NCAR | NATIONAL CENTER FOR ATMOSPHERIC RESEARCH

Land Model Working Group

Here we value respectful dialogue, please...

Offer Constructive Feedback

Consider New Ideas

Share The Air

NCAR UCAR

Show Appreciation

Acknowledge Teamwork

Encourage Innovation

www.cgd.ucar.edu/diversity

Will Wieder & Rosie Fisher

LMWG co-chairs

June 13, 2023

- LWMG Wins
- Research questions, priorities, & progress
- CESM3 Timeline & LWMG activities

NCAR
UCAR

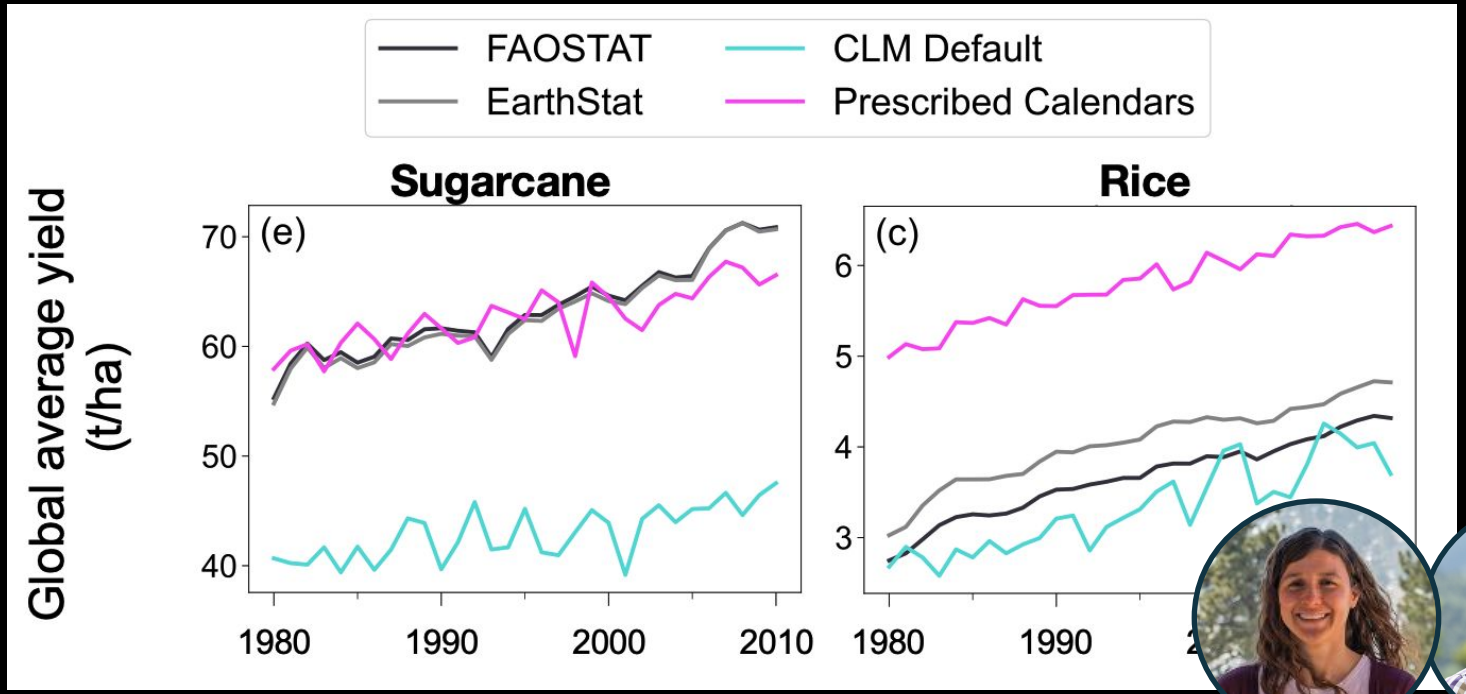
LWMG Wins

Food

Water

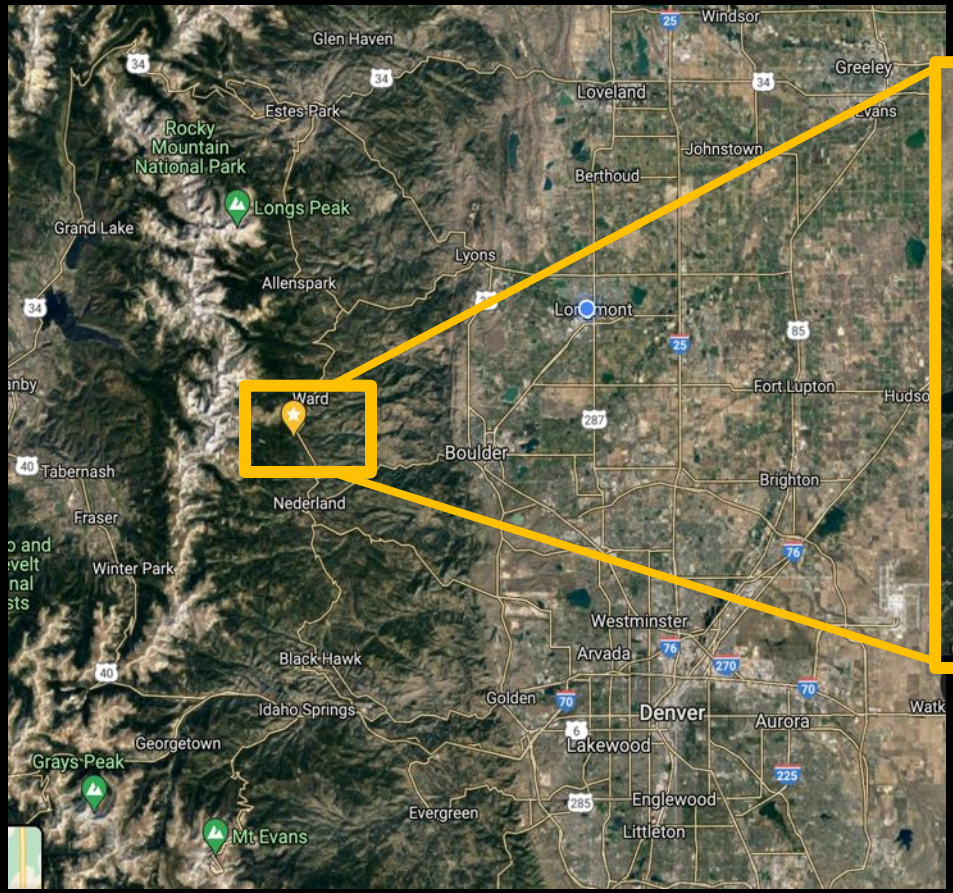
Carbon

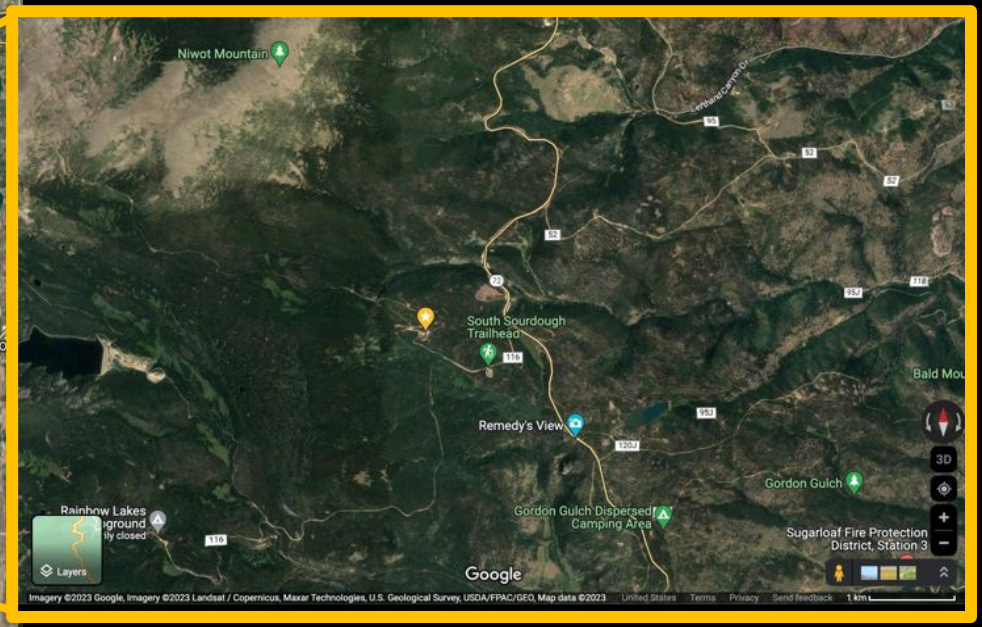
Crop growing seasons
+ Tillage & Residue Removal



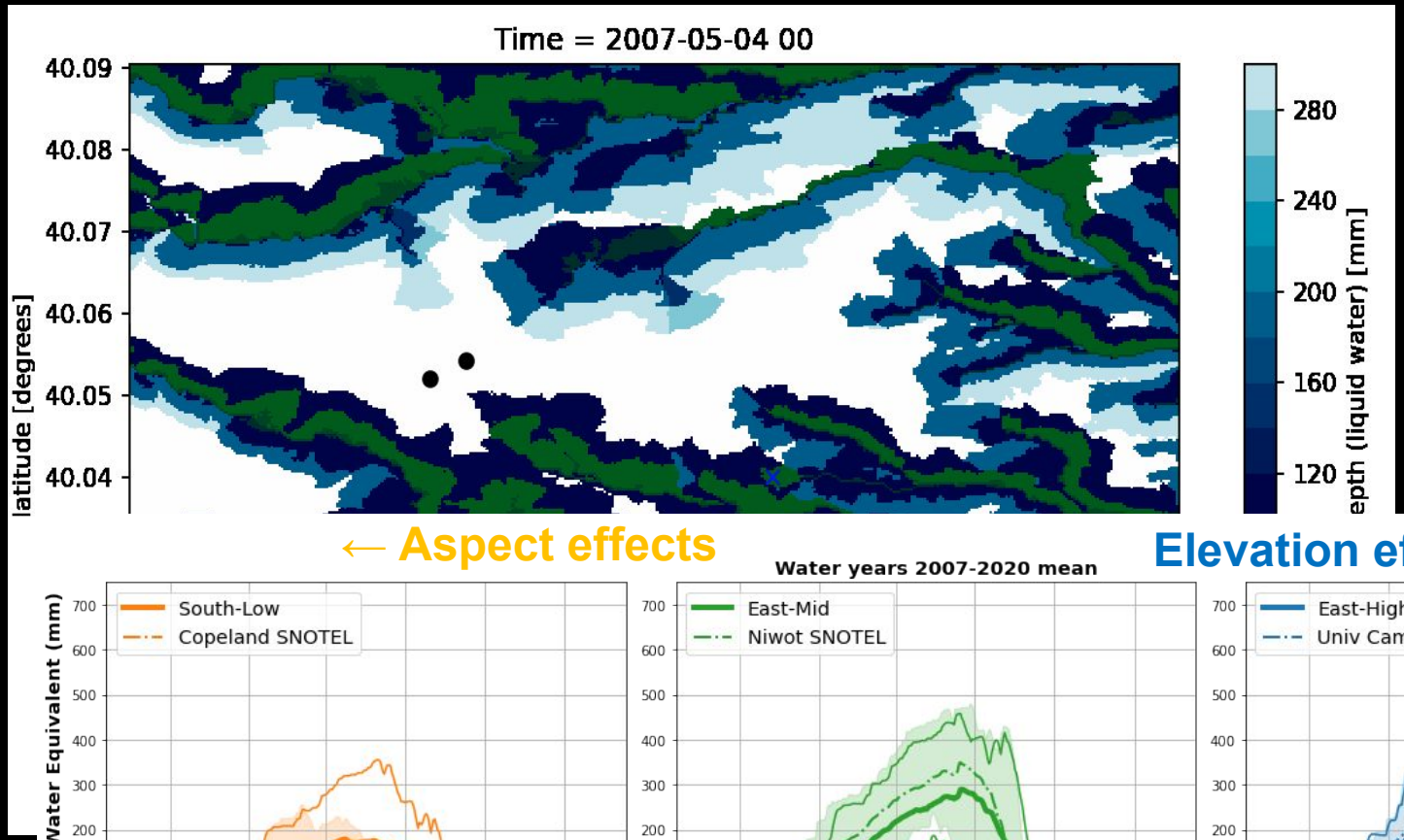
More realistic growing seasons improve some crops; others need rethinking.

Considerations of scale





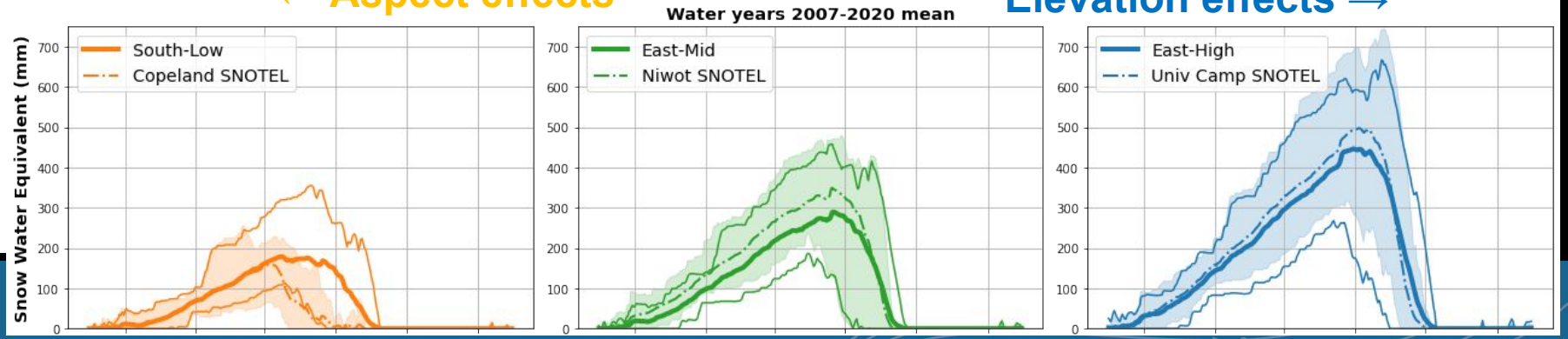
Snowpack evolution in hillslope model forced with tower data



O Sourdough Trailhead
O US-NR1 flux tower
X Niwot SNOTEL
X Univ. Camp SNOTEL
O NEON flux tower
O T-Van flux tower

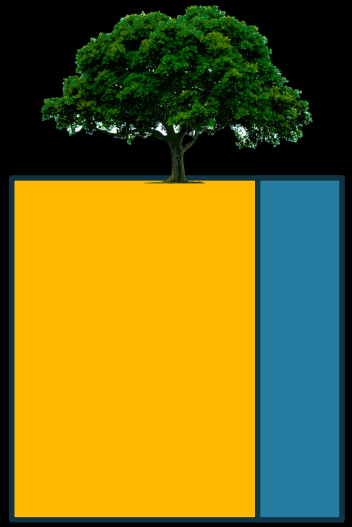
← Aspect effects

Elevation effects →

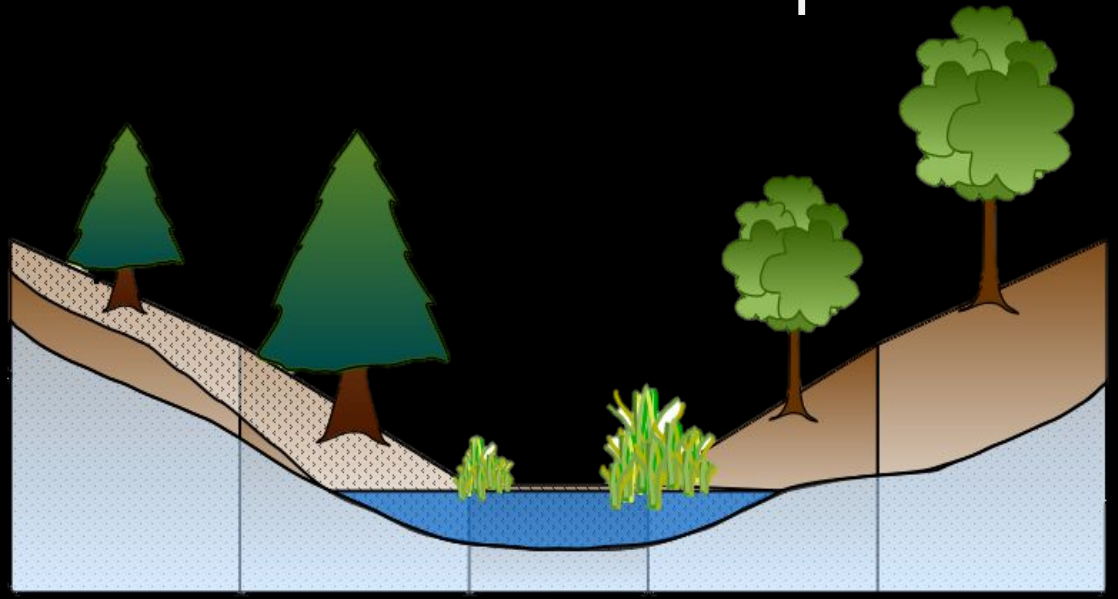


Prognostic inundated fraction

CTSM



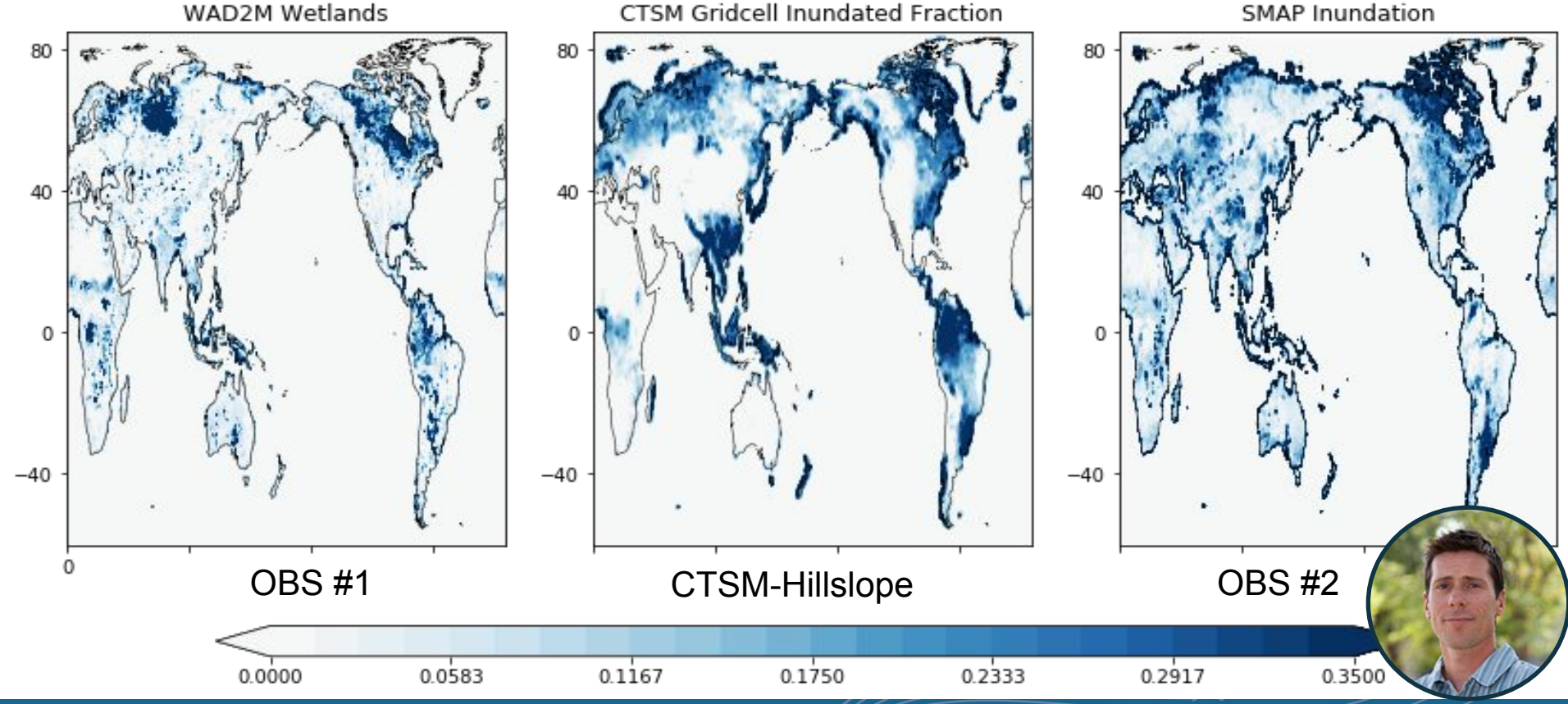
CTSM-Hillslope



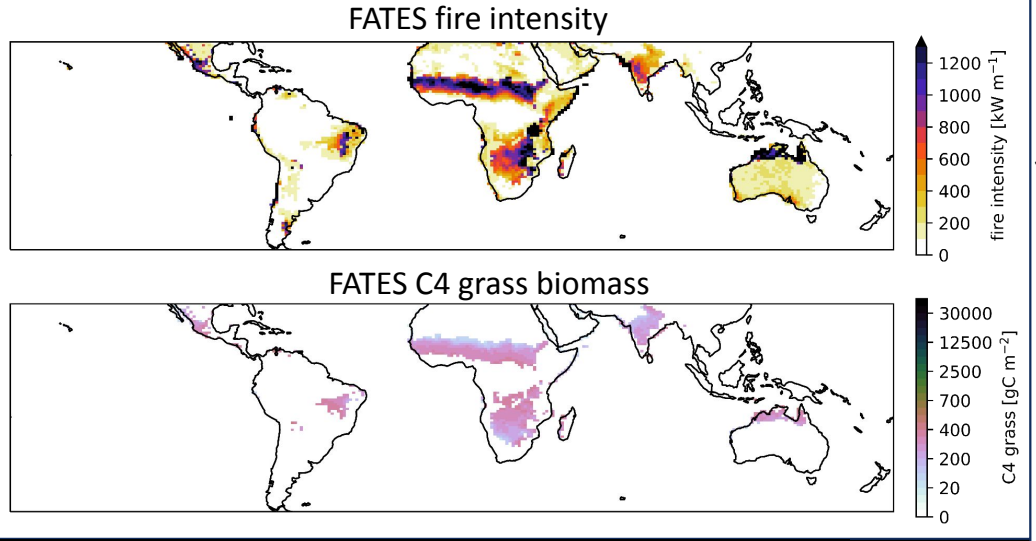
Inundated fraction = *f*(TWS)

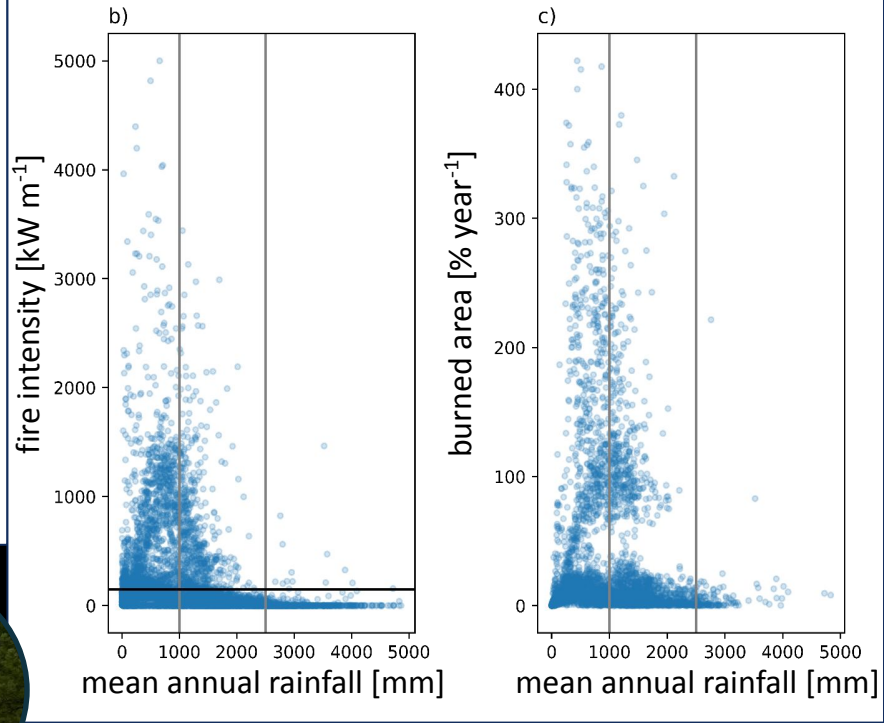
Prognostic inundated fraction

Potential to connect with methane module…?



Drier fuels create positive grass-fire feedback





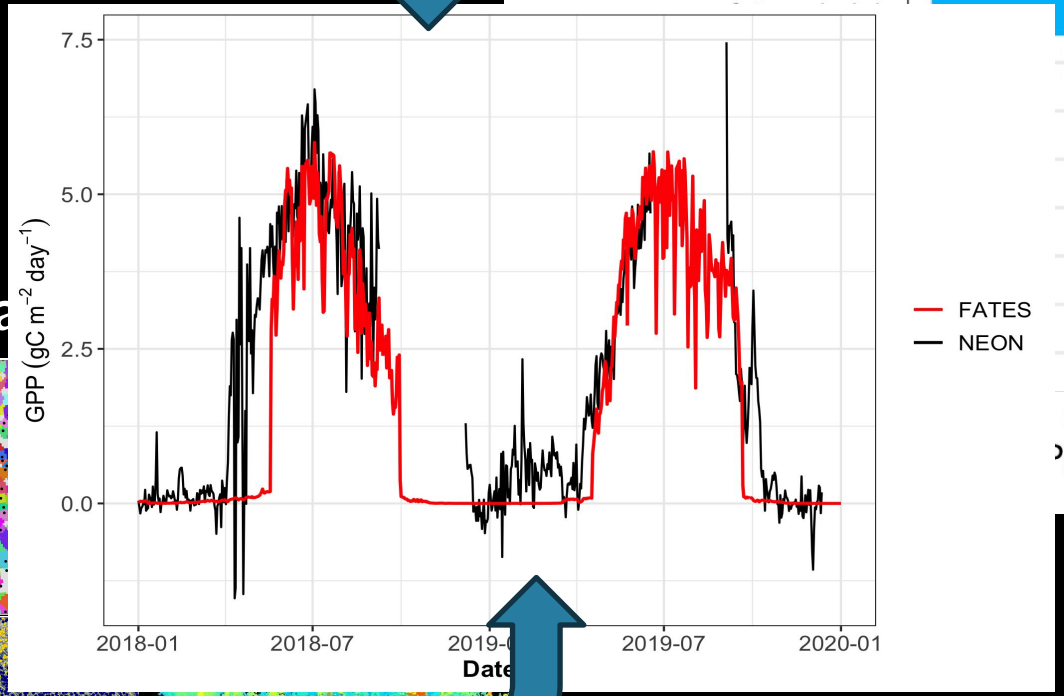
Active crown fire with feedback to fire behavior coming to FATES main

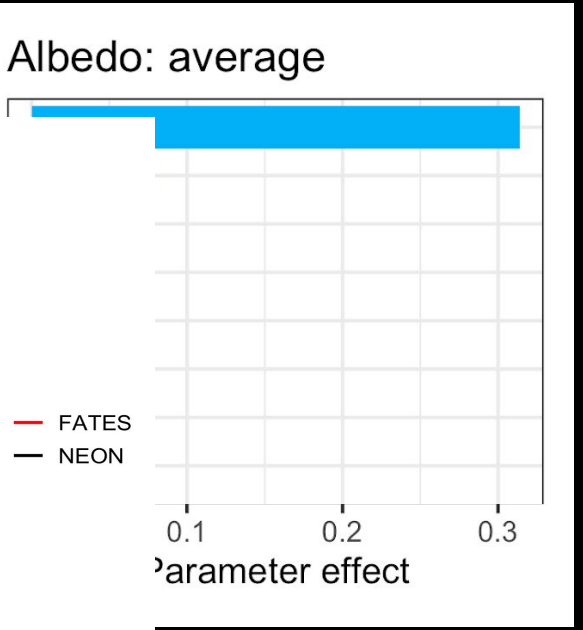
Jacquelyn Shuman, jkshuman@ucar.com

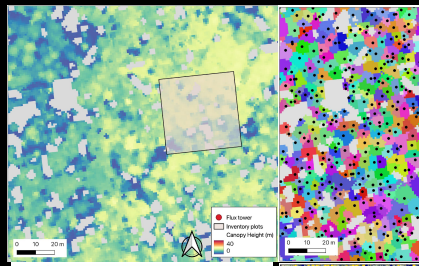
FATES Calibration

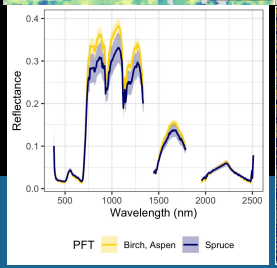
Top-Down: Global SP calibration

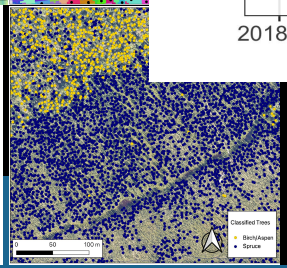
Bottom-up:
Site level calibra

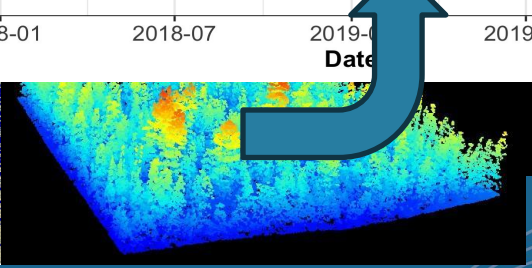






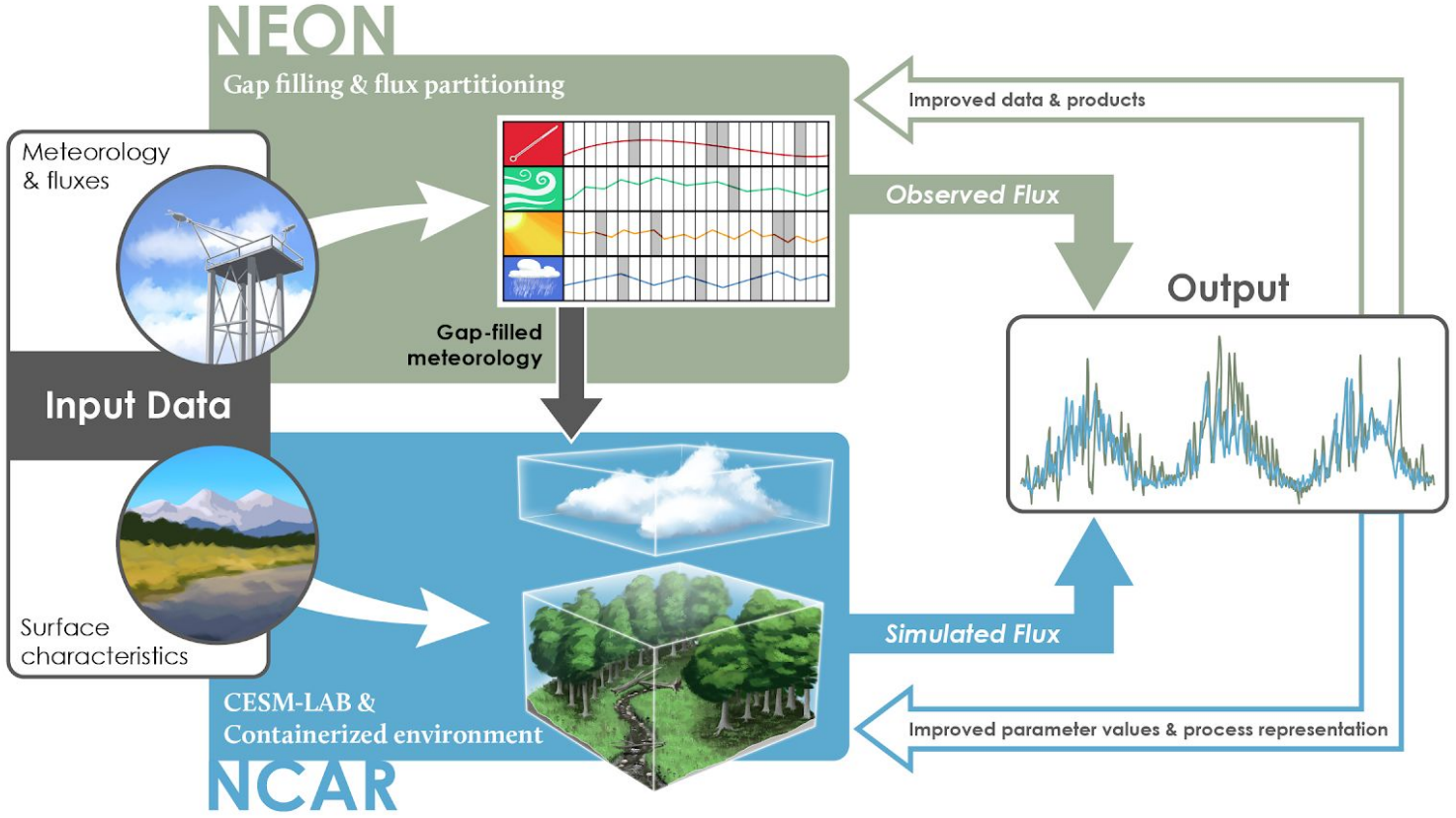






New features & capabilities

Single Point Capabilities: NEON



PRISM Precipitation: A New NEON/CTSM Data Stream

customizeCase_PRISM.ipynb | tking@ip-10-0-0-145:~

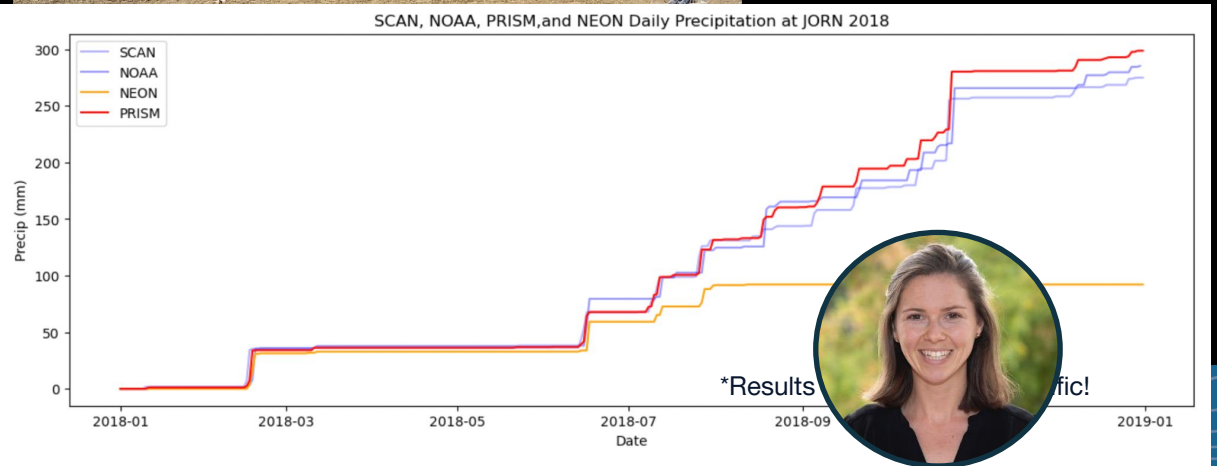
Markdown | Bash

Customize your case: PRISM precipitation

We set up a special way to run_neon with PRISM precipitation data.

This is an optional tutorial; it's a little bit more advanced, but it will help you think about how to modify the model configuration to run new sites or model experiments.

The `run_neon` script we used in the introductory tutorial 1b created and ran a base case as well as a `.transient` case. Here we'll also be adding an experimental `.PRISM.transient` case that reads in an alternative precipitation dataset from PRISM.



Include PRISM precipitation data stream #1954

Merged | ekluzek merged 46 commits into ESCOMP:master from TeaganKing:master | 2 weeks ago

Conversation 34 | Commits 46 | Checks 2 | Files changed 24

TeaganKing commented on Feb 21 • edited

Description of changes

This PR includes changes that allow PRISM precipit

Updates to `cime_config/config_component.xml` in `cime_config/usermods_dirs/NEON/defaults/user_` streams and specifies file location for PRISM data.

Using PRISM precipitation instead of NEON precipit biases).

Note:

This PR's functionality also depends on the PRISM PRECIP CDEPS PR, PRISM PRECIP ESMCI PR, and input da

ESCOMP/CDEPS on Feb 21

Include PRISM precipitation datm streams #219

Description of changes This PR includes changes that allow PRISM precipitation to be ...

ESCOMP:main ← TeaganKing:main

enhancement | CESM Only

You were mentioned and commented

ekluzek approved, you commented

SLIM and mizuRoute two new components in CESM3

Atmosphere Model:
CAM

Land Models:
CTSM or SLIM
(Simple Land Interface Model)

Ocean Models:
MOM or POP

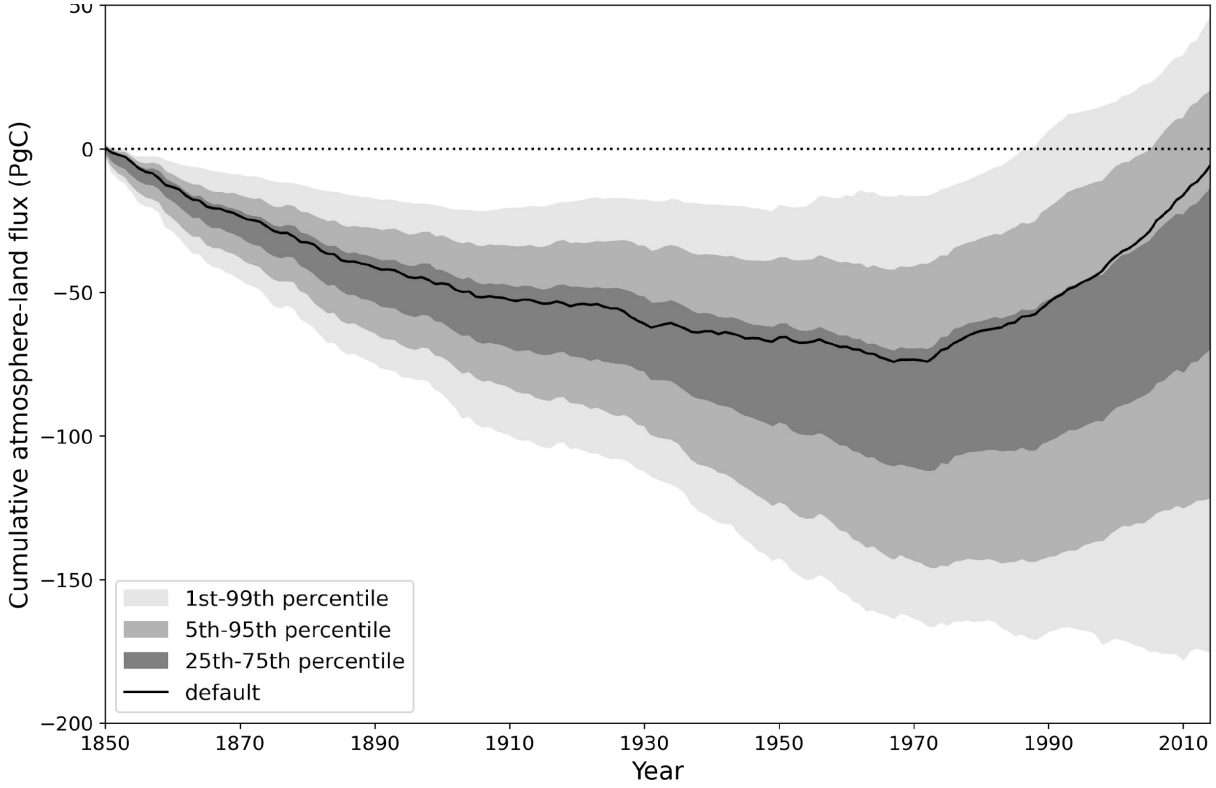
Coupler:
CMEPS

River Models:
RTM or MOSART or ***mizuRoute***
(Allows complex basins)

Sea-Ice Models:
CICE6 or CICE5

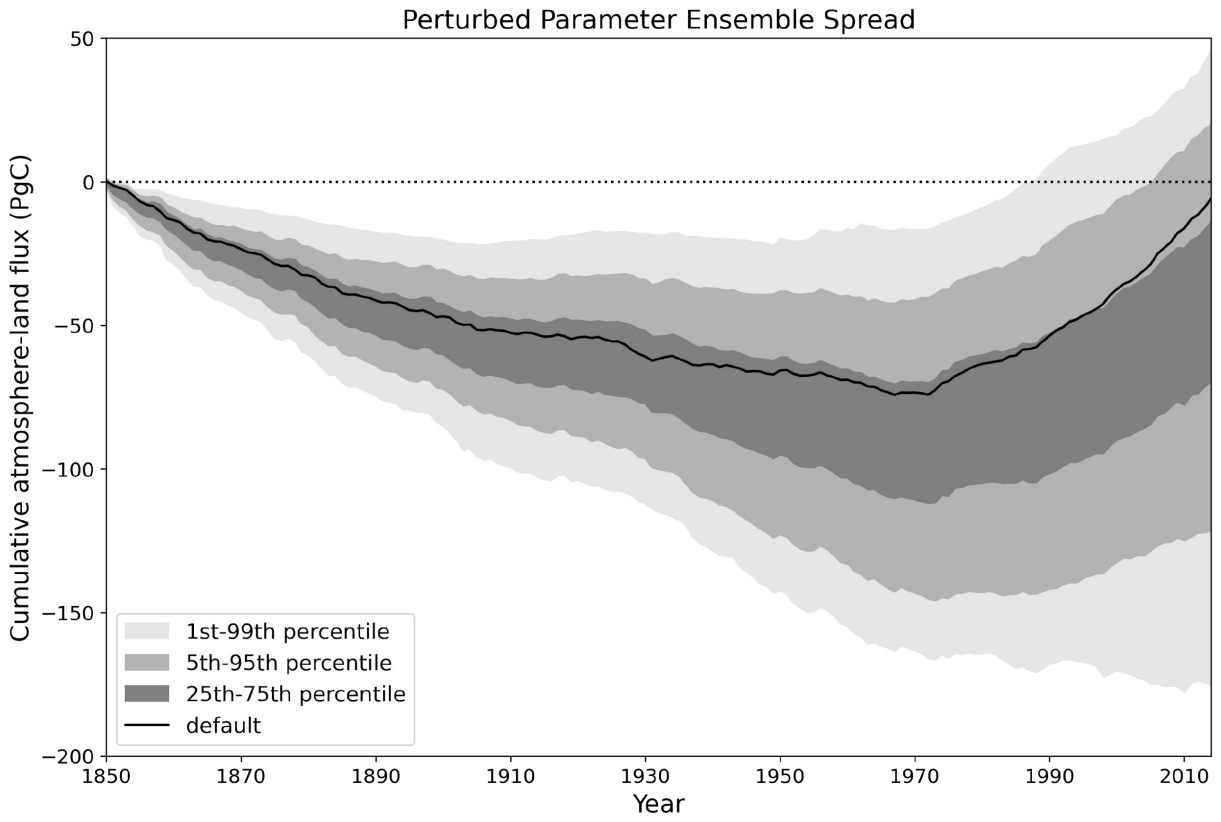
Glacier Model:
CISM

Wave Models:
WW3 or WW3DEV



~200 PgC spread!

CLM Parameter Perturbation Experiment



Parameter sampling generates **~200 PgC** spread!

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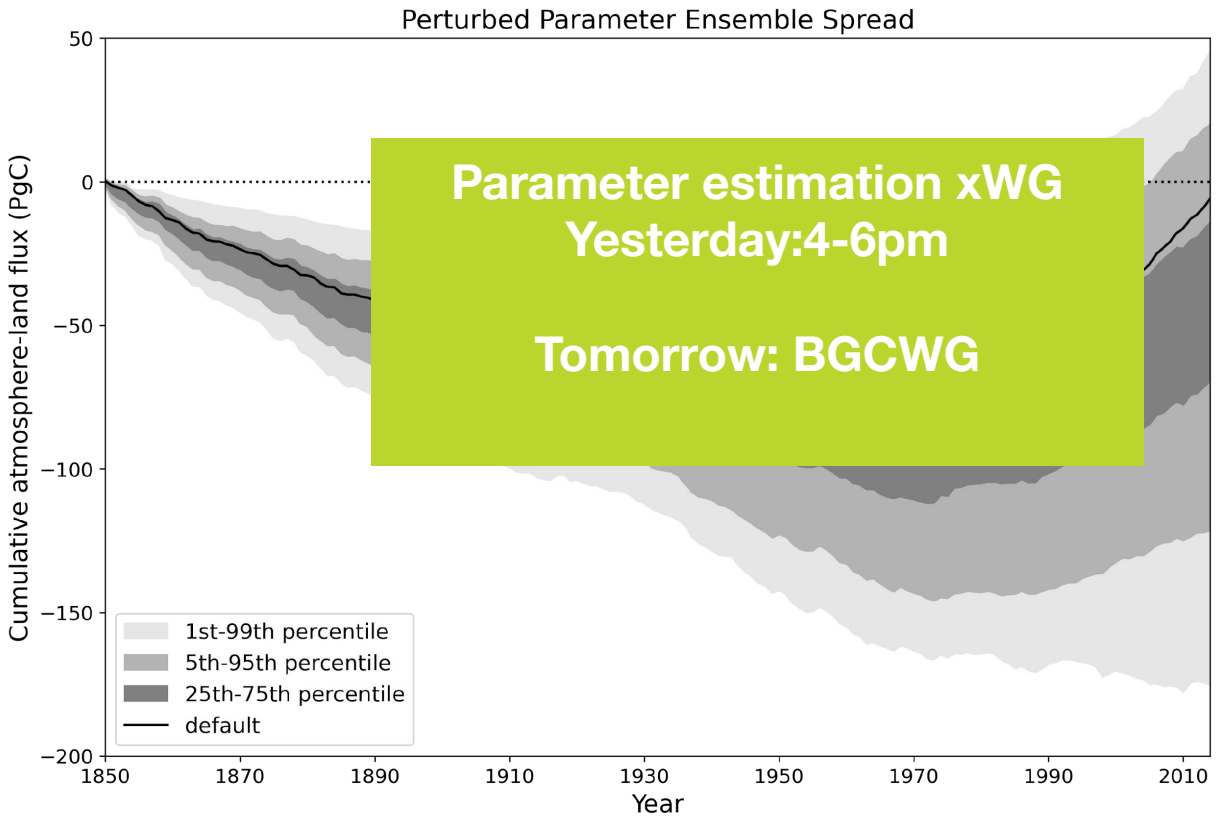
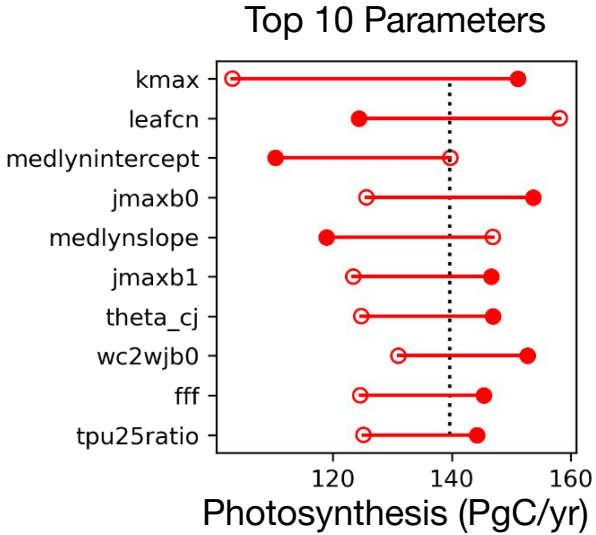
CLM Parameter Perturbation Experiment



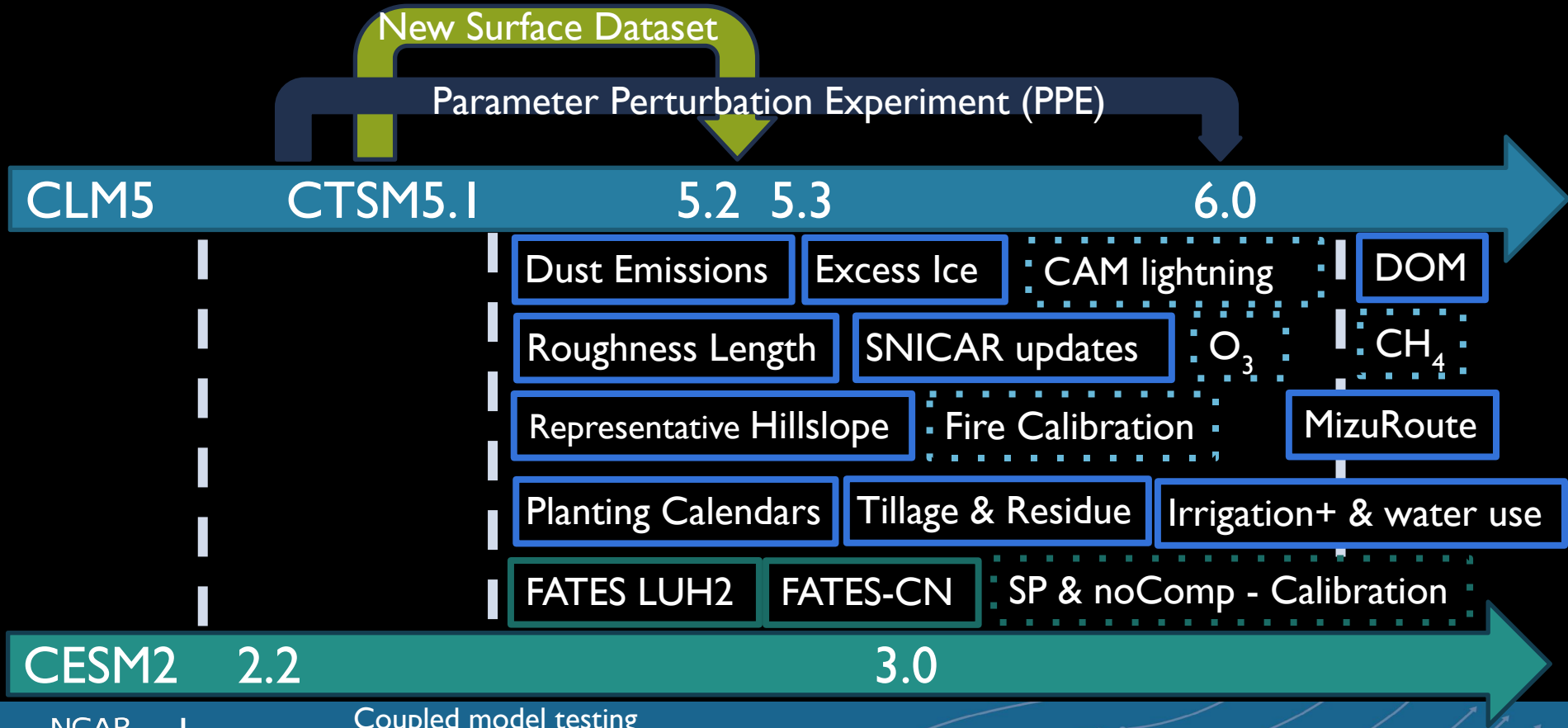
Parameter estimation xWG
Yesterday:4-6pm

Tomorrow: BGCWG



Diagnostic plots online:
https://webext.cgd.ucar.edu
/I2000/PPEn11_OAAT/

CESM-LMWG Development Timeline



Thank you!

• 10-12 minute presentations
• Provide feedback!
• Raise hands & use the mic