

Climate Change & Bushfire Risk

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Fire management in the Sydney region

people



biodiversity



catchments

- Largest urban centre in Australia.
- Surrounded by fire-prone vegetation including a WHA.
- Topographically diverse and rugged landscapes
- Risks to multiple values.
- Effects of climate change likely to be complex, significant and important.



BLACK CHRISTMAS FIRES

air

Summary

- When do bushfires fires threaten people and property?
- How will “fire weather” change?
- How will bushfire fire incidence/area burned change?
- Changes in risks to people & property?
- Future management & other consequences?

Facets of the problem

Built environment

Bushland environment





Property damage highly likely when fires burn on days of Very High to Extreme Fire Danger



How will fire weather change?

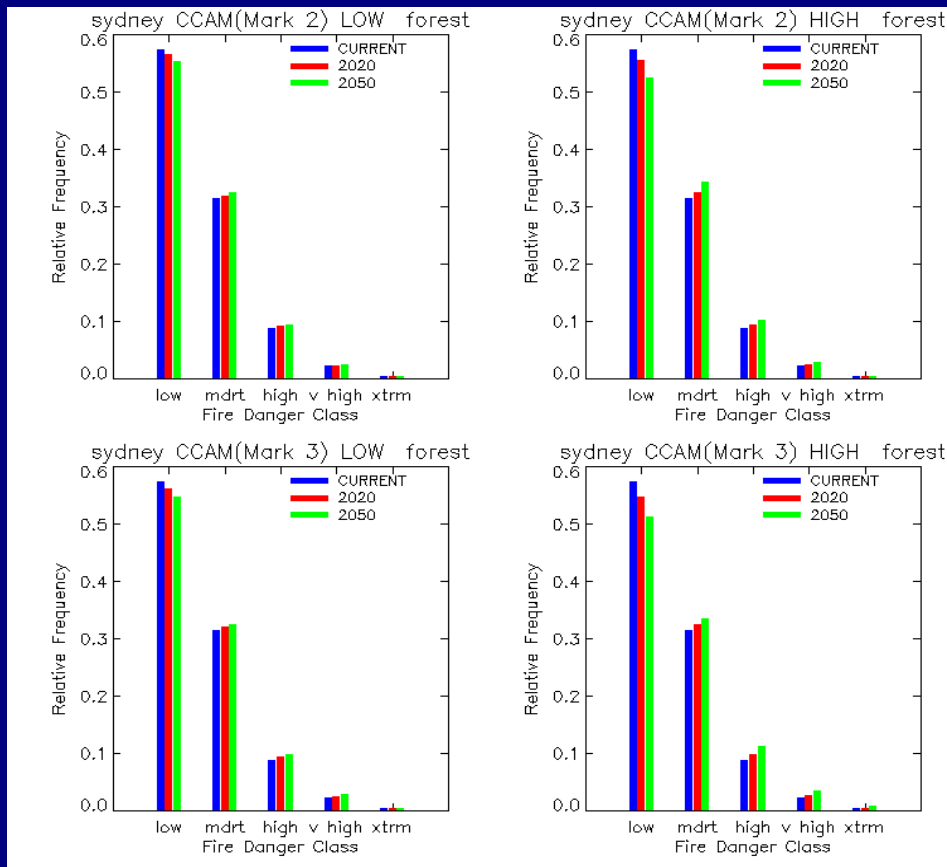
FIRE DANGER TODAY



NO FIRES WITHOUT A PERMIT

Fire weather under climate change

FFDI



- Variety of studies
- Predicted increase in severity of fire weather
- For example
+ 1 to +10 days of VH –
EXT. FFDI (2050) (Hennessy et al. 2005)

How will bushfire incidence/area burned change?



Two methodologies

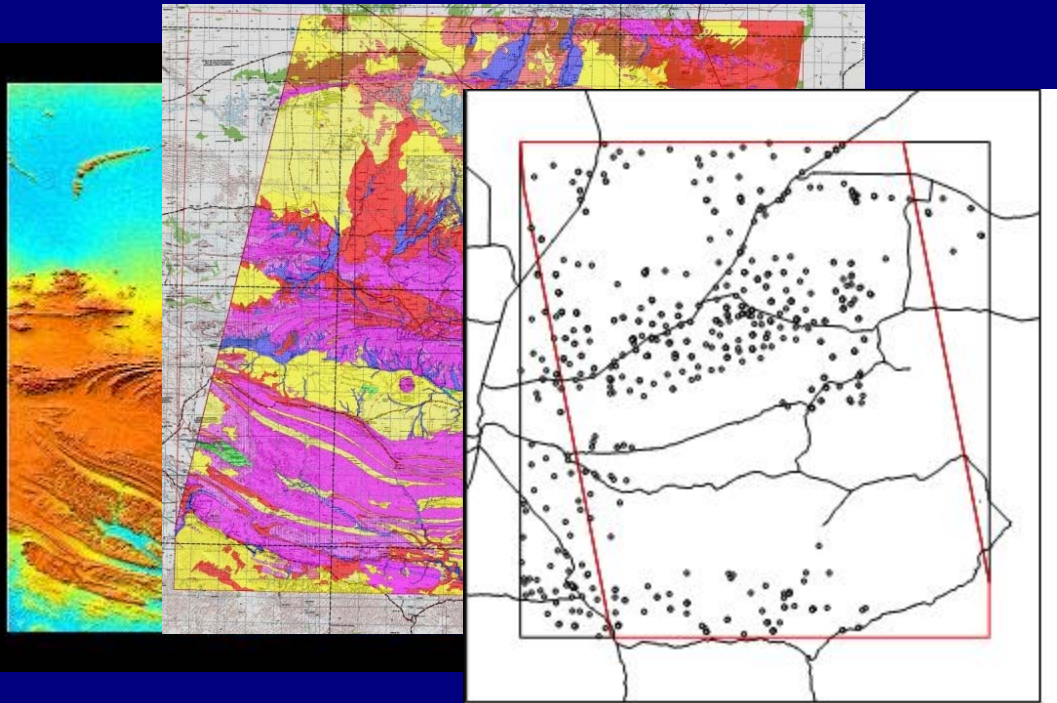


Statistical modelling

- Large fires > 40 years
- 95 % area burned
- Fire weather

Landscape Simulation

- Process based
- Integration of landscape information
- Capacity for experimentation



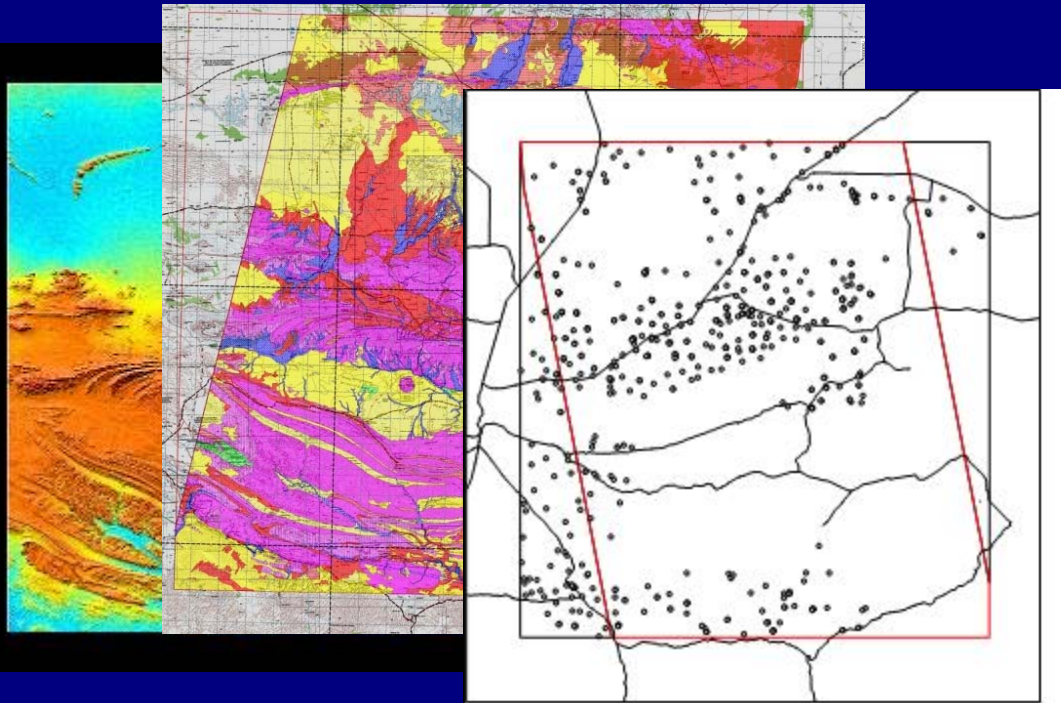
Preliminary results



Both approaches predict a potential increase in incidence and area burned for 2050.

circa. 10 – 30 %

based on Hennessy et al. (2005)



AAE

Climate change is predicted to substantially elevate risks to people and property

Future Management?



Prevention

Preparedness

Suppression etc.



Effects on consequential risk
poorly known

Modelling approaches yielding
quantitative insights



An optimum mix of activities to
suit a changing world?

Summary



Fire weather predicted to be more severe

Local fire activity (incidence and area burned) predicted to increase substantially

Concomitant rise in urban risk likely

Ecosystem changes also likely

Management will be challenging