



OzFlux

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## The Australian flux and ecosystem research network

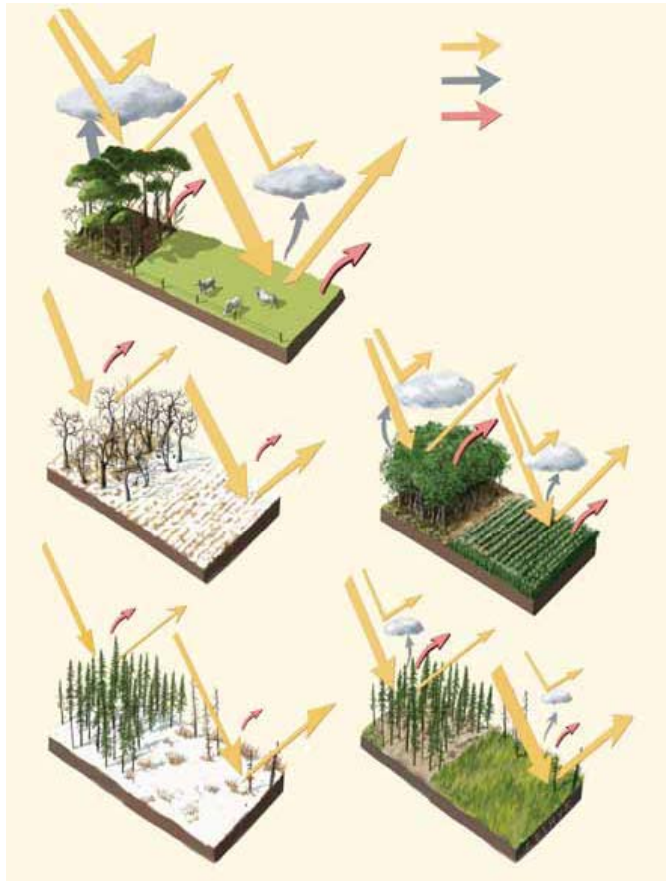
Presentation by Dr Helen Cleugh, **Dr Eva van Gorsel** and Dr Ray Leuning

*TERN is supported by the Australian Government through the National Collaborative Research Infrastructure Strategy and the Super Science Initiative.*





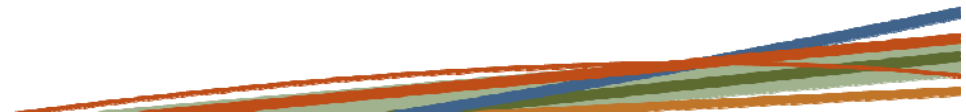
## Purpose of Facility



- Terrestrial ecosystems modulate climate
- Globally, terrestrial ecosystems sequester about 25% of CO<sub>2</sub> emissions.
- Impact of climate change on terrestrial ecosystem functioning can be informed and quantified by energy, water and carbon budgets

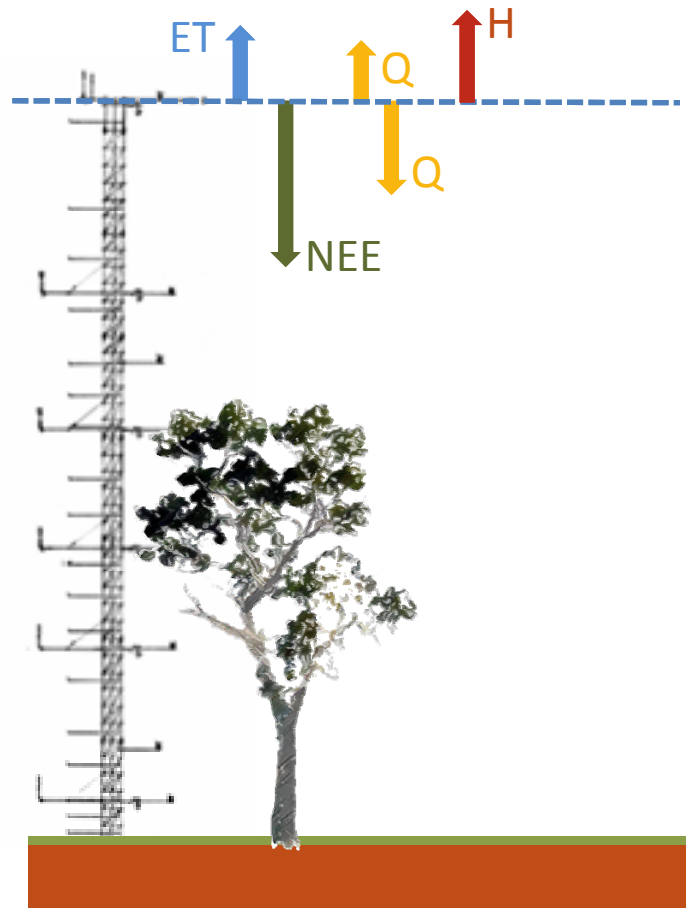
RG Anderson et al.

*Front Ecol Environ* 2010; doi:10.1890/090179





## Purpose of Facility



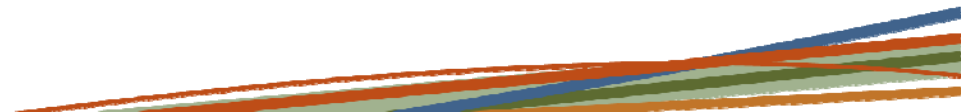
- measure flows of carbon and water (NEE, ET)
- measure flows of energy (radiation Q, heat H)

### Drivers:

- above-canopy meteorology (Q, T, VPD)
- soil temperature, moisture and heat fluxes

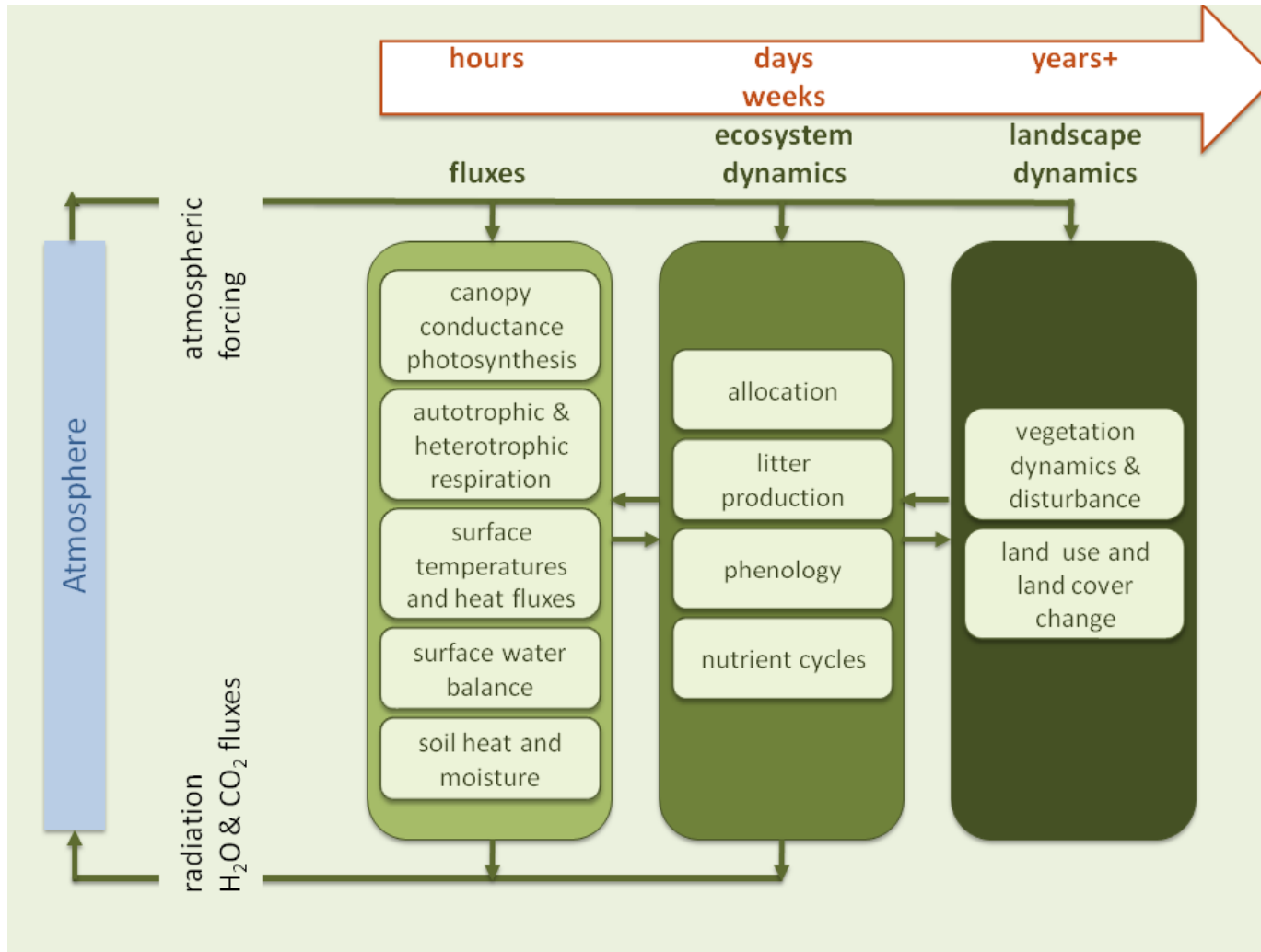
### Analysis and Interpretation:

- within-canopy temperature, CO<sub>2</sub>, humidity and wind profiles

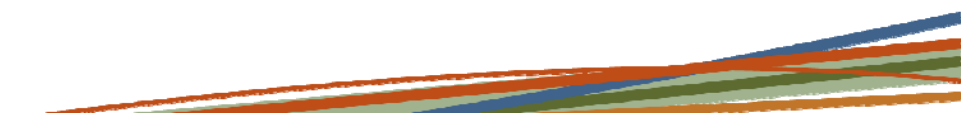




## Key Questions being Addressed



M. Williams et al.  
[www.biogeosciences.net/6/1341/2009/](http://www.biogeosciences.net/6/1341/2009/)

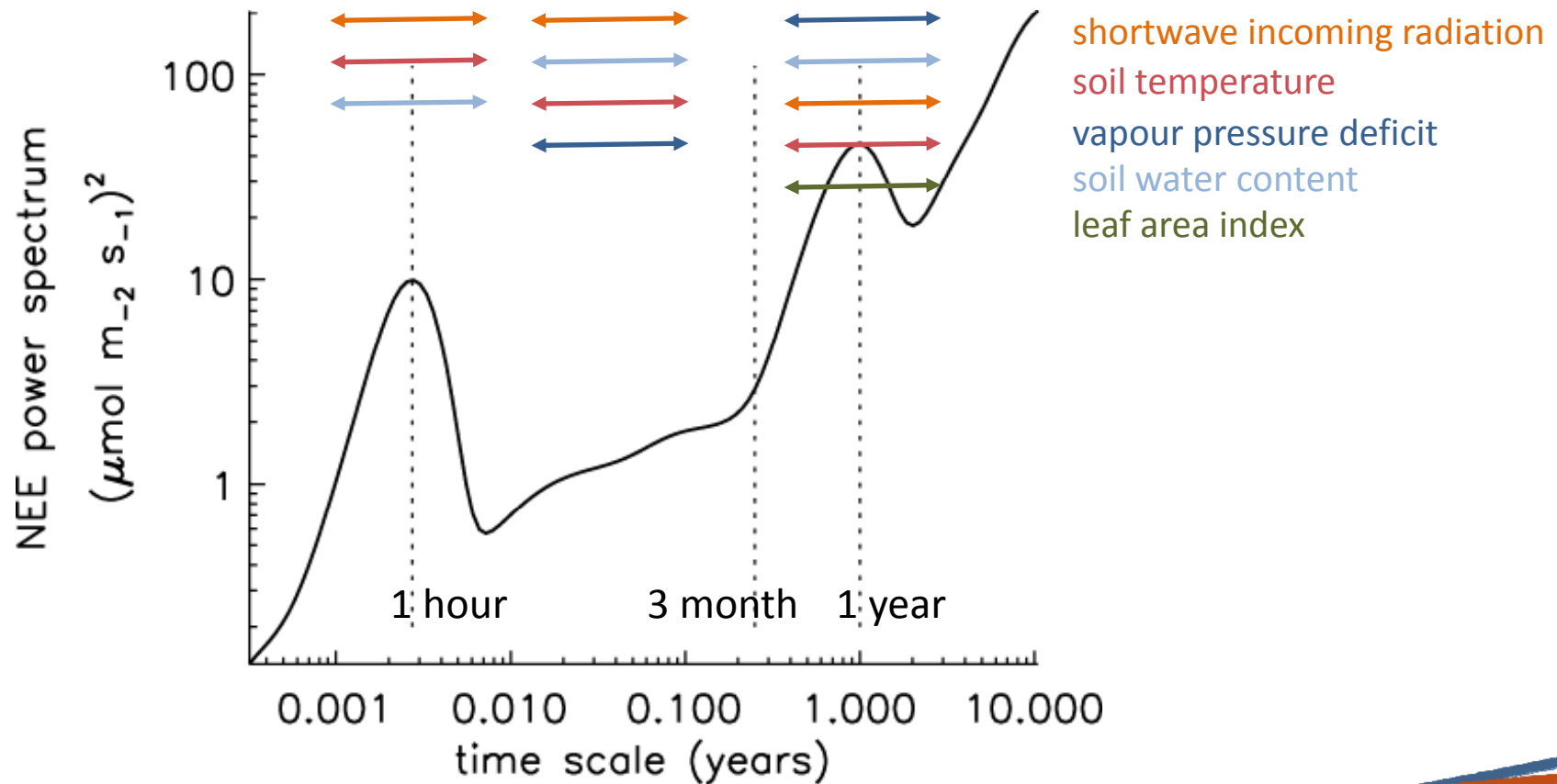




## Key Questions being Addressed

### Tumbarumba

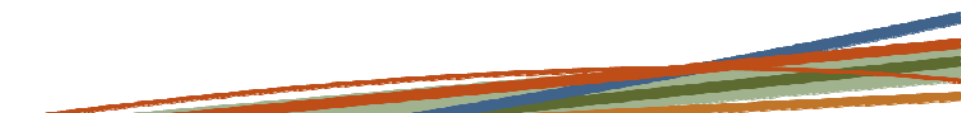
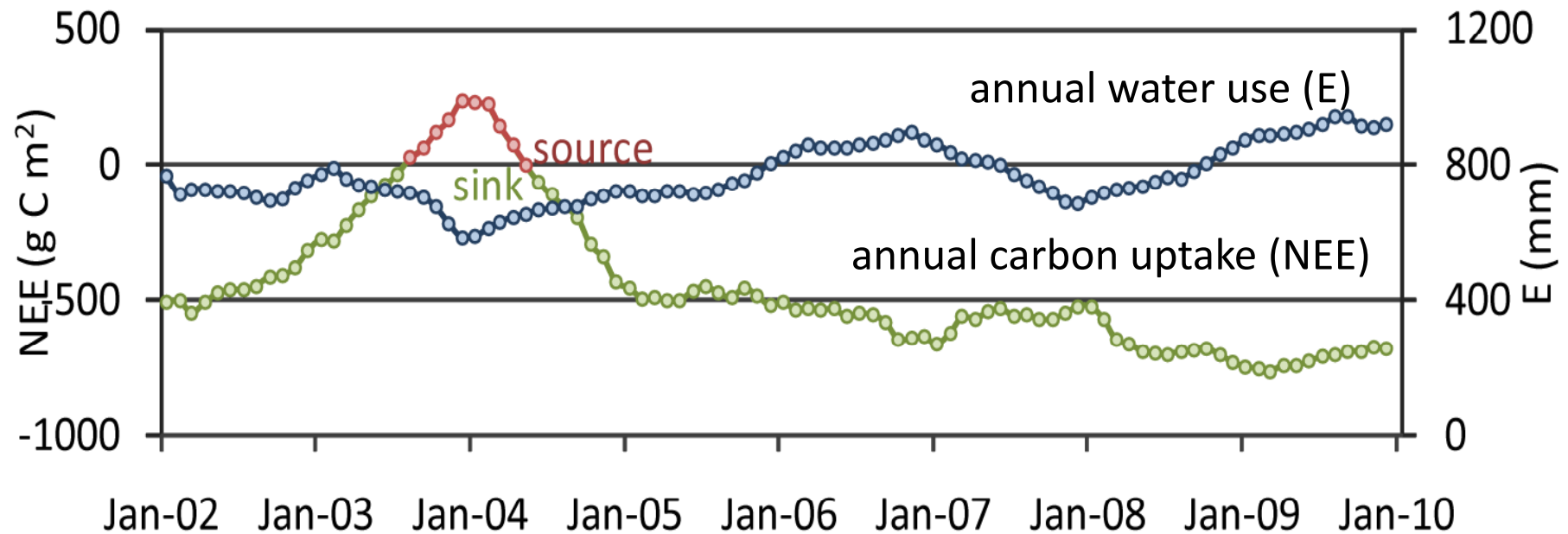
- PIs: van Gorsel and Leuning





## Key Questions being Addressed

A decade of hourly measurements at Tumbarumba flux station  
(*E. Delegatensis*)



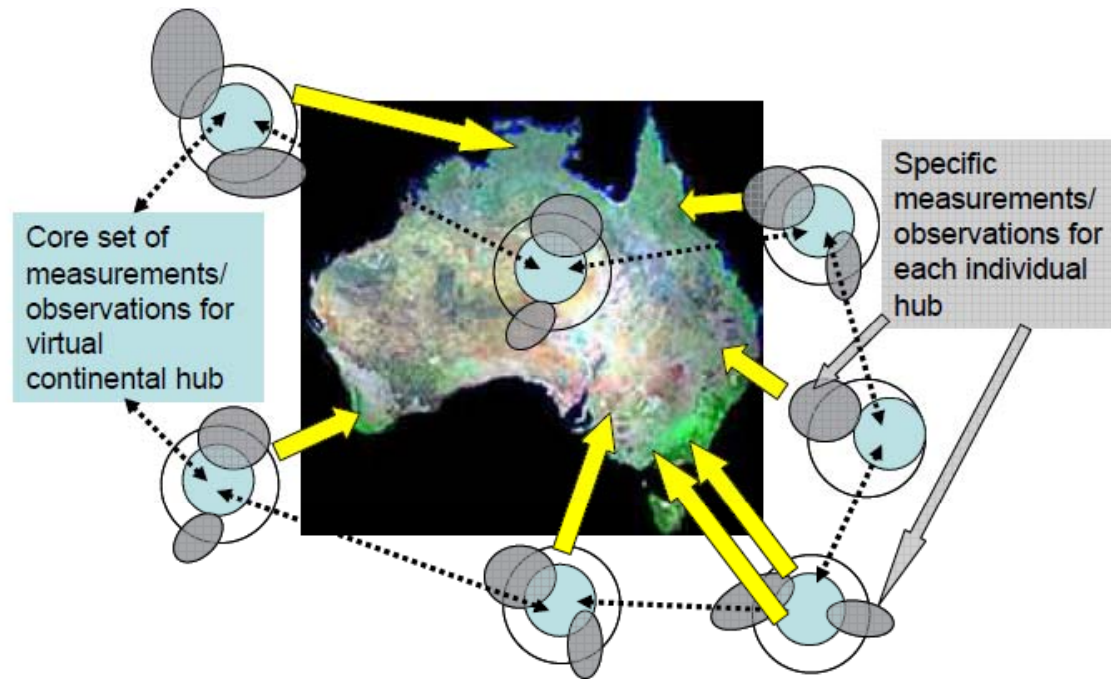




## Infrastructure to be Delivered

- A network of flux stations delivering nationally consistent observations of energy, carbon and water fluxes
  - Common and long-term set of core measurements
  - Quality-controlled data sets available via TERN portal

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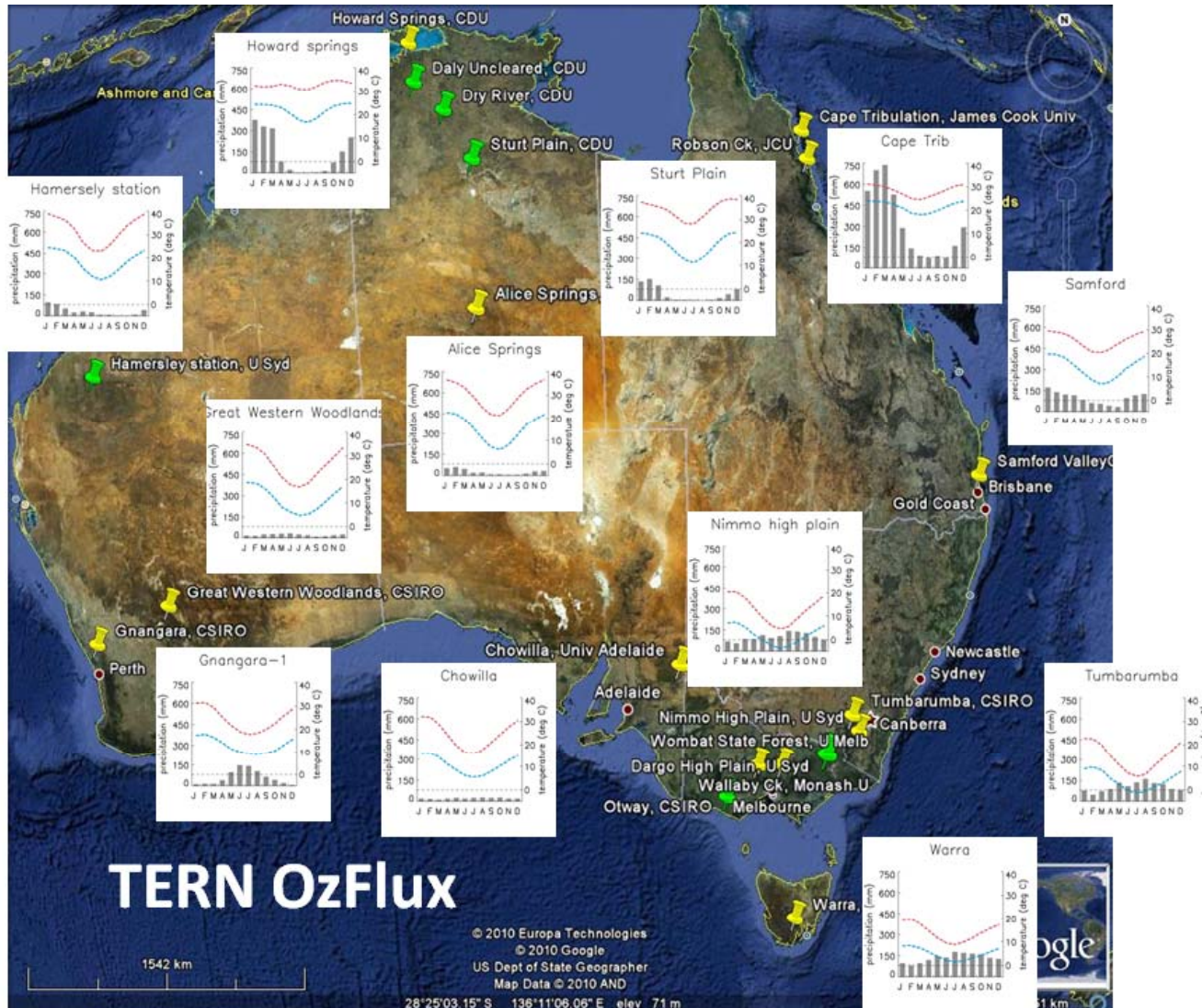
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Green - core observations made to standard measurement protocols  
Gray - 'constellation' measurements specific to each site





# Infrastructure to be Delivered

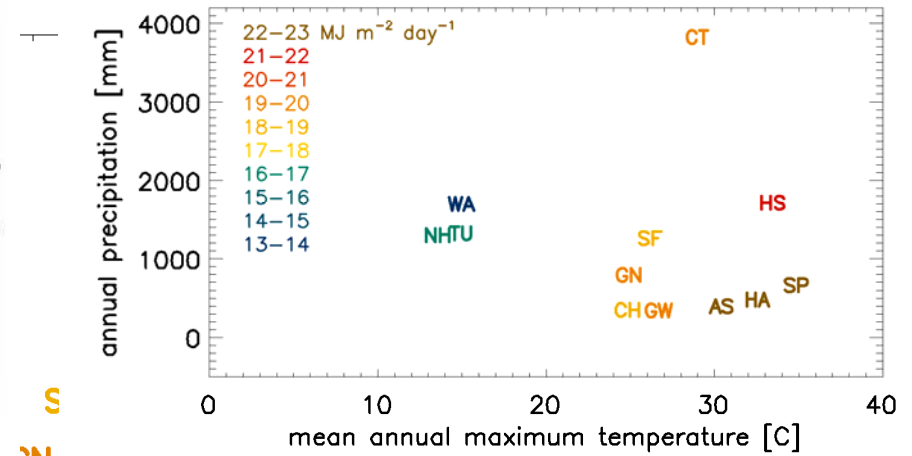
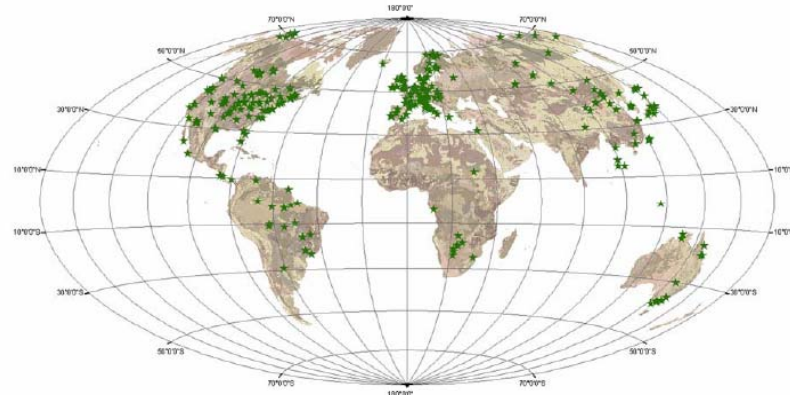




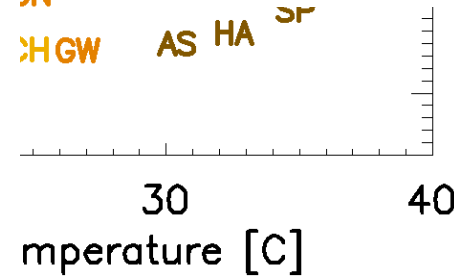
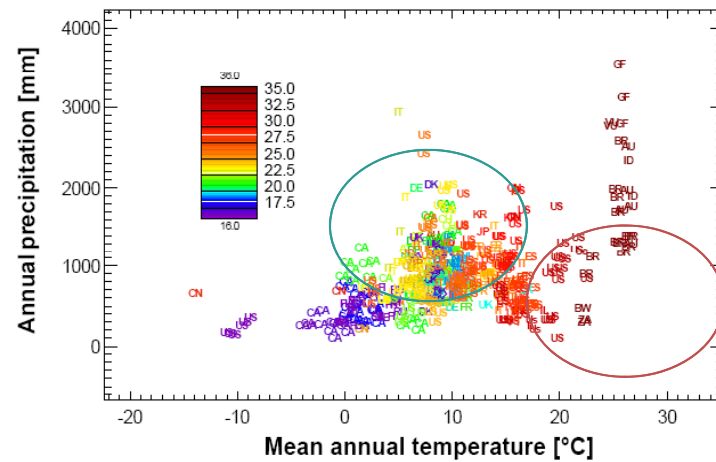


## Our plan for community engagement

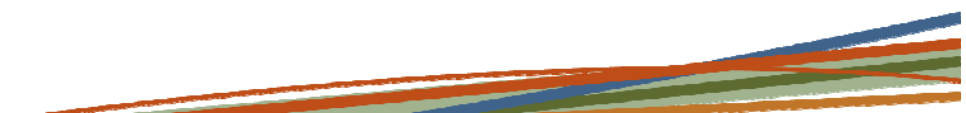
(A)



(B)



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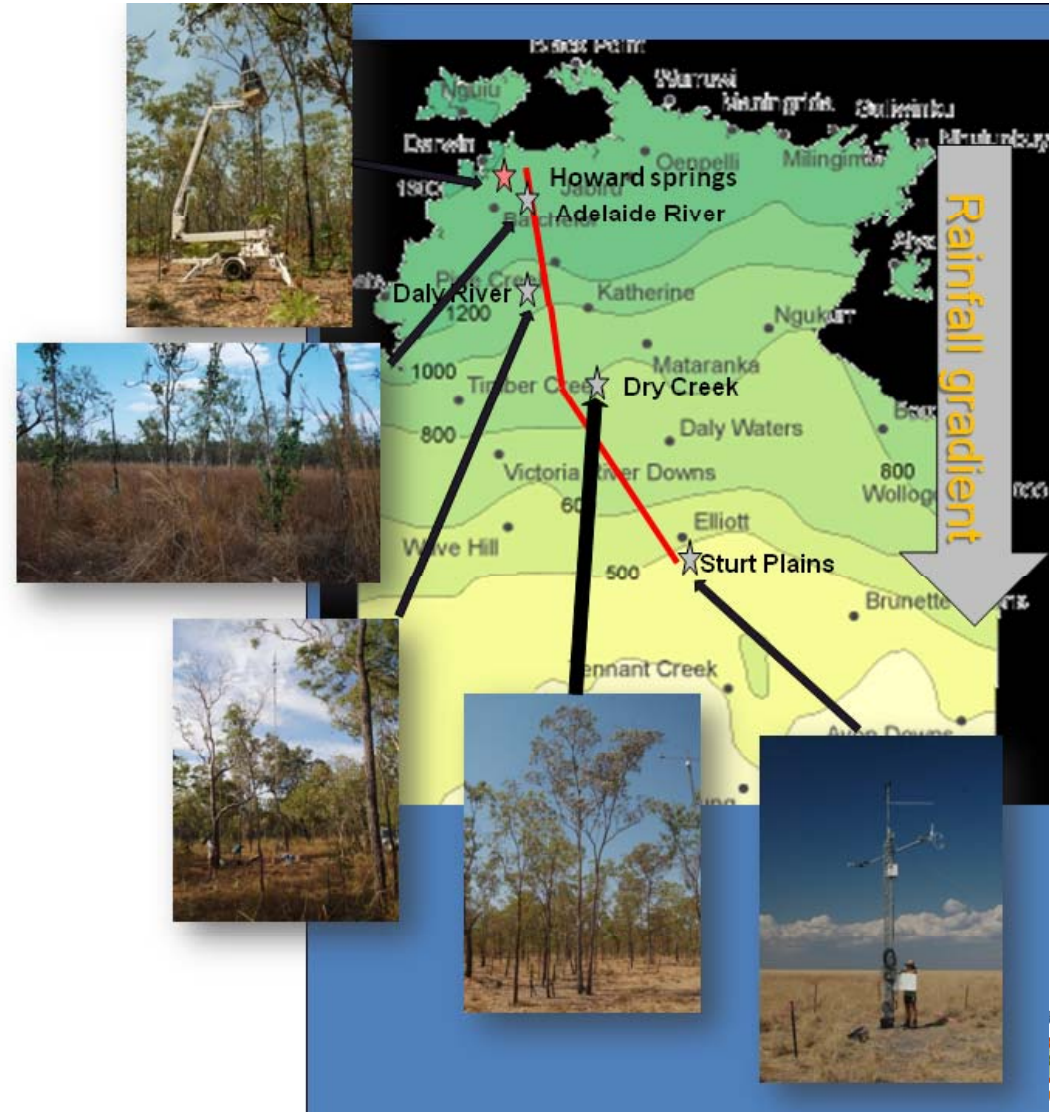


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Our plan for community engagement

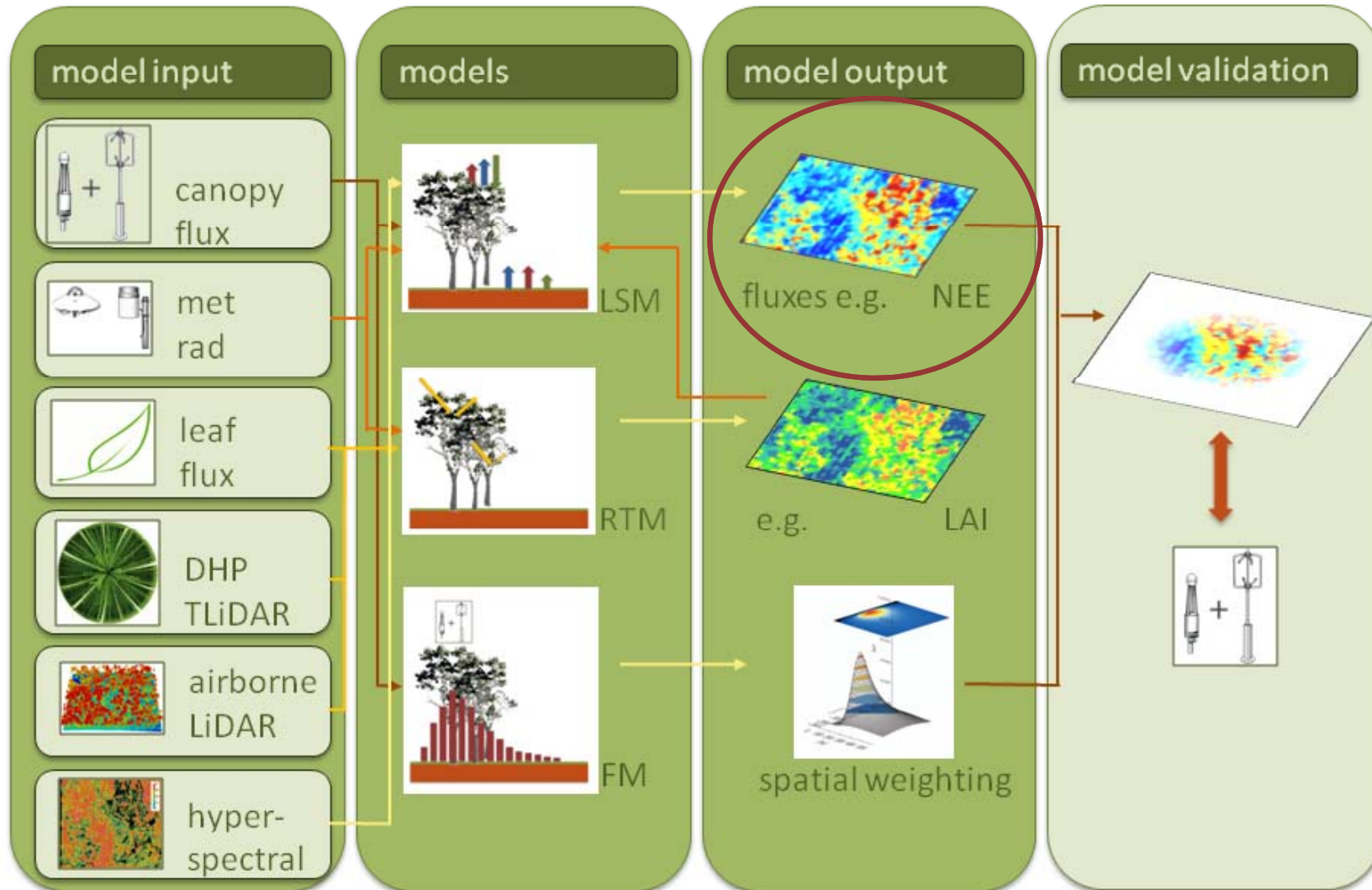
## Northern Tropical Savanna Flux Transect

- PIs: Beringer and Hutley
- Carbon balance and hydrology
- Disturbance: Land clearing and fire
- Aerosols and trace gas emissions





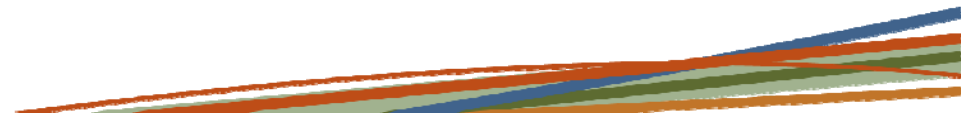
## Our plan for community engagement





## Acknowledgements

ARC  
ACCSP  
DCCEE  
Bushfire CRC  
TRaCK  
CSIRO  
James Cook University  
Queensland University of Technology  
Monash University  
University of Melbourne  
Forestry Tasmania  
University of Adelaide  
Charles Darwin University  
University of Technology, Sydney  
The University of Sydney  
University of Waikato, NZ  
Landcare Research, NZ





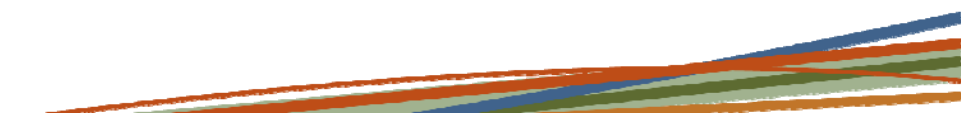


## Facility Contact Details

# THANK YOU

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Helen Cleugh      [helen.cleugh@csiro.au](mailto:helen.cleugh@csiro.au)



Site Name	Ecosystem	Location
1. Robson	Simple notophyll vine forest	Qld (Atherton Tablelands)
2. Cape Tribulation*	Complex mesophyll vine forest	Qld (Daintree)
3. Samford	Peri-urban	Qld (Brisbane)
4. Tumbarumba	Alpine ash forest ( <i>E. delegatensis</i> )	SE NSW
5. Wallaby Creek	Mountain ash forest ( <i>E. regnans</i> )	SE Vic
6. Wombat	Dry sclerophyll Eucalypt forest ( <i>E. obliqua</i> ; <i>E. radiata</i> and <i>E. rubida</i> )	Central Vic
7. Warra	<i>E. obliqua</i> forest	Tasmania
8. Nimmo High Plains	Poa C <sub>3</sub> grassland	NSW alpine region
9. Chowilla	Mallee	SA (Lower Murray)
10. Gnangara	Coastal heath	Southern WA
11. Great Western Woodlands**	Temperate woodland, heath and mallee	WA
12. Hamersley Station*	Semi-arid C <sub>4</sub> grassland	NW WA
13. Weeli Wolli Creek*	Semi-arid, riparian coolabah woodland	NW WA
NT Savanna Flux Transect 14. Howard Springs 15. Daly** and 16. Dry River**	Wet tropical savanna to rangelands	NT – N/S transect
17. Alice Springs	Mulga – arid rangelands	NT

