



# Fire Masterclass

## Modelling weather & load

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# What and Why I model...

## **Why**

- Epistemic hunger, of course! | Public interest -> RFS, Parks

## **What**

- Weather -> McArthur FFDI | Load -> NPP as proxy

## **Why the what**

- Weather -> gap filling | Load -> hat in ring
- FFDI -> Traction | Load / NPP -> modelling toehold

## **Where and how fine**

- FFDI -> Australia; GCM, RCM, point | Load -> Australia; 25 km

## **How do I balance climatology and ecology**

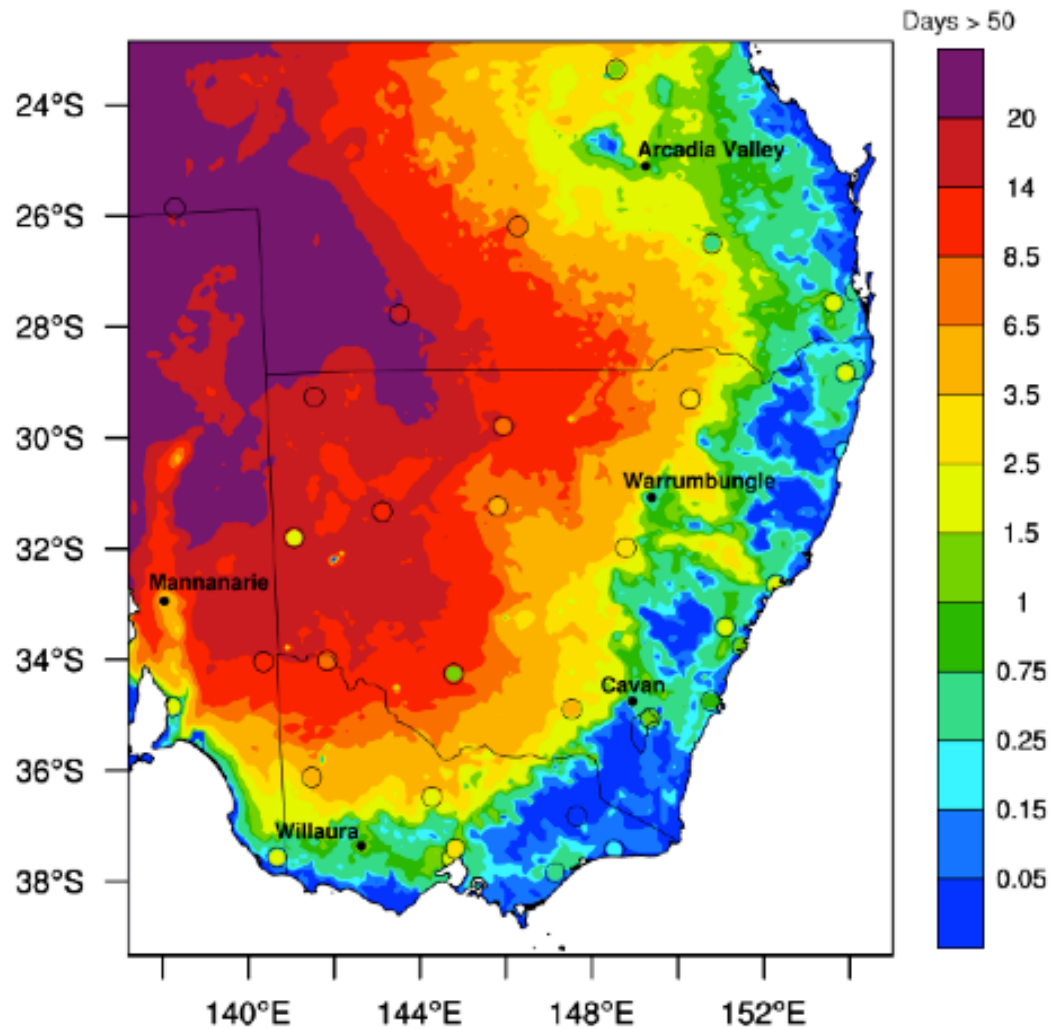
- I don't

# Case study of your modelling...

## *Estimating current fire weather in southeast Aus*

- Regional climate model, WRF
- Reanalysis forcing
- 1985 to 2010, southeast Aus, 10 km + 50 km res
- Compared to met station obs
- Academic interest in model performance
- Policy interest in this model (NARClIM)
- Operational interest in spatial estimate of current FFDI (RFS)
  
- Clarke H, Evans JP, Pitman AJ (2013) Fire weather simulation skill by the Weather and Research Forecasting (WRF) model over southeast Australia from 1985 to 2010. *International Journal of Wildland Fire* **22**, 739-756.

## Case study of your modelling...



# What does my modelling mean?

## **Science**

- Reductionist approach
- Who integrates?

## **Society**

- Current focus on OEH, NPWS, RFS
- Increasing focus on 'life cycle' science



# Modelling Caveats

## ***Weather***

- FFDI  $\neq$  fire risk from weather (wind direction, atmospheric stability,...)
- Model  $\neq$  reality (observations = reality?)
- Difficult to ensure modelled apples same as observed apples
- Assumption: people understand FFDI

## ***Load***

- Load  $\neq$  NPP (static vs rate process, allocation of carbon pool,...)
- Load and climate change a messy, multifaceted issue
- Reconciling model with reality of local vegetation types – suitable obs?
- Assumption: it is possible to detect a climate signal on load and contrast it with signal on fire weather conditions

## **My 3 biggest modelling challenges are?**

1. Asking intelligible questions
2. Making intelligible interpretations of evaluation
3. Marrying science and society