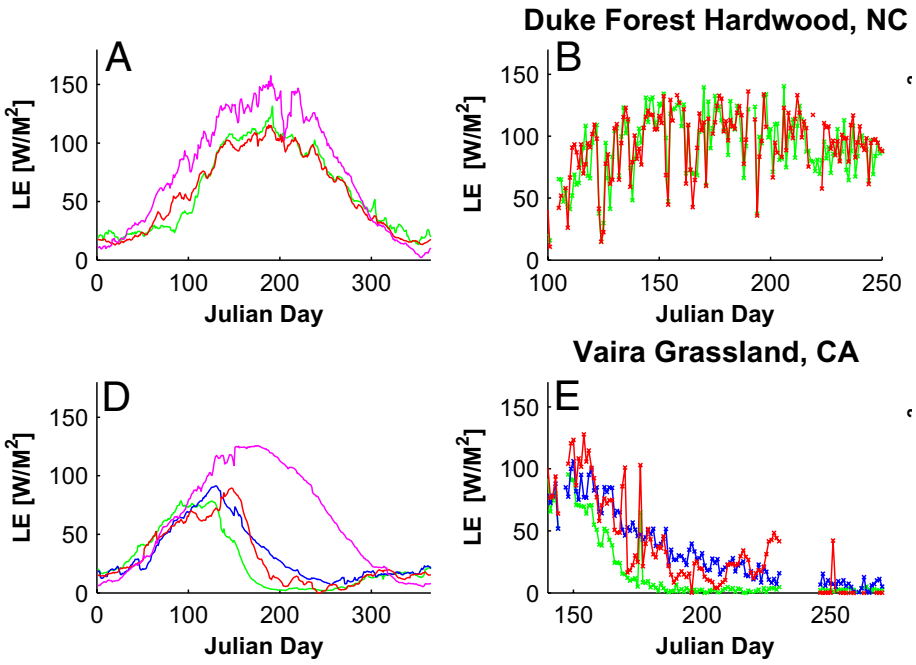
LoCo

Pierre Gentine –Columbia University

Look more at coupling

- Right now most work on SM -> PBL
- More work needed on **two-way coupling**
- Examples: use of air temperature and humidity to infer surface fluxes

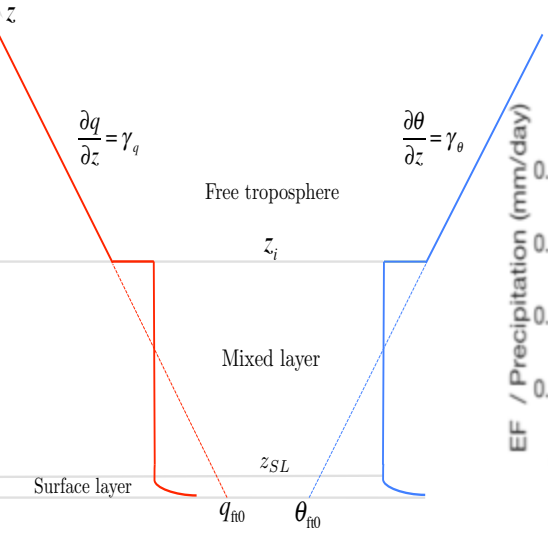


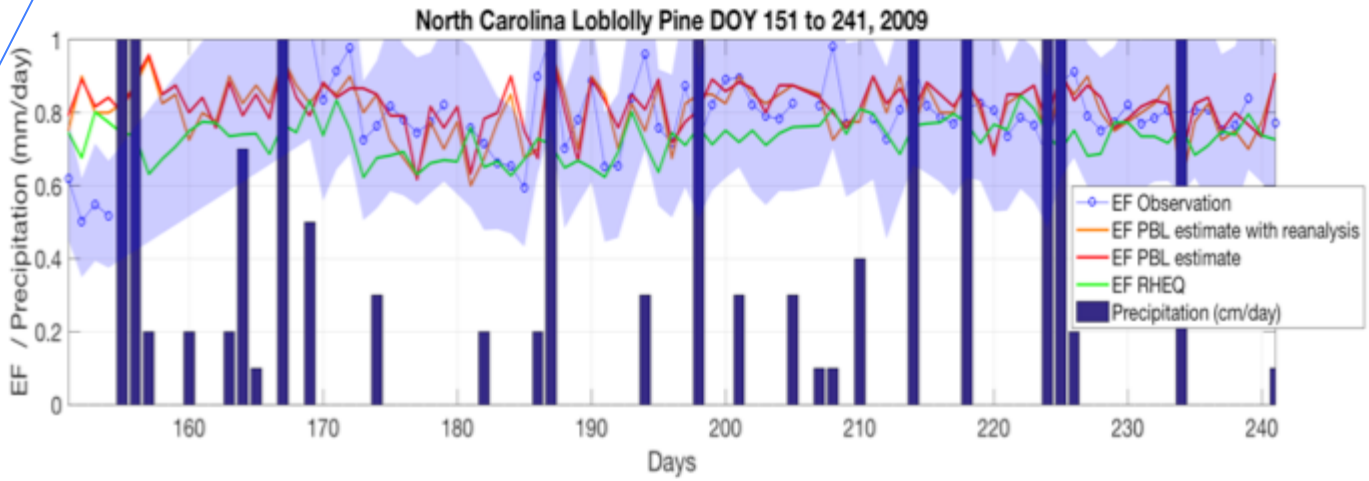
RH variability (ETRHEQ)

Salvucci and Gentine 2013

Look more at coupling

- Right now most work on SM -> PBL
- More work needed on **two-way coupling**
- Examples: use of air temperature and humidity to infer surface fluxes



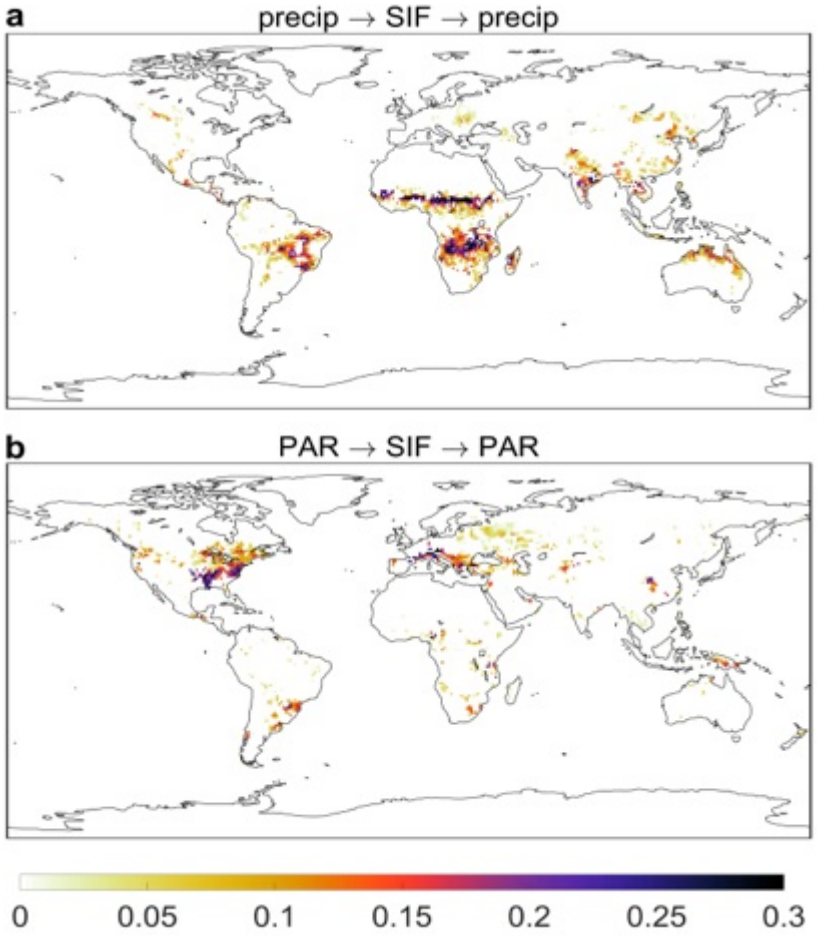


PBL budget air pot.
Temperature and Humidity

Gentine et al. in review GRL

Not just precipitation feedback

- Cloud albedo feedback more important in many regions

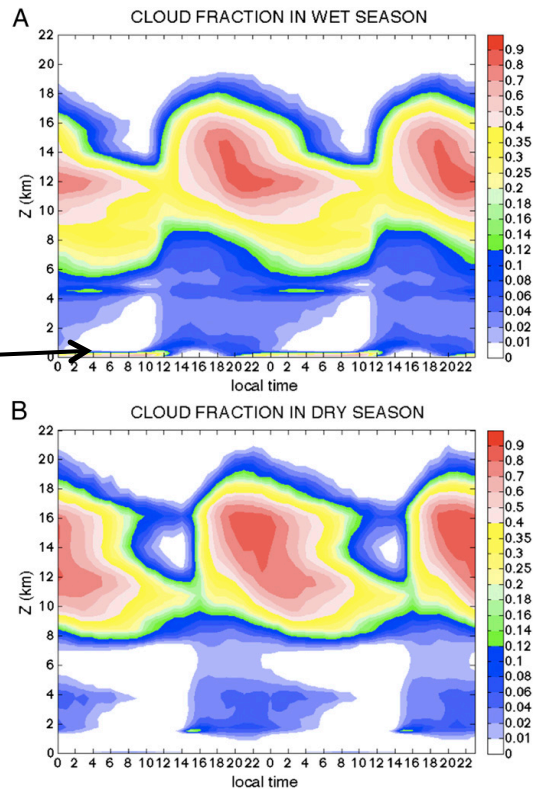


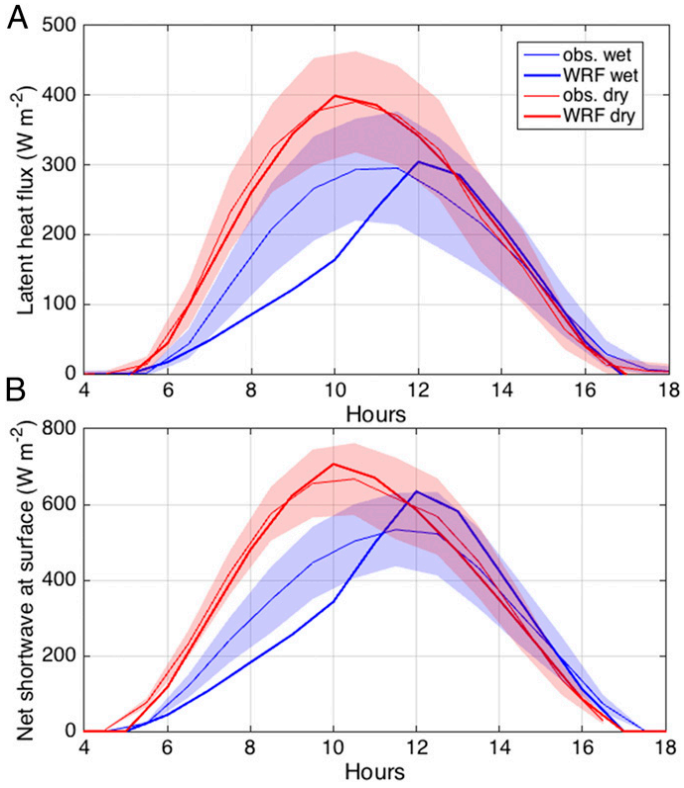
Green et al. 2016 in review

Not just precipitation feedback

- Cloud albedo feedback more important in many regions

Low cloud/fog

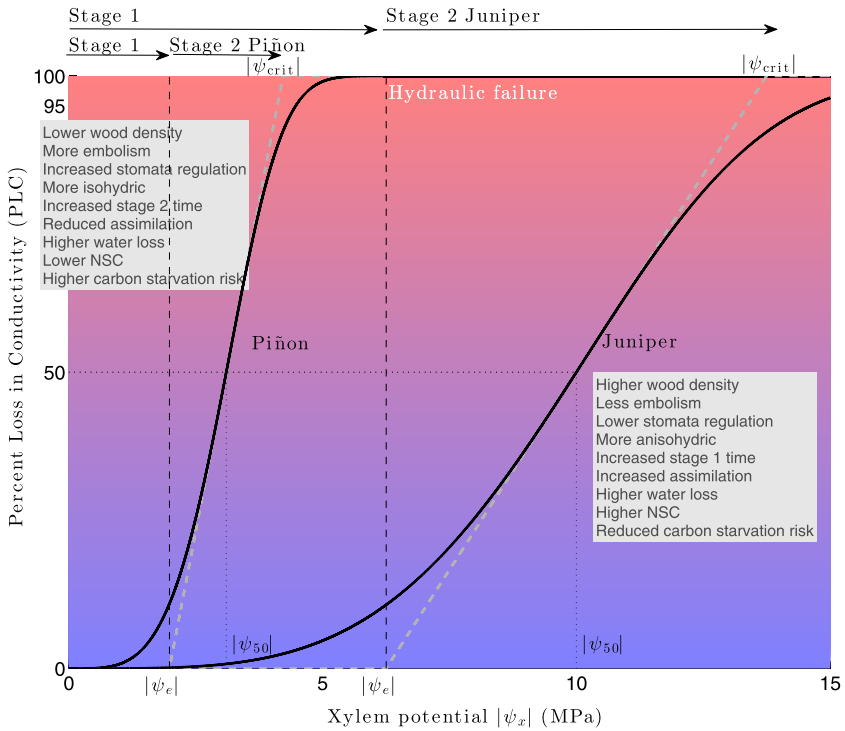




Anber et al. 2015 PNAS

Soil moisture?

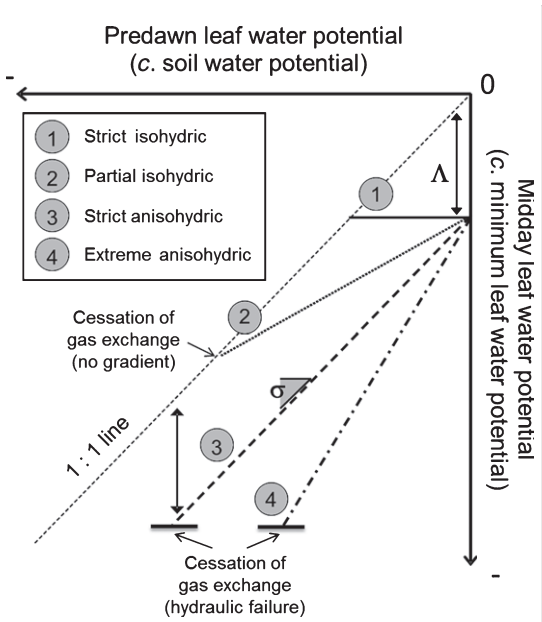
- This is often our starting point
- SM ➔EF➔ PBL
- But this assumes that SM is changing EF and in a well defined way
- Reality is more complex



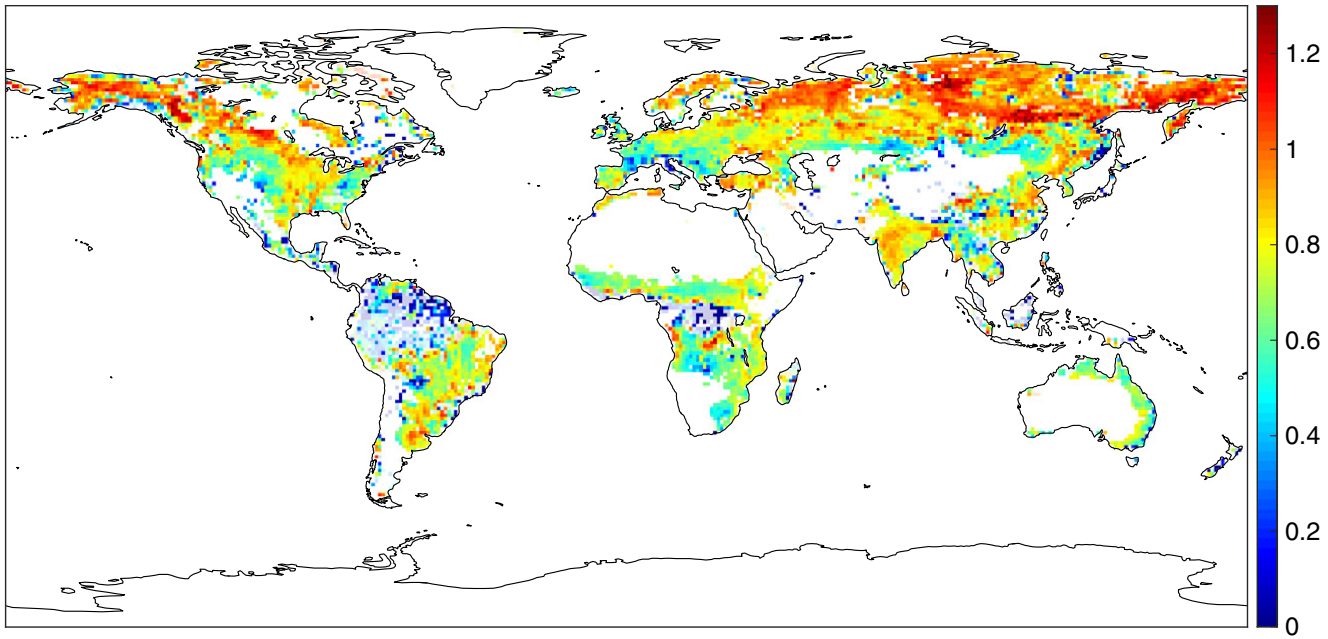
Soil moisture?

- Fluxes vs. water stress

Degree of stress: 0: strong water stress stomatal regulation, 1:none



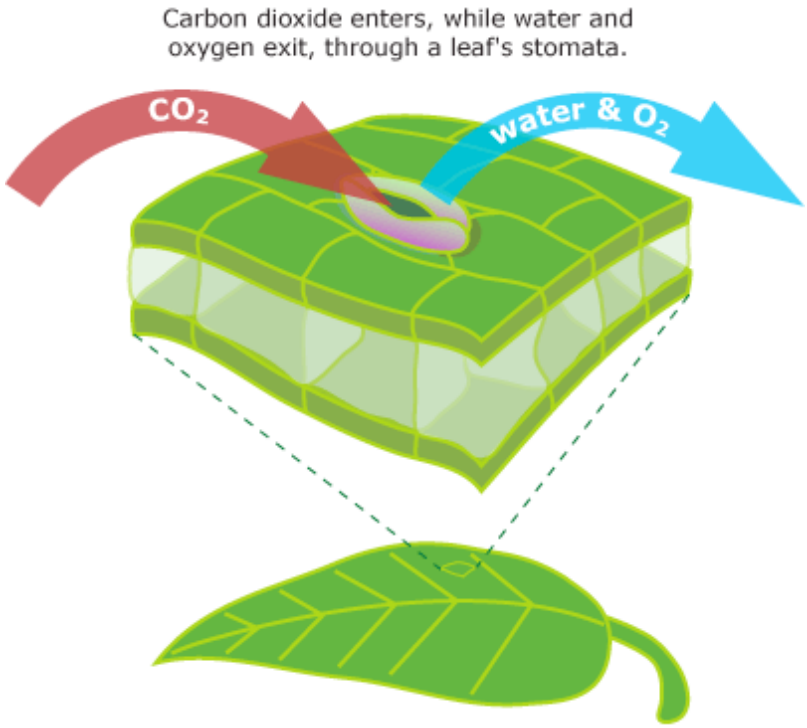
Martinez-Villalta 2013



Konings and Gentine 2016 GCB

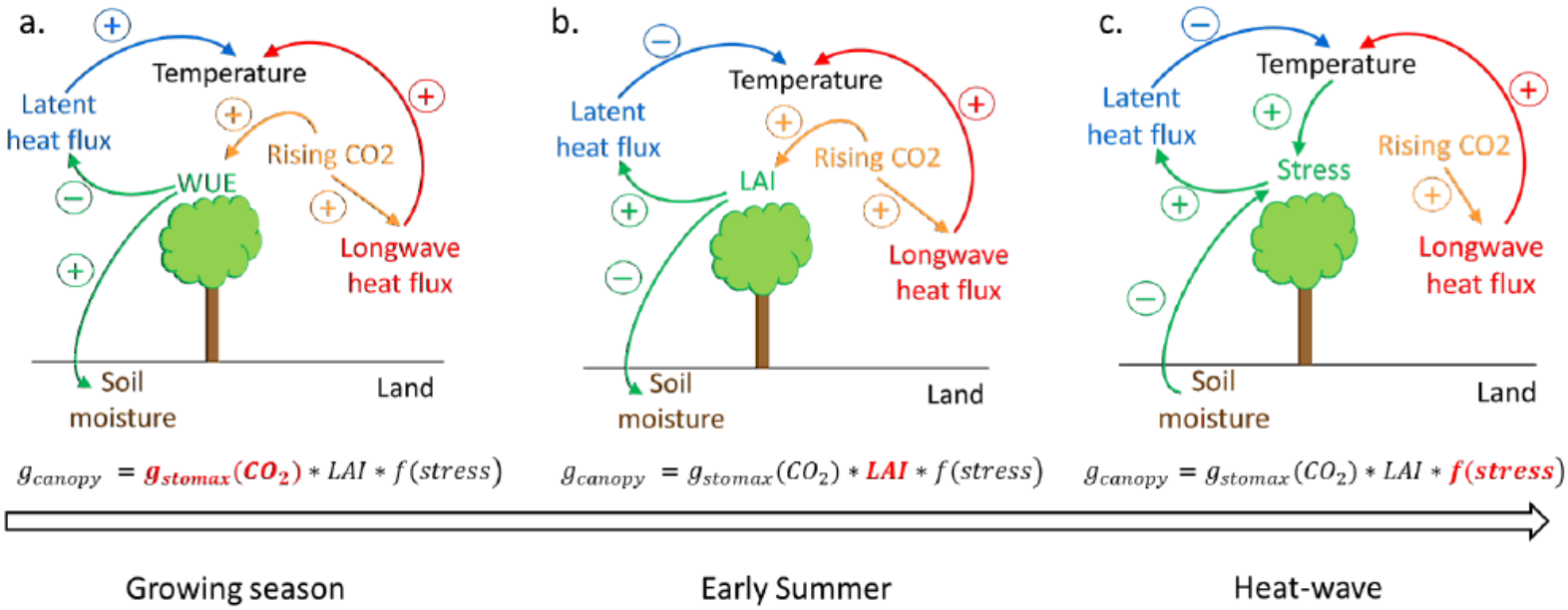
What is ultimately controlling the surface: stomata

- CO_2 changes the energy and water cycles



What is ultimately controlling the surface: stomata

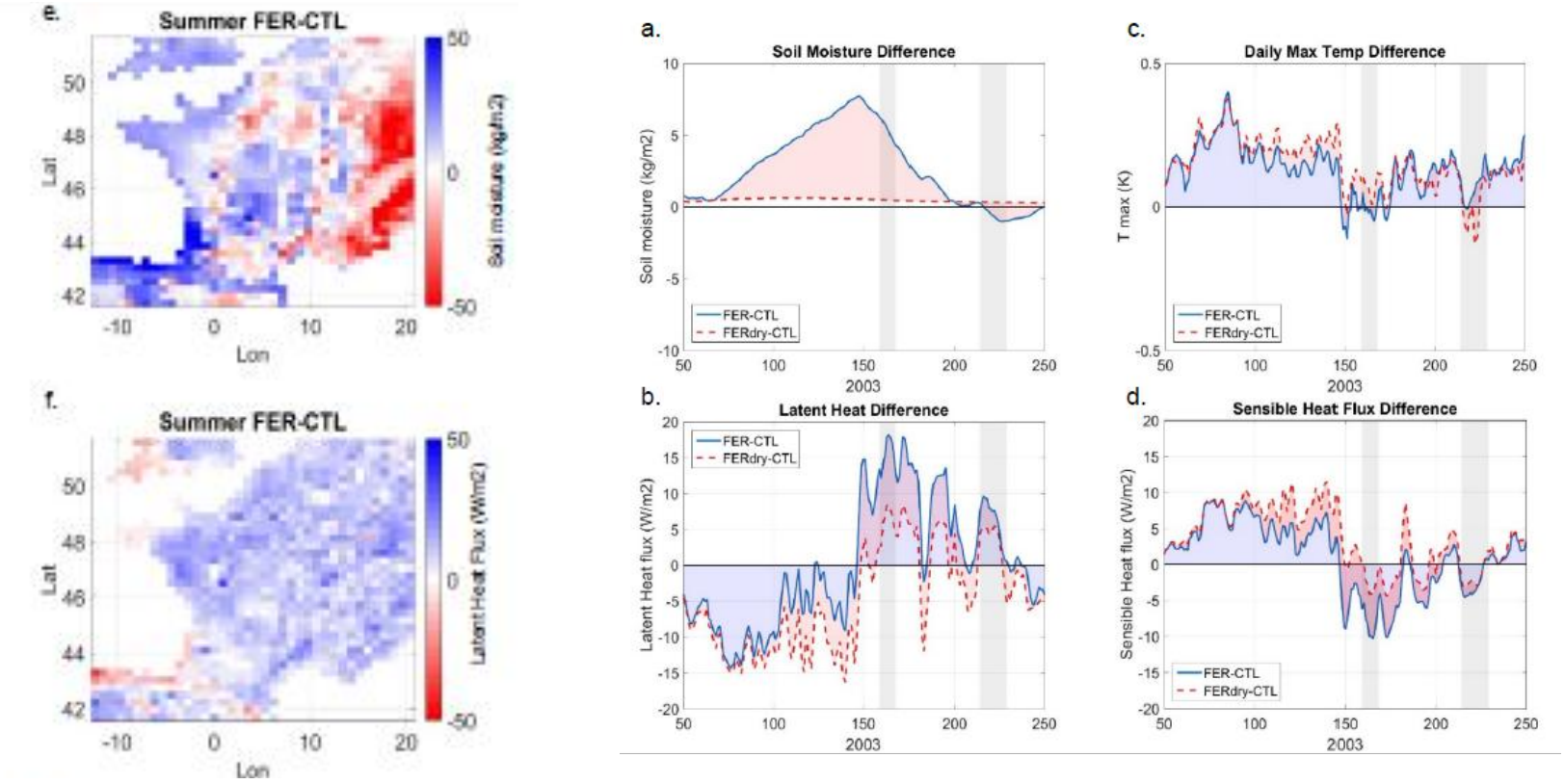
- CO_2 changes the energy and water cycles



Lemordant et al. 2016 GRL

Huge impact on dryness and seasonality

- CO_2 changes the energy and water cycles (RCP8.5 – 8.5 W m^{-2})



Lemordant et al. 2016 GRL

- Opportunity to link with iLeaps

Advertisement

- New dataset based on fluorescence, better compare to FLUXNET 2015 vs. other products (ET, T:ET ratio, Sensible heat flux, GPP).
- Good interannual variability (~ none in Fluxnet MTE)