

Cumberland Plains

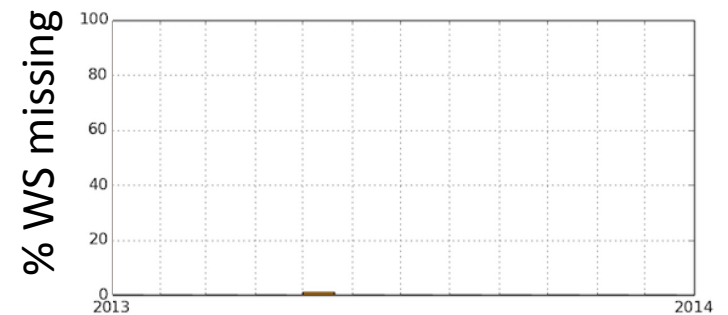
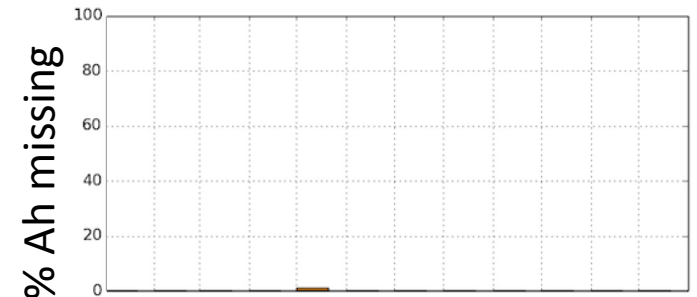
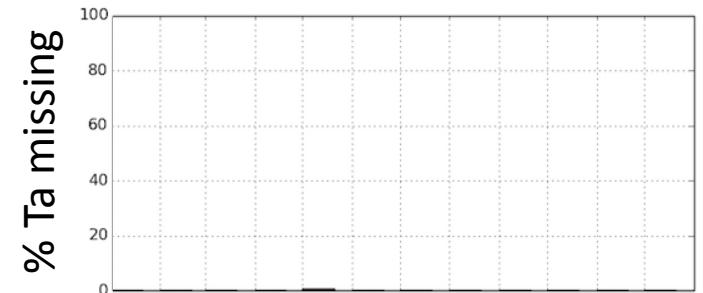
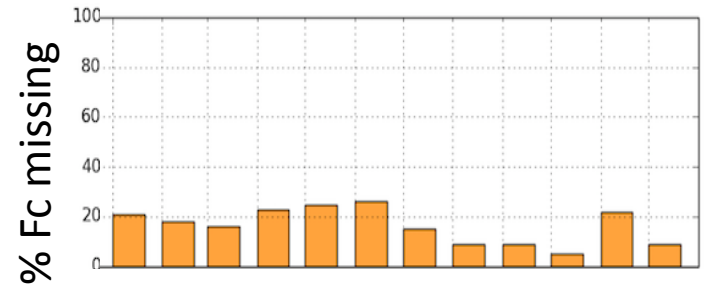
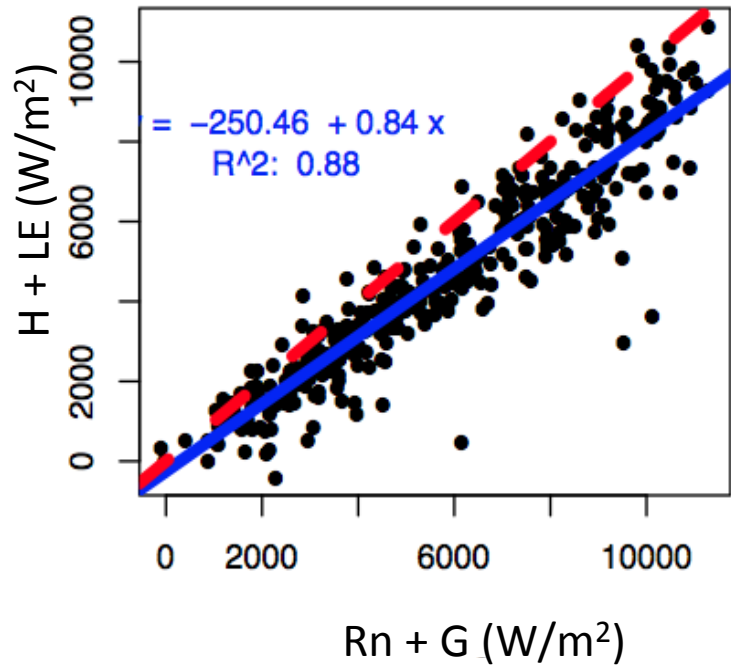
Victor Resco de Dios

Elise Pendall

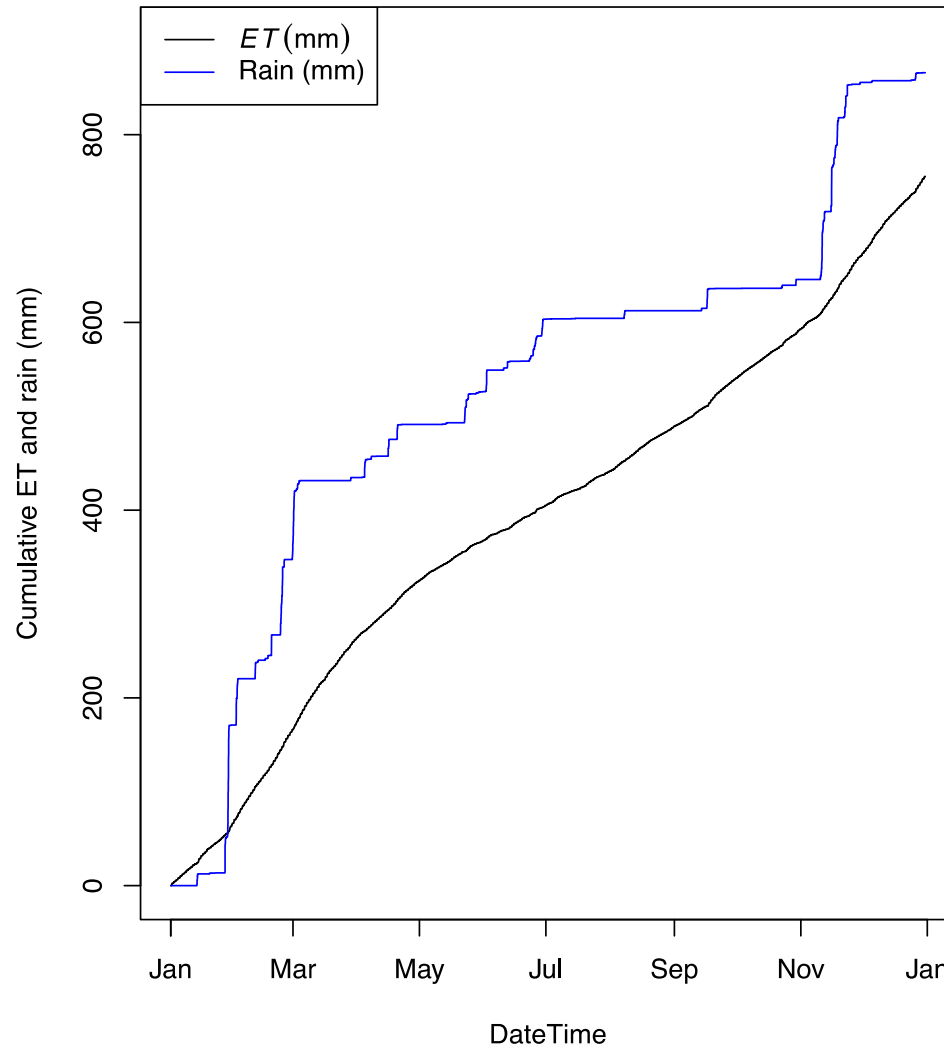


Data quality

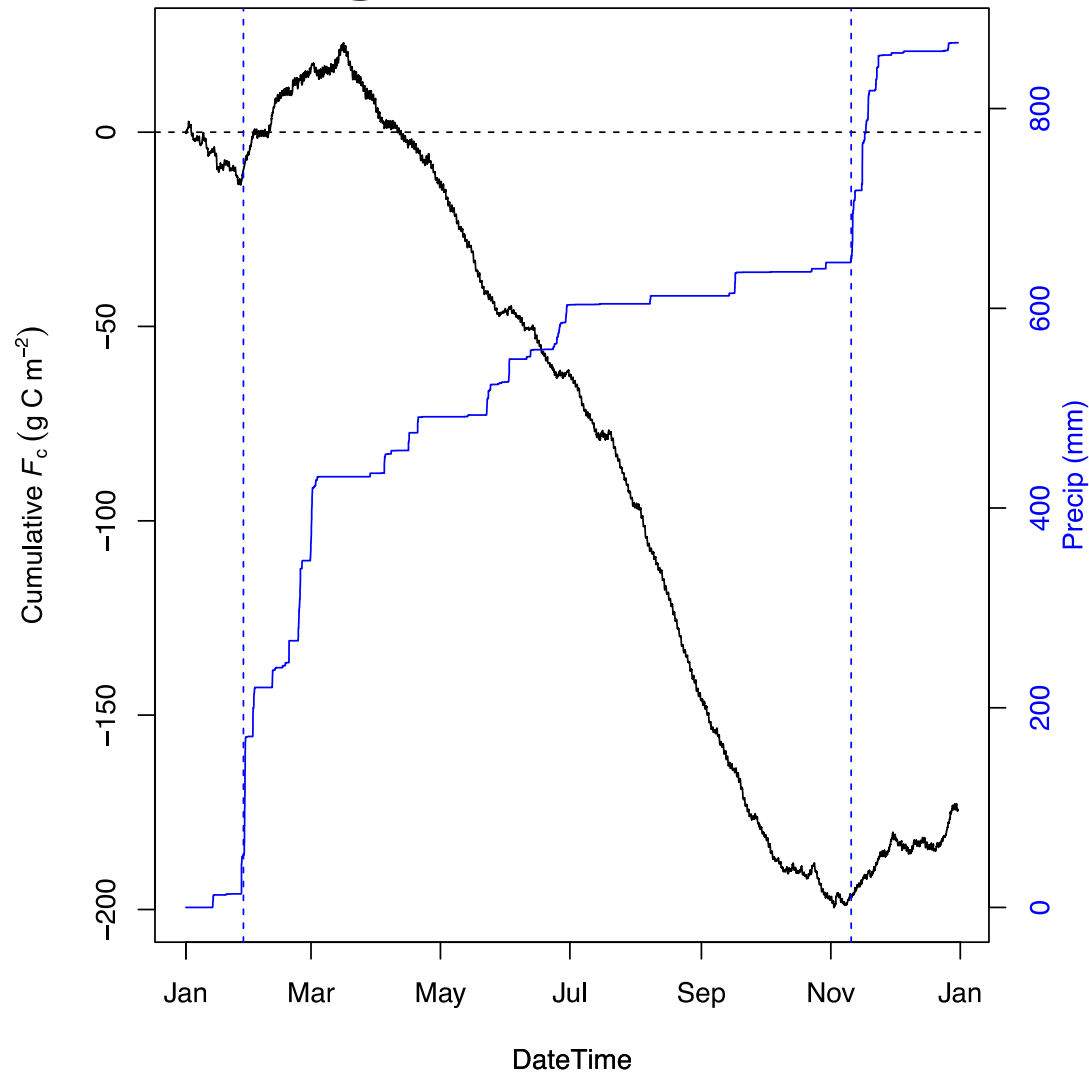
Energy balance closure

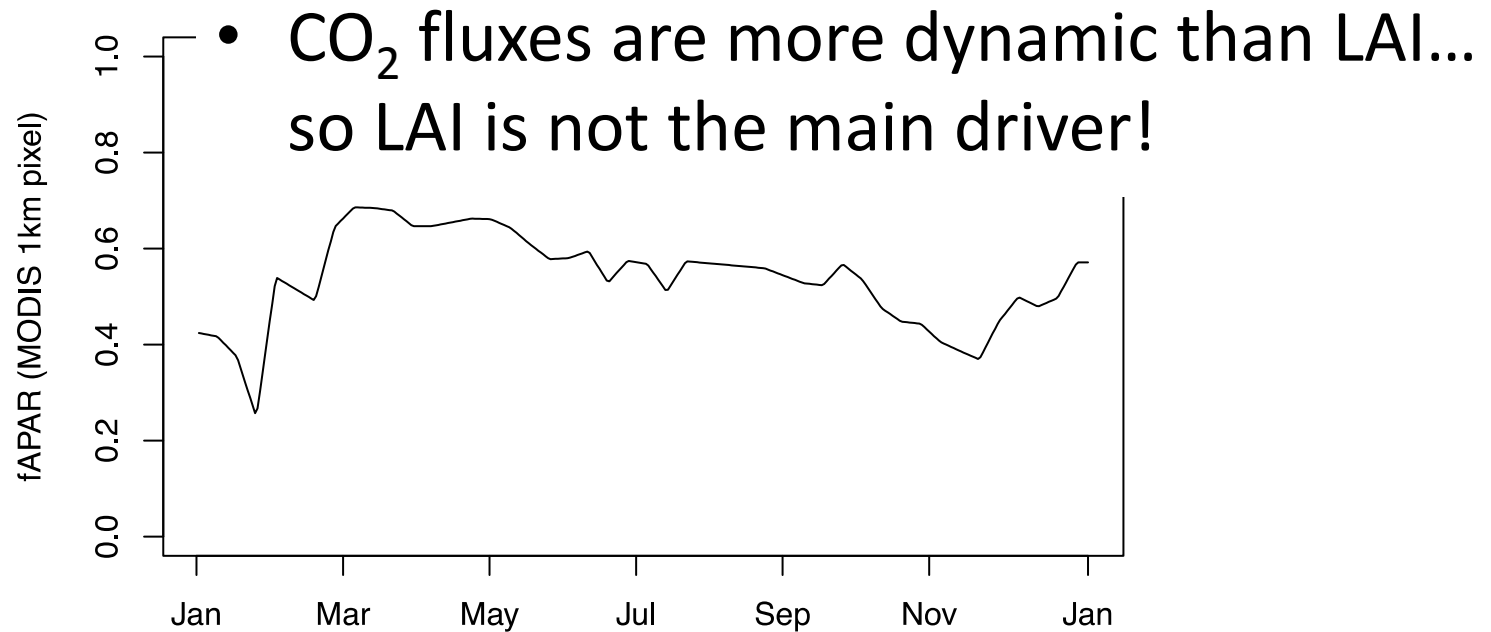
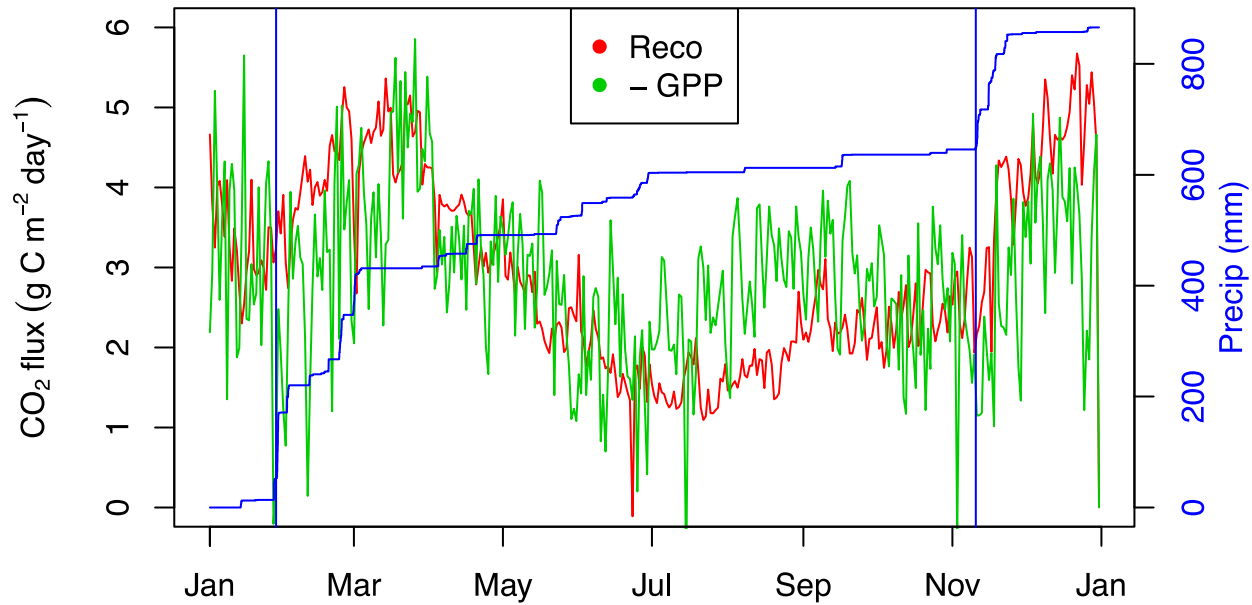


Precip always exceeds ET...



How does cumulative C flux respond to big rain events?





Phenology of net C fluxes across global ecosystems

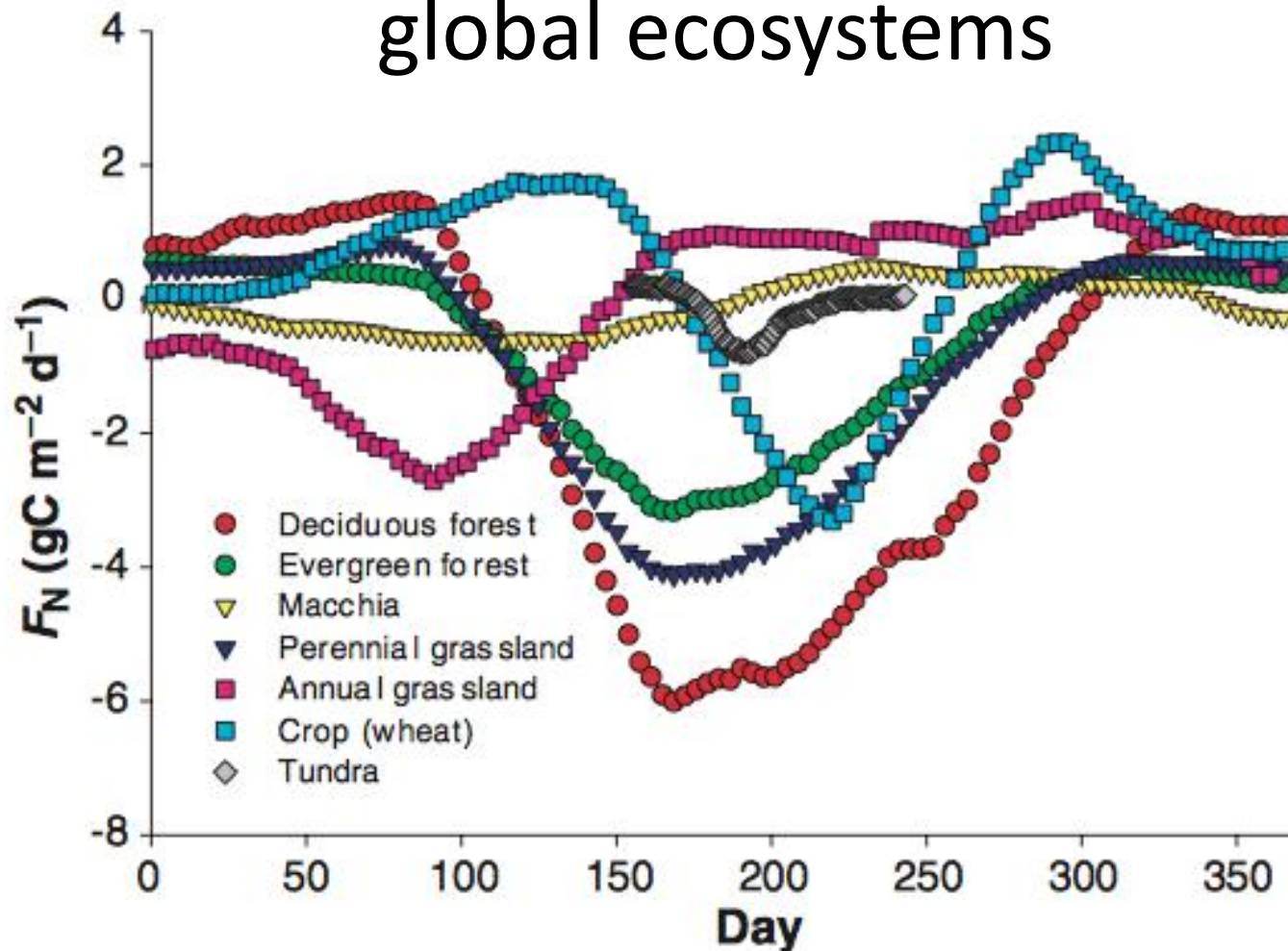


Fig. 2. Seasonal patterns in net ecosystem CO₂ exchange. Adapted from Baldocchi and Valentini (2004).

Similar phenology at CUP!

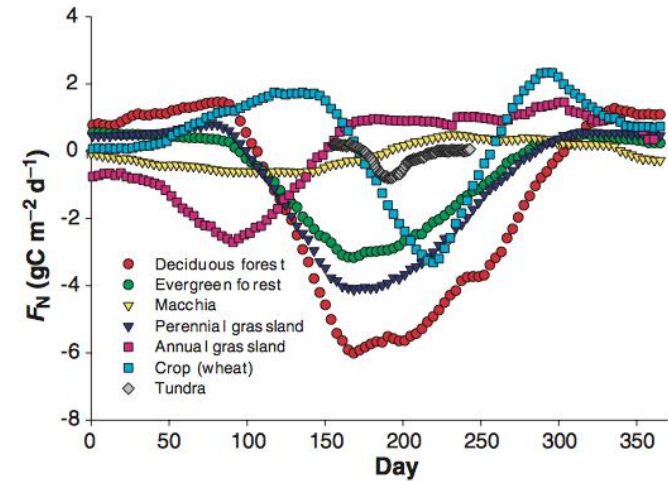
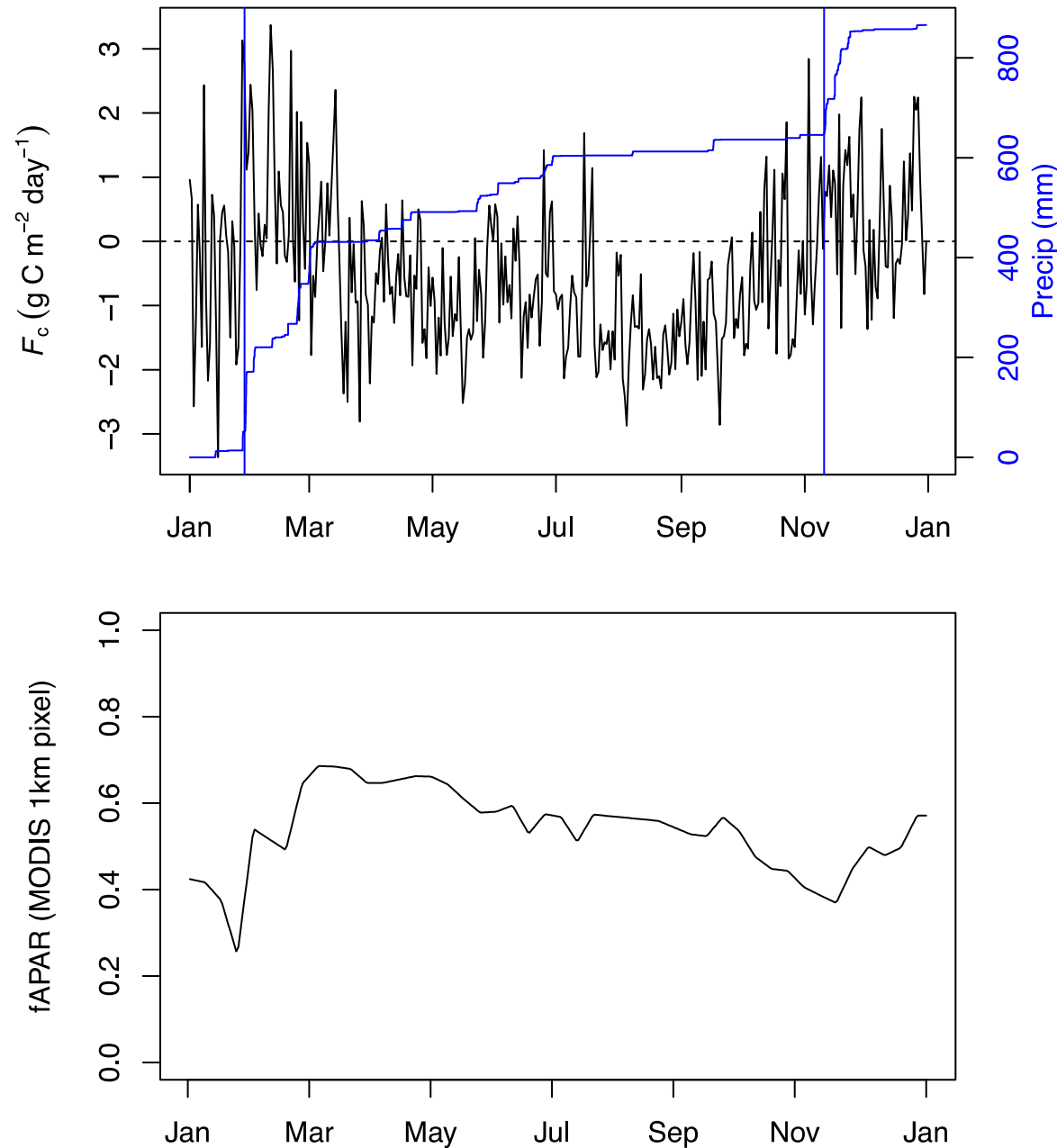
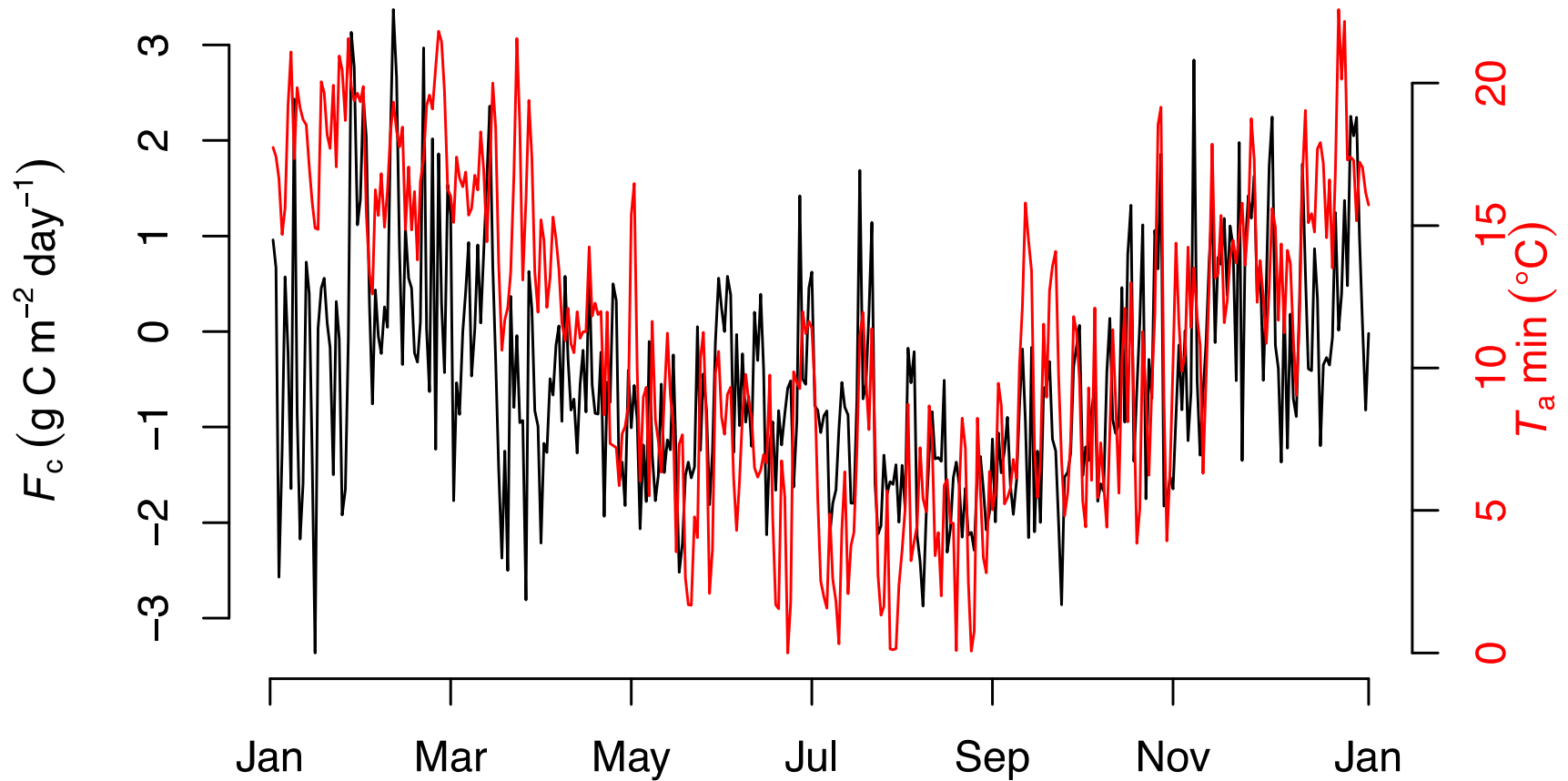
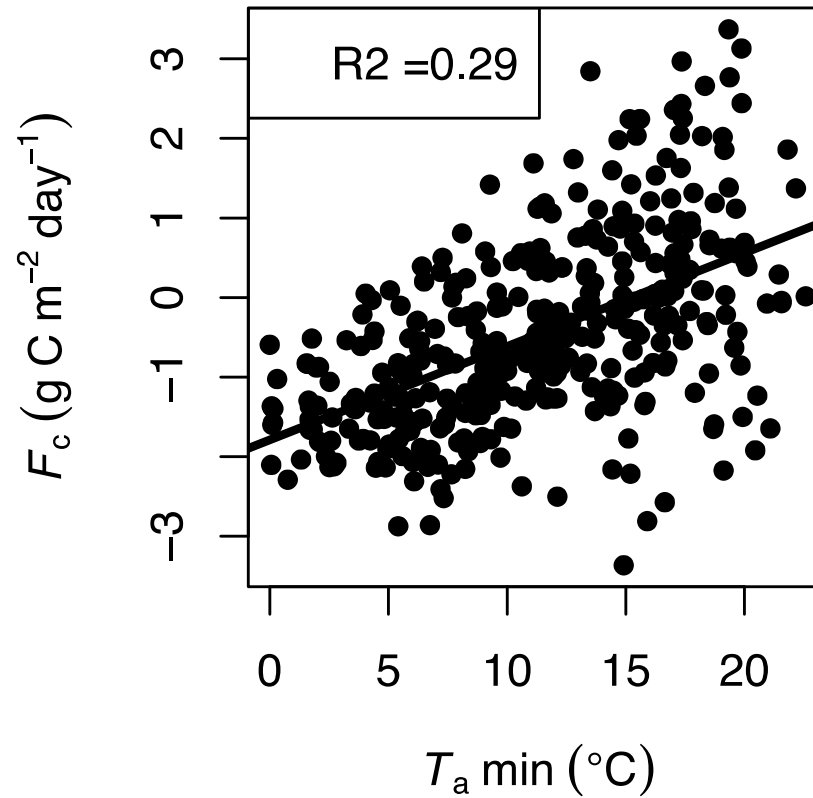


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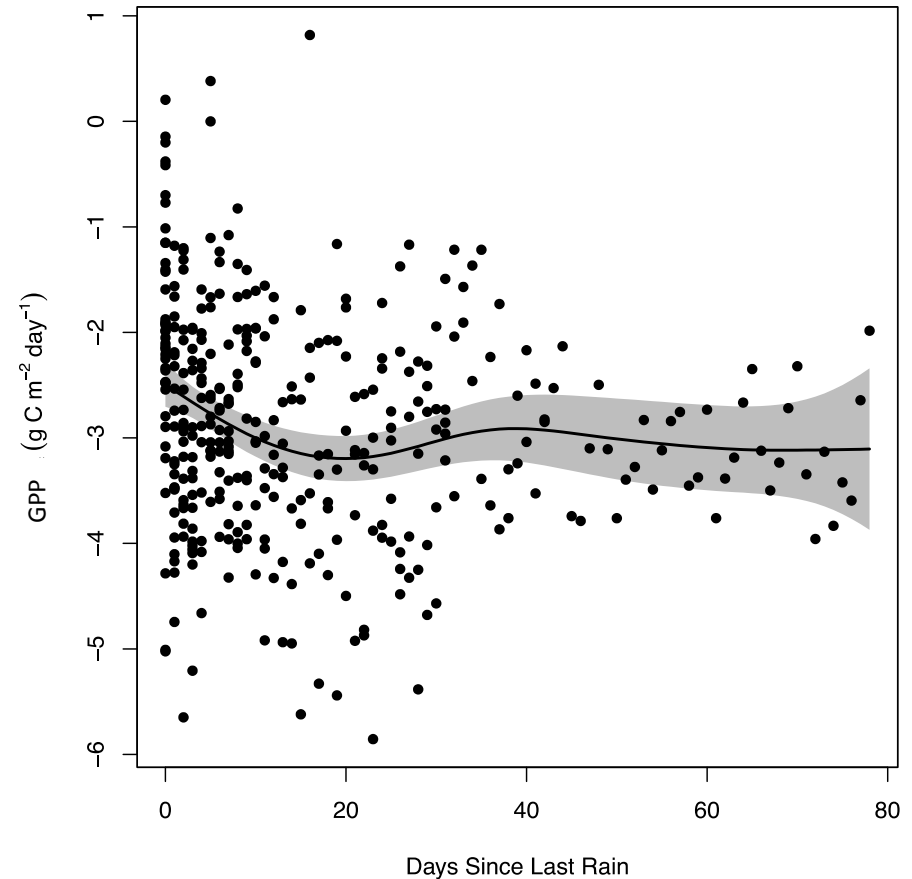
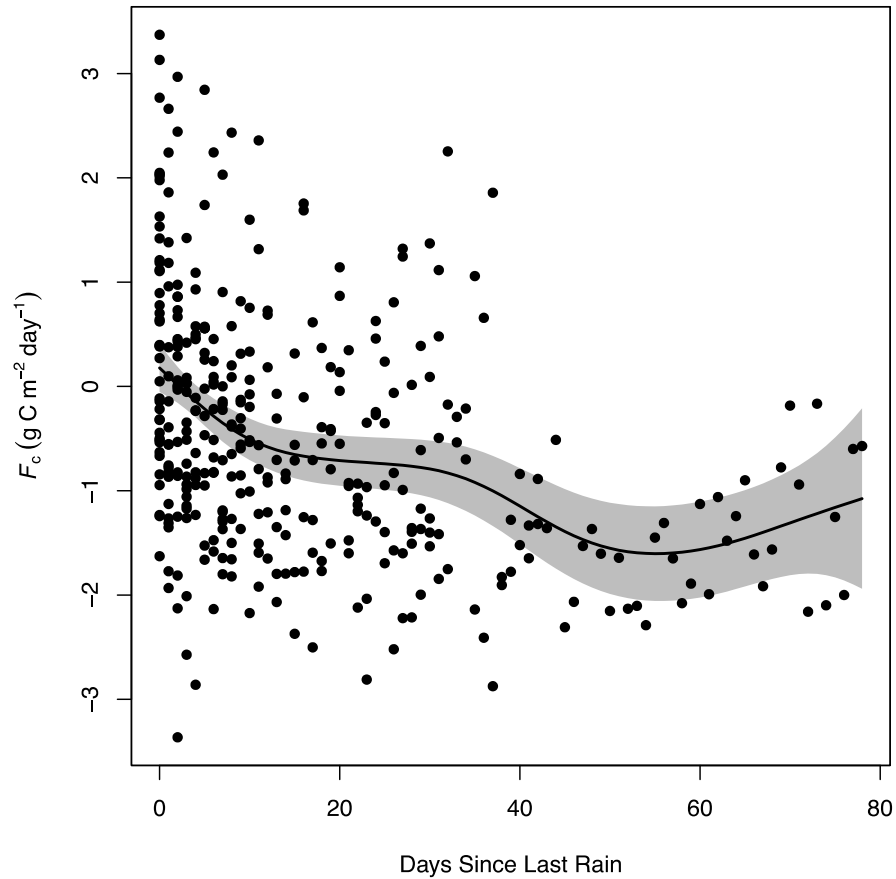


So what drives the C fluxes?

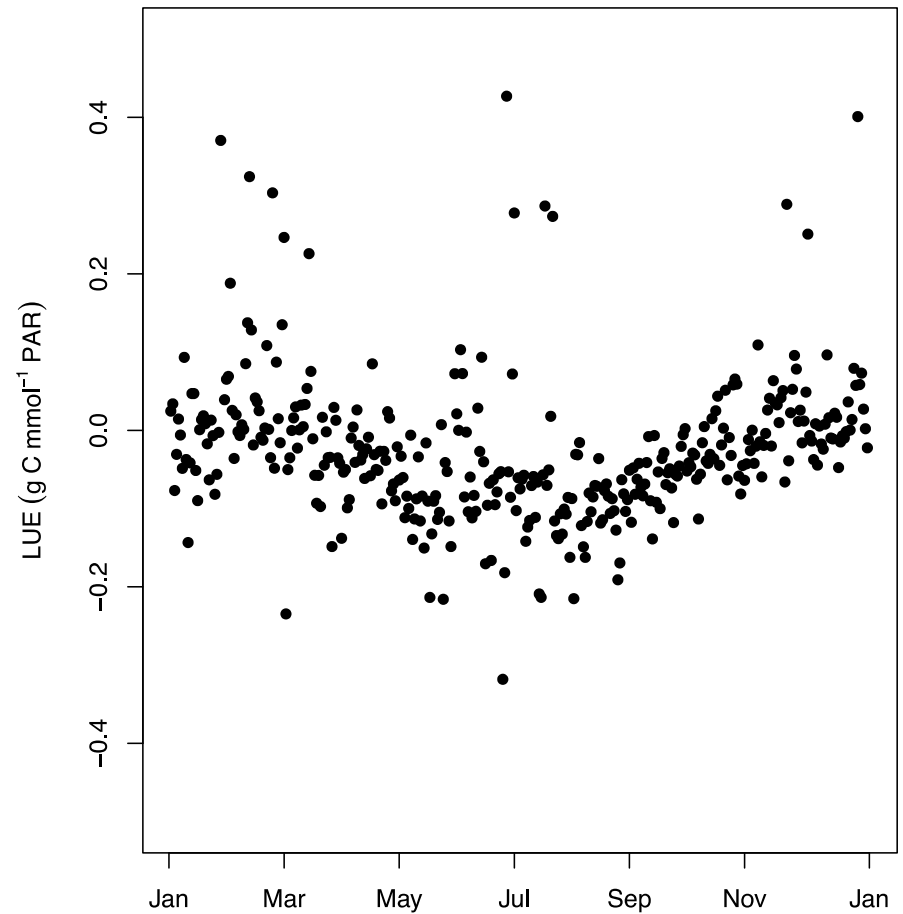
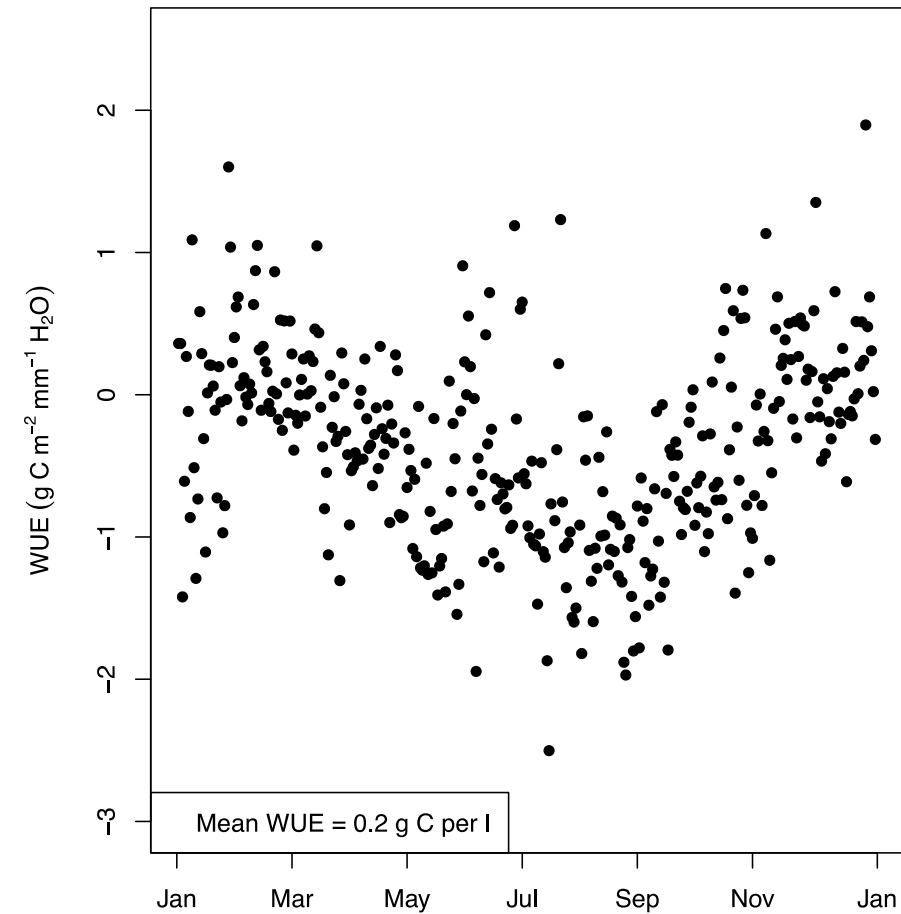


Rain and T_a min are main environmental drivers

Little effect of drought

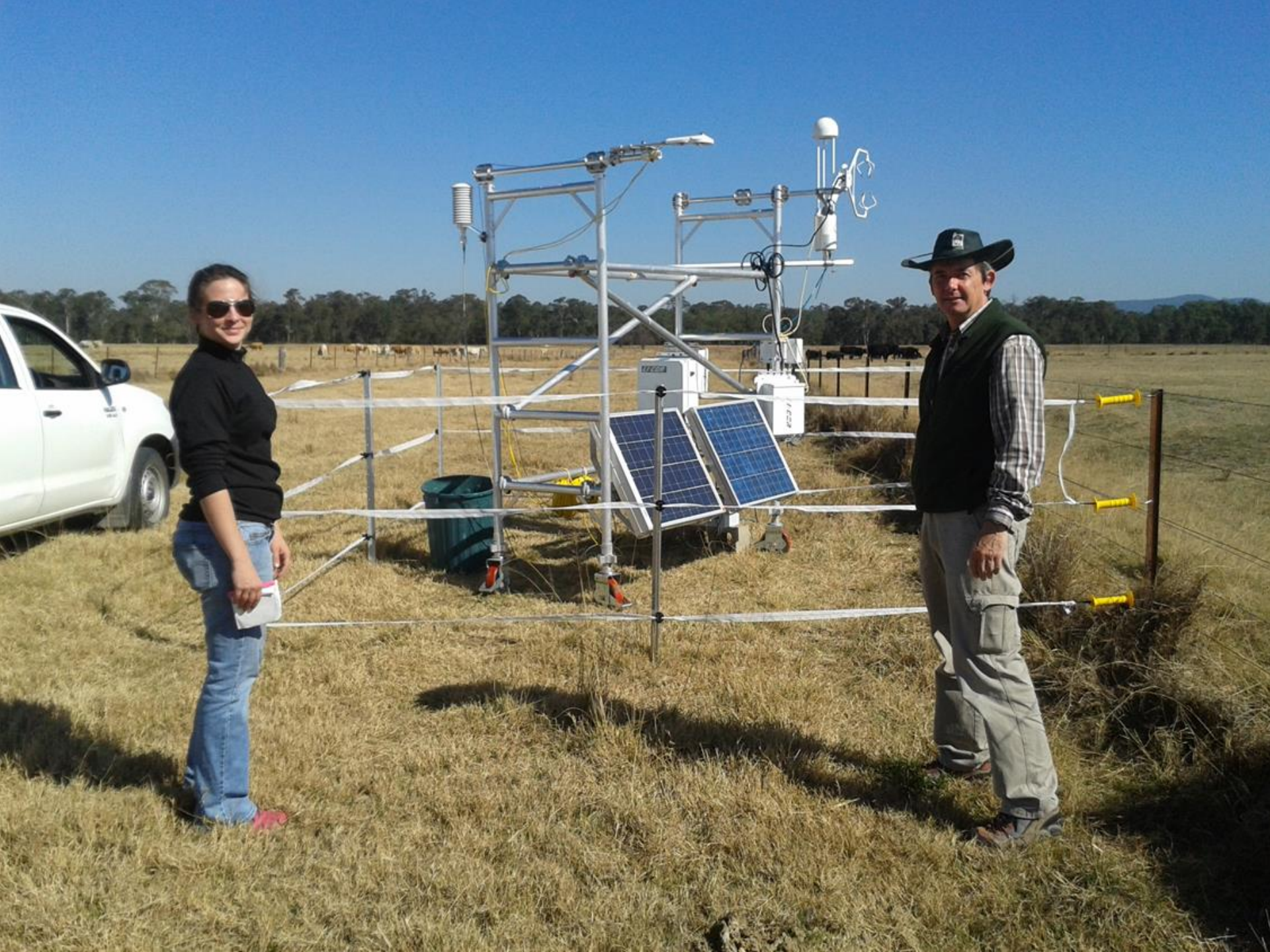


WUE and LUE are highest in winter



New mobile tower (Rover)

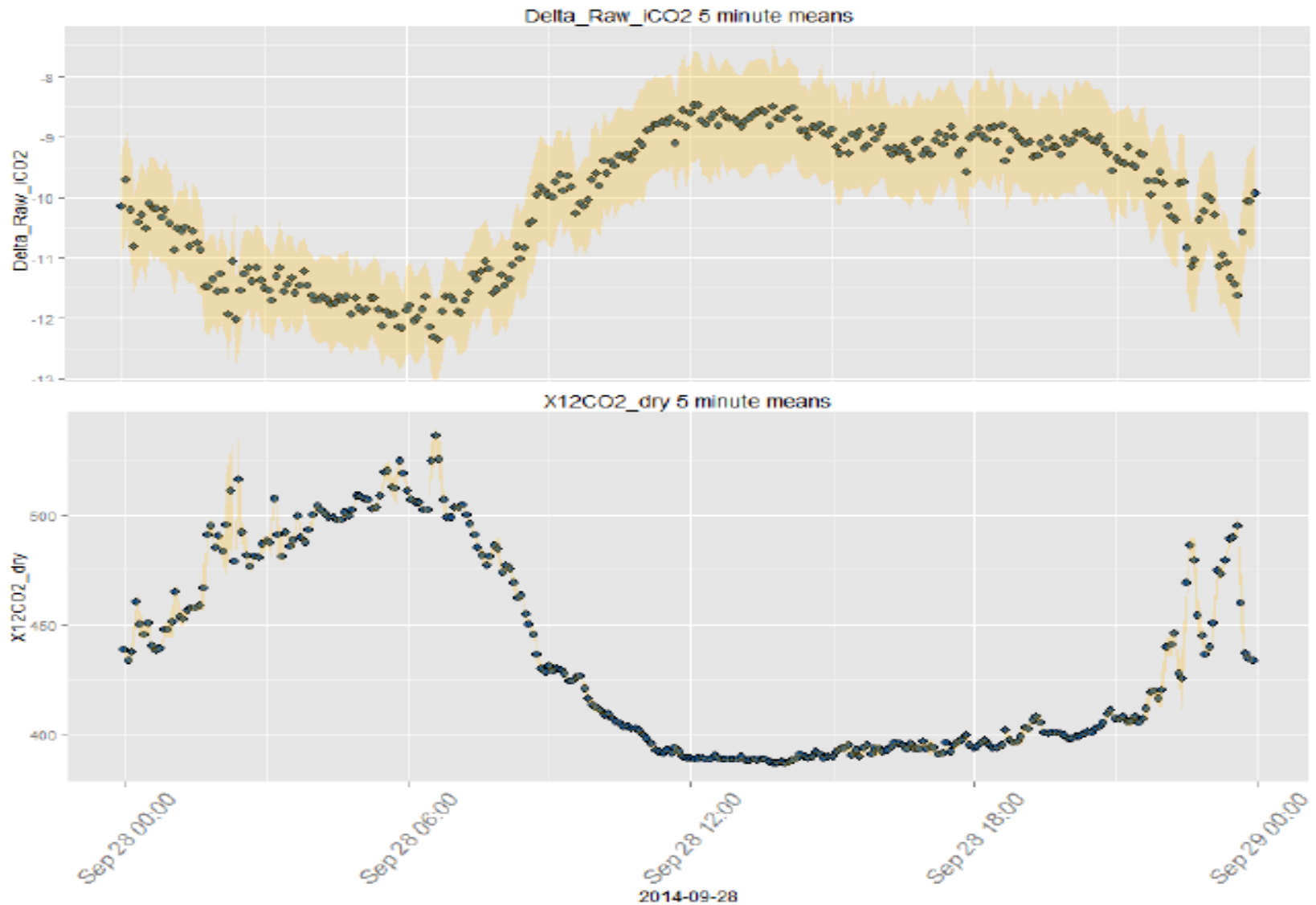
- Objective: to measure fluxes on campaign basis, including possible cross-site calibration
- SmartFlux system
- Trailer is under construction with 35-m tower
- Methane by eddy covariance (to 5-m height?)
 - Seasonal changes in water table depth
 - Crop/livestock management
 - Land use



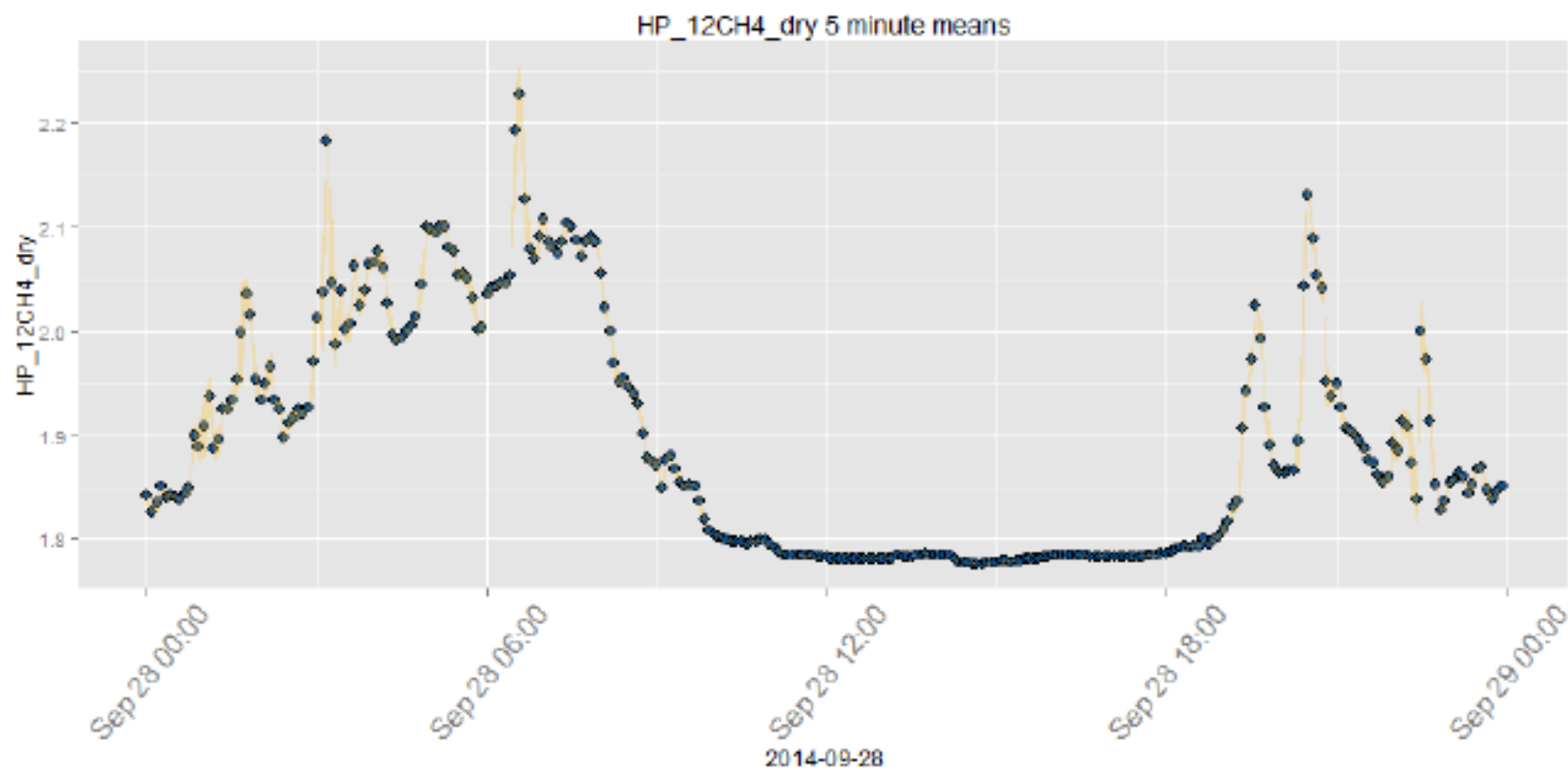
Monitoring of $\delta^{13}\text{C}$ in CO_2 and CH_4

- “Keeling plots” indicate biological sources of ecosystem respiration and methanogenesis (C3/C4 plants for CO_2 ; microbial pathways for CH_4)
- Setting up profiling system in Cumberland Plains woodland near CUP tower

CUP $\delta^{13}\text{CO}_2$



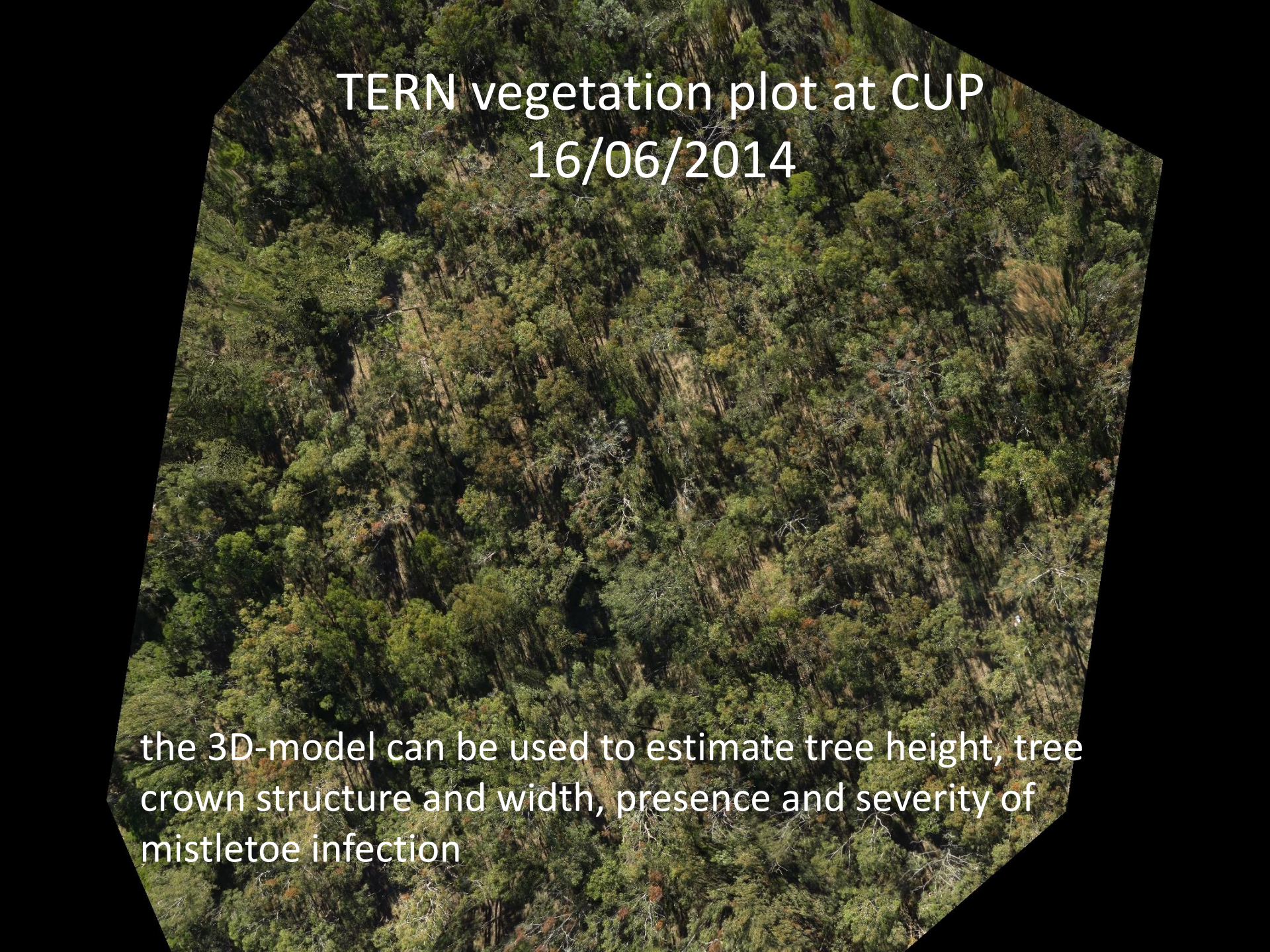
CUP $^{12}\text{CH}_4$



Wouter Maes and drone





An aerial photograph of a dense forest covering a steep, rocky hillside. The trees are mostly green, with some brown patches indicating dead or dying trees. The terrain is rugged, with visible rock faces and deep shadows in the valleys between ridges.

TERN vegetation plot at CUP 16/06/2014

the 3D-model can be used to estimate tree height, tree crown structure and width, presence and severity of mistletoe infection

Acknowledgements

- Helen Cleugh and Ray Leuning – site selection
- Craig Barton, Chelsea Meier – CUP tech team
- Peter Isaac, Jason Beringer, James Cleverly, Ozflux – data processing
- Wouter Maes & Alfredo Huete – Veg structure

Special issue in new journal Plant Ecology & Diversity

- Various papers
- Mini special issue like a group review....