

From climate projections to climate change services in Australia – retrospective and future directions

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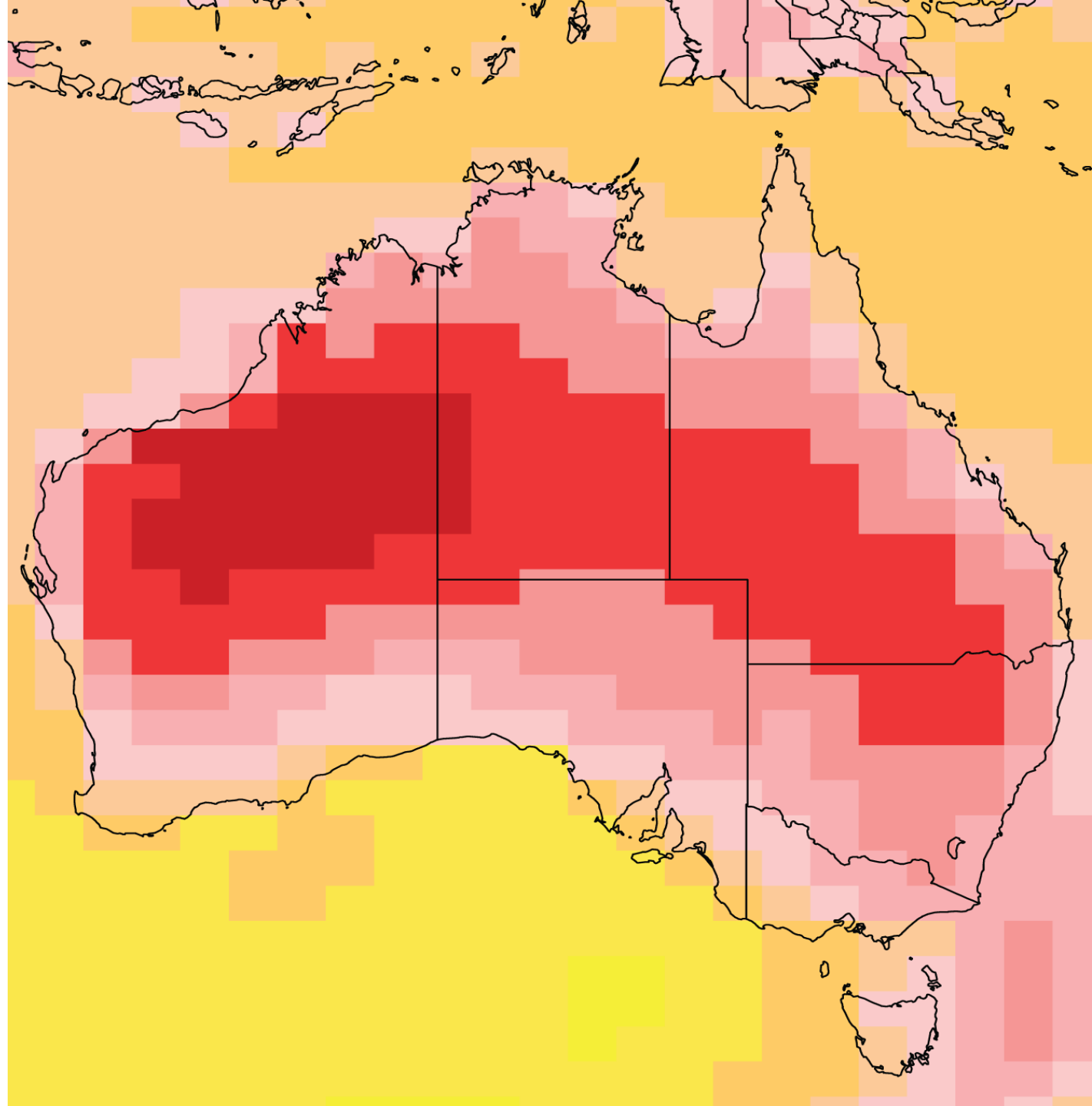
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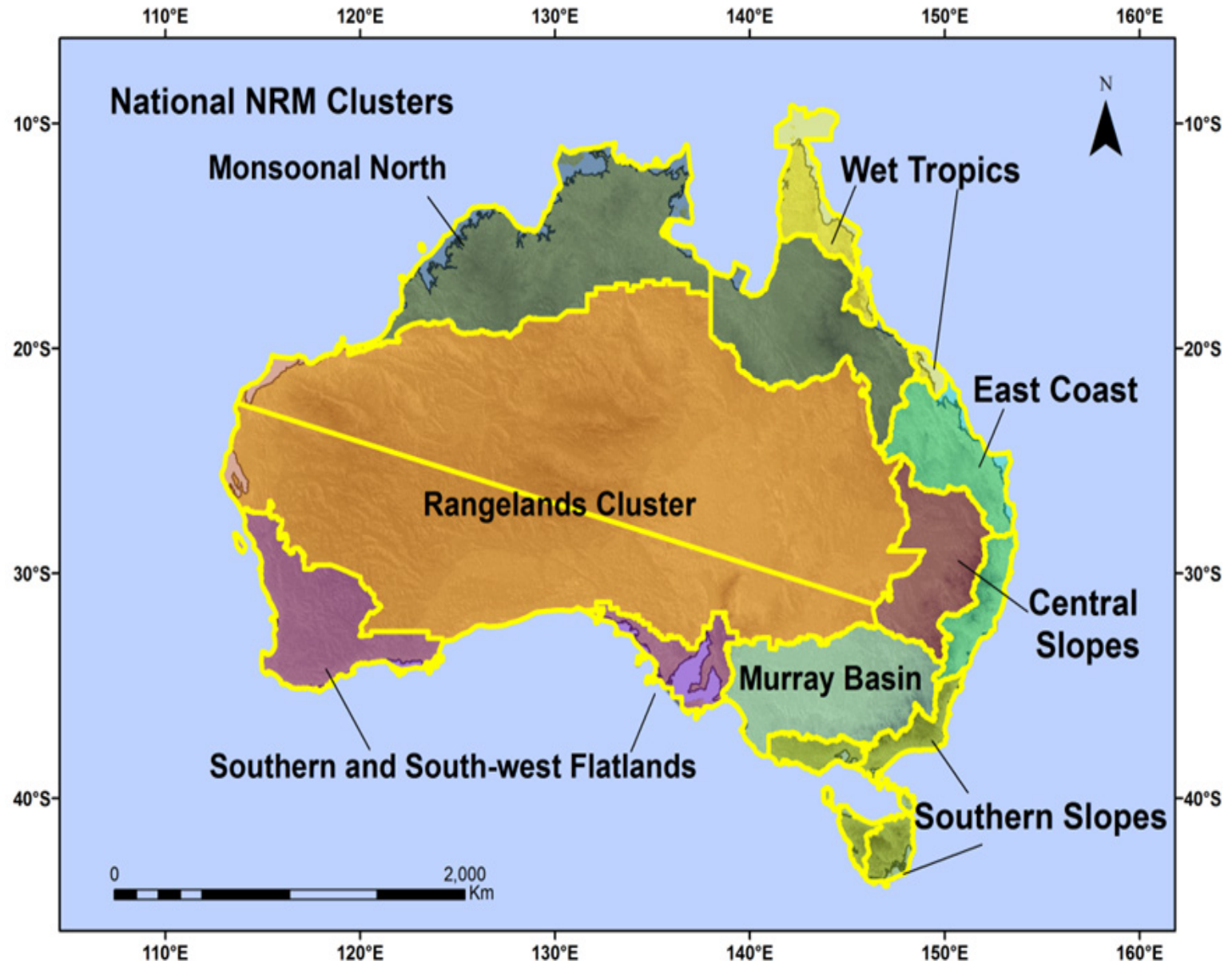


Australian Government
Bureau of Meteorology



Outline

- Existing climate services in Australia
- Users' needs up until now (CCiA)
- Towards user-driven and science informed services
- 'Good (->best) practice' example
- Future: climate risk marketplace ⇔ co-design

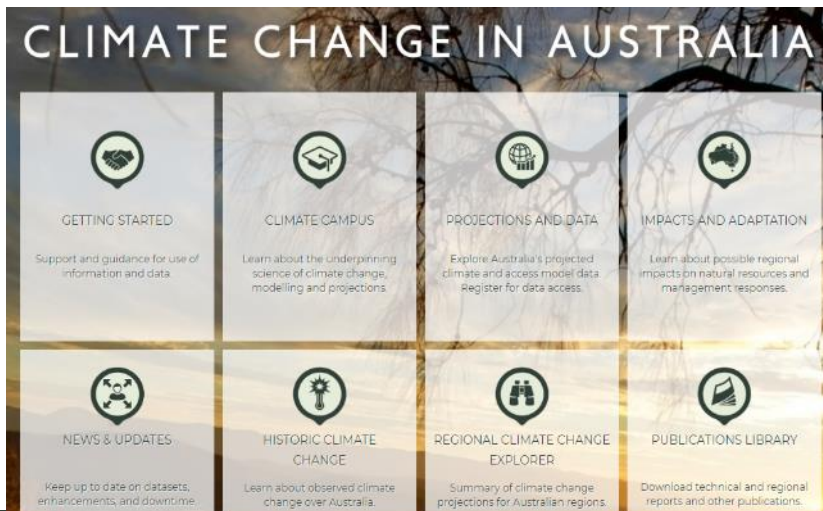
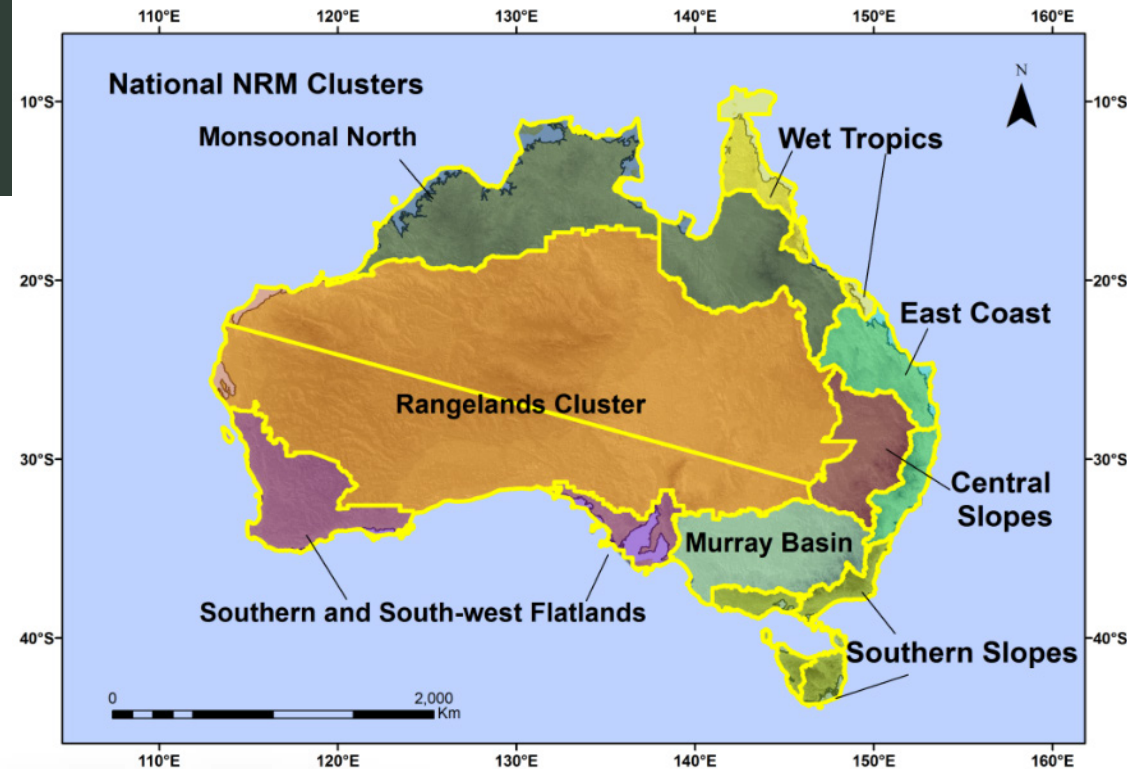




CLIMATE CHANGE IN AUSTRALIA PROJECTIONS FOR AUSTRALIA'S NRM REGIONS

Projections released in 2015

- Focus on serving the needs of natural resource managers (+ everyone else!)
- Pre-defined set of regions (top down)
- CMIP5-based with some downscaling
- 21 climate variables, multiple scenarios and time periods



Technical report,
Cluster reports,
brochures, tools ...



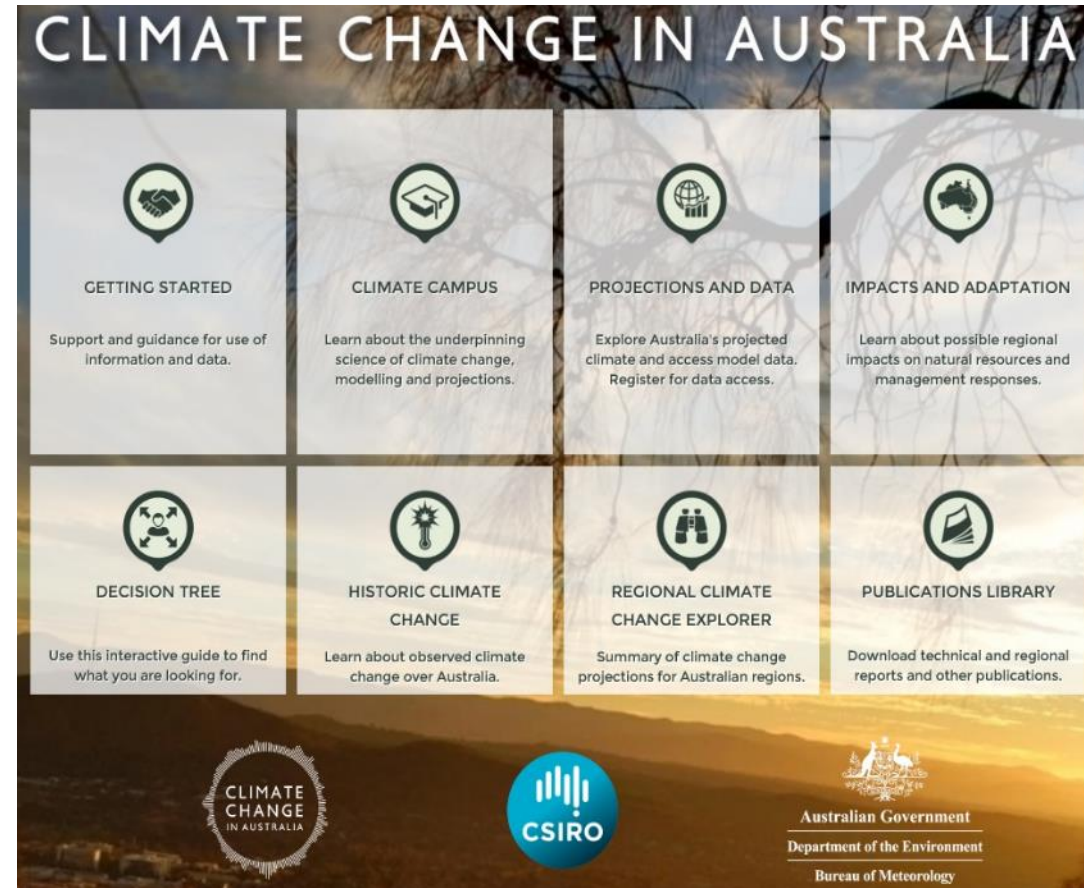
<https://www.climatechangeinaustralia.gov.au>



Most recently: Climate Change in Australia

Future climate projections over 21st century for Australia's regions

Using (then) latest IPCC global climate models (40+ CMIP5)



www.climatechangeinaustralia.gov.au

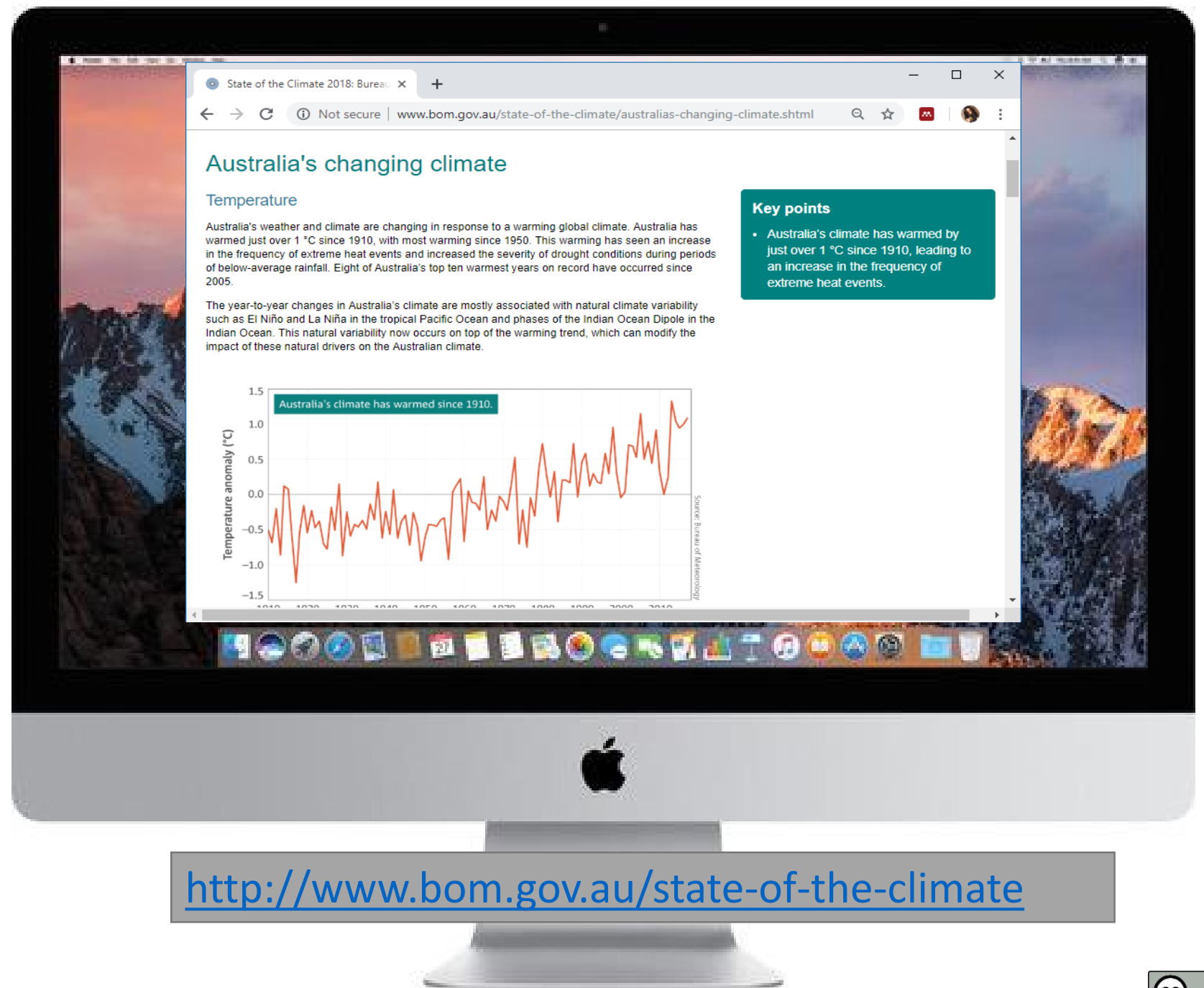
CSIRO and Bureau of Meteorology, 2015

State of the Climate

Updated every 2-years



Australian Government
Bureau of Meteorology



<http://www.bom.gov.au/state-of-the-climate>

Climate change in Australia

Updates aligned with CMIP phases



Australian Government
Bureau of Meteorology



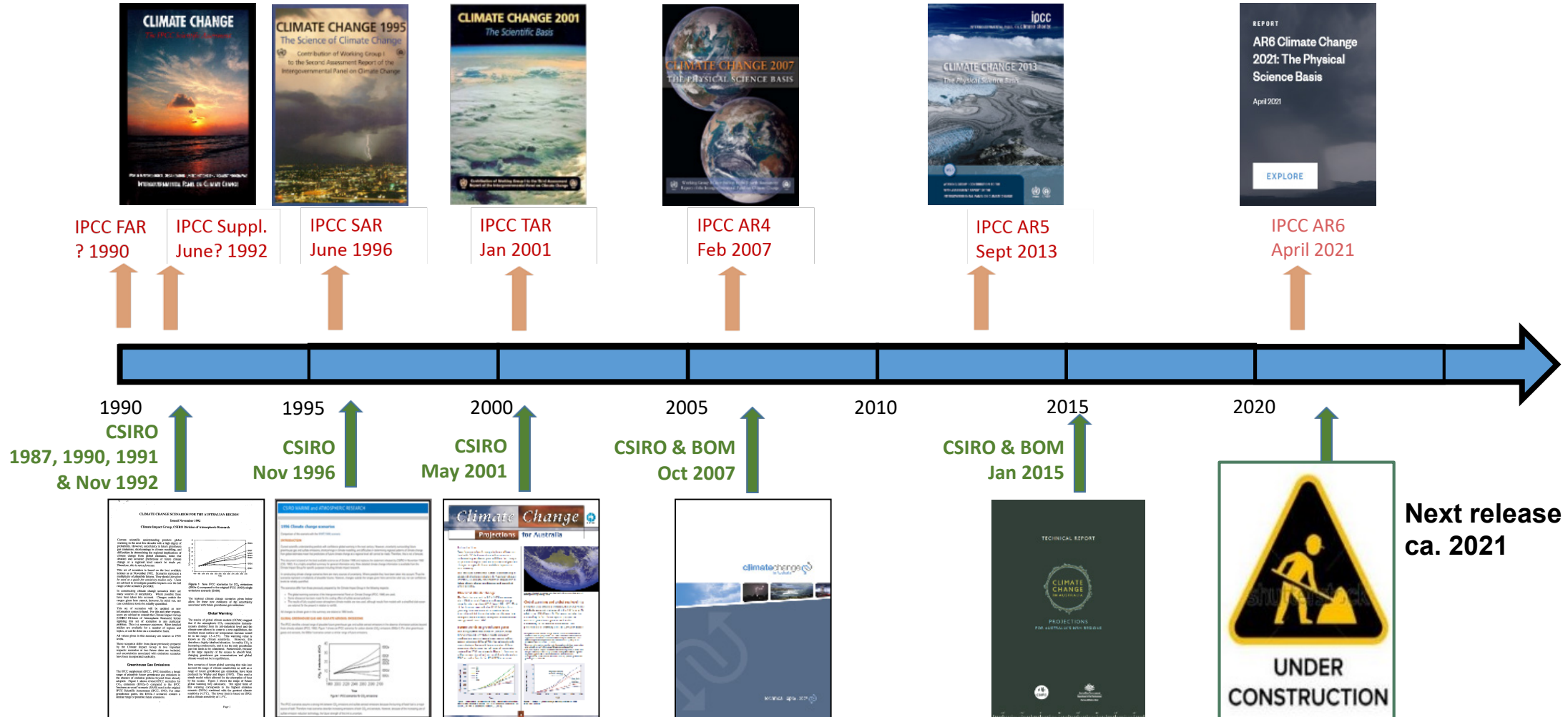
<https://www.climatechangeinaustralia.gov.au>



Timeline of Australian Projections:

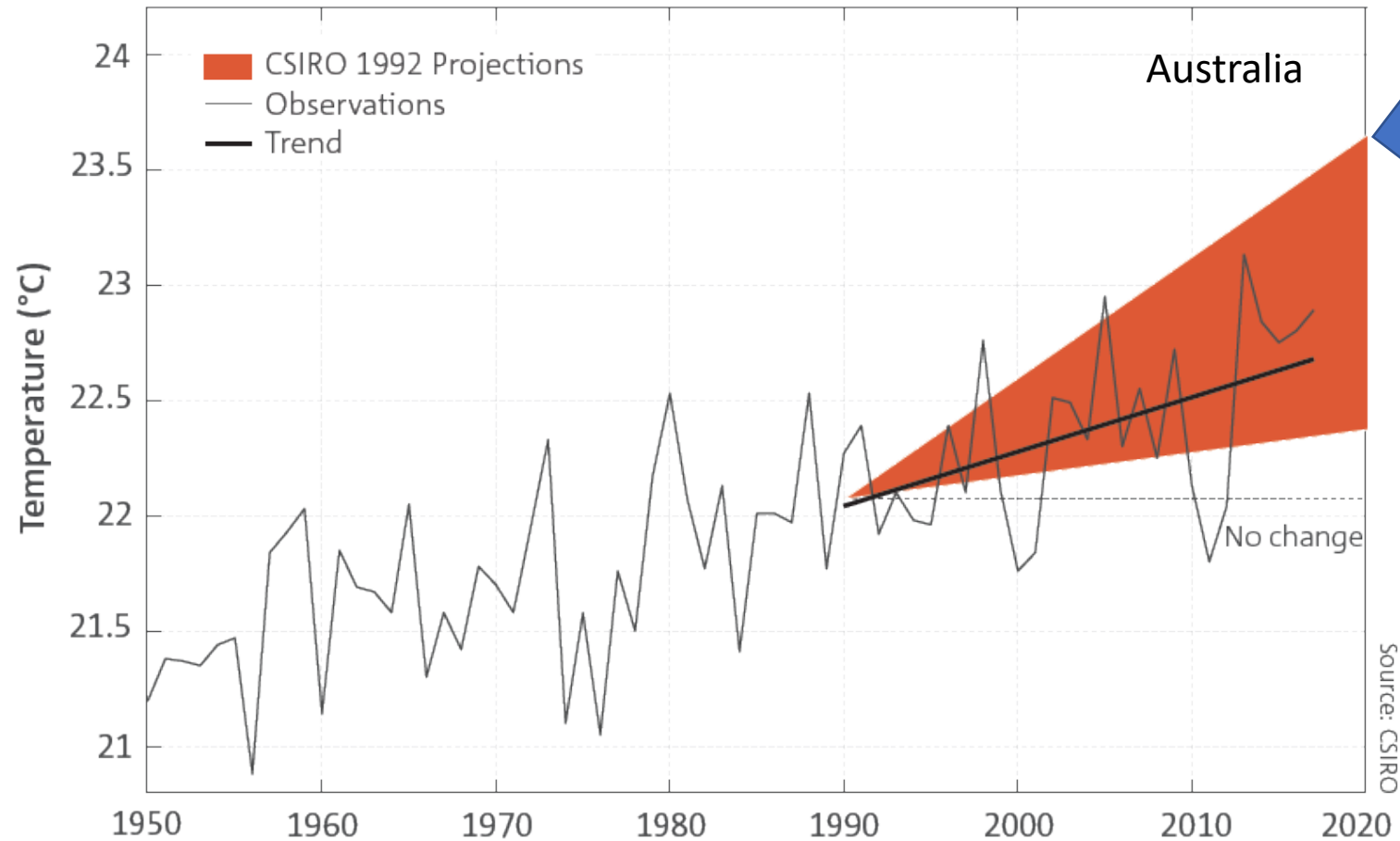
Australian global climate models & researchers have been part of the IPCC's climate change assessments since 1990

(CSIRO's Climate section providing projections since 1988)

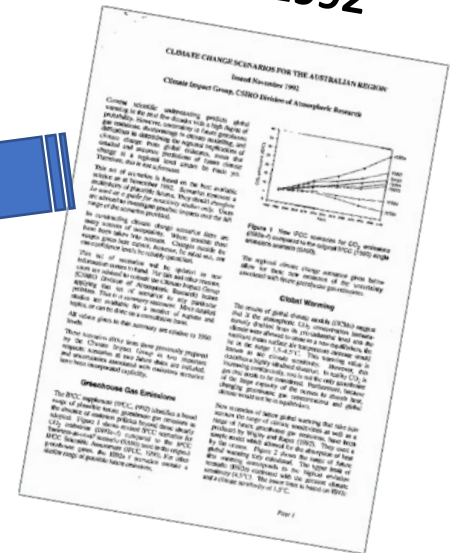


How good have climate projections been?

Temperature...

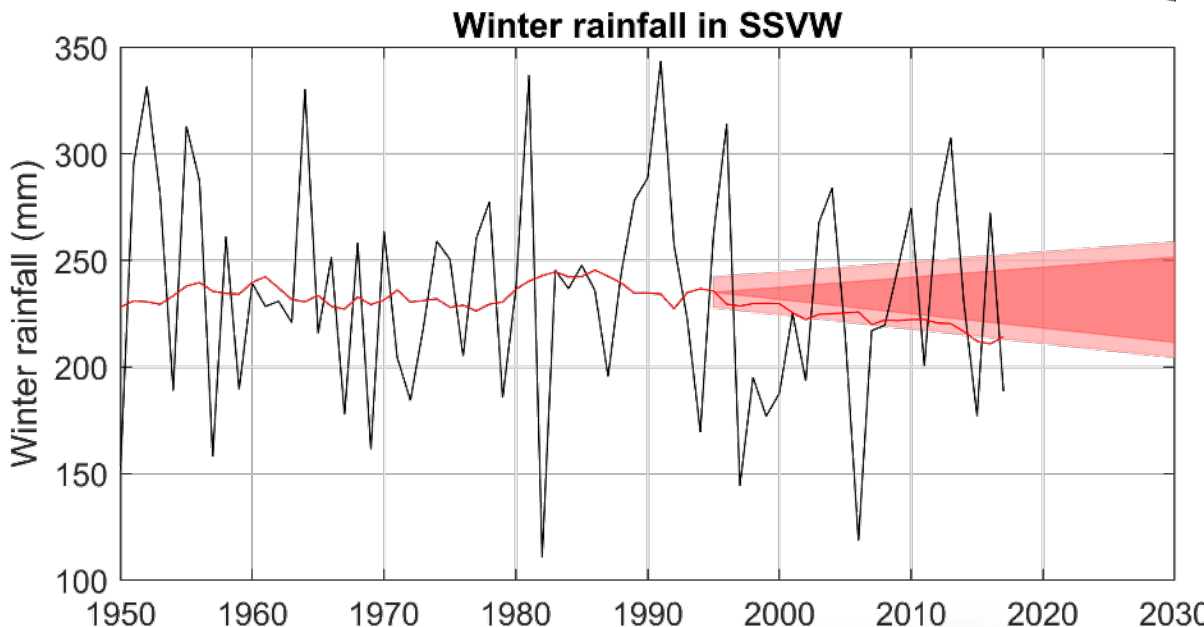
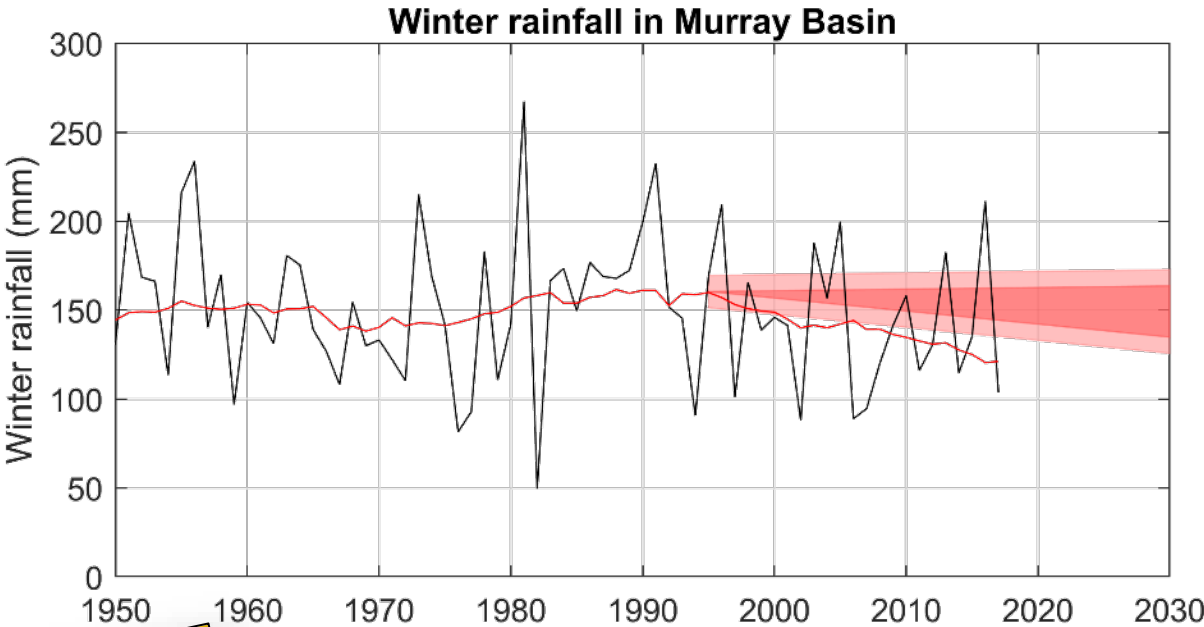
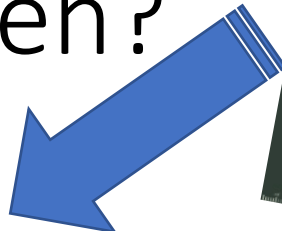


1992



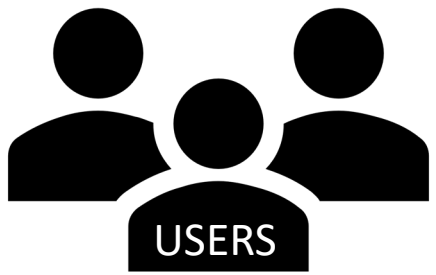
CLIMATE CHANGE SCENARIOS FOR THE AUSTRALIAN REGION
Issued November 1992
Climate Impact Group, CSIRO Division of Atmospheric Research

How good have climate projections been? Rainfall is much trickier to simulate!

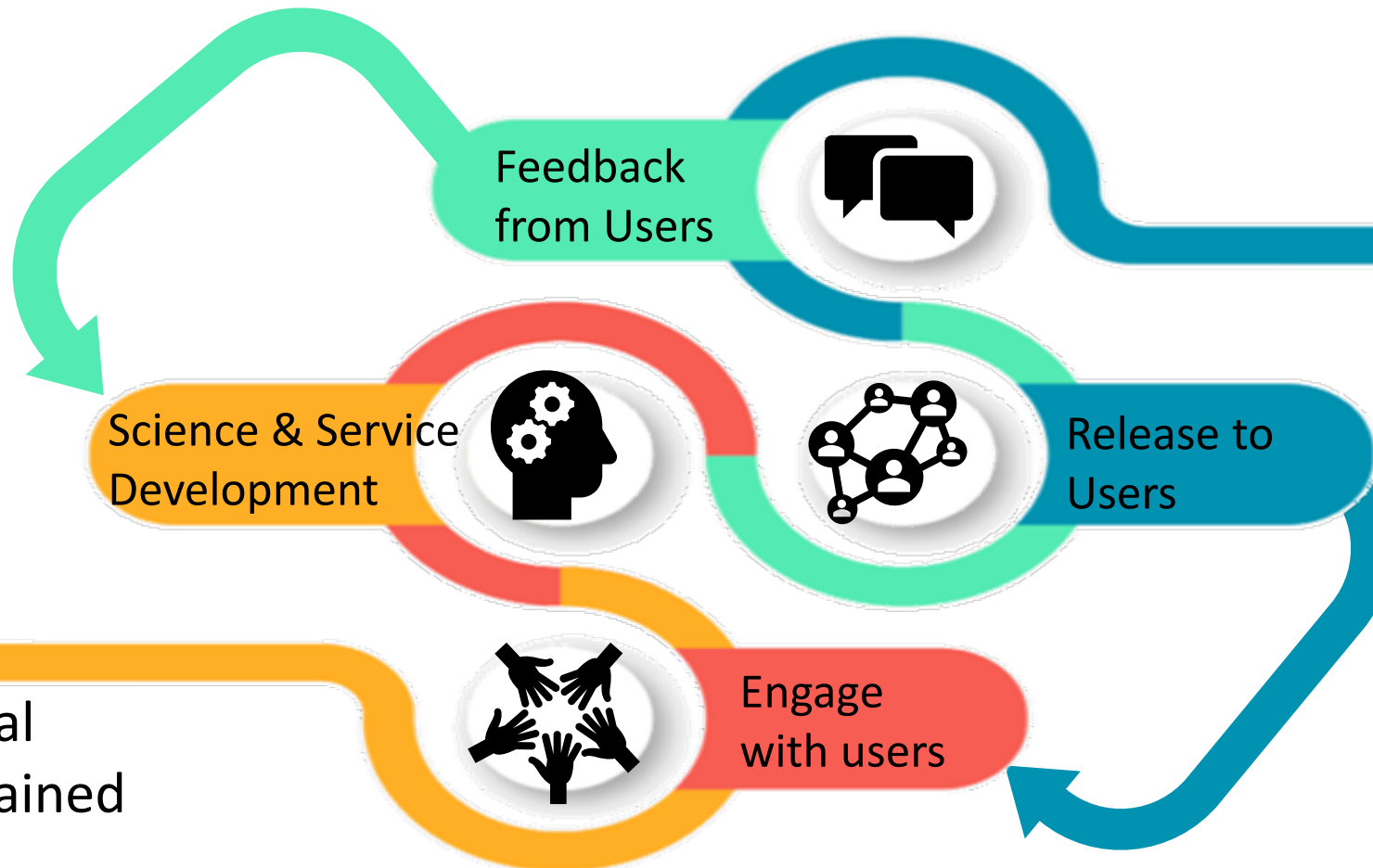


Rainfall projections in 2015 show an underestimate of the decline for parts of south-eastern Australia.





A learning arc: needs of users evolve over time



Project Proposal
& Funding Obtained

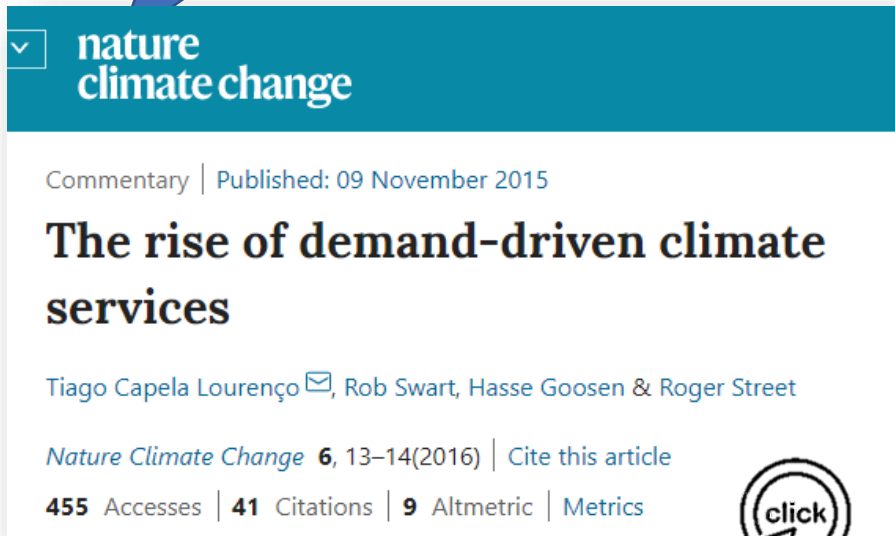
Offerings evolve:

- As users' needs change
- In response to new science

Climate change services for Australia

A shift from “science-driven and user informed services to user-driven and science informed services.”


Lourenço, T., Swart, R., Goosen, H. *et al.* The rise of demand-driven climate services. *Nature Clim Change* 6, 13–14 (2016). <https://doi.org/10.1038/nclimate2836>

A screenshot of the top portion of a research article page from Nature Climate Change. The header is teal with the journal name in white. Below it, the article title is in bold, followed by the authors' names. At the bottom of the header, there are statistics for accesses, citations, and altmetrics, along with a link to cite the article. A mouse cursor icon is pointing at the bottom right of the header area.

nature
climate change

Commentary | Published: 09 November 2015

The rise of demand-driven climate services

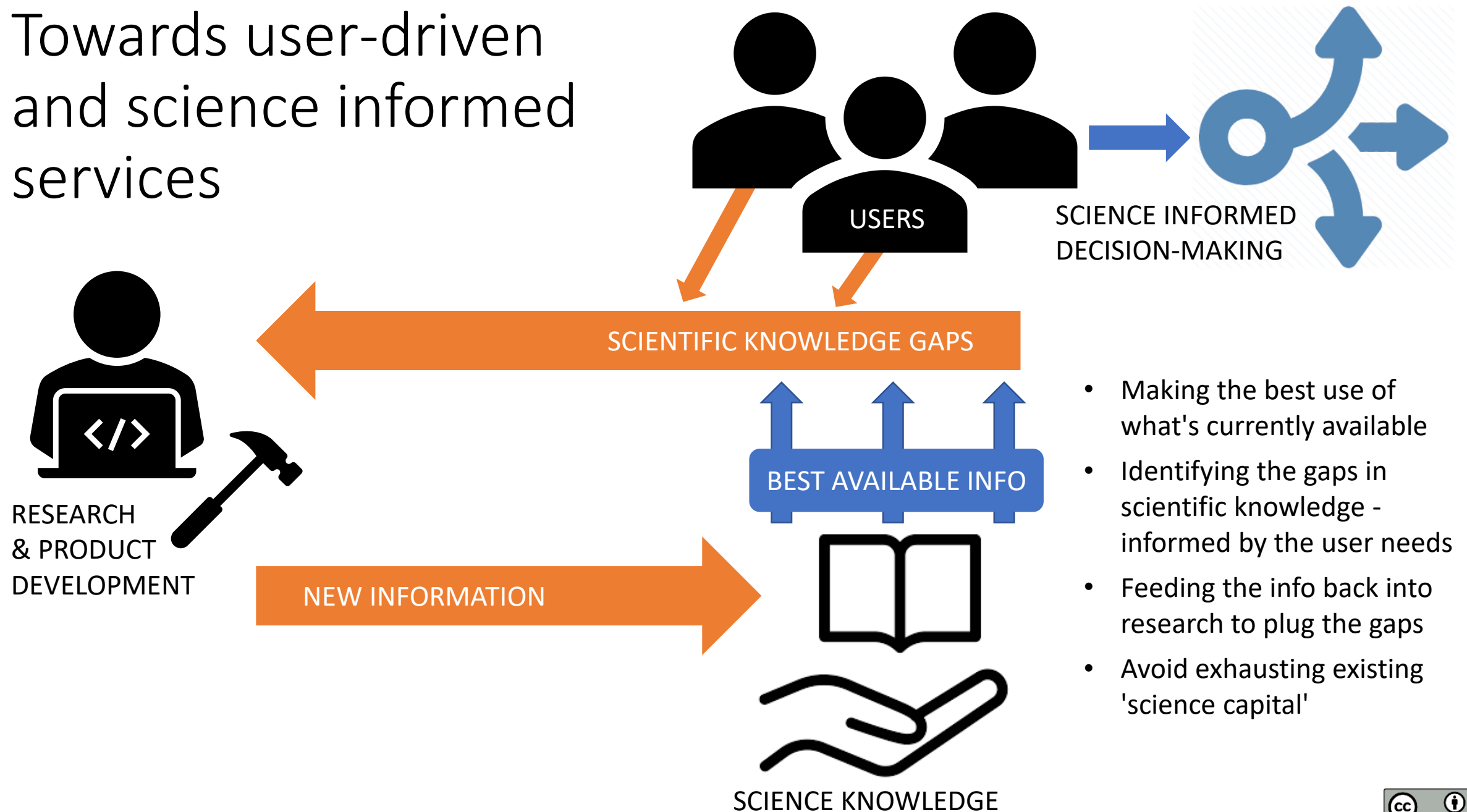
Tiago Capela Lourenço , Rob Swart, Hasse Goosen & Roger Street

Nature Climate Change 6, 13–14(2016) | [Cite this article](#)

455 Accesses | 41 Citations | 9 Altmetric | [Metrics](#)

- Care needed that policy makers don't think all the science that is needed by users is available and ready to use.
- In Australia we are moving towards science informed but don't quite have all the science we need.
- So, need to fill the gaps in the science but with more emphasis on the user needs.
- The two needs are not mutually exclusive!

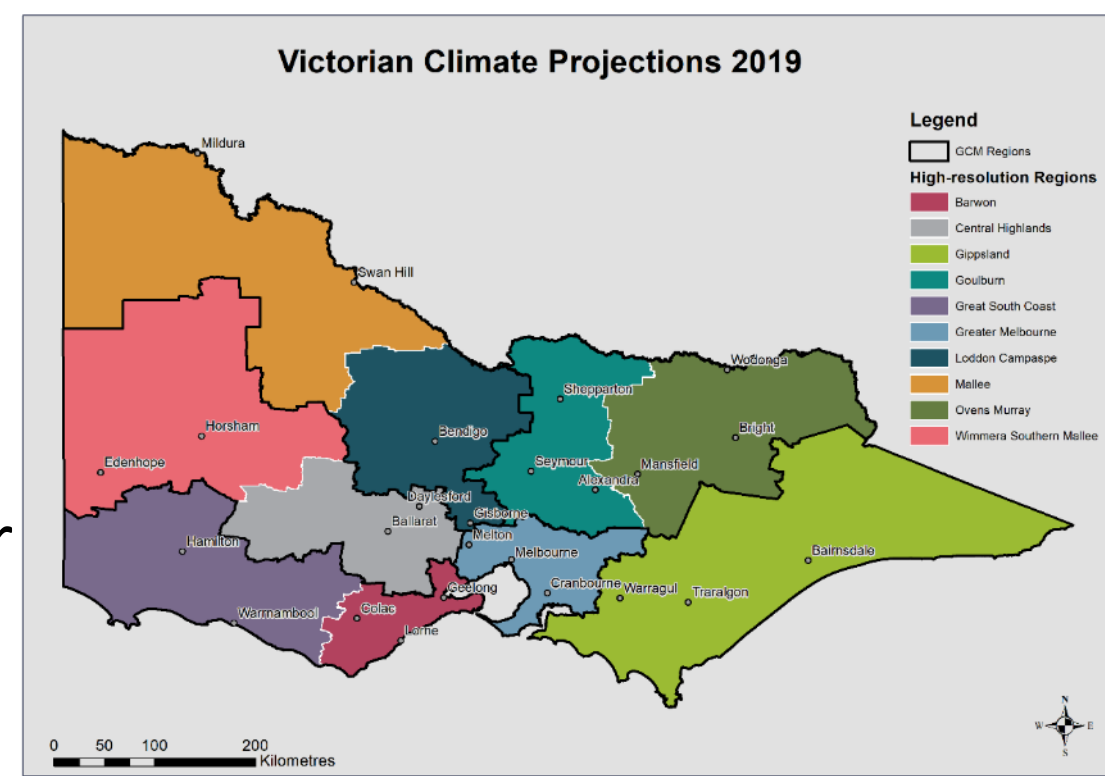
Towards user-driven and science informed services





VCP19 (not perfect but towards best practice)

- New 5 km (and 50 km) CCAM modelling
- Multi-model analyses (GCM + CCAM + other sources)
- 10 Regions
- Guidance package
- User support (2020-21)
- User-friendly portal (in dev.)





Navigating Climate Change Mission

The Navigating Climate Change (NCC) Mission will build a national climate risk capability by 2025. It will enable the Australian economy with an ability to disclose and respond to climate risk, whilst identifying adaptation and transition options.

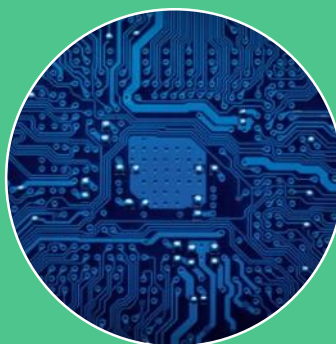
1



Climate Centre of Excellence/Hub

- ❖ Climate Community : Partners and Members
 - ❖ Climate Academy
- ❖ Research precinct/infrastructure
 - ❖ Community of Practice
 - ❖ Joint Research Programs
 - ❖ Knowledge Hub

2



Marketplace

- ❖ Overarching platform as one-stop shop for all climate risk and transition services
- ❖ Concierge in Shop-front
 - ❖ Digital infrastructure
- ❖ Data curation and collation
 - ❖ Data storage
- ❖ Analytics & Intelligence
 - ❖ Tools & Products

3



New Industry

- ❖ Climate Risk
 - ❖ Sandbox
- ❖ Accelerator & Incubator Programs
 - ❖ Open Innovation –Open IP Platforms
 - ❖ Challenge Hackathons
 - ❖ Skills
 - ❖ Innovation funding
- ❖ Curated panel of Providers

Where
to from
here?

Want more information?

Climate Futures Team
climatefutures@csiro.au

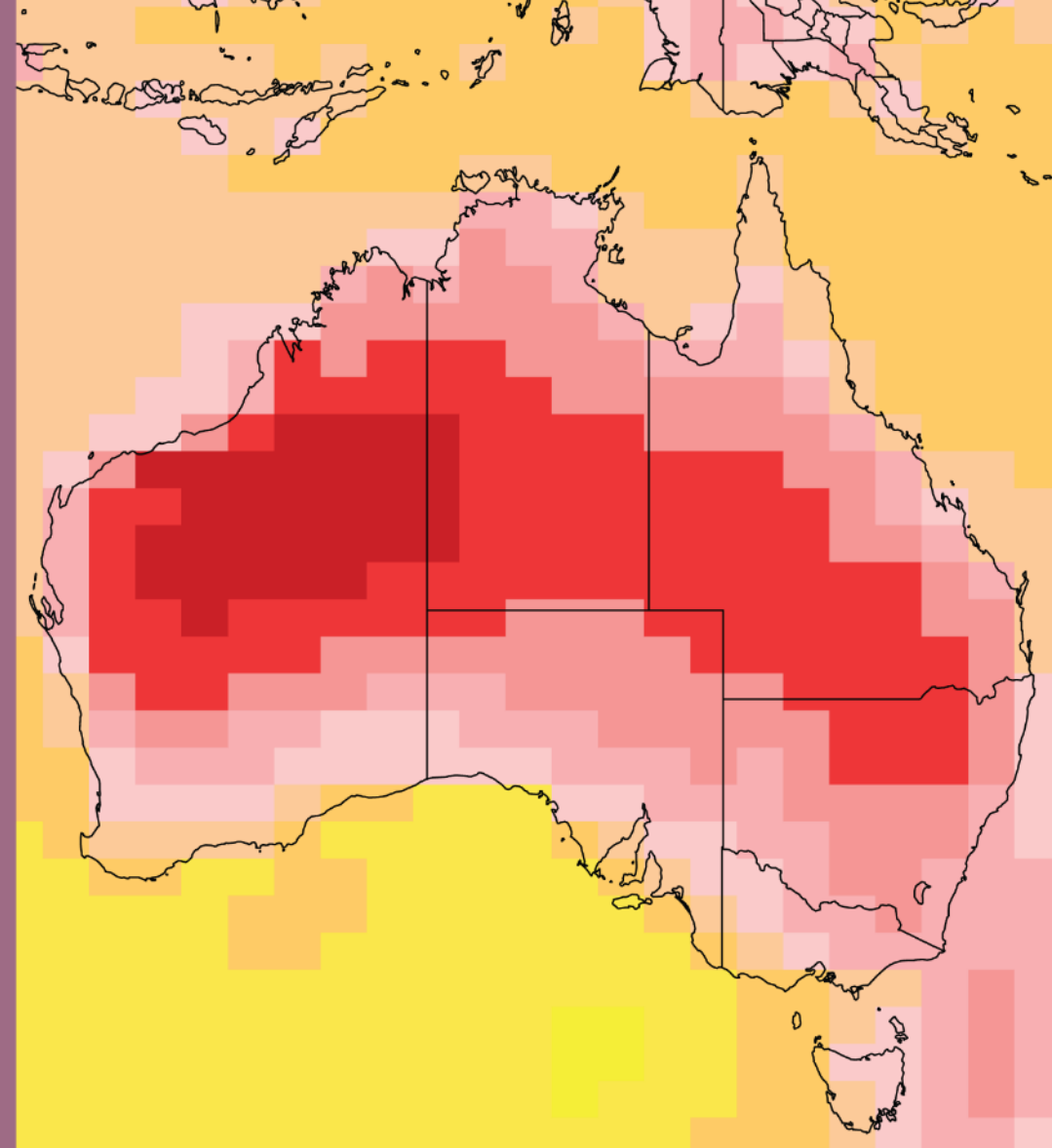
NESP ESCC Hub
nespclimate.com.au



Earth Systems and
Climate Change
Hub

National Environmental Science Programme

Climate
projections
for impact
assessment



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MONASH
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THE UNIVERSITY OF
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