

# An introduction to the Australian and New Zealand flux tower network – OzFlux

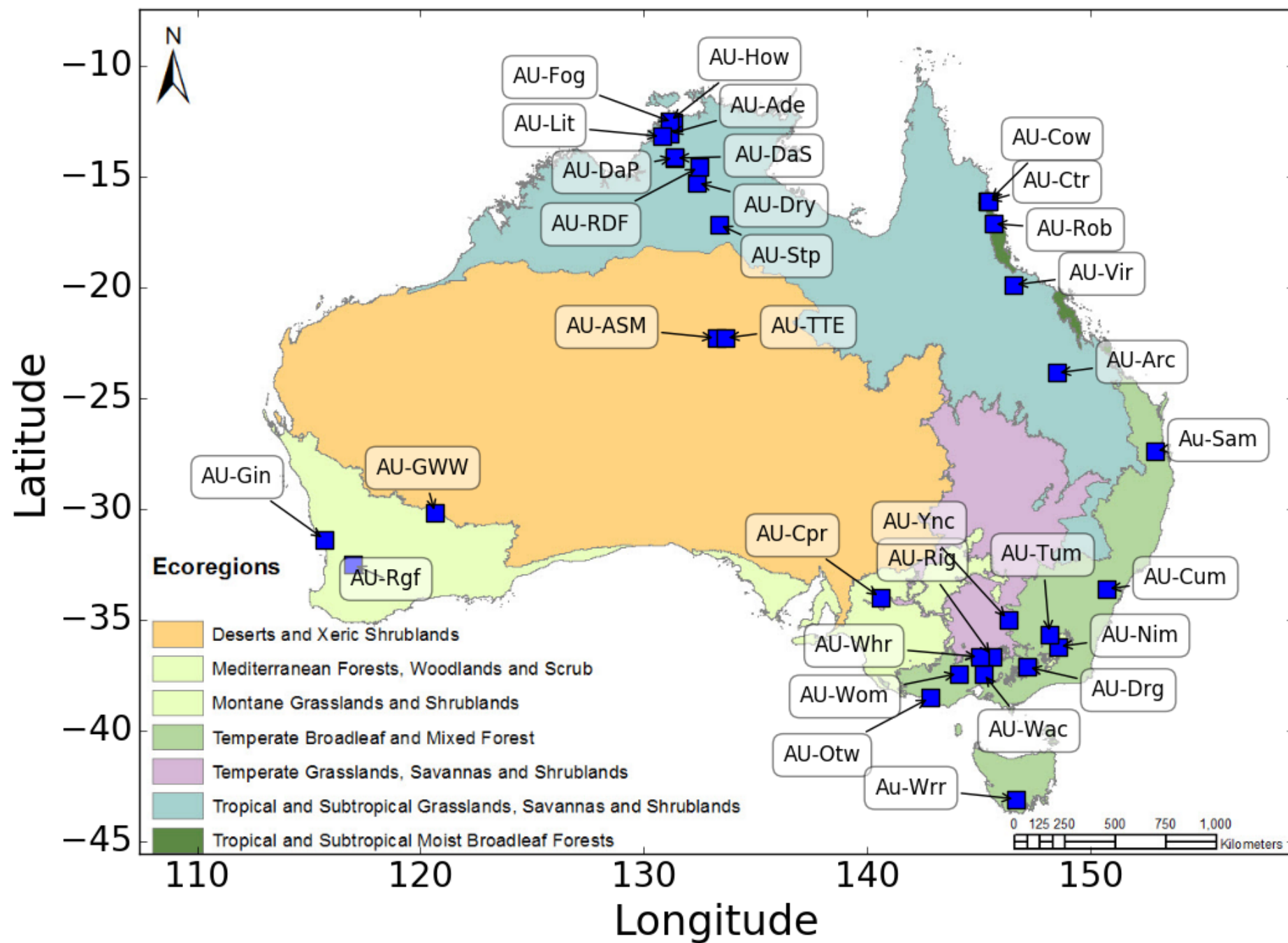
Jason Beringer

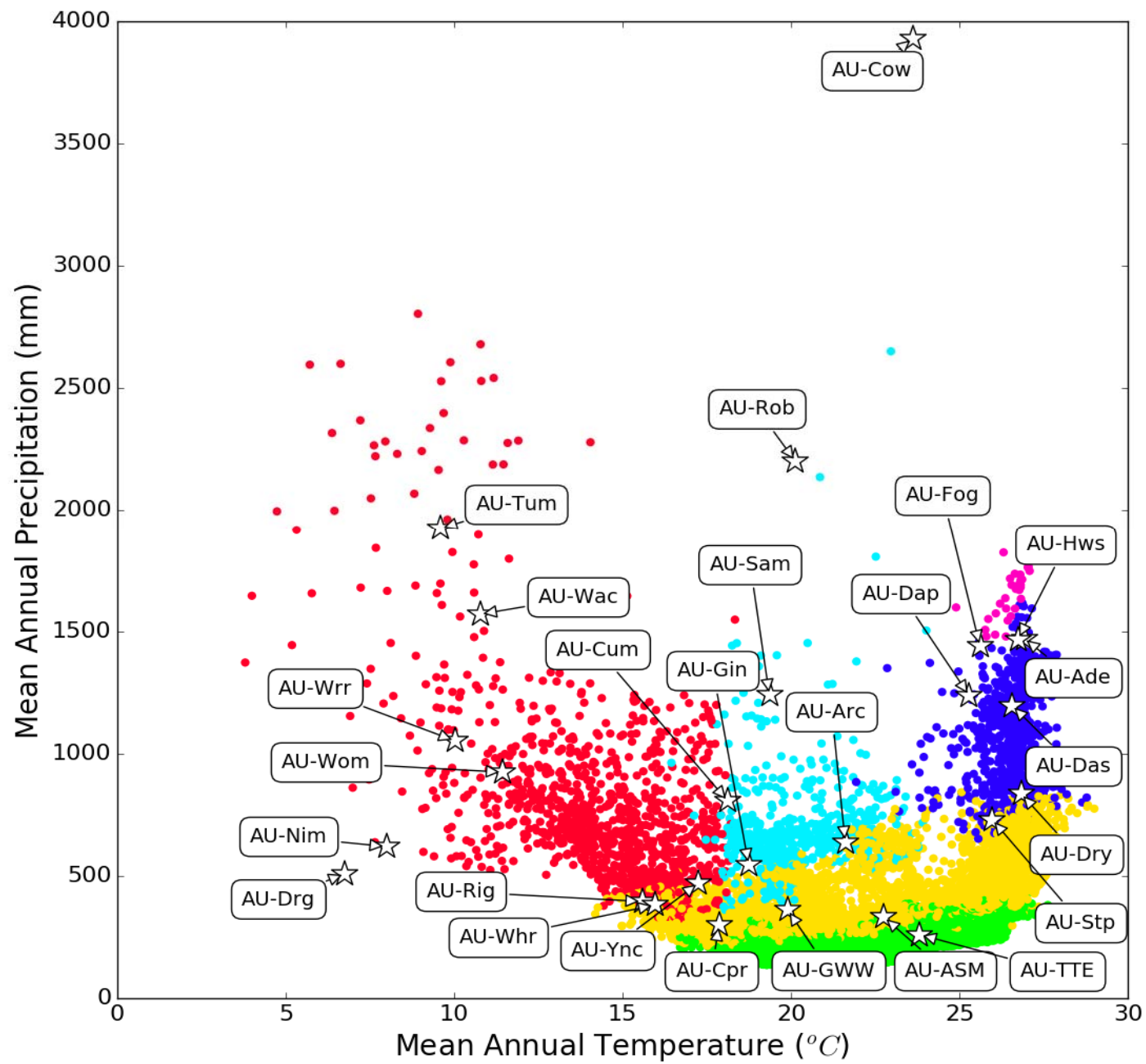
# Flux science contributions

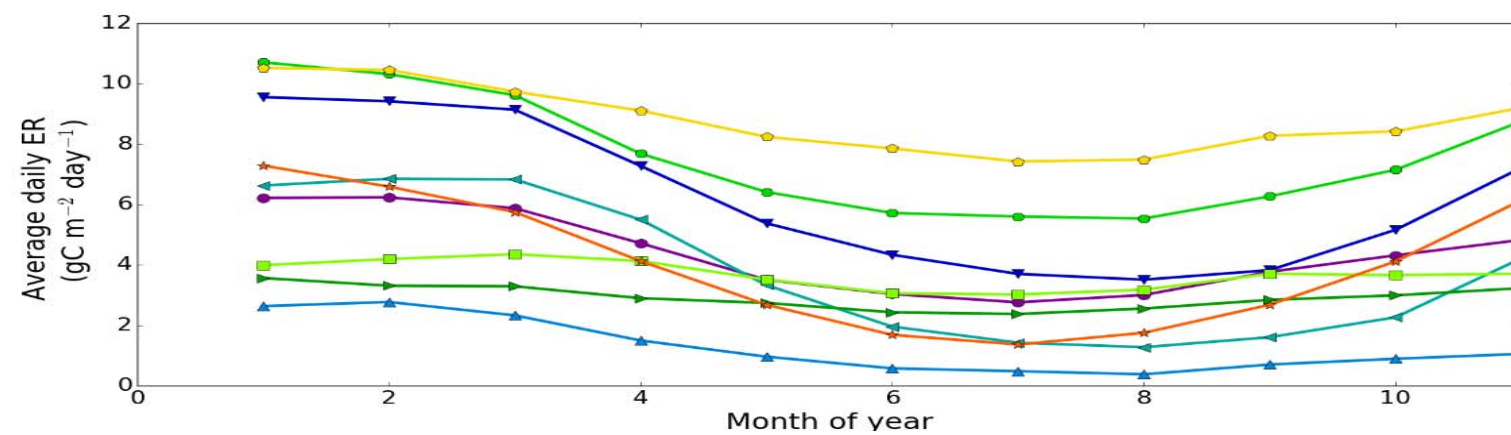
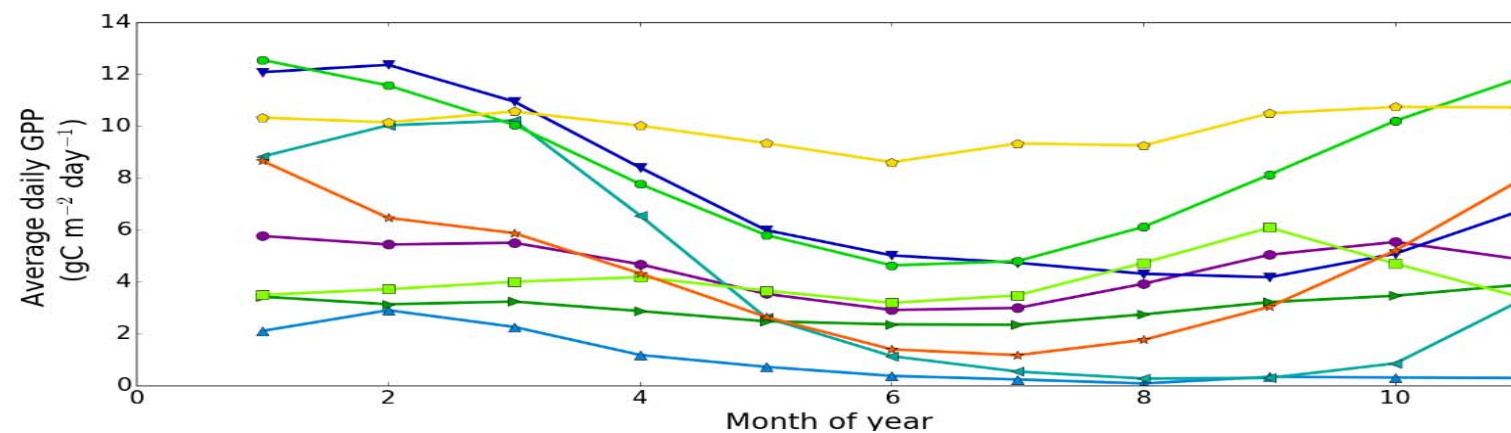
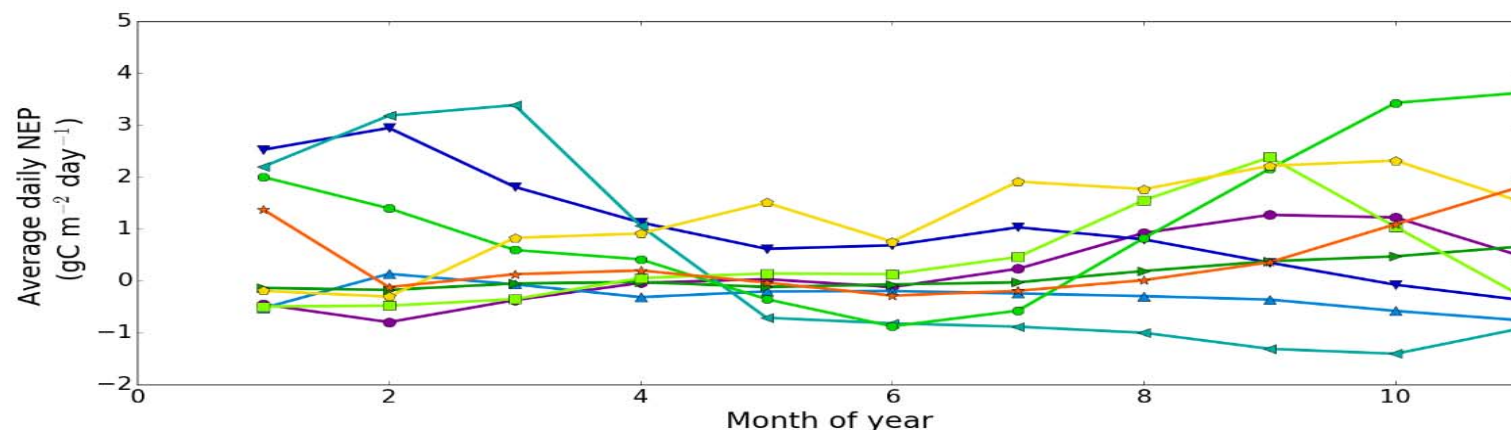
- Providing accurate, continuous half-hourly to annual estimates of sinks and sources of greenhouse gases and water from ecosystems for carbon accounting and water management
- Evaluating the effects of disturbance, topography, biodiversity, stand age, land use, insect/pathogen infestation and extreme weather on carbon and water fluxes
- Examining the effects of land management practices, such as harvest, fertilisation, irrigation, tillage, thinning, cultivation and clearing
- Producing important ground-truth data for parameterising, validating, and improving satellite remote sensing and global inversion products

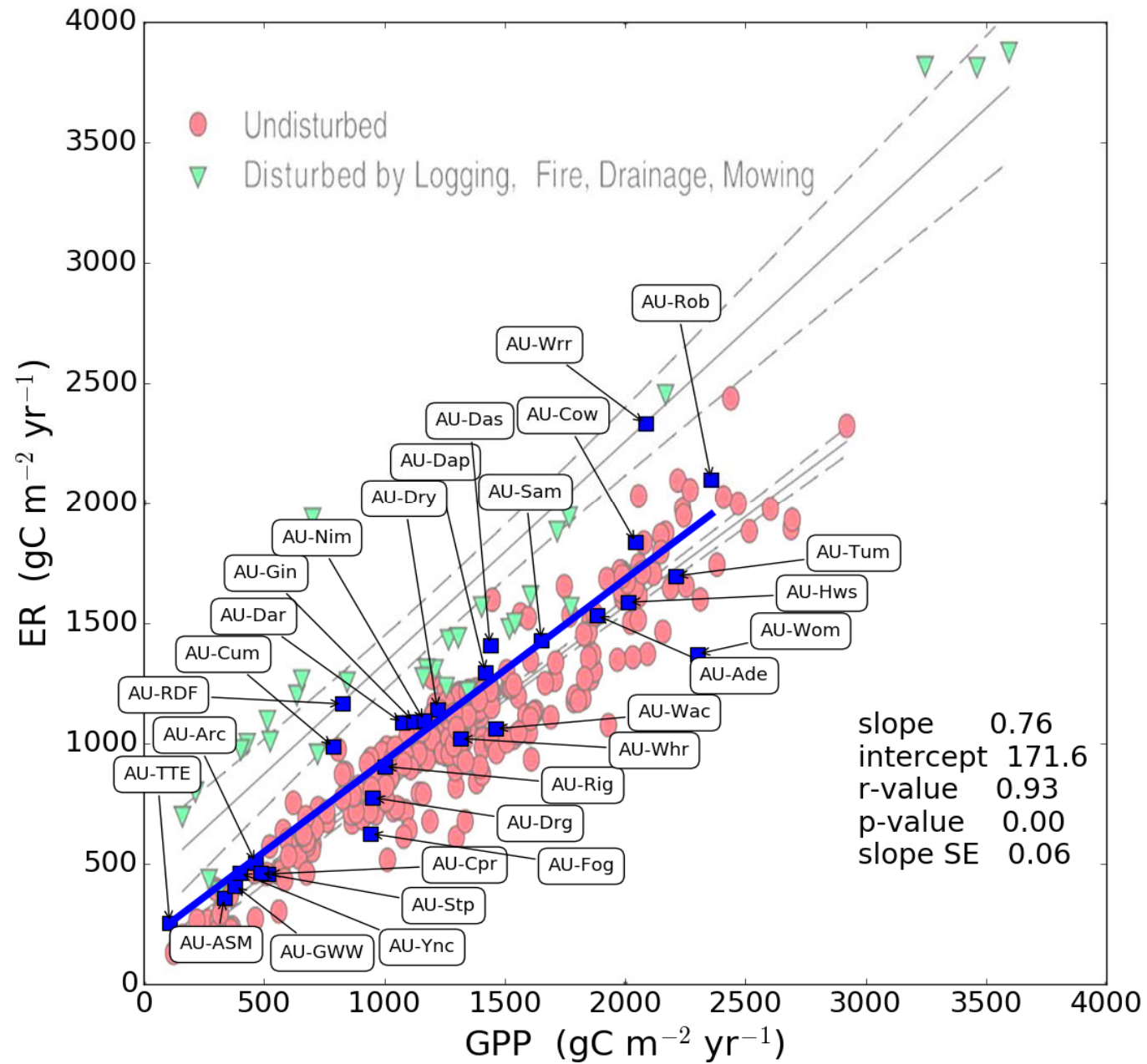
# Key ecosystem science questions

- What are the key drivers of ecosystem productivity (carbon sinks) and greenhouse gas emissions
- How resilient is ecosystem productivity to a variable and changing climate
- What is the current water budget of the dominant Australian ecosystems and how will it change in the future?





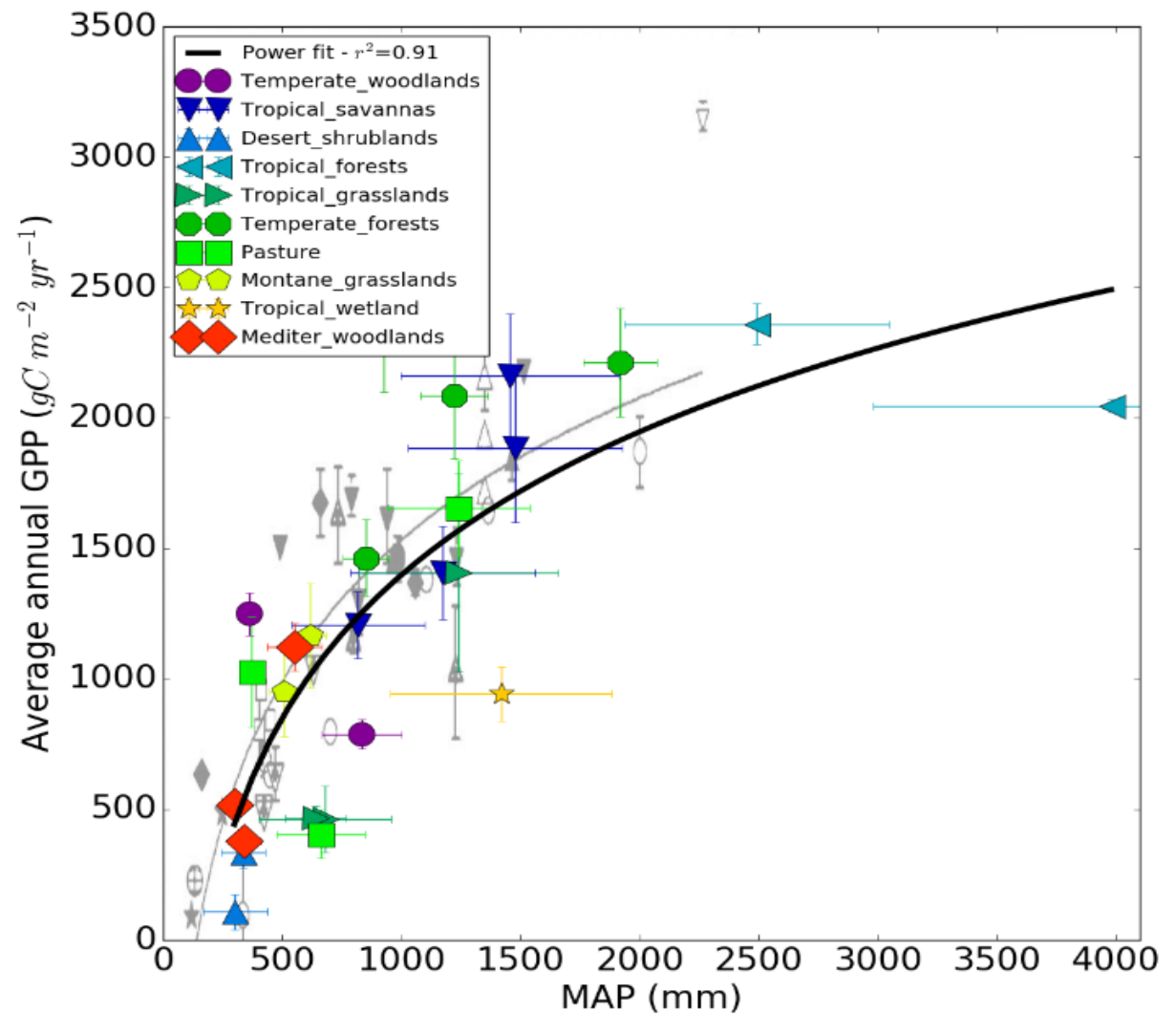




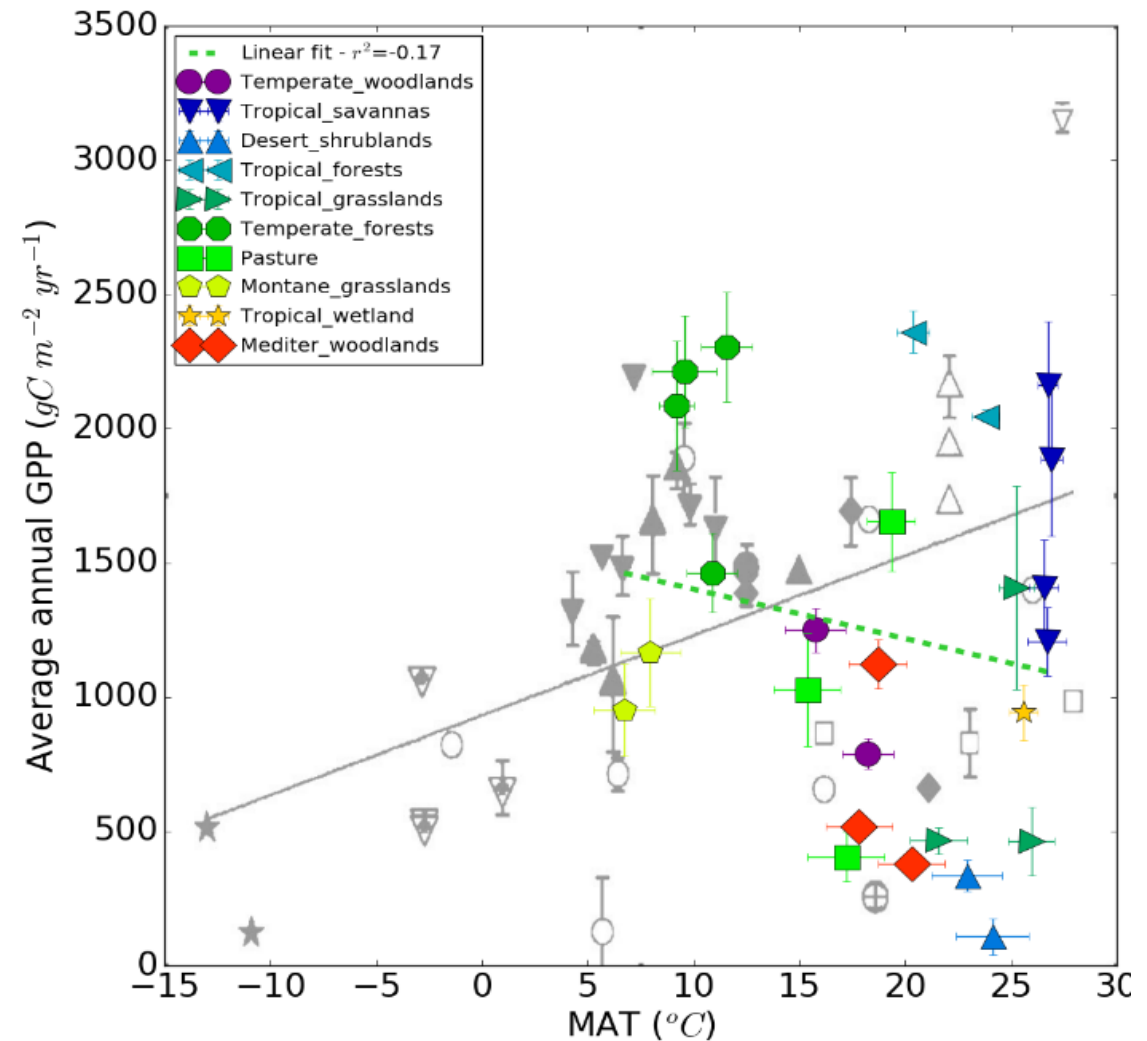




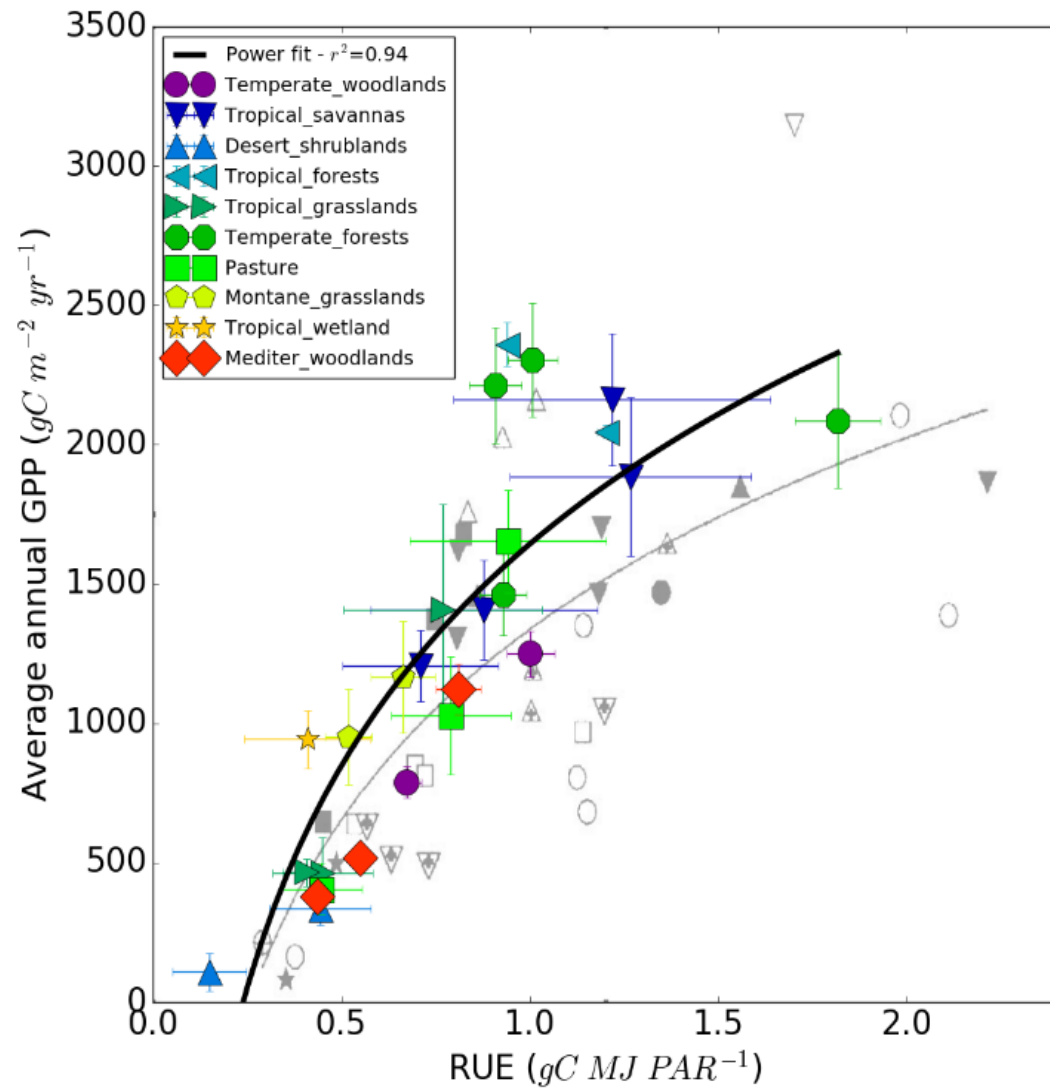
- Similar relationship of GPP to Precip
- Australian sites add observations at higher MAP.



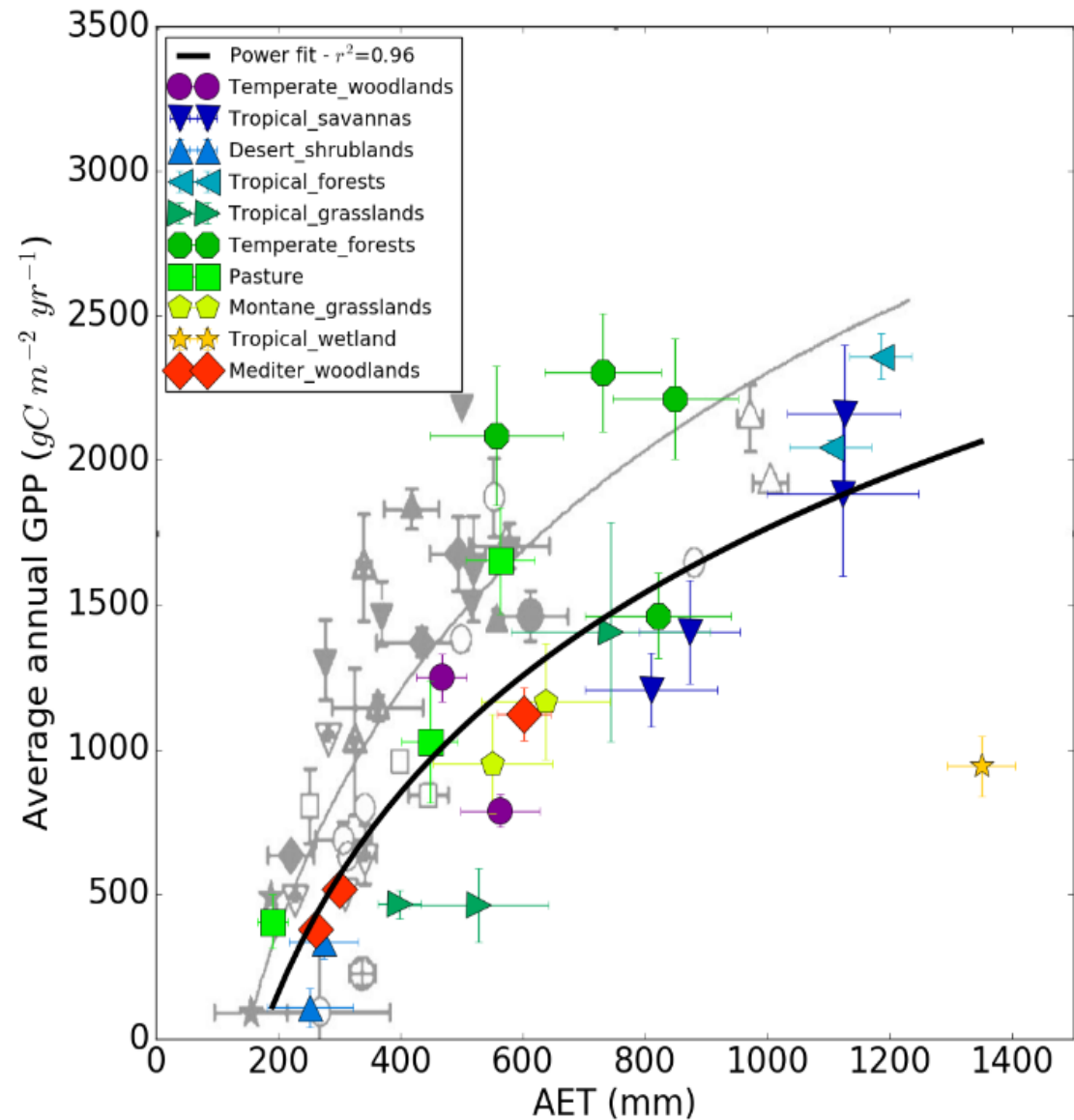
- No real relationship with MAT
- No 'cold' sites
- Peak in GPP  $\sim 12^{\circ}\text{C}$
- Below  $11^{\circ}\text{C}$  cold limits growth. Increasing MAT limits water resources, except tropical.



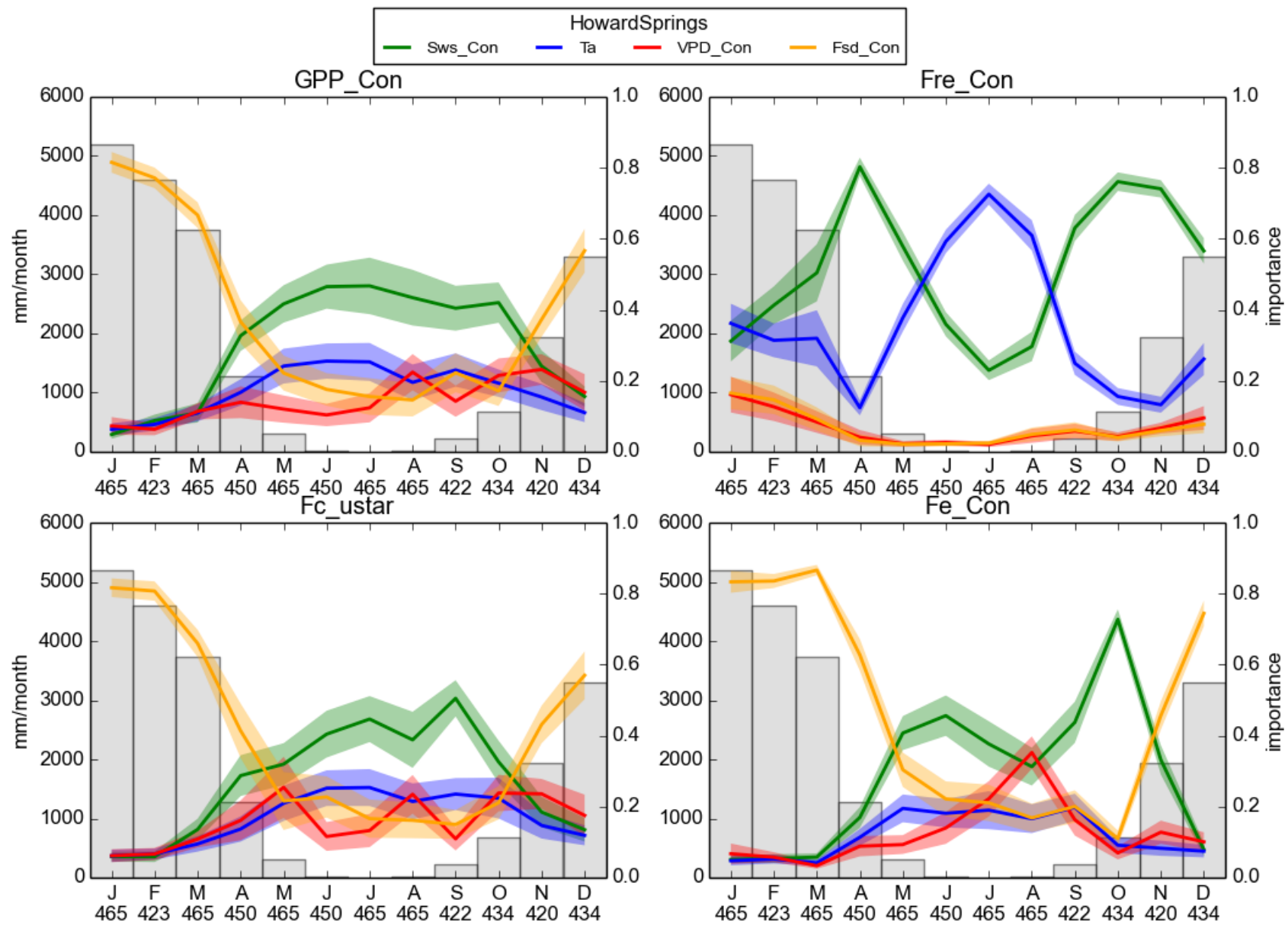
- RUE slightly higher than international.
- Correlation between RUE and GPP decreased when GPP was expressed per unit LAI.;

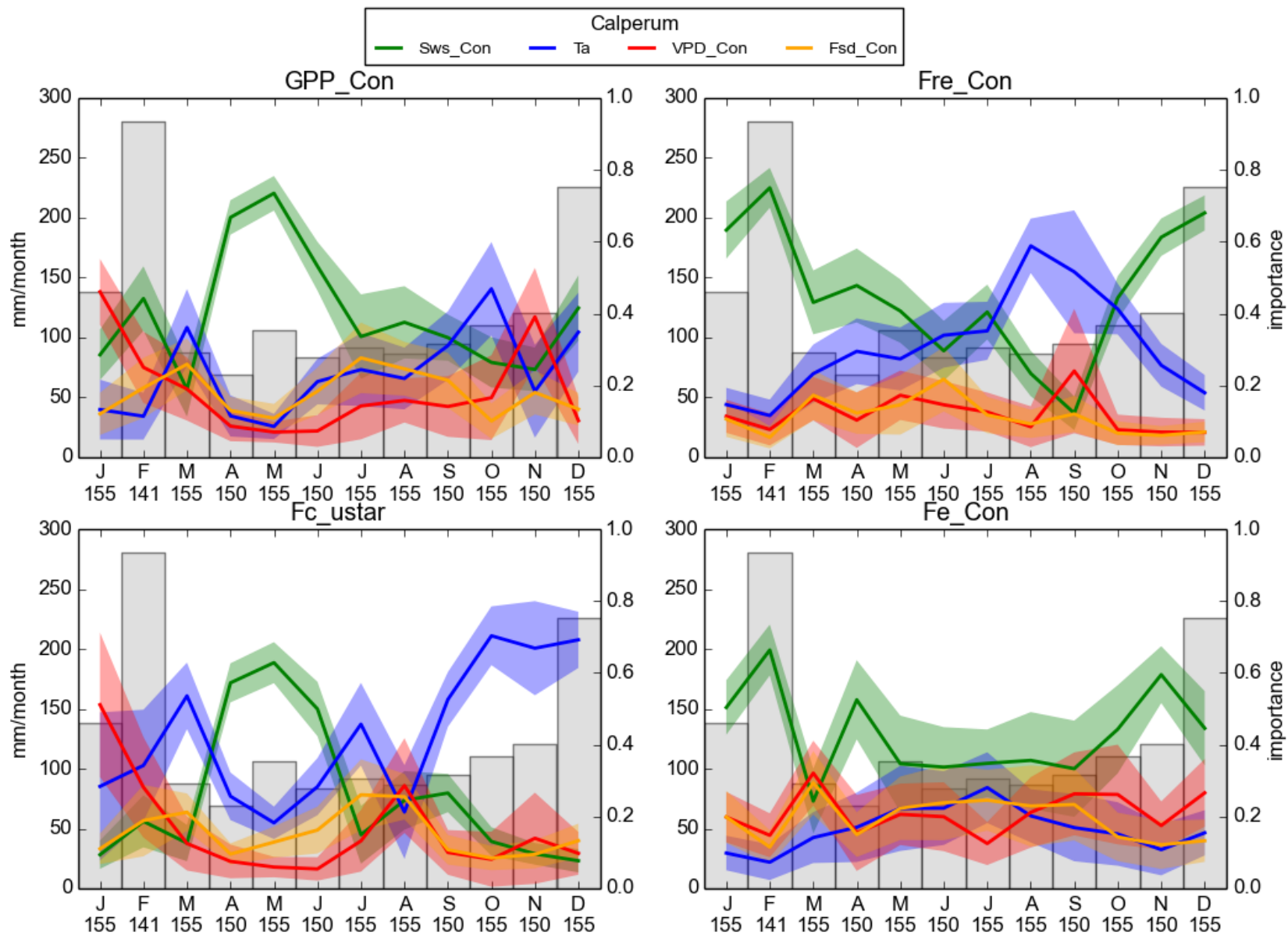


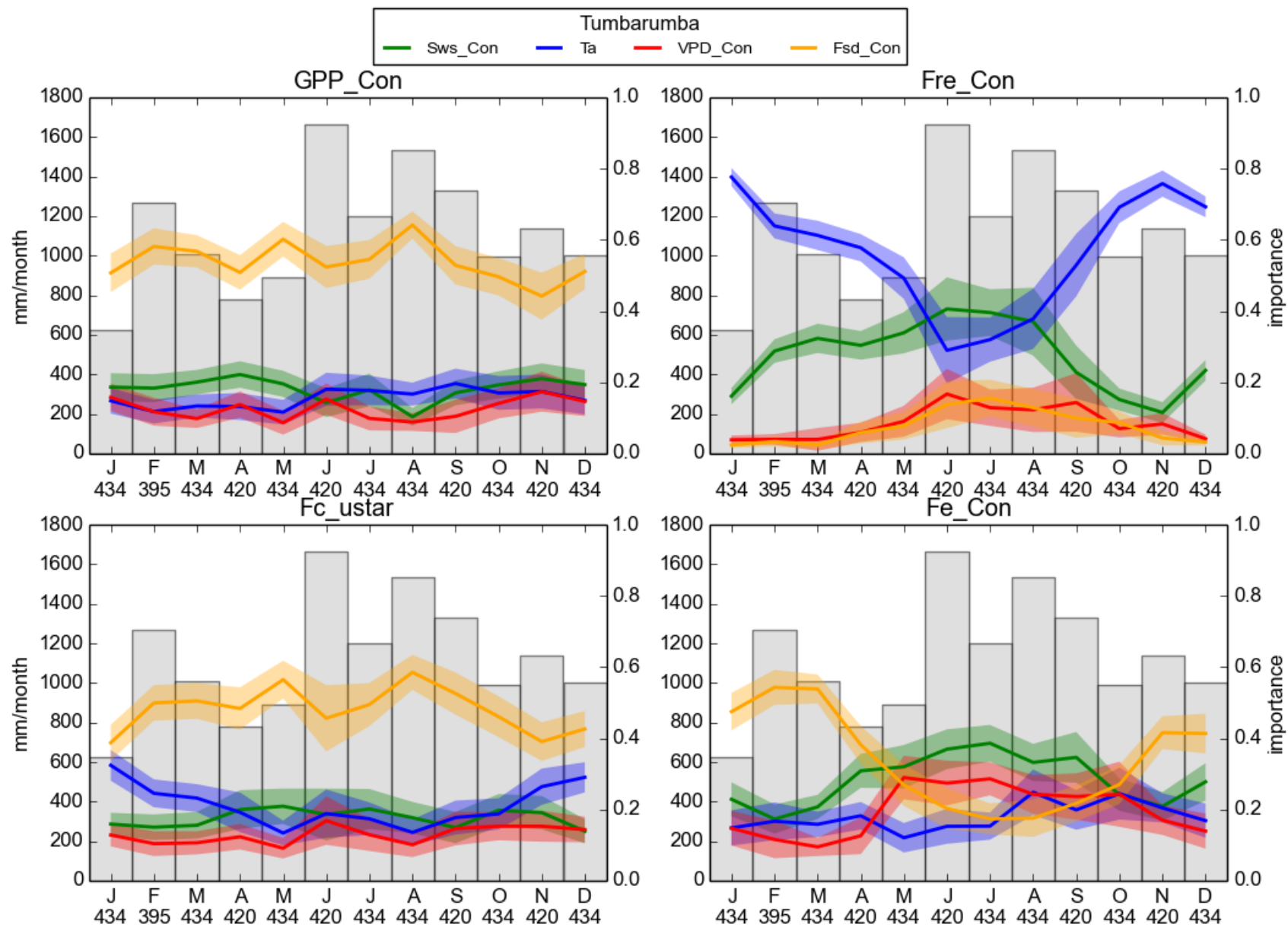
- Australian systems have lower WUE (GPP/ET)
- BIOS2 modelling that over half (64%) of Australian ET is attributable to soil evaporation, which is much higher than the global fraction of 27%,



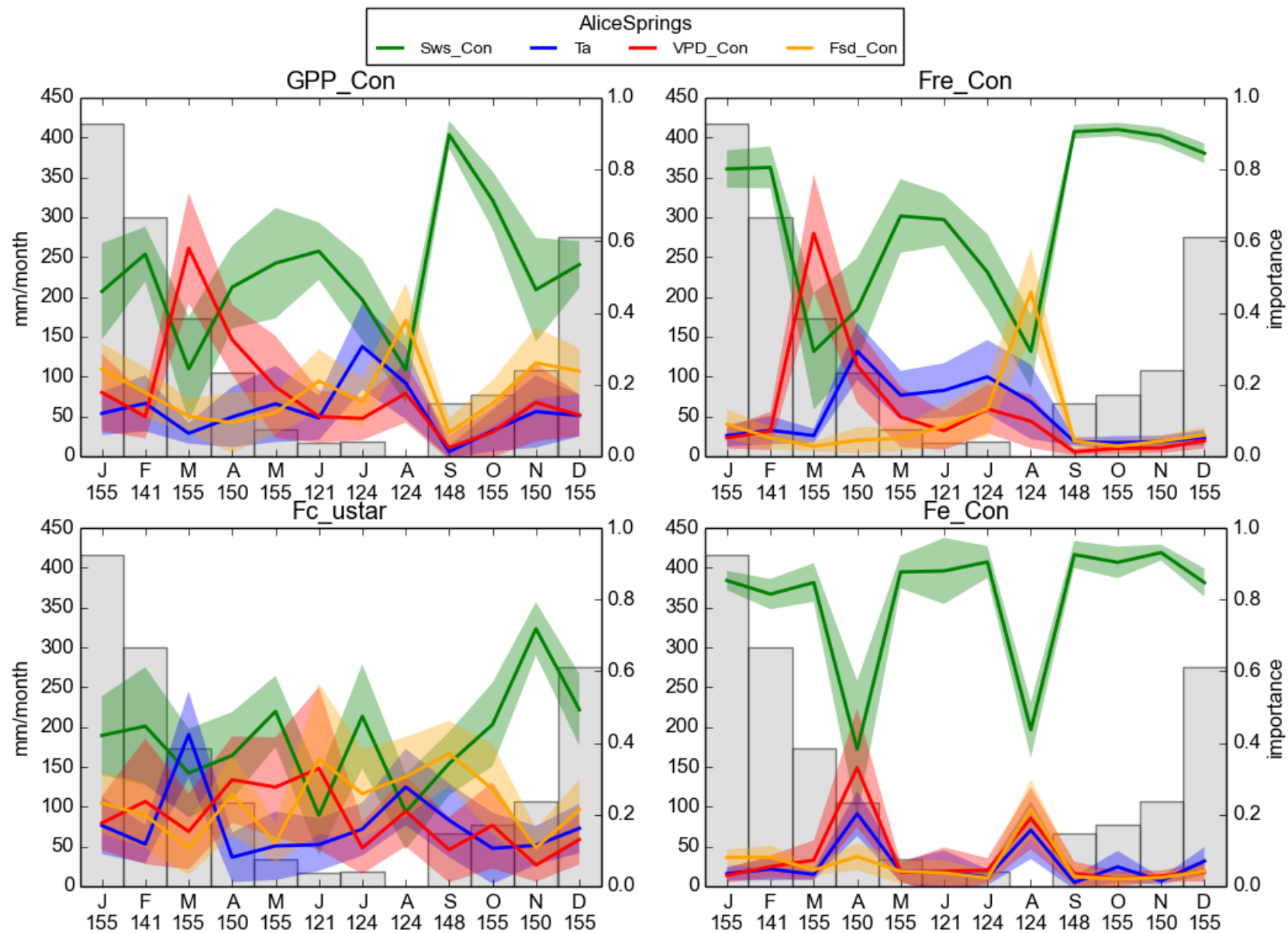
Australian Savannas



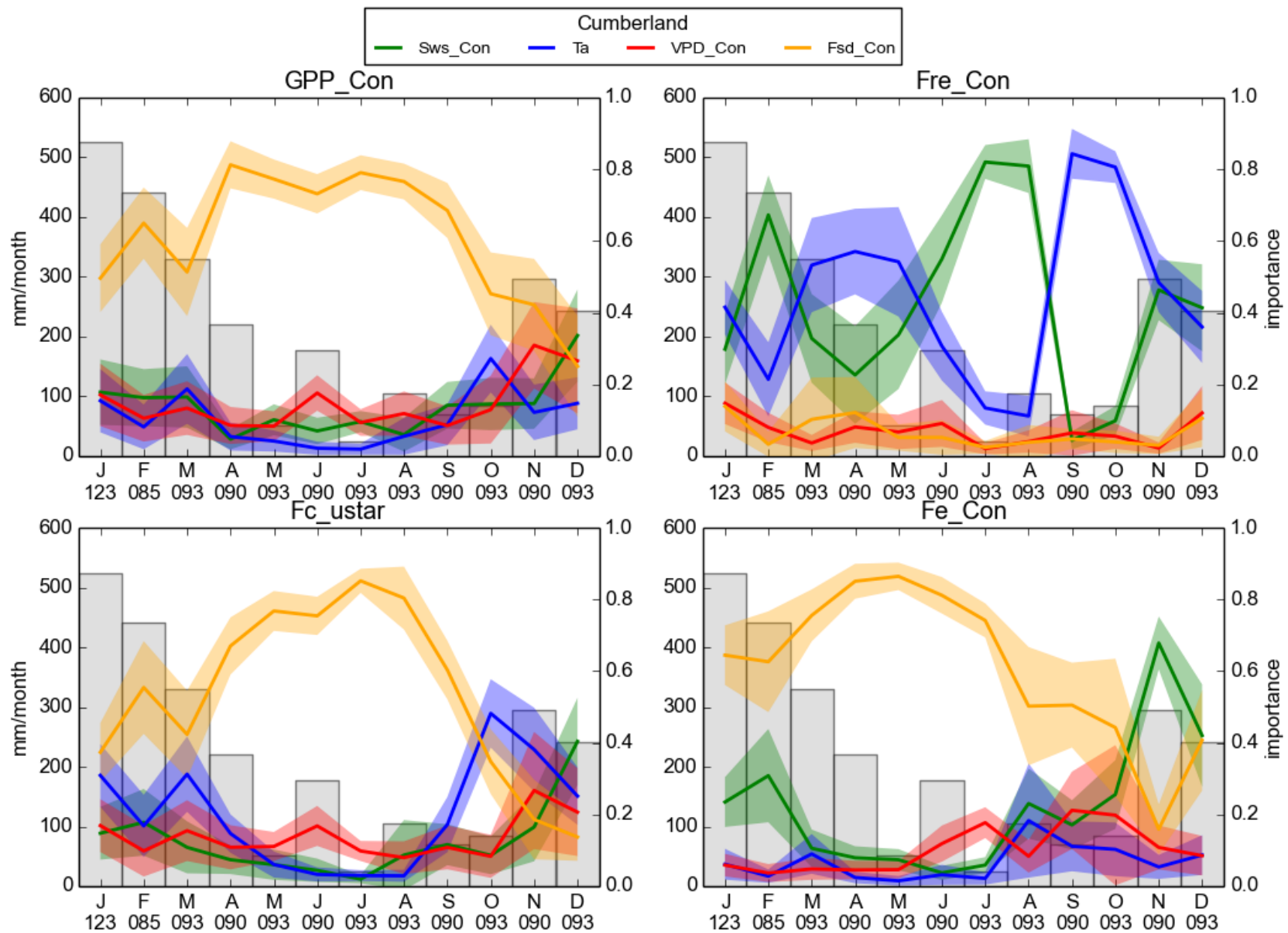














## References

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# Acknowledgements

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