TERN
Terrestrial Ecosystem
Research Network

e-MAST
Ecosystem Modelling
& Scaling Infrastructure

e-MAST : Tools -> Data and Models

ecosystem Modelling And Scaling infrasTructure (e-MAST)

Presentation by Brad Evans - OzFlux 2013 – Palm Cove, Cairns

With examples of the work of Prentice, Hutchinson, Barrett, Renzullo, Whitley, Medlyn, Wright, Cleugh, Haverd, Briggs and contributors from their organizations

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

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Objectives

To create and develop research infrastructure capable of **integrating multiple data streams** to enable **benchmarking, evaluation and optimization** of next-generation terrestrial ecosystem models in support of ecosystem science, impact assessment and management.

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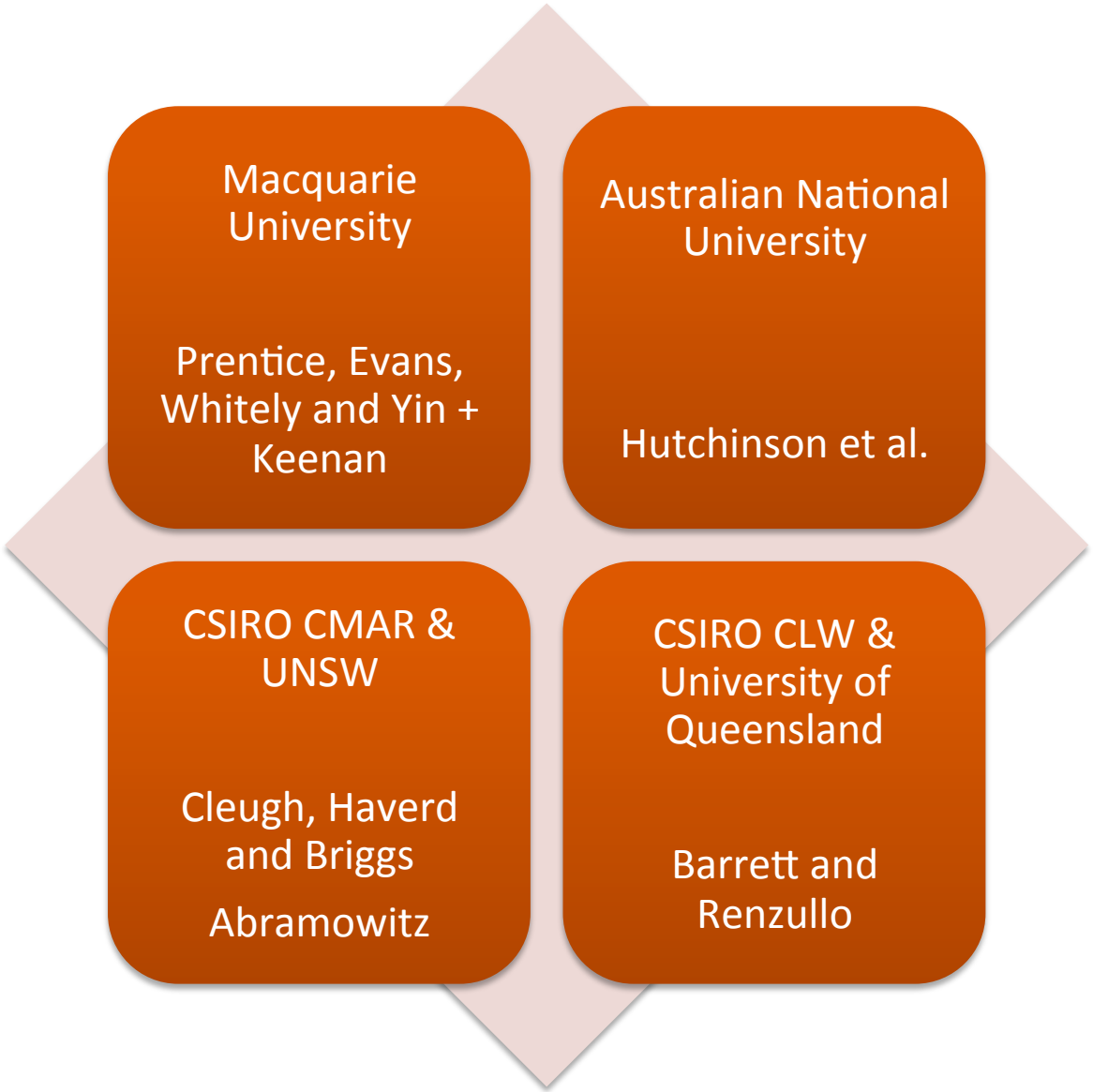
Who are we?



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What *are* we producing?

SOFTWARE to link model inputs and targets and evaluate them (i.e. PALS)

SOFTWARE to assimilate target data into models

SOFTWARE to downscale climate data and scenarios, using topographic data

DERIVED INFORMATION, e.g.

- High-resolution climate surfaces
- High-resolution ecosystem exchange (primary production, water use, canopy conductance)

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What *else* are we producing?

A **DATA SET** of ecophysiological measurements from the field

A **DATA SET** of ecophysiological measurements from ecosystem experiments

DATA SETS compiled from existing sources, within TERN and beyond (mainly CSIRO CMAR): fire, streamflow, [CO_2]

➢These data sets will form part of the toolkit

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Examples : OzFlux and PALS

e-MAST is developing…

- The ability to ingest the next generation (NetCDF CF) of OzFlux data into PALS
- The ability to ingest e-MAST and AusCover data into PALS
- Quantitative comparison of land surface models to assist differentiation

Case study: Australian Tropical Savanna's: Past, Present and Future

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e-MAST and plant TRAITS

- MQ Have been developing a database of plant traits with data from LTERN, Supersites, AusPlots and the Ecophysiology community (Medlyn and Wright et al)
- Data will be made available, in the first instance and national surfaces of plant traits

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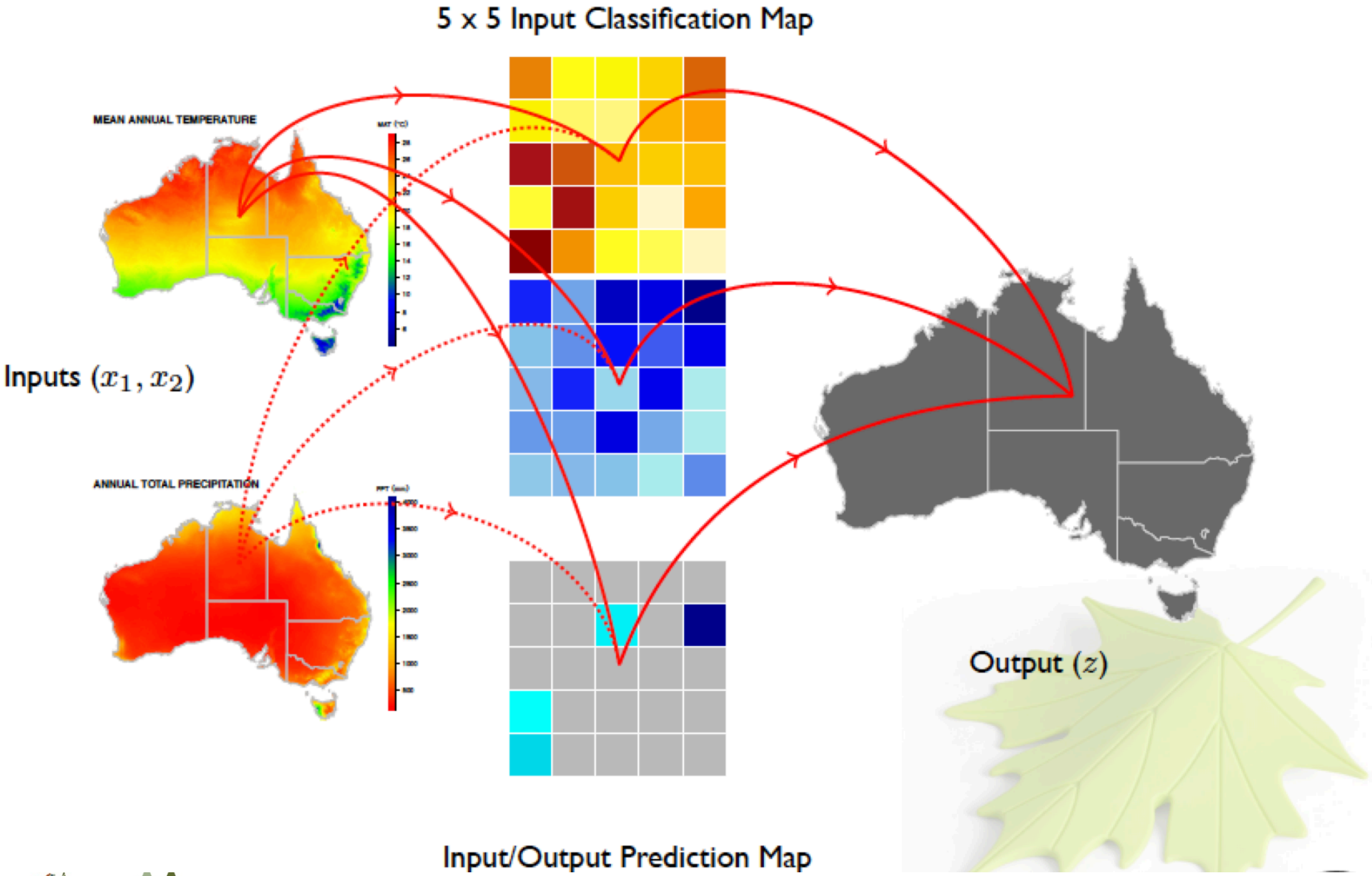
Re-mapping leaf N concentration for Australia



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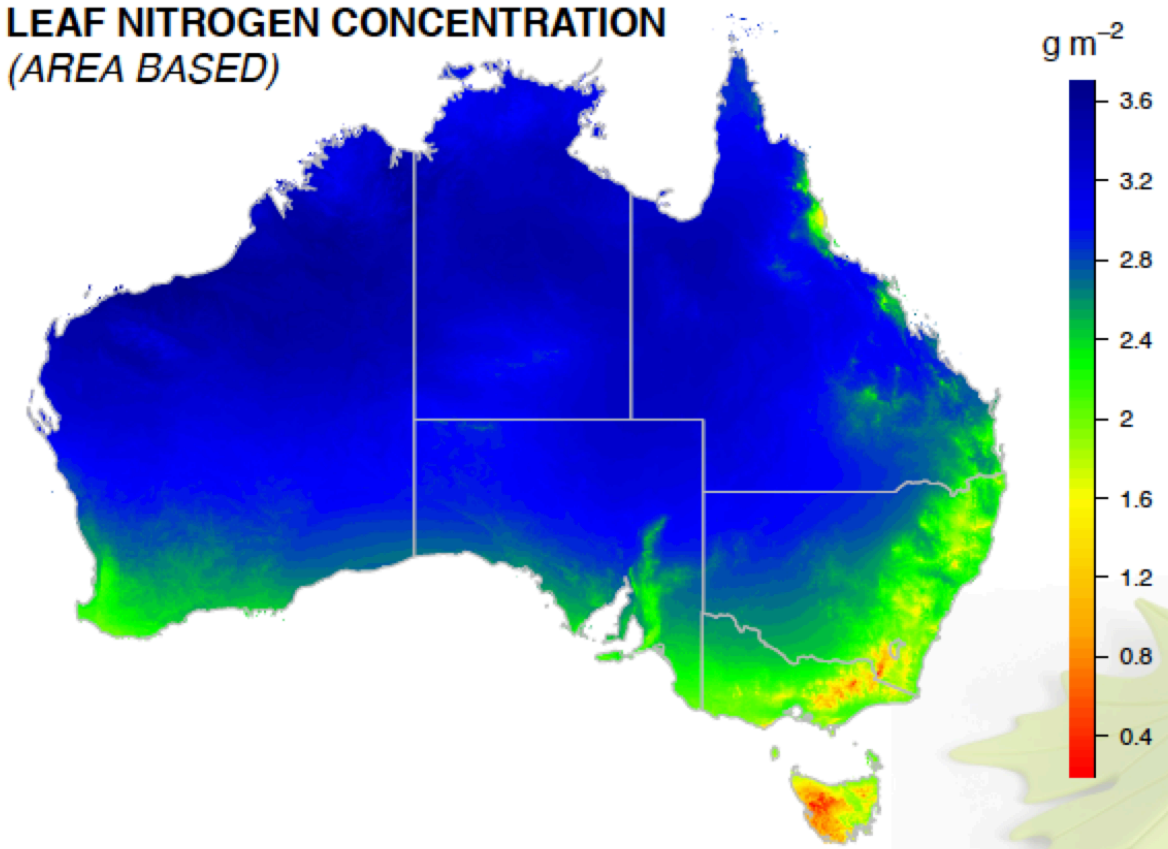
Re-mapping leaf N concentration for Australia

5x5 node surface map reconstruction



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