

CESM Land Model Working Group

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LMWG Co-Chair

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LMWG priority areas

Ecosystems



Food



Water

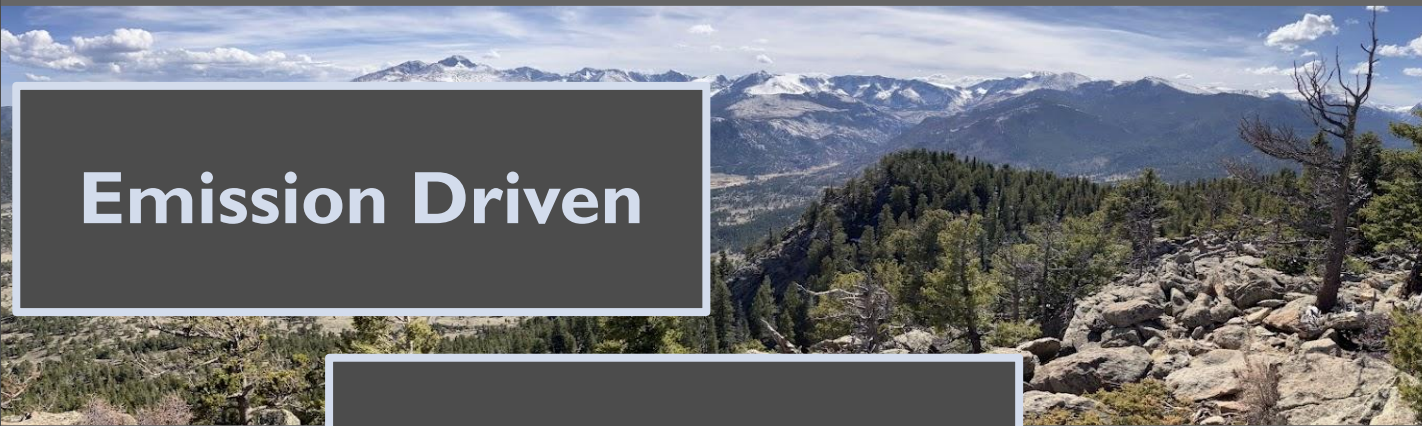


Predictability



Selected CESM3 capabilities

Ecosystems



Emission Driven

Predictability



Food



Interactive Fire

Interactive Land Ice

Water



Parameter uncertainty

LMWG: Progress towards CESM3

Merged since June 2024

New Dust scheme

Matrix-CN & PPE branch merge

Fire model updates

Crop Calendar

FATES LUH2v2

Urban Air conditioning & datasets

PLUMBER2 capabilities

MEGAN updates

MOSART improvements

Removing negative runoff

Snow Thermal Conductivity

History file improvement (time metadata)

Documentation Infrastructure

CTSM5.3 datasets (CLM6.0 Physics options)

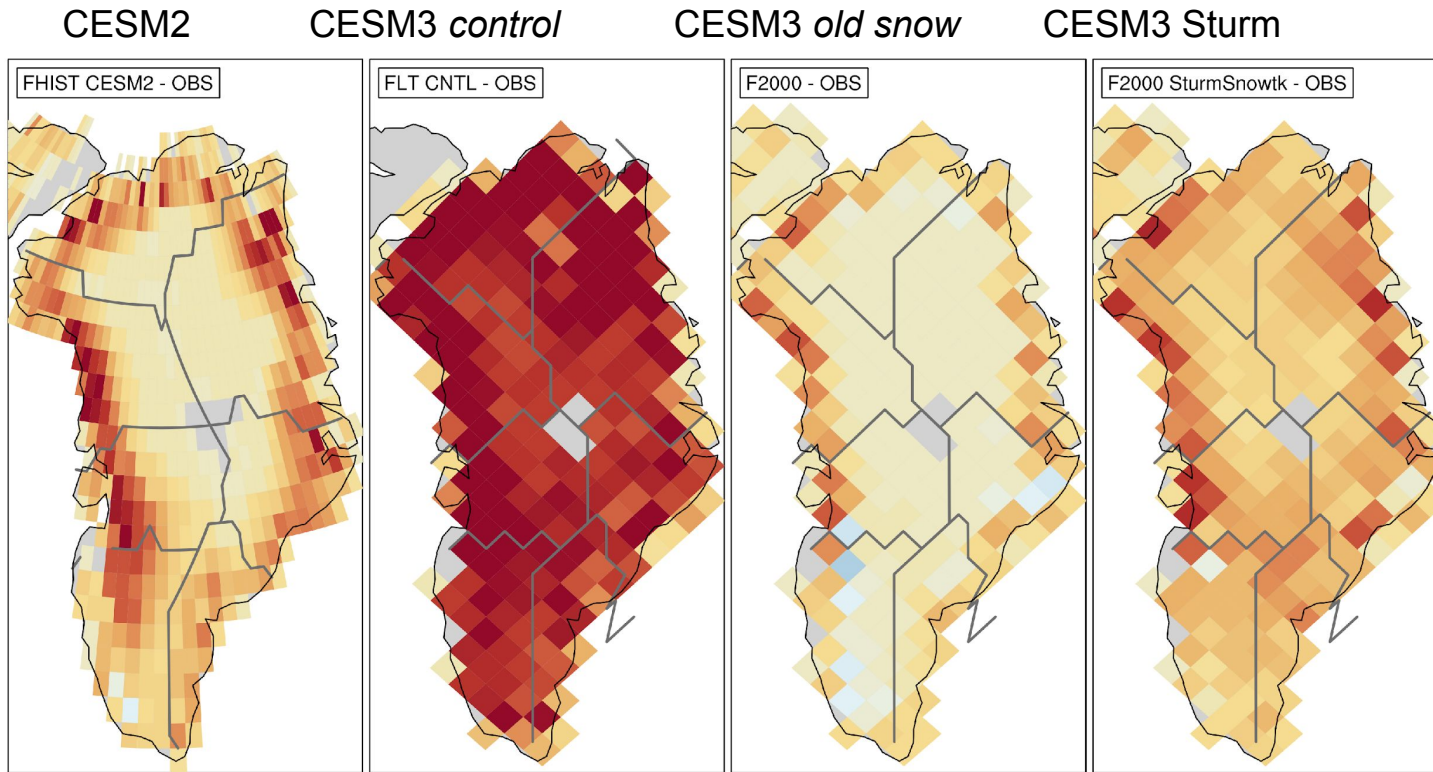
CTSM5.4 datasets from CMIP7 (functionally tested)

Huge thank you: Mat D , Adrianna F, Erik K, Ryan K, Greg L, Sam L, Keith O, Sam R, Teagan K, Charlie K, Peter L, Fang L, Danny L, Jim E, Bill S, Marianna V, many more



Greenland Ice Melt & Labrador Sea Freeze

Greenland Melt Bias



SNOW+ICE MELT (mm/yr)



https://github.com/NCAR/cesm_dev/discussions



Figure: Adam Herrington Photo: New York Times

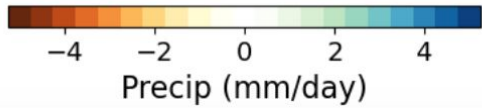
Tropical precipitation biases

FHIST (beta04) – GPCP

BHIST 1979-2012 (121) – GPCP

B1850 (121) – GPCP

B1850 (122) – GPCP



https://github.com/NCAR/cesm_dev/discussions

Land Diagnostics Framework



CUPiD:

CESM Unified Postprocessing & Diagnostics



NCAR / ADF

CAM Diagnostics



[Case Home](#) [Plots](#) [Links](#) [About](#) [Contact](#)

Test Case: b.e30_alpha06b.B1850C_LTso.ne30_t232_wgx3.143 - years: 30 - 40

Baseline Case: ctsm53019_f09_BNF_hist - years: 1850 - 1860

LatLon - GPP

[Back to LatLon](#) [Back to Plot Types](#)

ANN

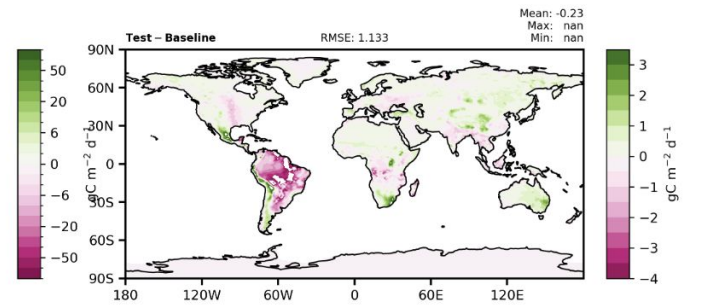
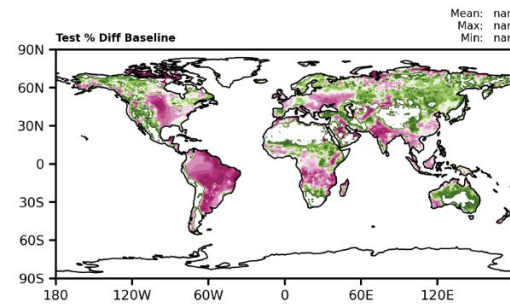
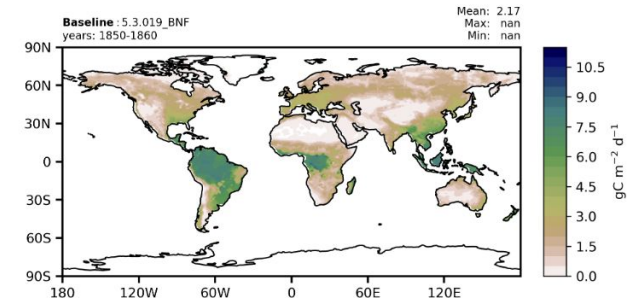
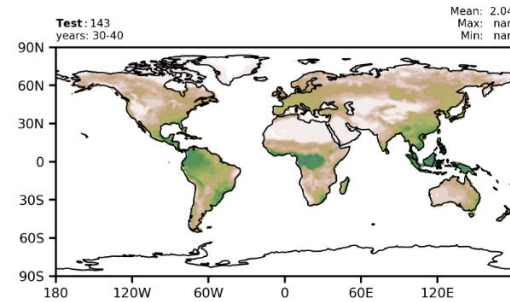
DJF

MAM

JJA

SON

GPP - ANN - LatLon



CLM6 Calibration

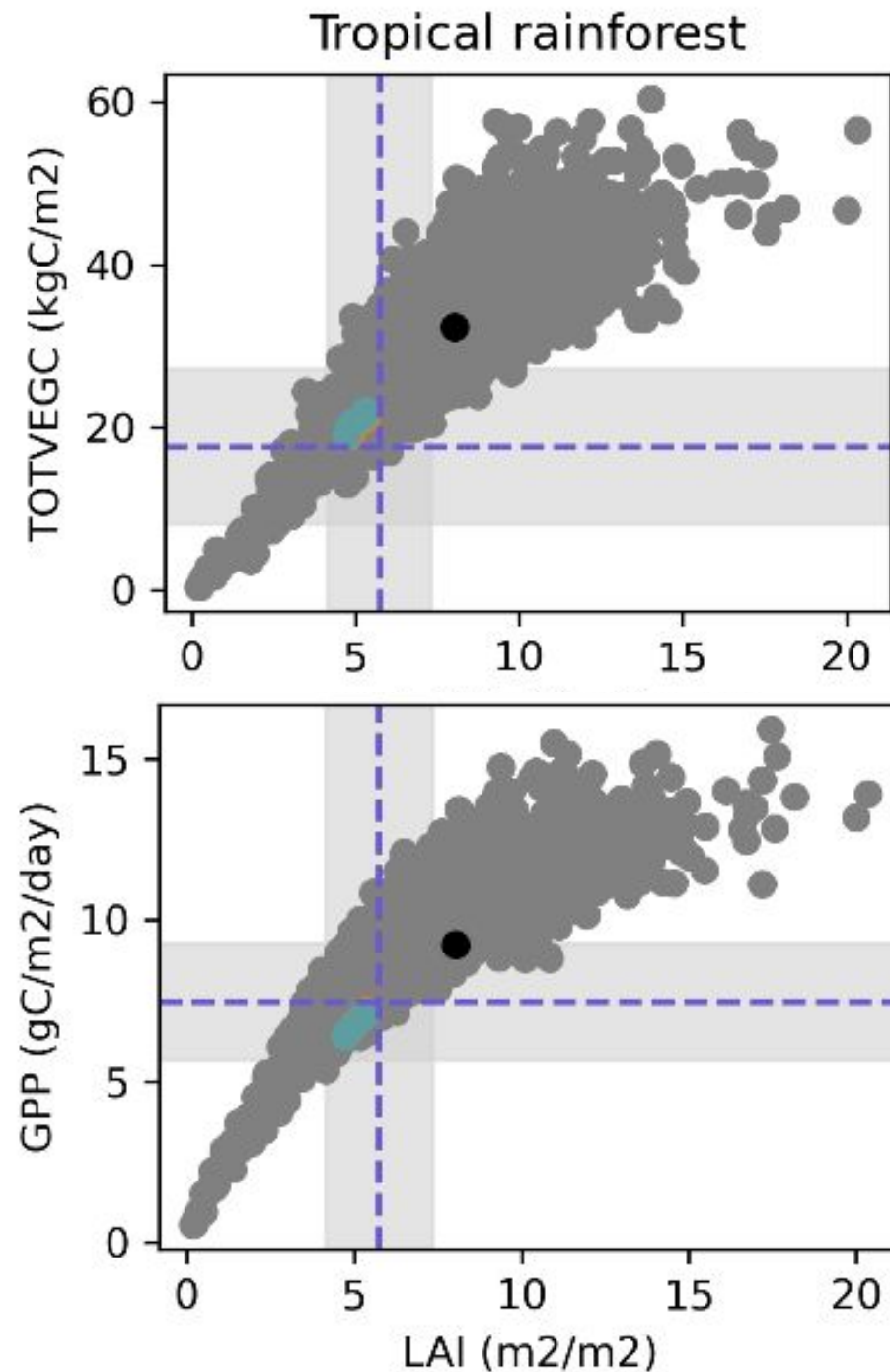
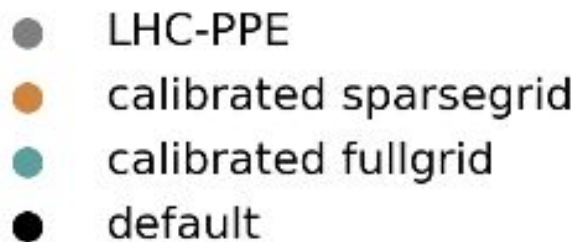
Calibrated biome mean LAI, GPP, TOTVEGC

Ran 5 tests: historical, full grid, CRUJRA

LMWG_dev

• [#101 baseline](#)

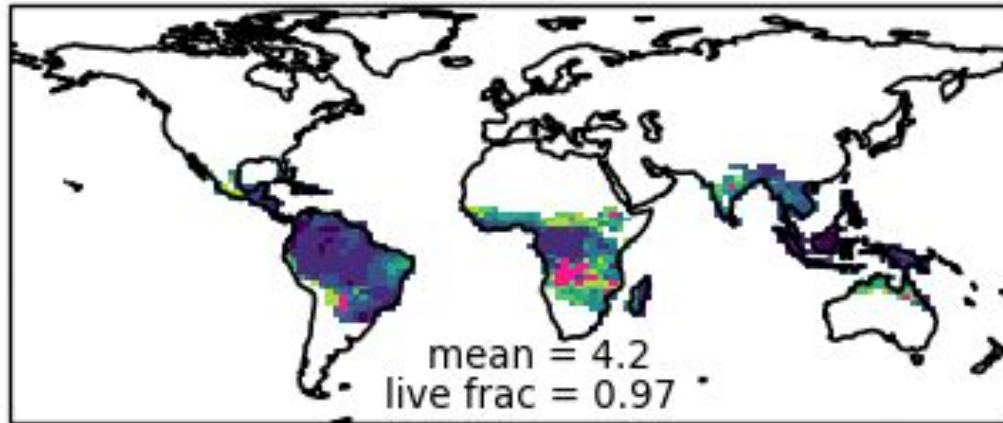
• [#103-107 ILAMB](#)



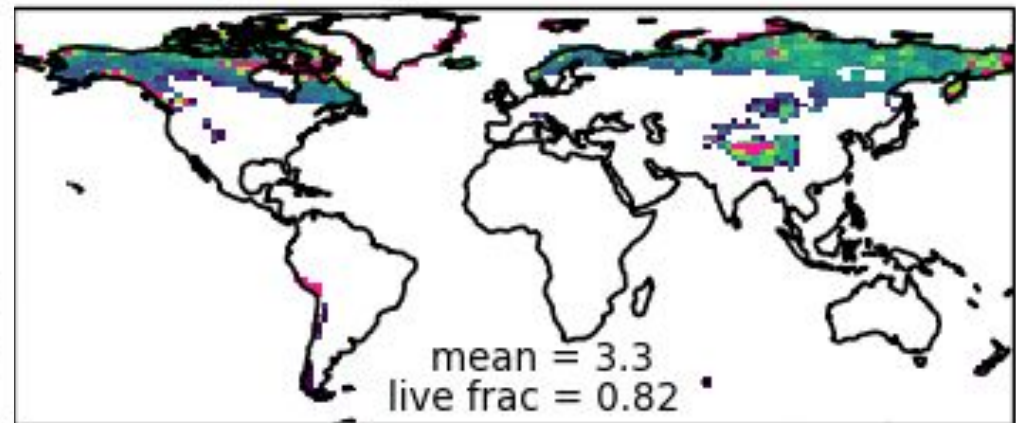
CLM6 Calibration Max LAI

**PPE
Baseline
[#101]**

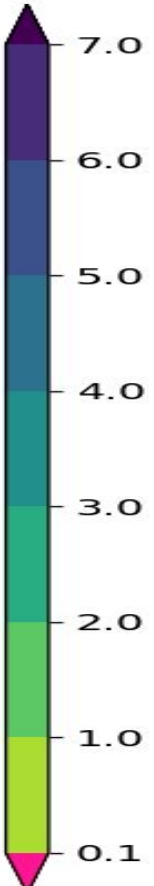
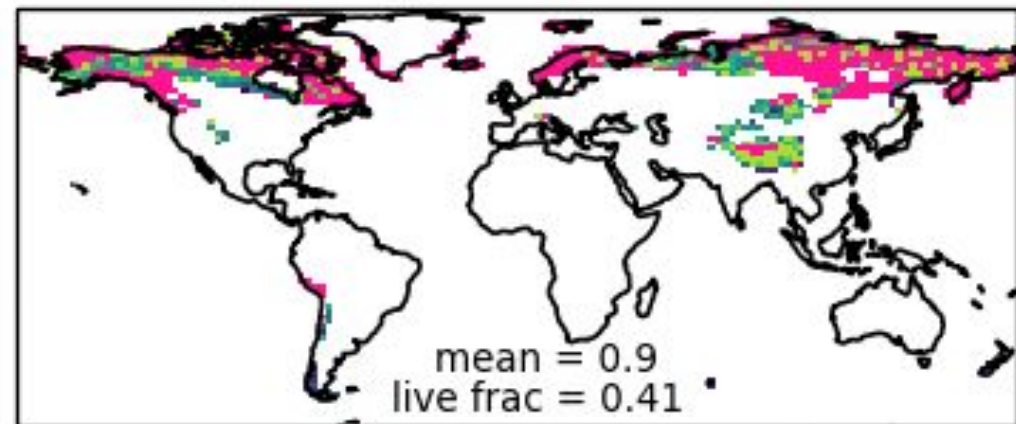
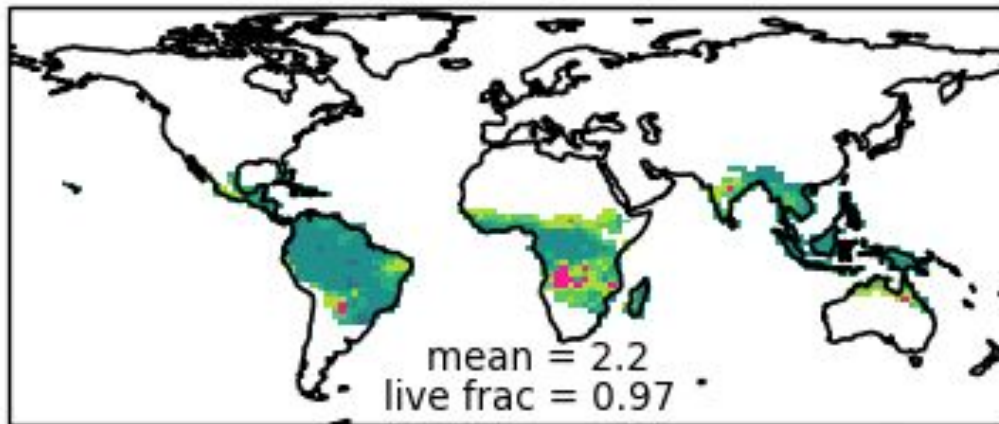
broadleaf_evergreen_tropical_tree



c3_arctic_grass

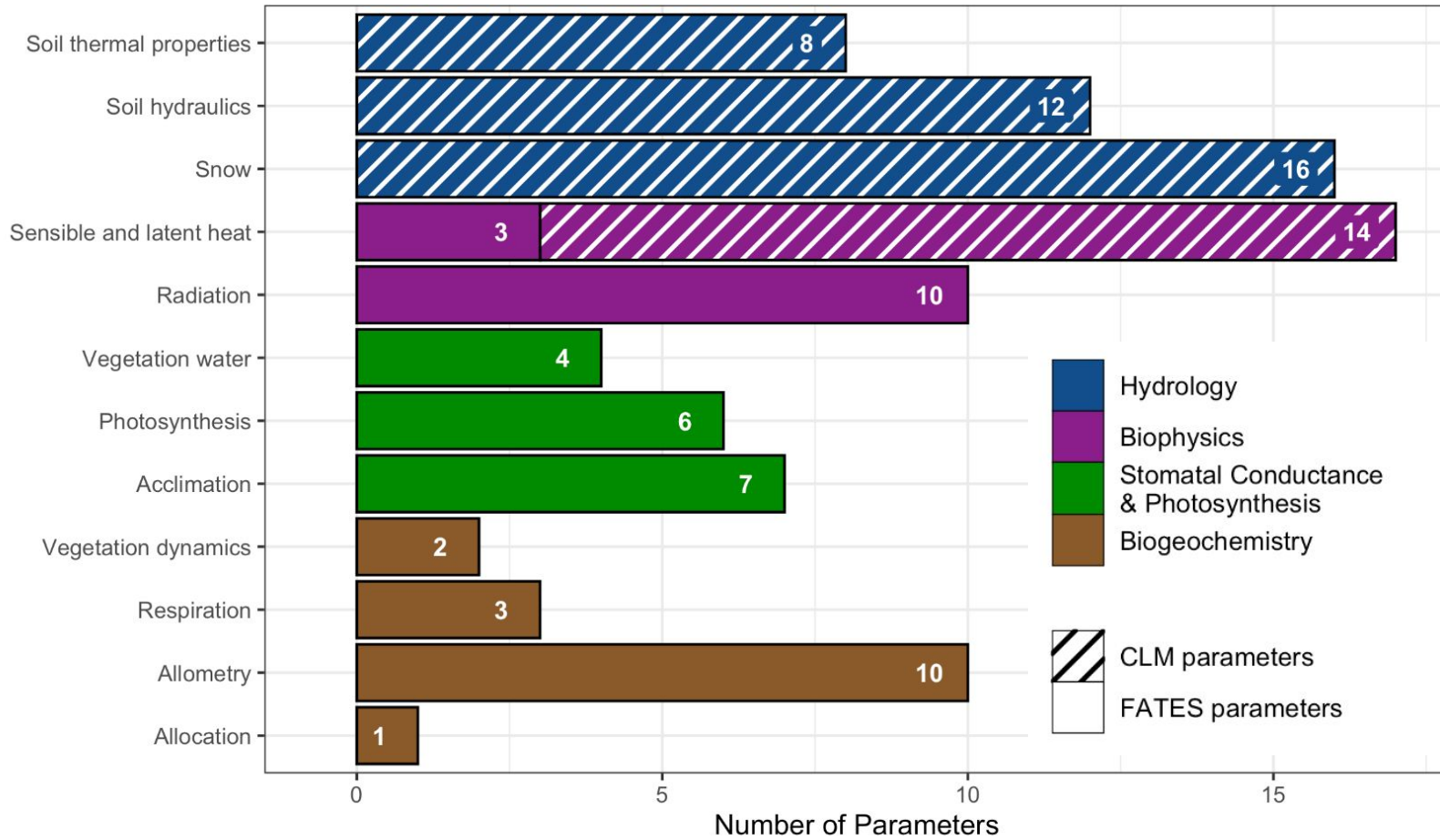


**PPE
Test
[#103]**

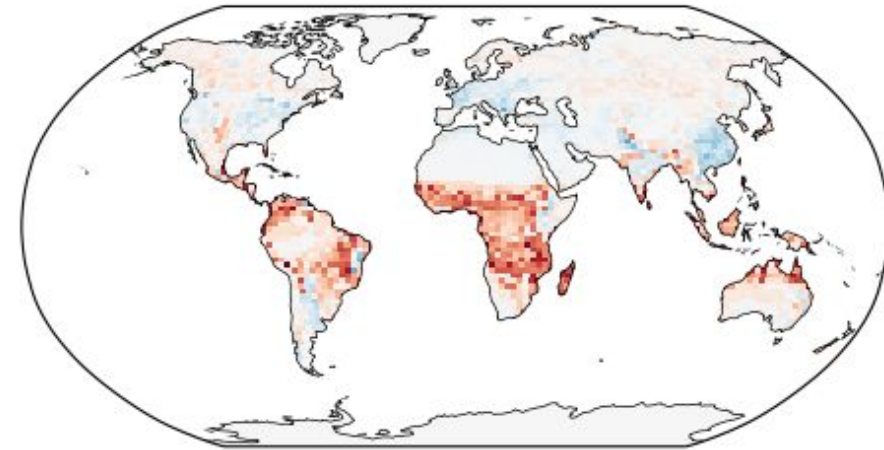


FATES - SP Calibration

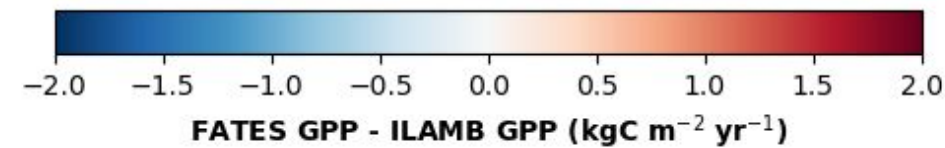
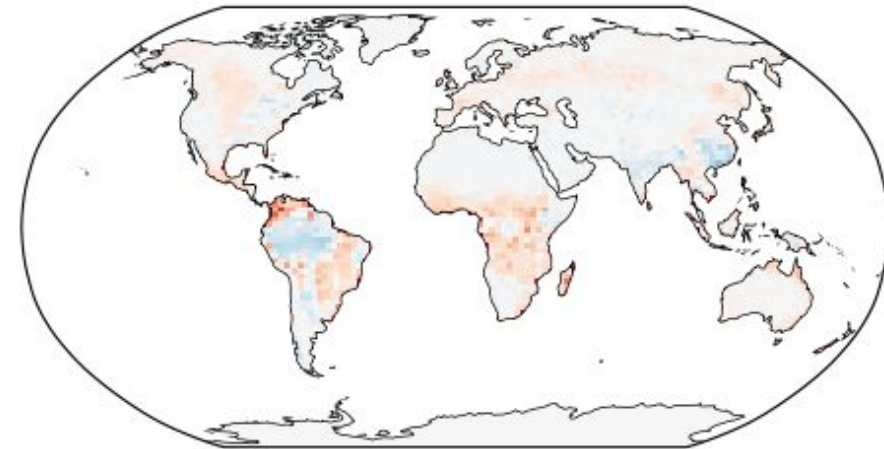
FATES and CLM Parameters



Old GPP Difference



Updated GPP Difference

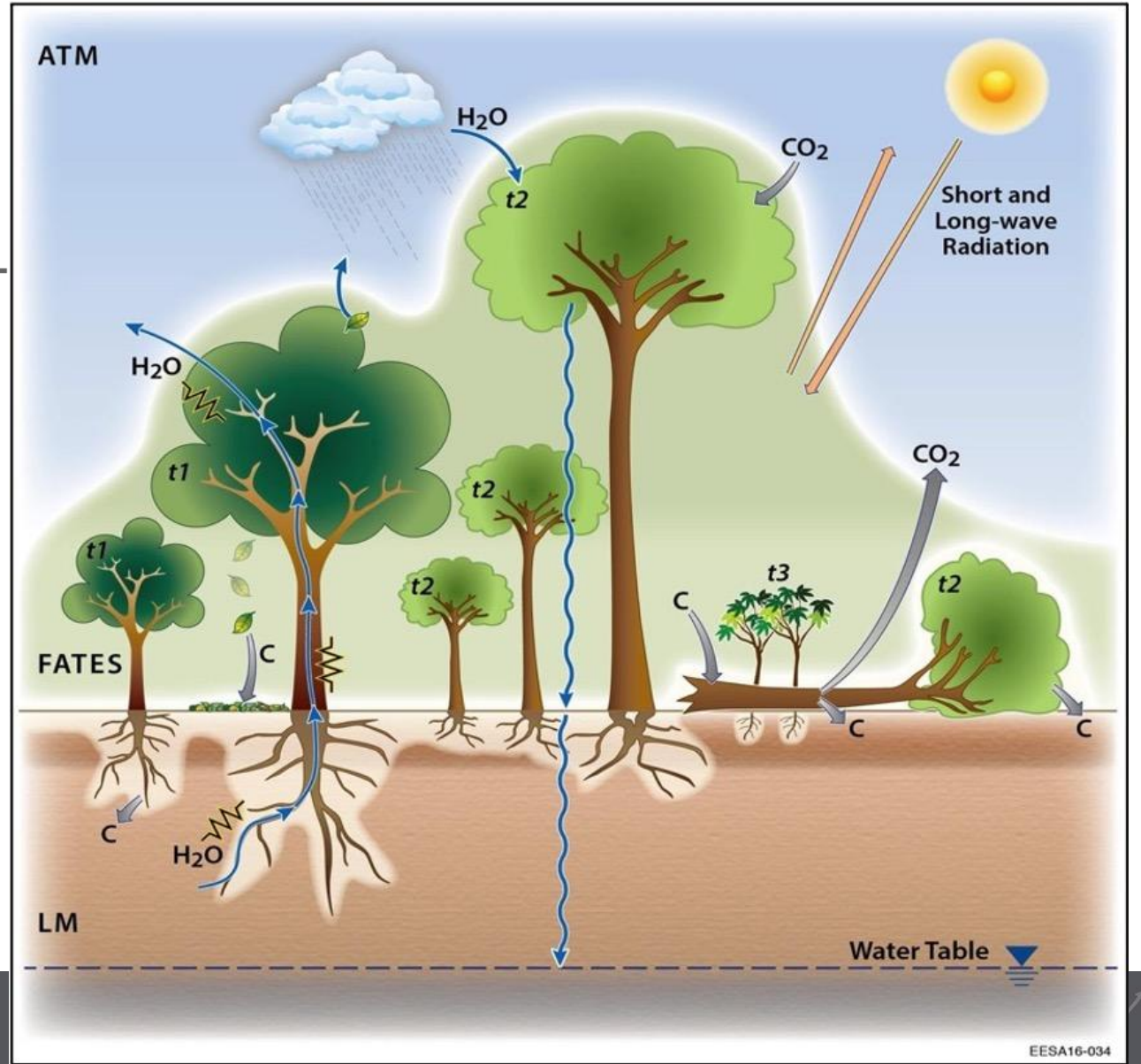
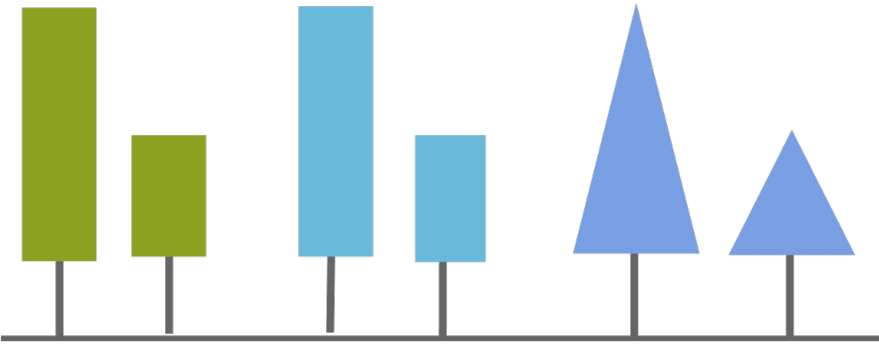


Check out website!

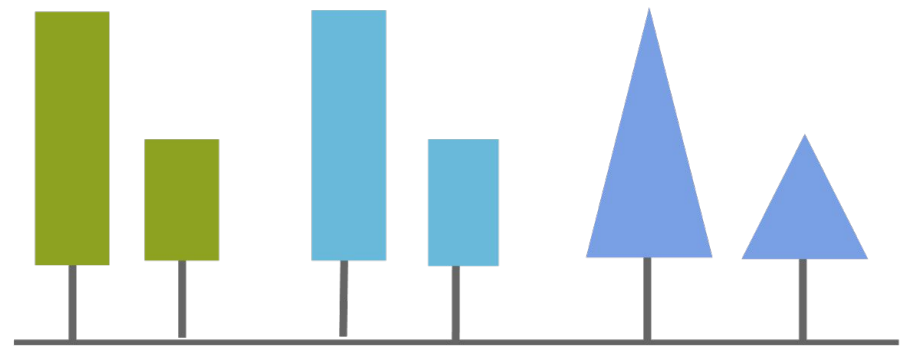
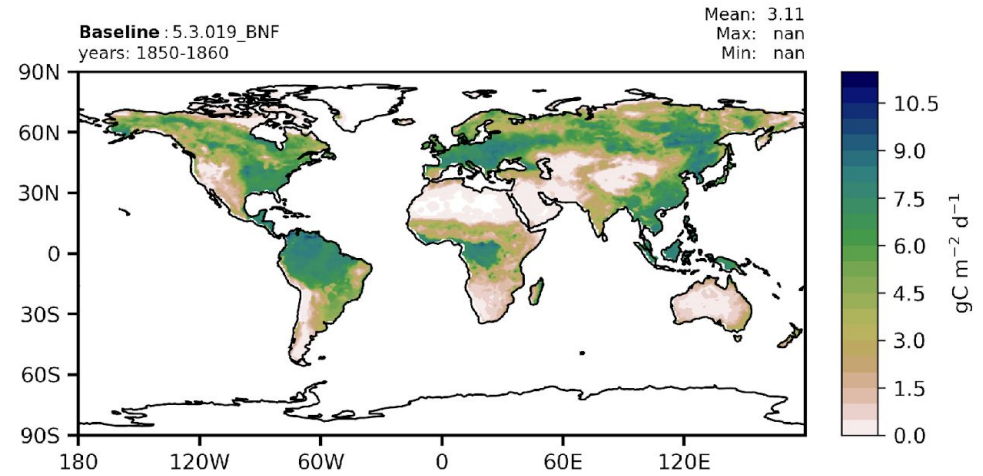
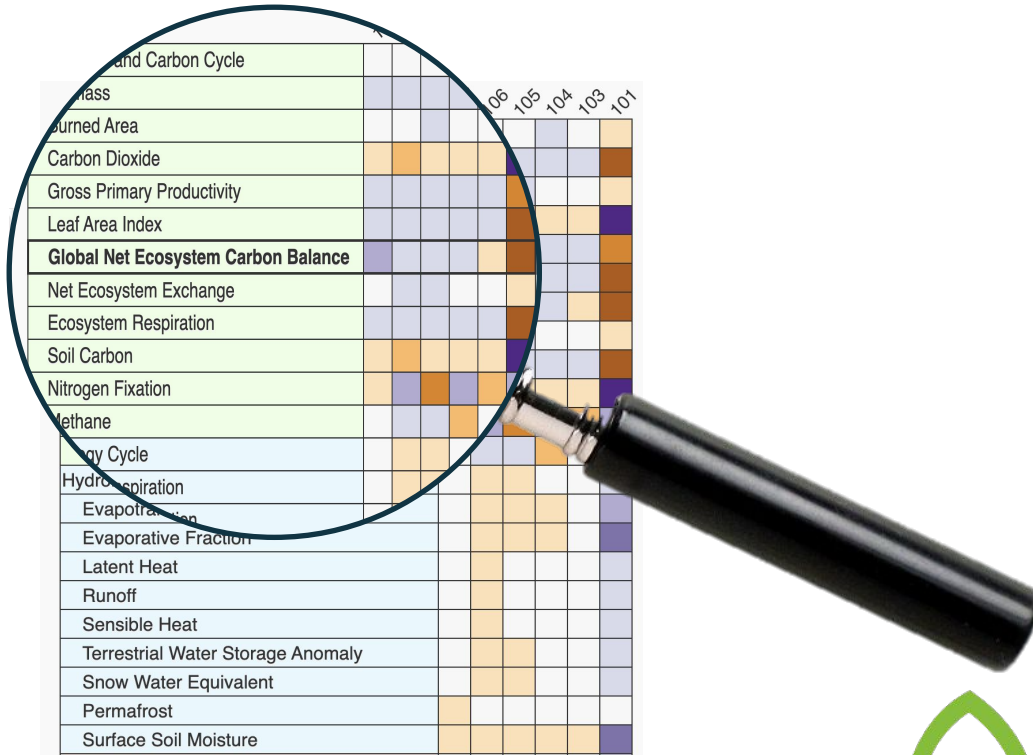


Adrianna F, Linnia H, & More

LMWG Priorities beyond CLM6



Final Thoughts



Discussion

