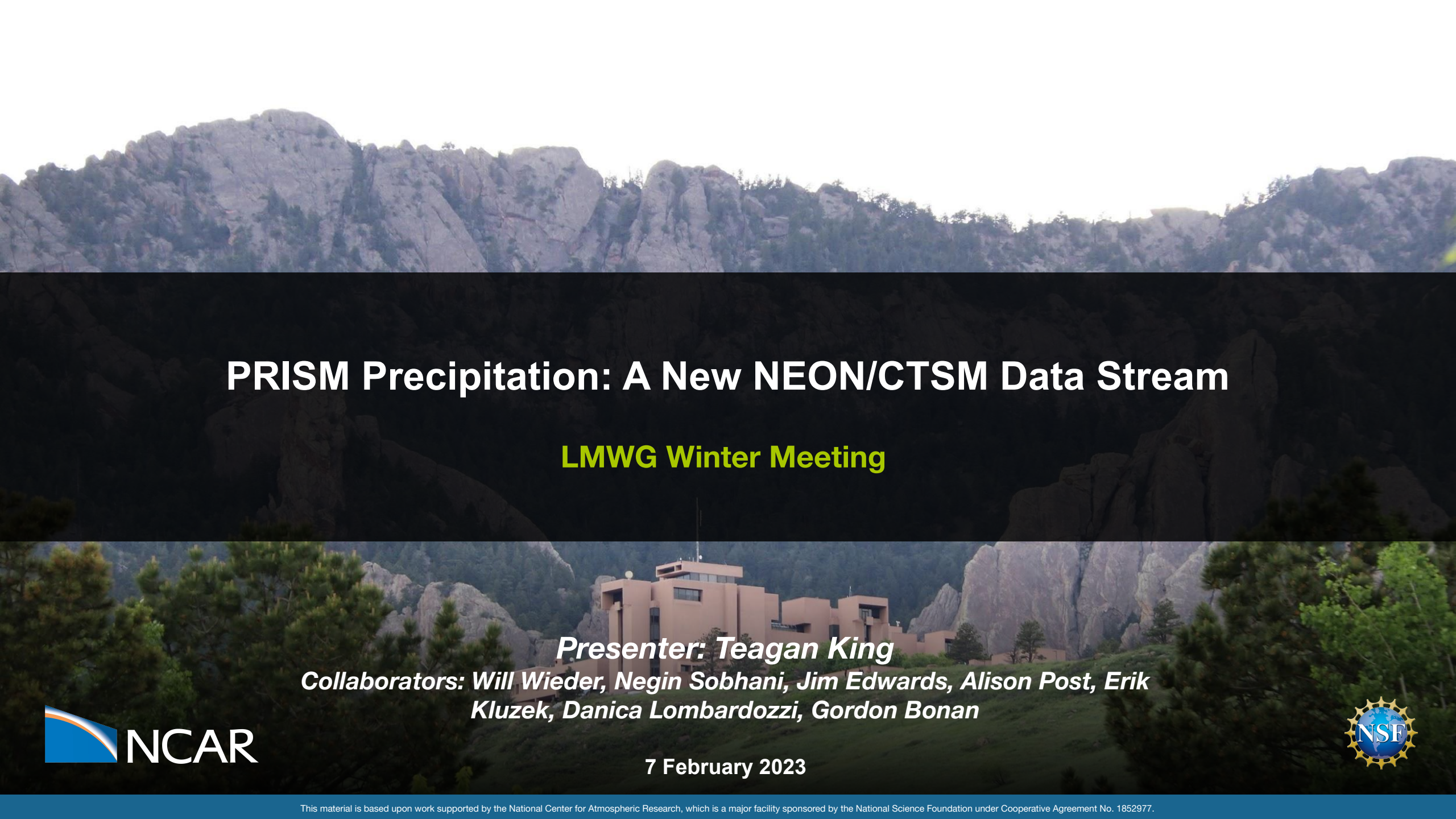

PRISM Precipitation: A New NEON/CTSM Data Stream

LMWG Winter Meeting

Presenter: Teagan King

Collaborators: Will Wieder, Negin Sobhani, Jim Edwards, Alison Post, Erik Kluzek, Danica Lombardozzi, Gordon Bonan

7 February 2023

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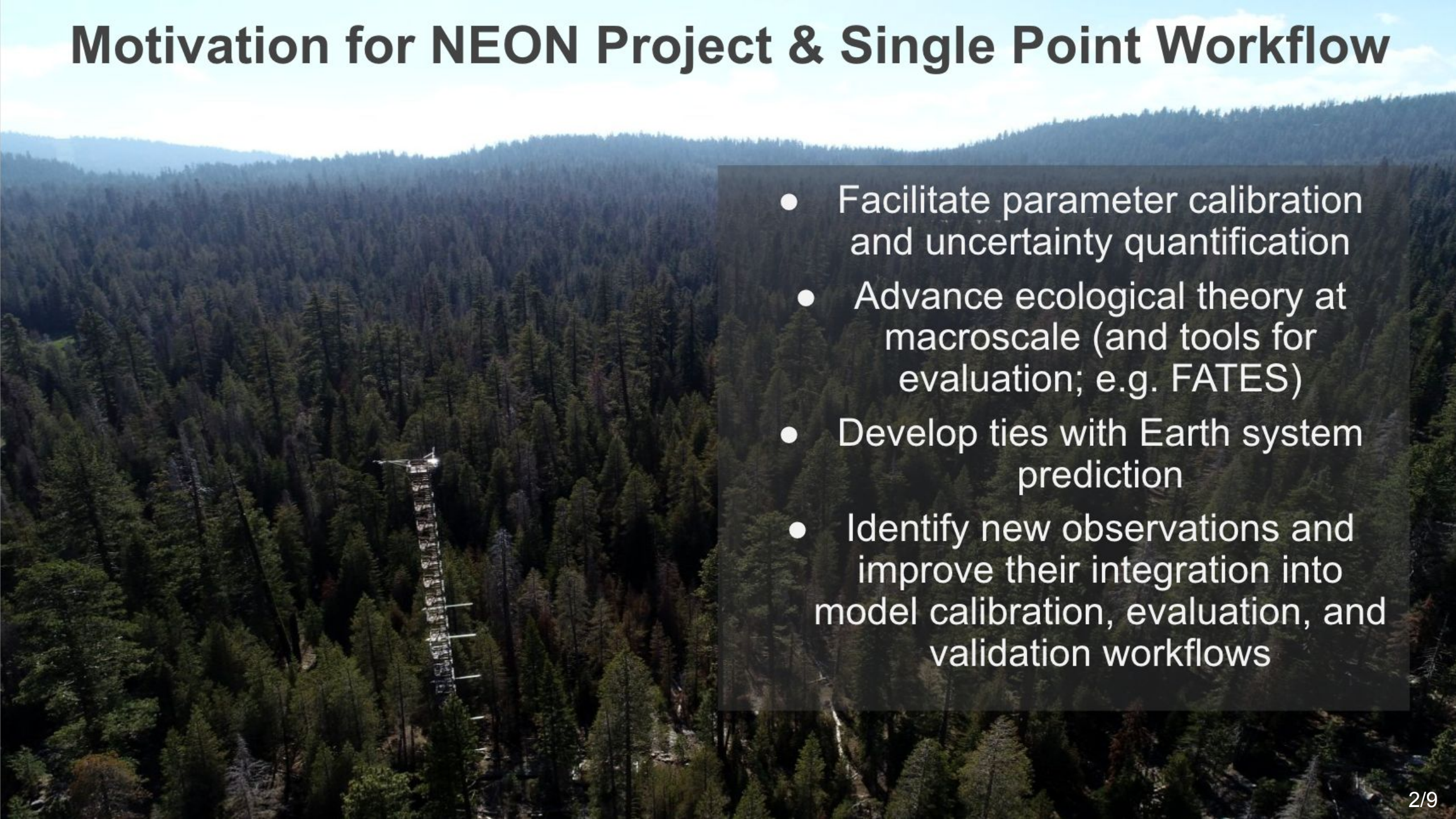
Motivation for NEON Project & Single Point Workflow

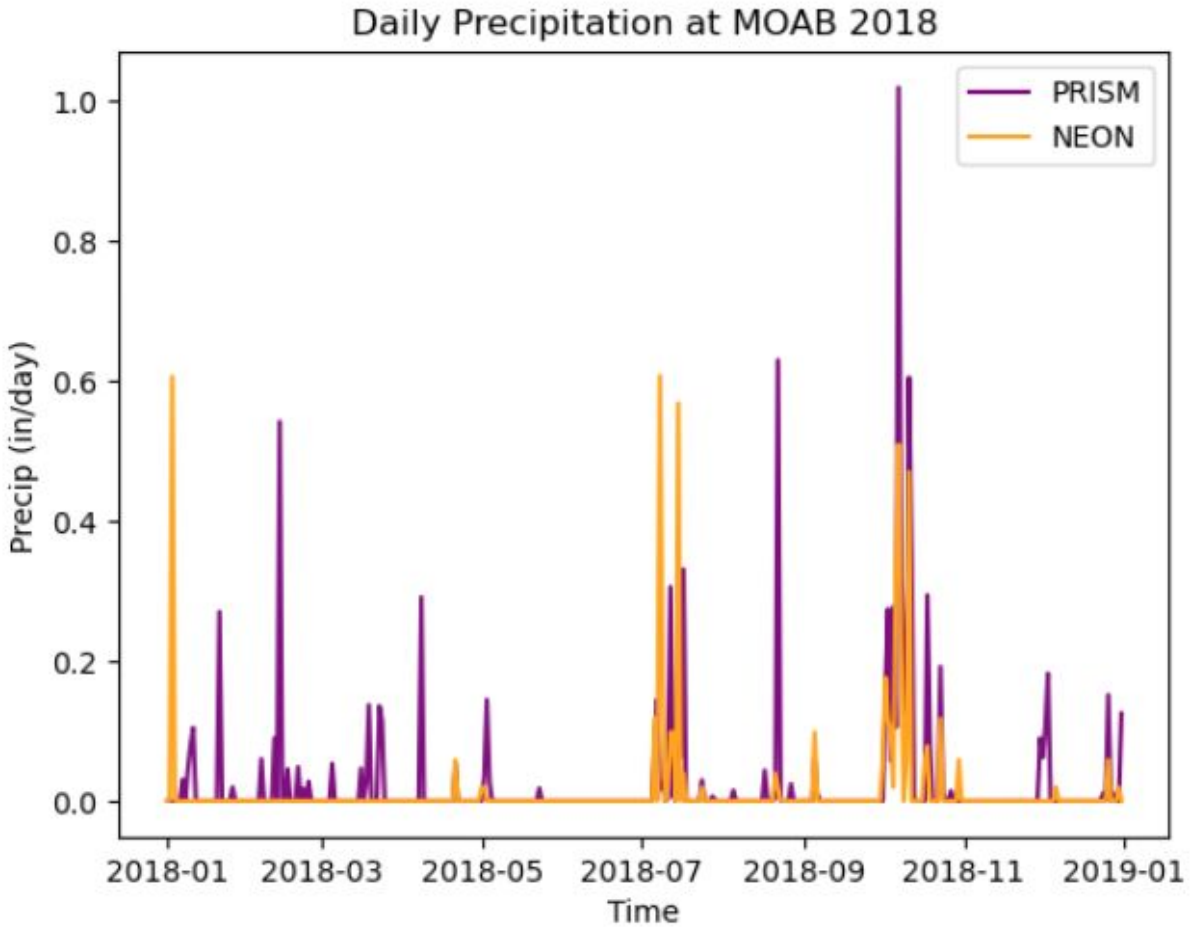


- Facilitate parameter calibration and uncertainty quantification
- Advance ecological theory at macroscale (and tools for evaluation; e.g. FATES)
- Develop ties with Earth system prediction
- Identify new observations and improve their integration into model calibration, evaluation, and validation workflows

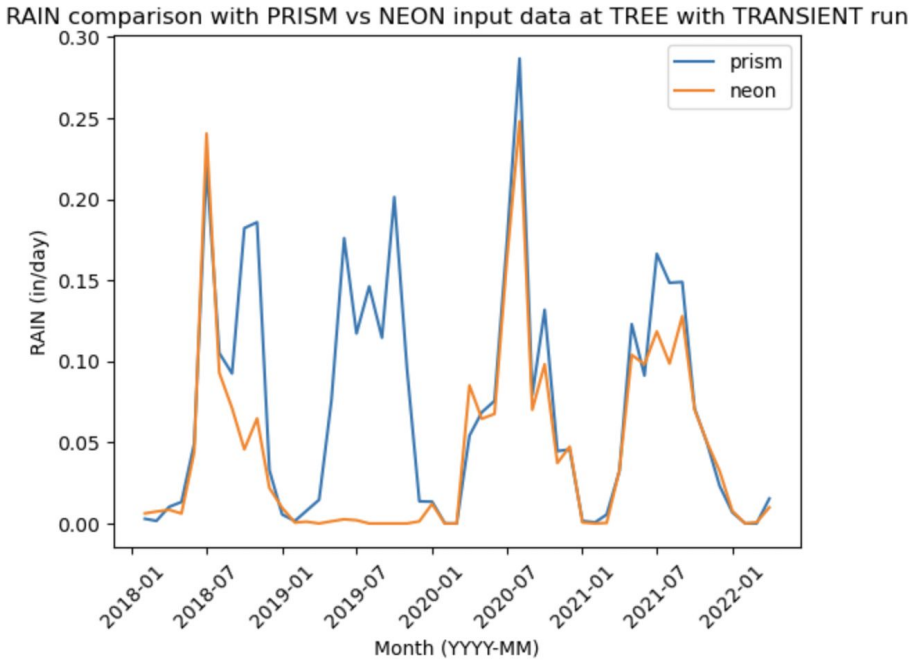
NEON Precipitation Data

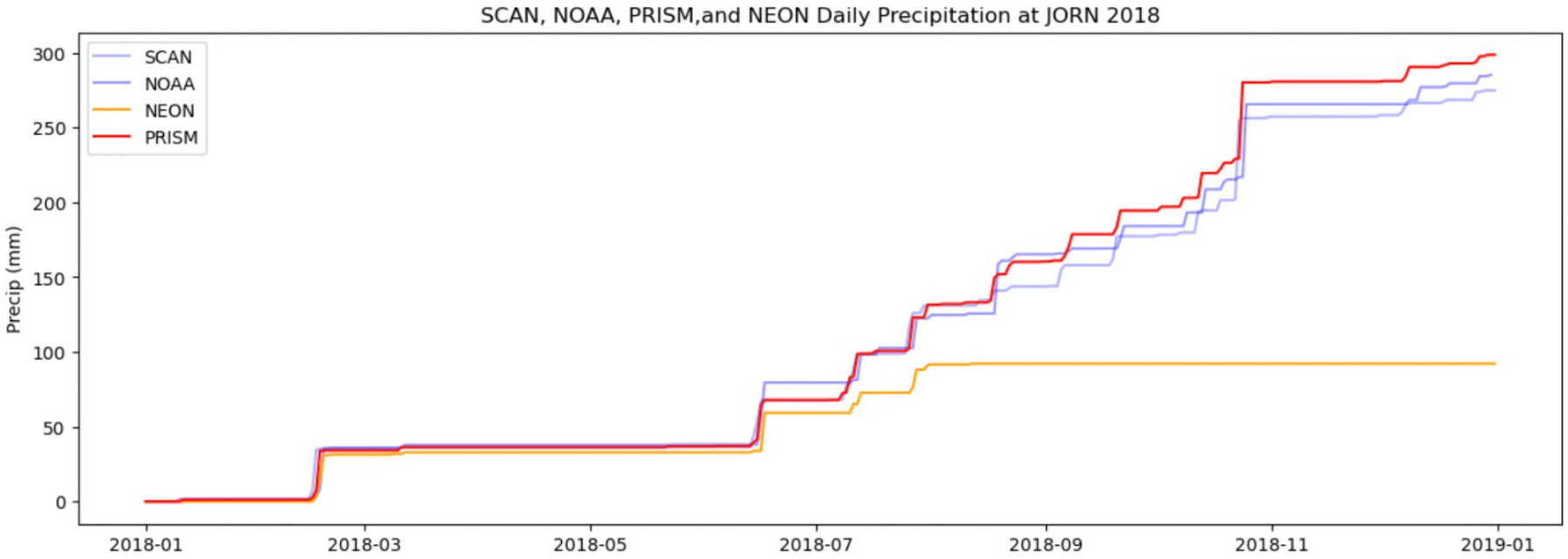
(Not a *NEON* tipping bucket)

Motivation for Using PRISM Precipitation



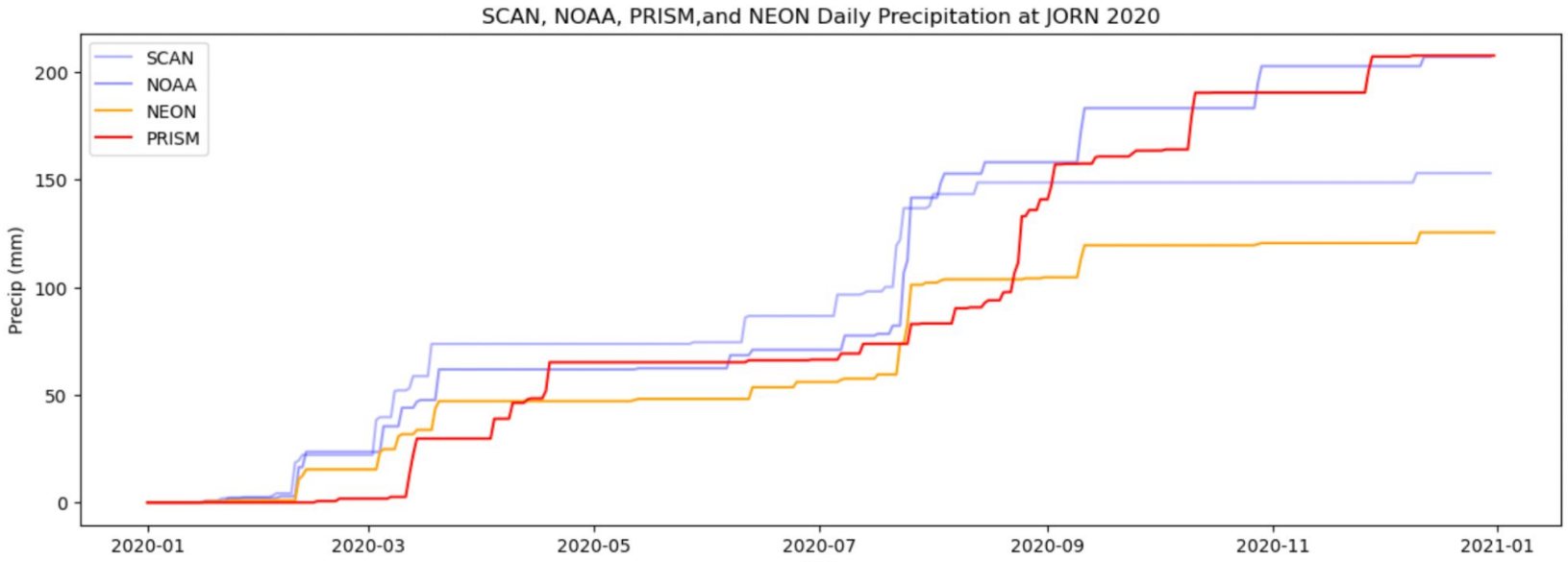
- Unexpectedly low GPP at MOAB
- NEON did not capture some precipitation events
- Gaps in NEON data



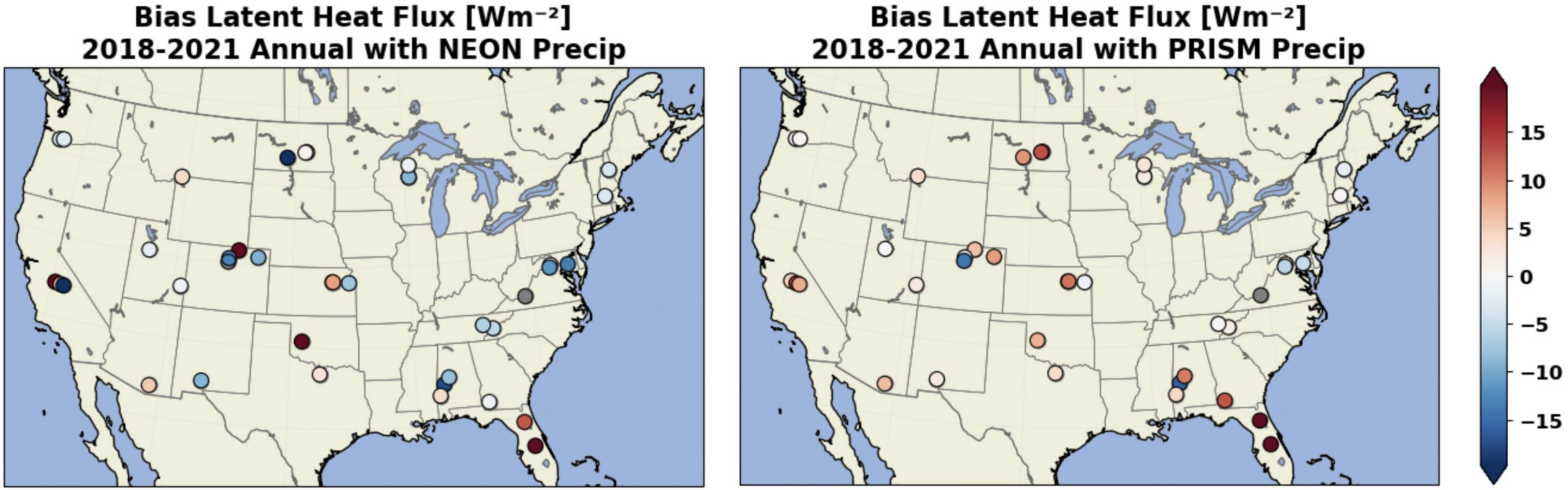


Is PRISM precip actually better?

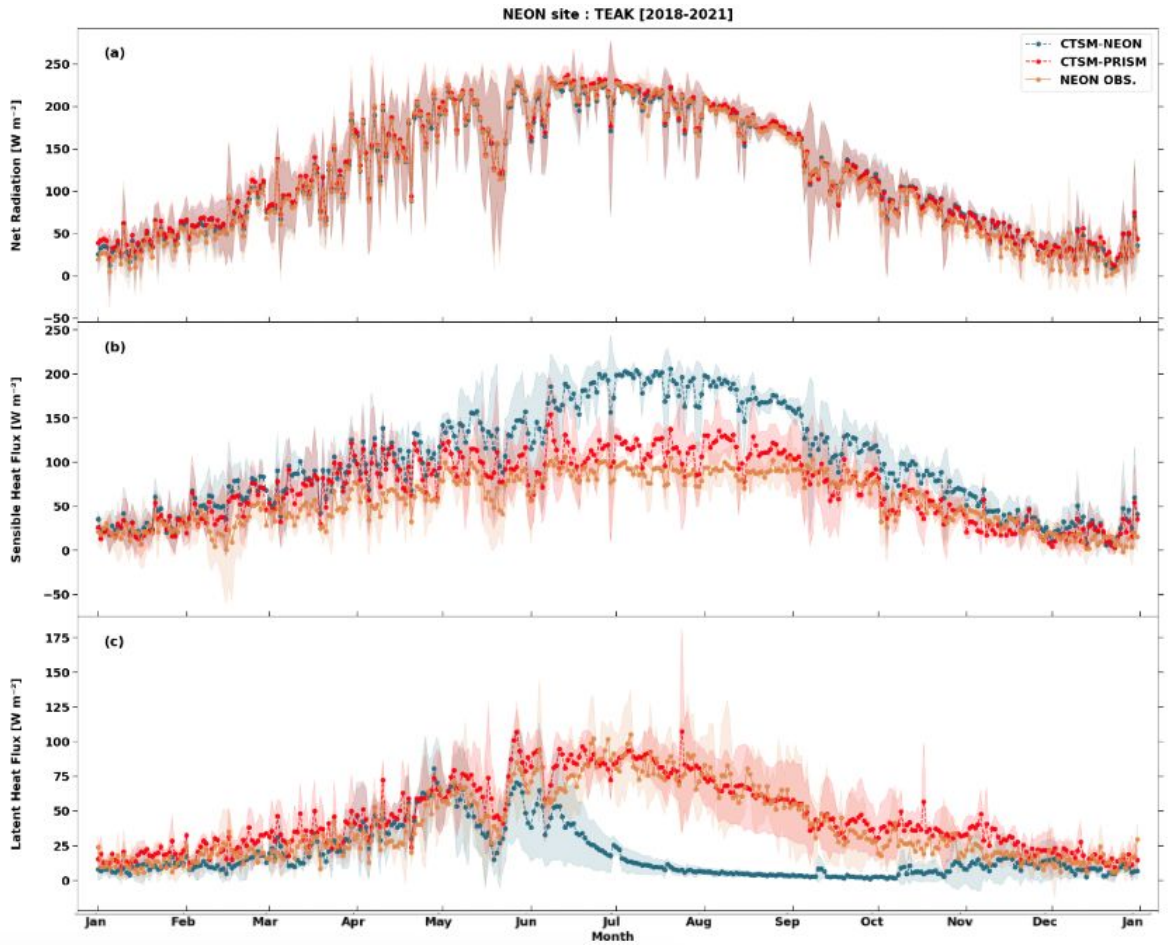
- Year specific
- Site specific
- Overall, PRISM seems closer to ground data
- PRISM often captures events that NEON misses
- Fewer gaps in PRISM



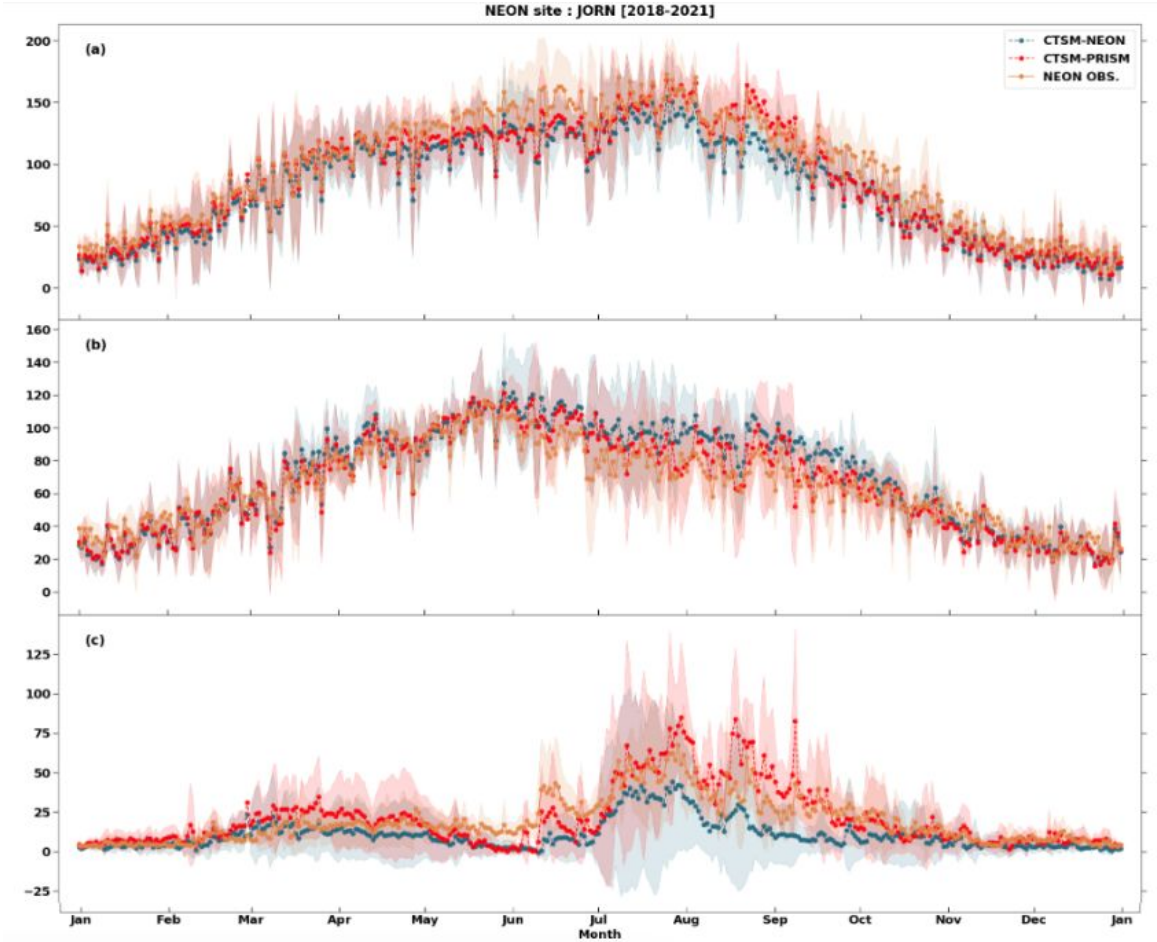
Latent Heat Flux Biases with NEON vs PRISM Precipitation



Climatologies Provide Site Specific Insights



TEAK: output is more similar to observations with PRISM precip



JORN: *most* months are more similar to observations with PRISM

Workflow for Using PRISM Precipitation Data

- Converted PRISM output to NetCDF following correct conventions
- Included PRISM data in datm streams
- Updated usermods to include new datm streams
- Modified shell commands used to fix site-specific data gaps
- Submitted AD, postAD, and transient cases with run_neon.py

Additional Resources

- Jupyter notebook for comparing PRISM and NEON precipitation and NEON sites:

  https://github.com/negin513/neon_scripts/blob/main/notebooks/PRISM_Precip_Analysis.ipynb

- Keep an eye out for a paper in GMD!

- Email: tking@ucar.edu