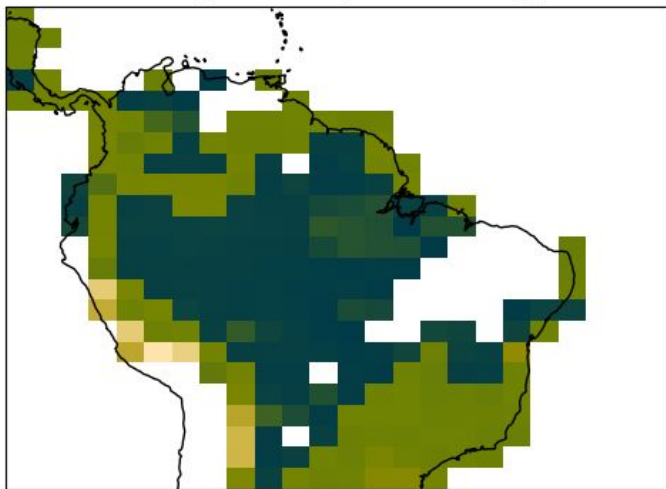


# Understory leaf lifespan

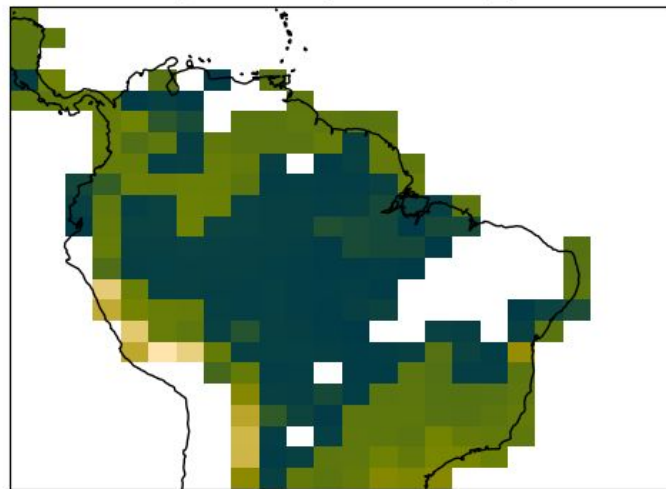
Testing with late successional evergreen PFT, with understory leaf lifespan = canopy lifespan = 3 years in the control case and with understory leaf lifespan = 9 years in the test case (and canopy leaf lifespan = 3 yrs)

# Longer ustory leaf lifespan reduces ustory biomass turnover time

control-jfn-ustory-leaf-turn\_pft3



test-jfn-ustory-leaf-turn\_pft3



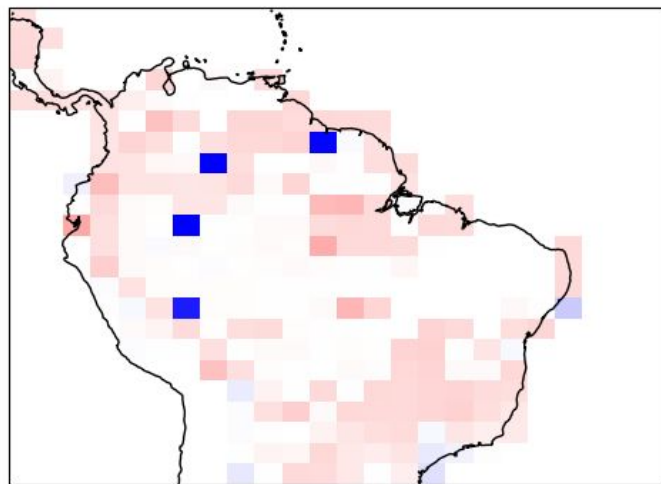
5 10 15 20 25

Ustory biomass longevity (yr)

5 10 15 20 25

Ustory biomass longevity (yr)

test-control



-10

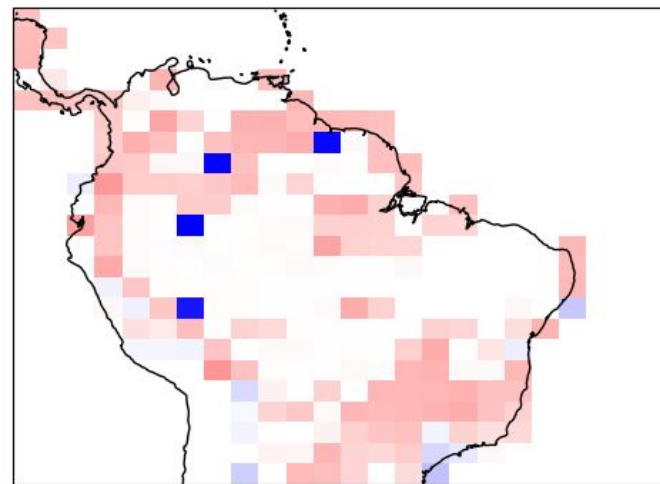
-5

Δ ustory biomass longevity (yr)

5

10

test-control



-40

-20

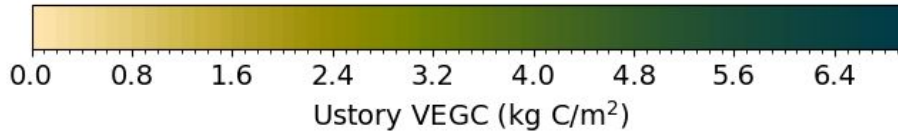
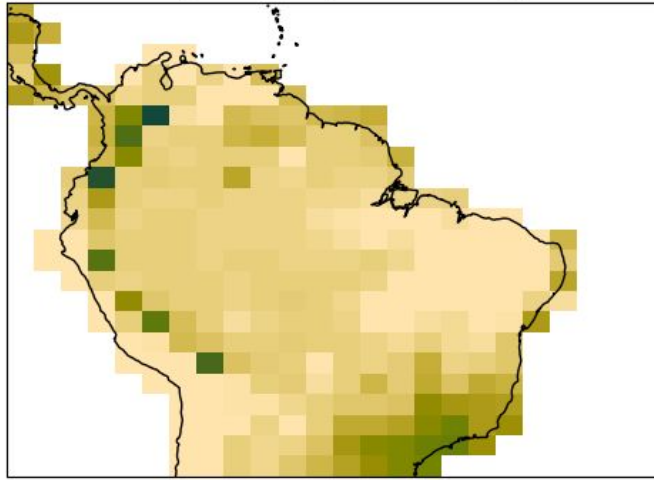
Δ ustory biomass longevity (%)

20

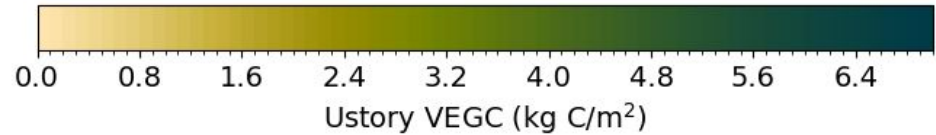
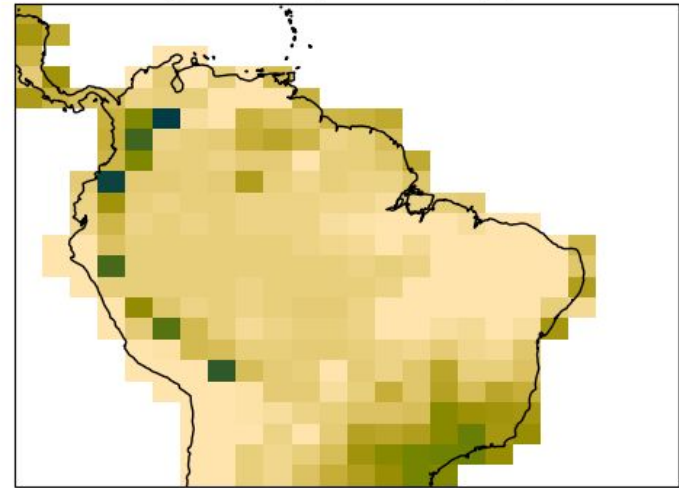
40

# Longer istory leaf lifespan increases istory biomass

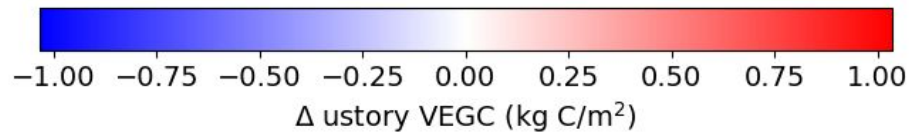
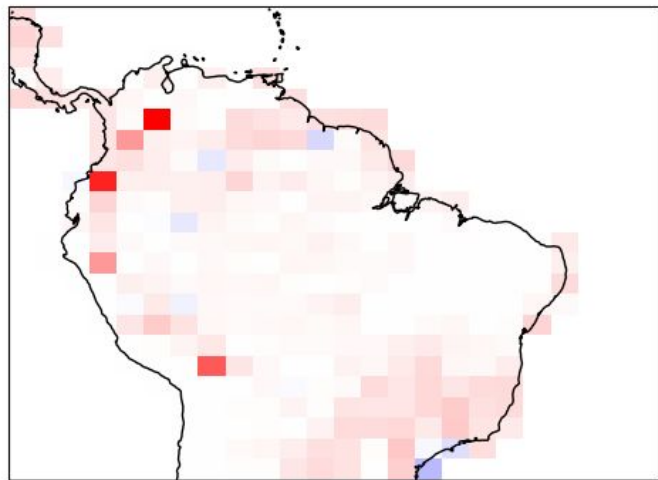
control-jfn-istory-leaf-turn\_pft3



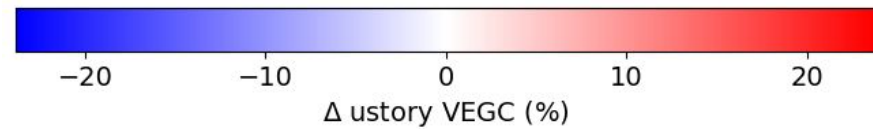
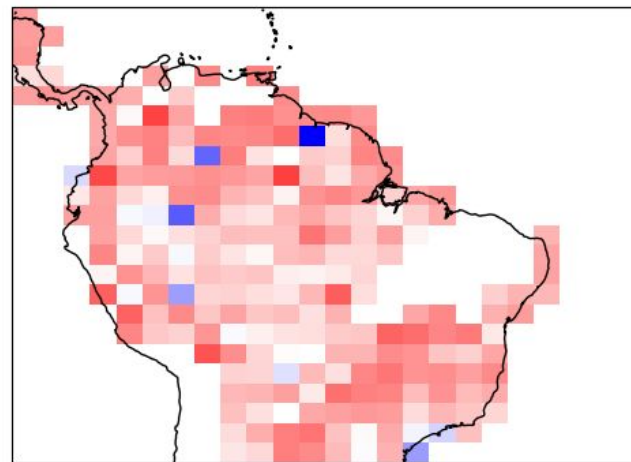
test-jfn-istory-leaf-turn\_pft3



test-control

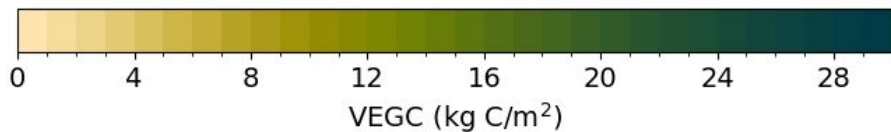
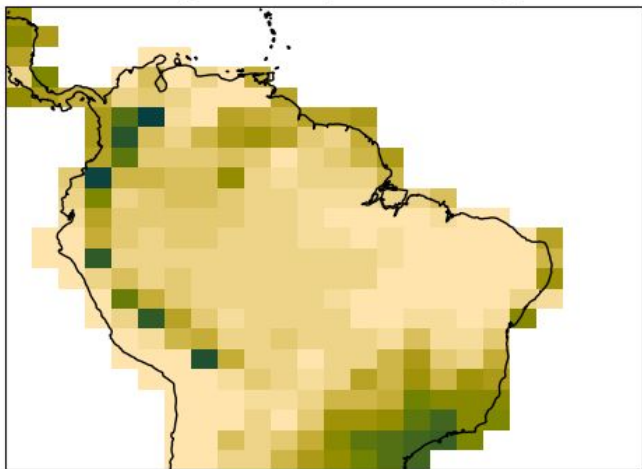


test-control

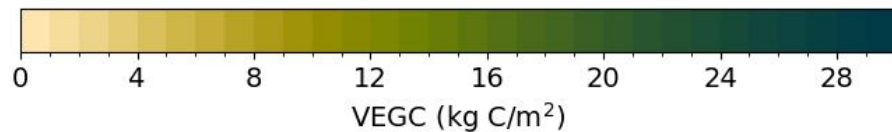
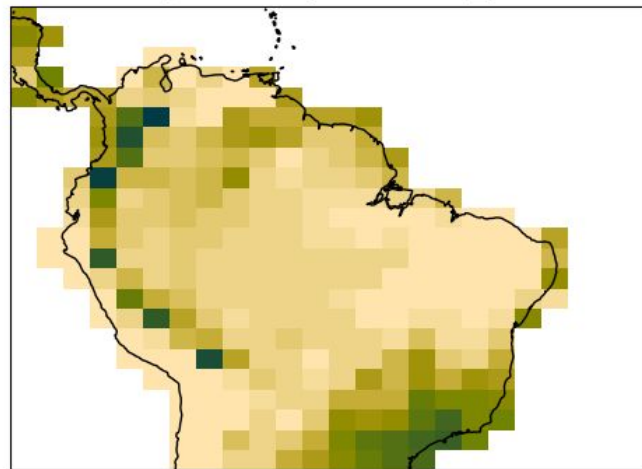


# Longer understory leaf lifespan increases total biomass

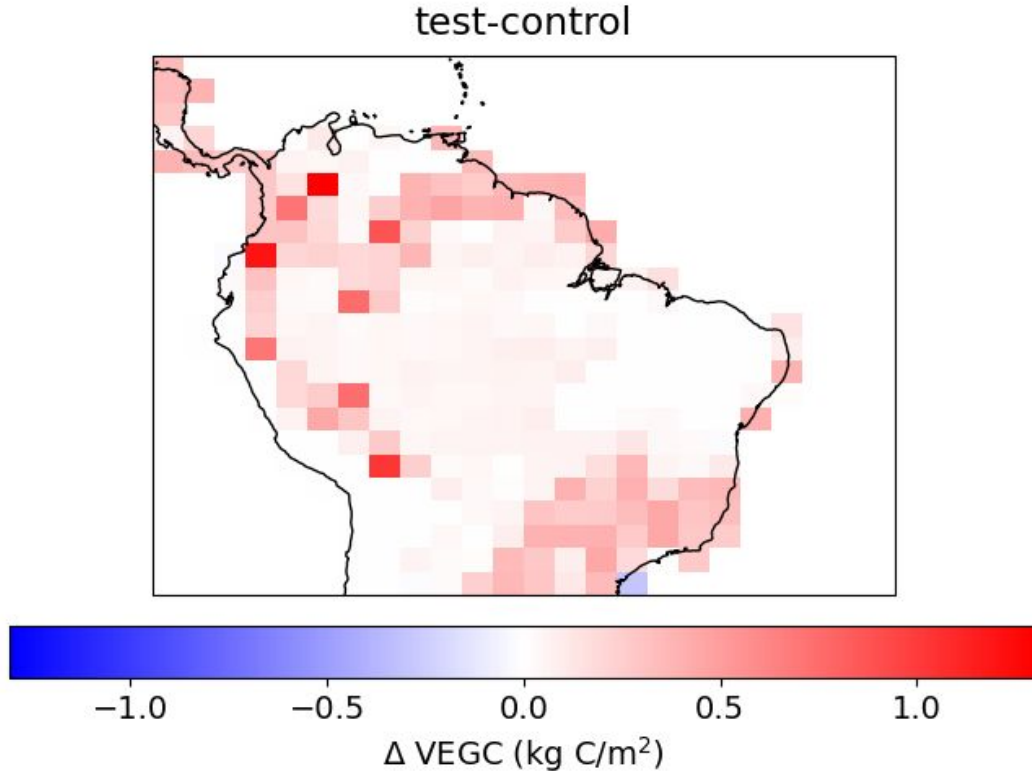
control-jfn-ustory-leaf-turn\_pft3



test-jfn-ustory-leaf-turn\_pft3

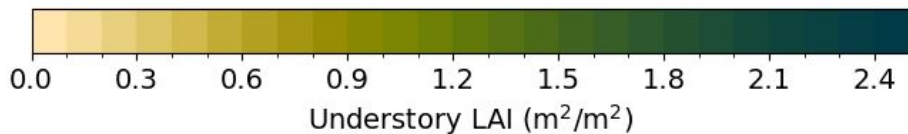
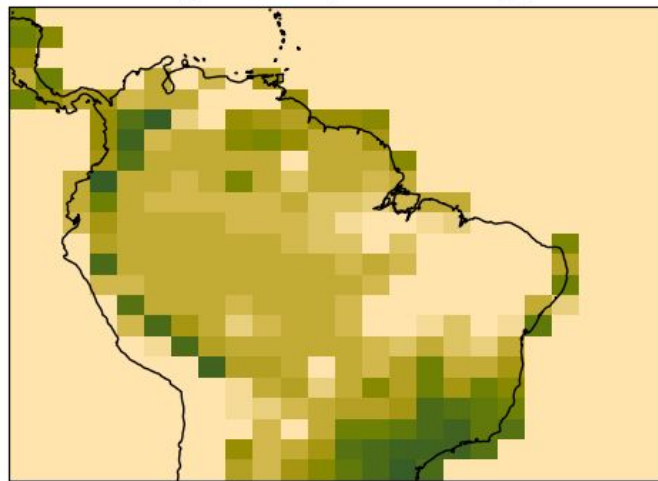


# Longer understory leaf lifespan increases total biomass

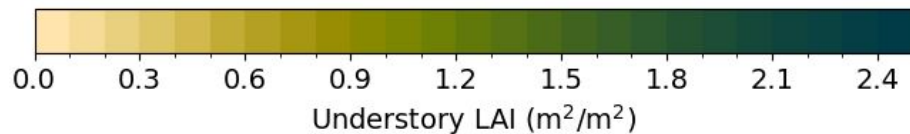
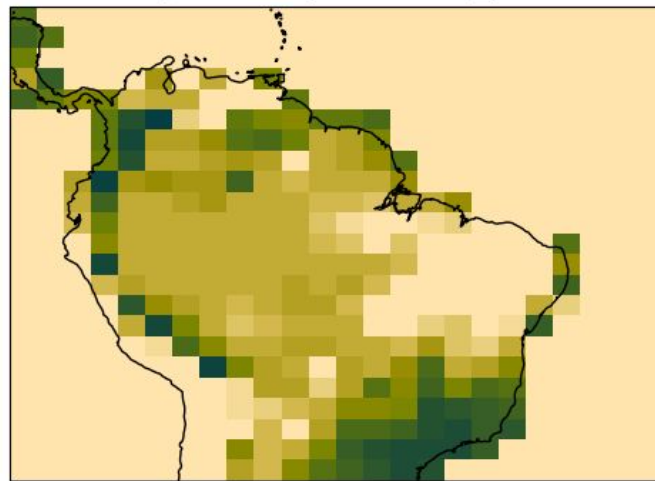


# Longer understory leaf lifespan increases understory LAI

control-jfn-ustory-leaf-turn\_pft3

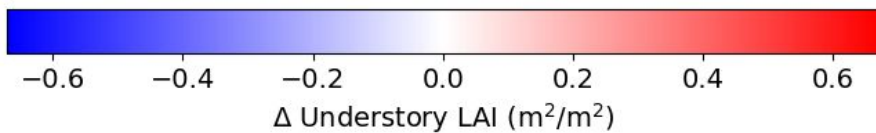
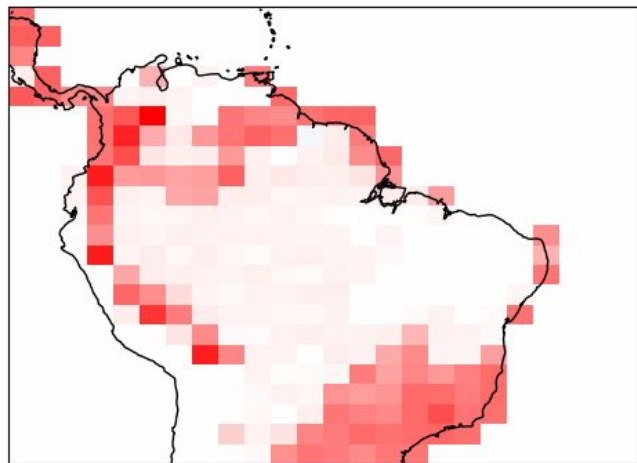


test-jfn-ustory-leaf-turn\_pft3

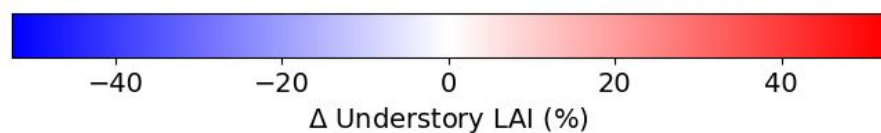
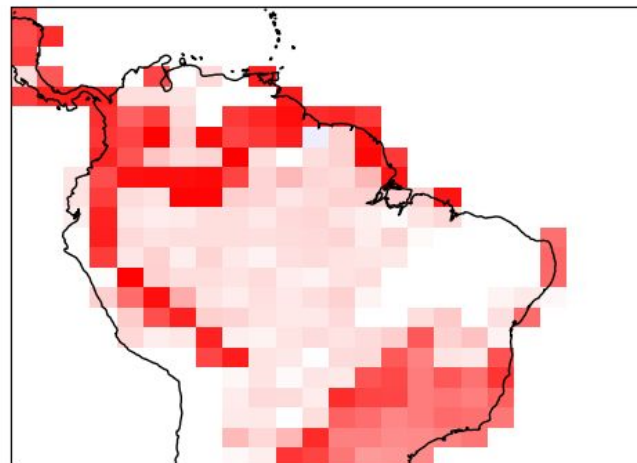




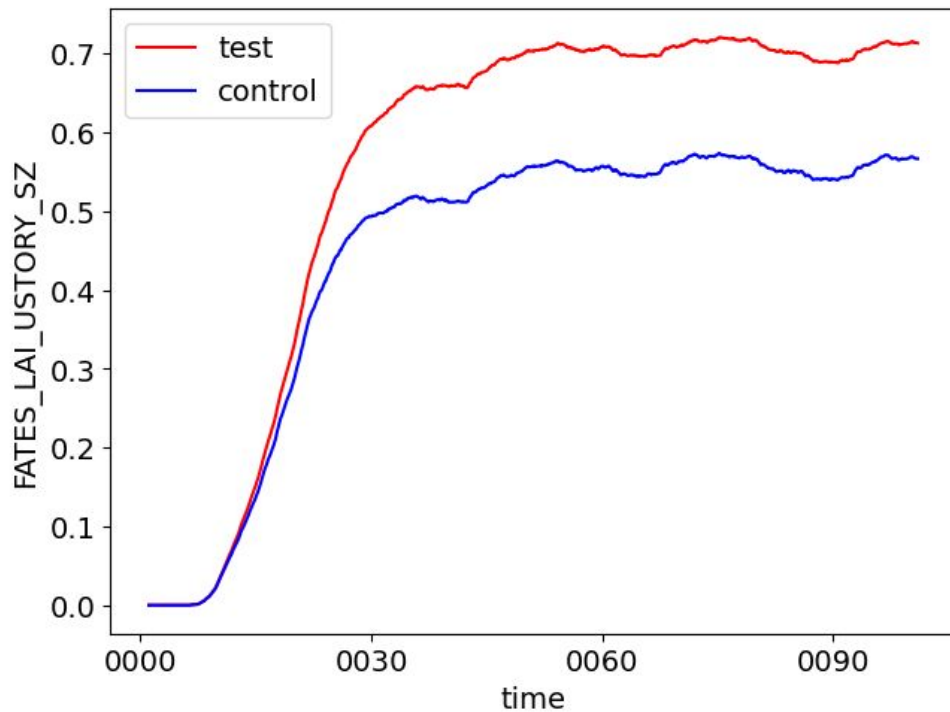
test-control



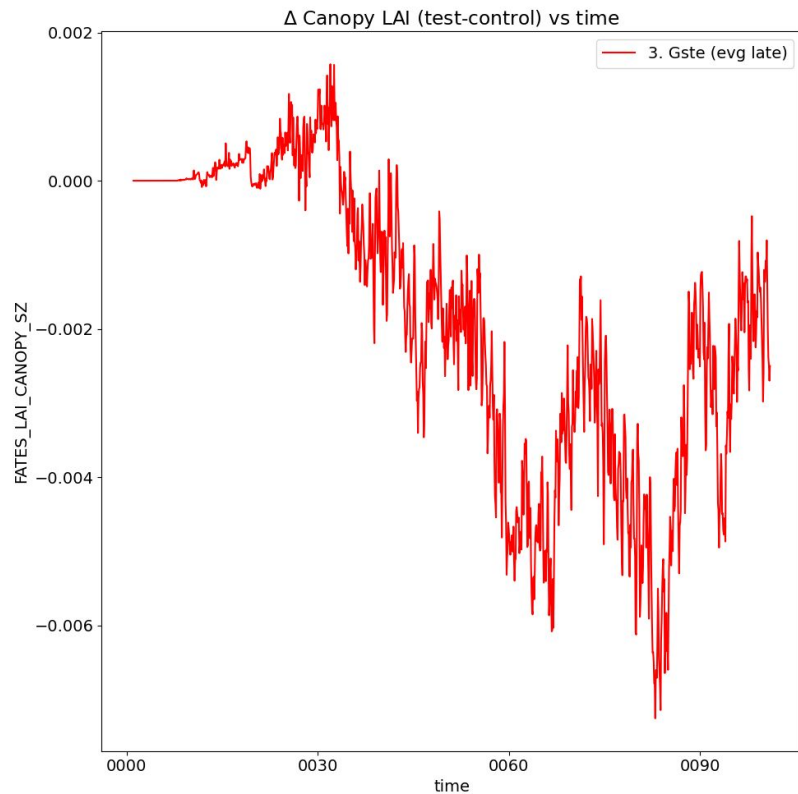
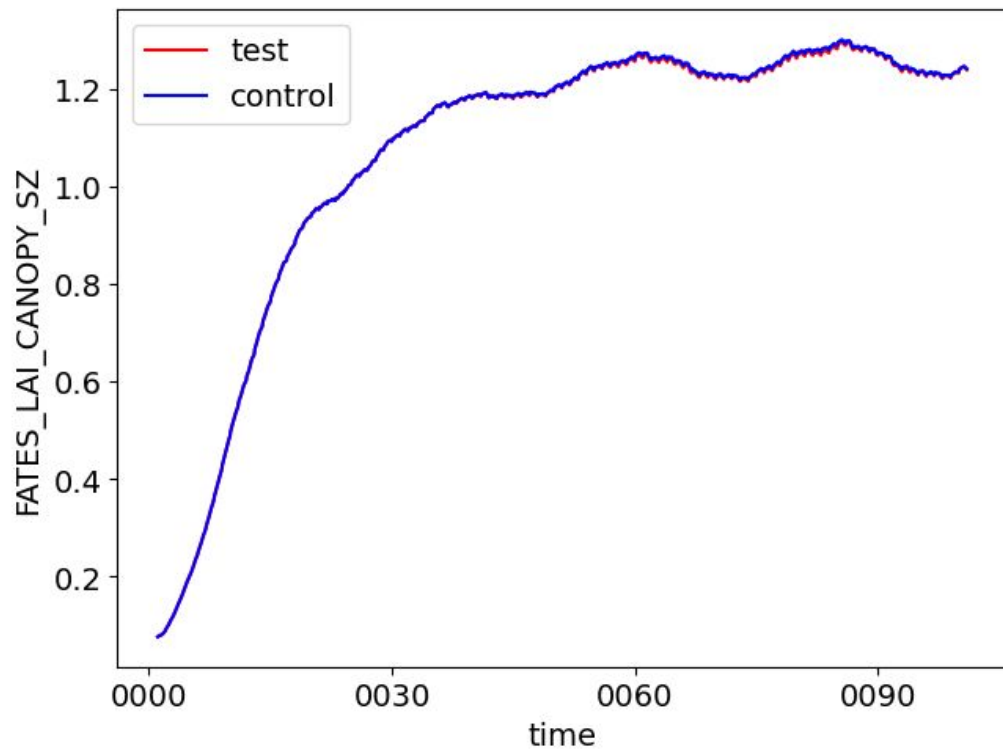
test-control



# Understory LAI vs time, averaged over region

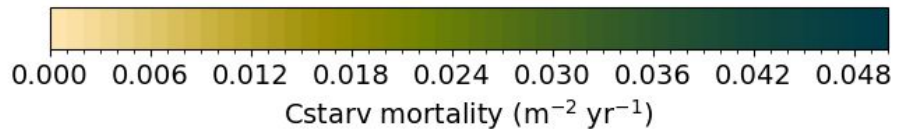
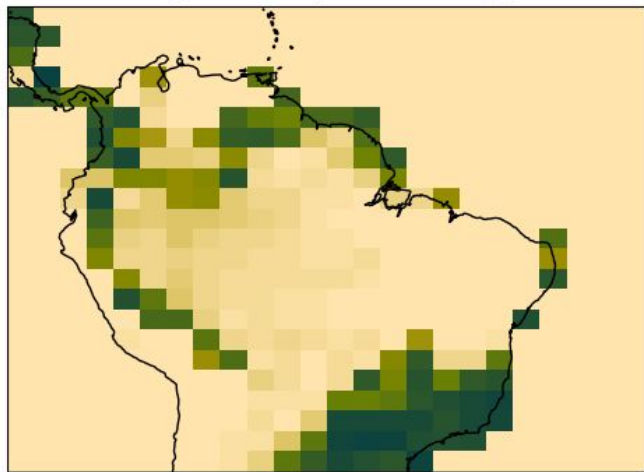


# Negligible difference to canopy LAI

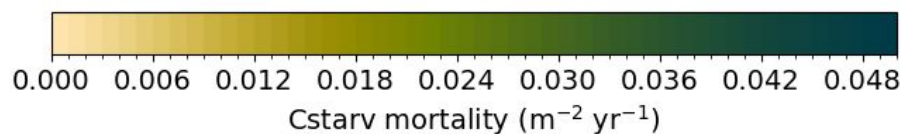
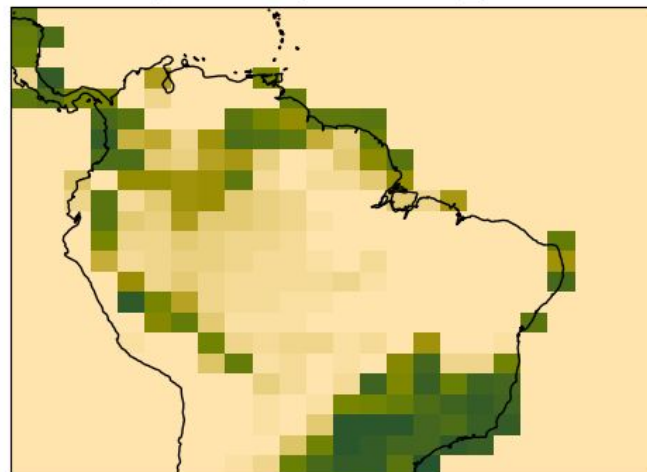


# Decreases carbon starvation mortality

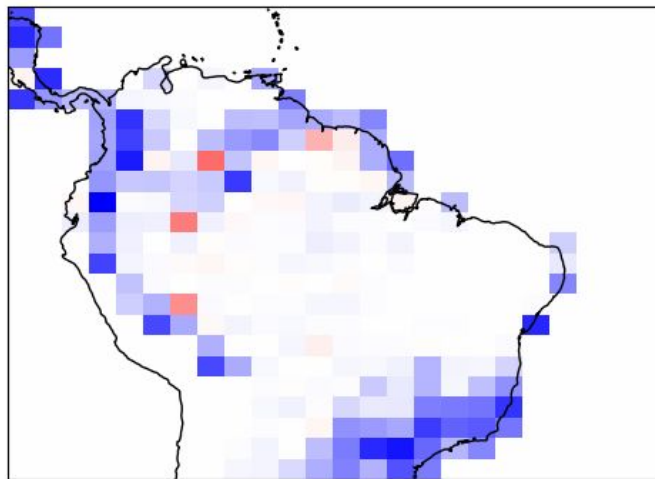
control-jfn-ustory-leaf-turn\_pft3



test-jfn-ustory-leaf-turn\_pft3



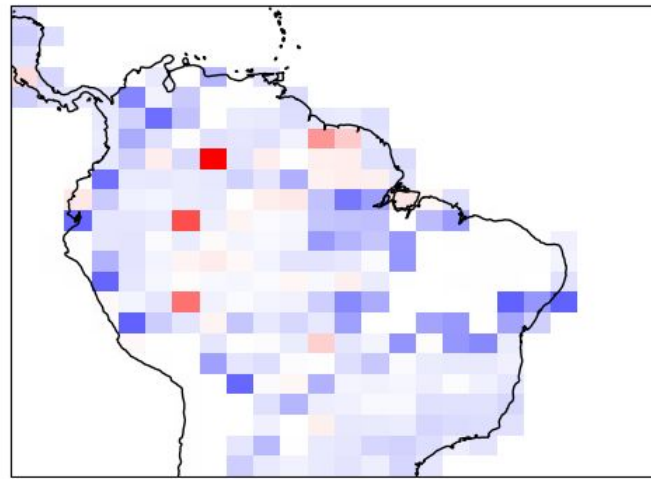
test-control



-0.010    -0.005    0.000    0.005    0.010

$\Delta$  carbon starvation ( $\text{m}^{-2} \text{yr}^{-1}$ )

test-control

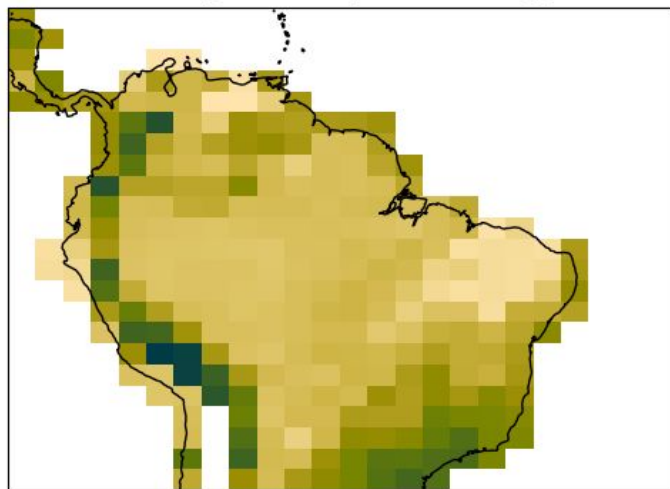


-150    -100    -50    0    50    100    150

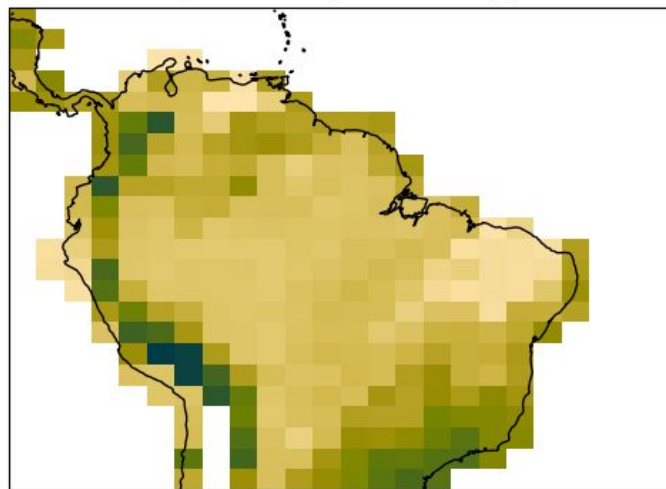
$\Delta$  carbon starvation (%)

# Longer ustory leaf lifespan decreases total CUE

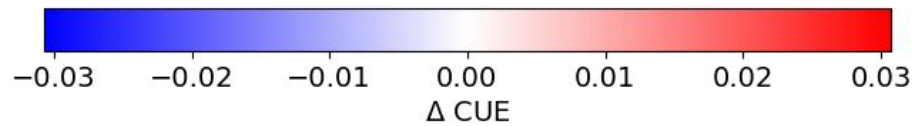
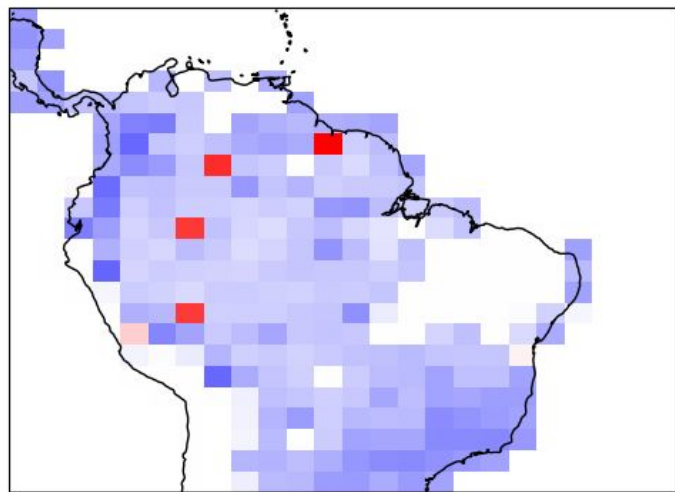
control-jfn-ustory-leaf-turn\_pft3



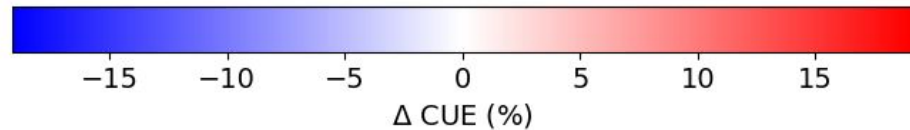
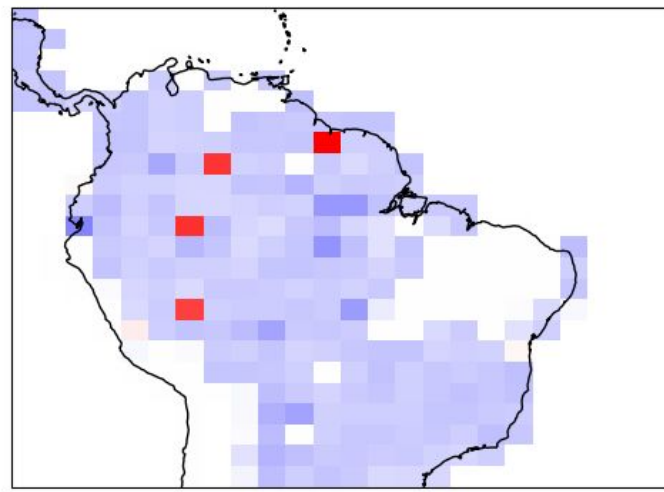
test-jfn-ustory-leaf-turn\_pft3



test-control

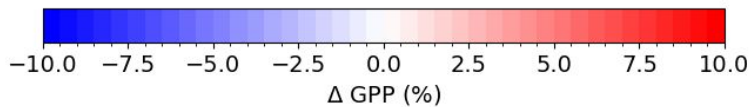
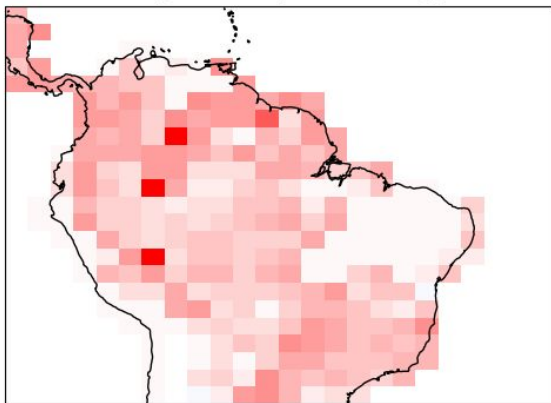


test-control

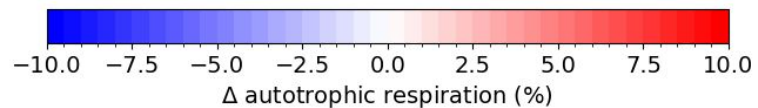
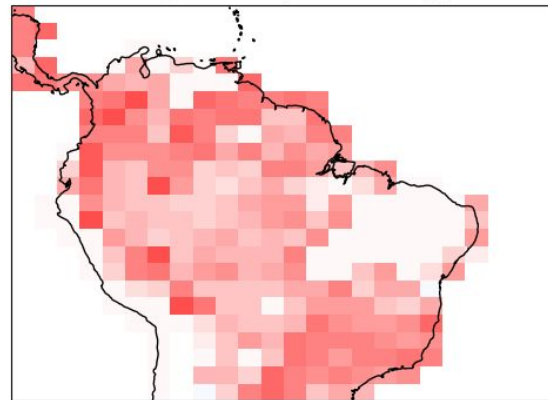


# $\Delta \text{resp} > \Delta \text{GPP}$ so NPP decreased

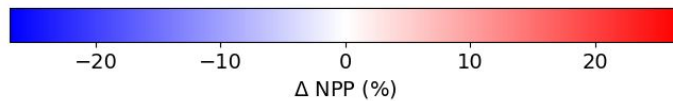
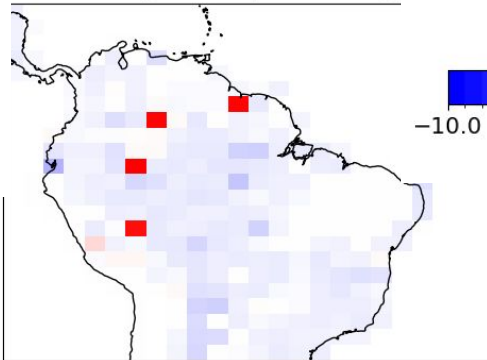
control-jfn-ustory-leaf-turn\_pft3



control-jfn-ustory-leaf-turn\_pft3



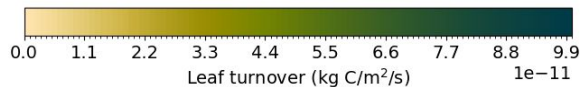
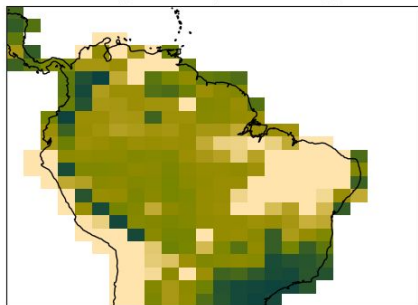
control-jfn-ustory-leaf-turn\_r





# Decreased understory leaf turnover (FATES\_LEAFCTURN\_USTORY\_SZ)

control-jfn-ustory-leaf-turn\_pft3



test-jfn-ustory-leaf-turn\_pft3

