

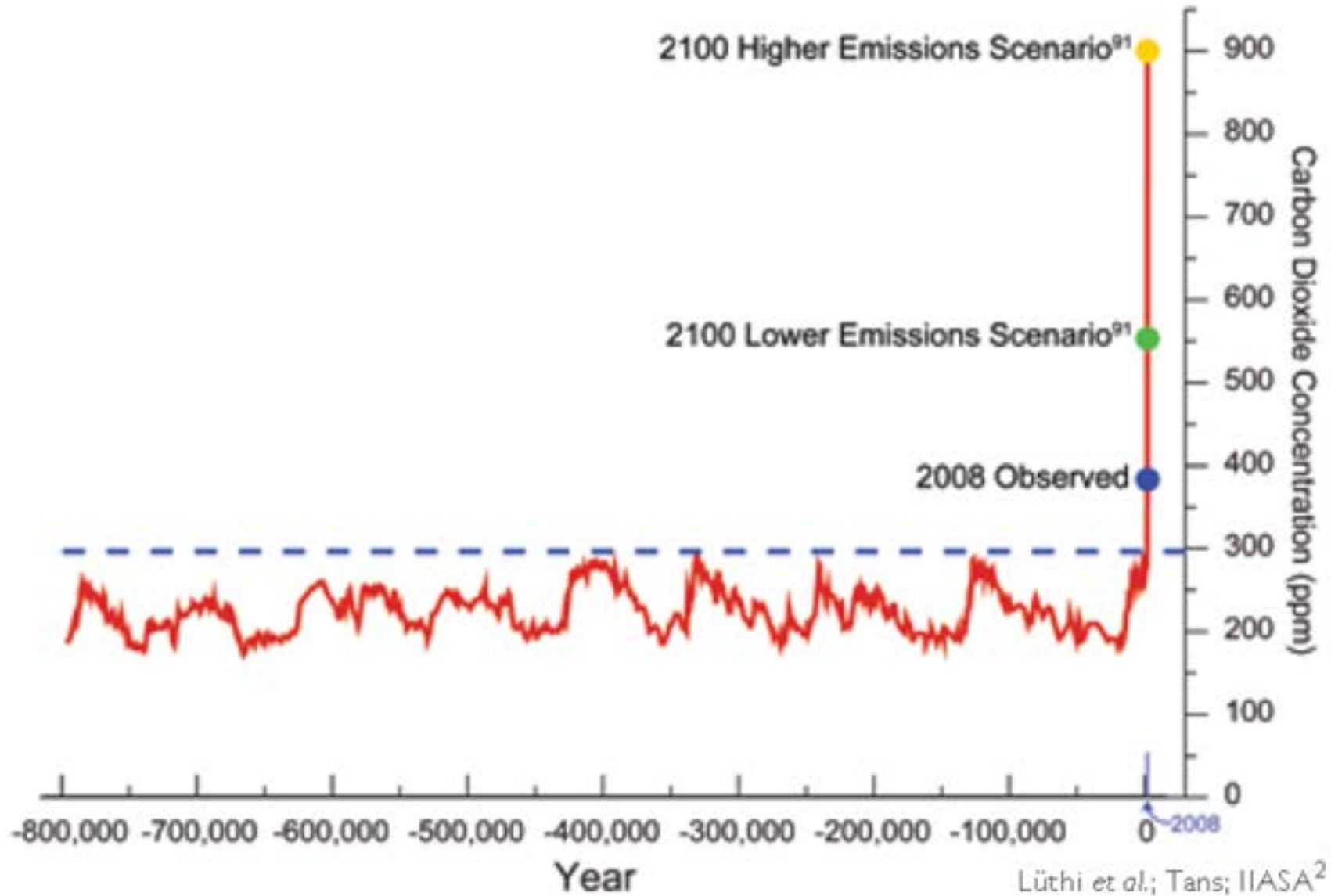
Climate change and livestock: what is happening, why and likely future changes

Mark Howden and many colleagues
ANU Climate Change Institute
Vice Chair, IPCC Working Group II

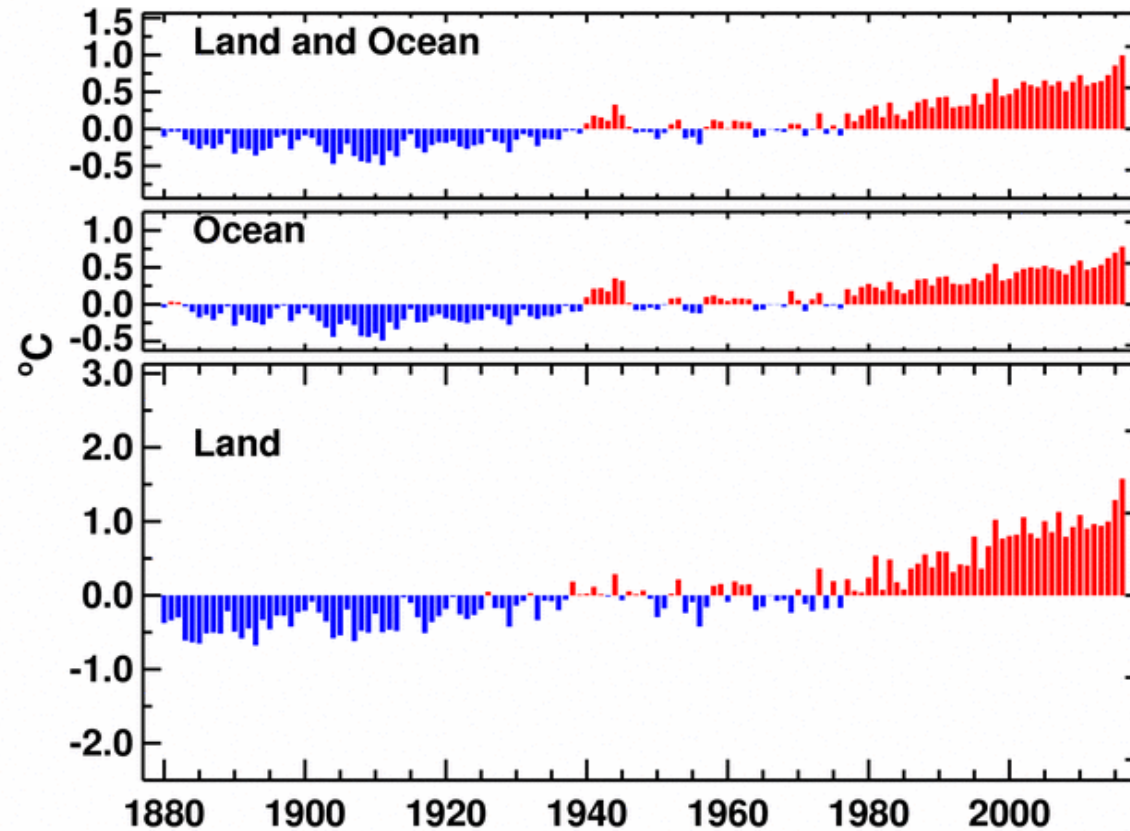


- Average climate
 - type and size of production system, breed etc
- Climate variability
 - risk profile, prices, investment capacity, inputs, supply chain etc
- Climate extremes
 - stock losses, resource base damage, insurance costs, emotional state etc
- Impacts on forage production and NRM via rainfall, temperature, humidity and elevated CO₂
- Impacts on animals via heat stress, pests/diseases
- Impacts on supply chains via variability and extremes

Atmospheric CO₂ levels rising

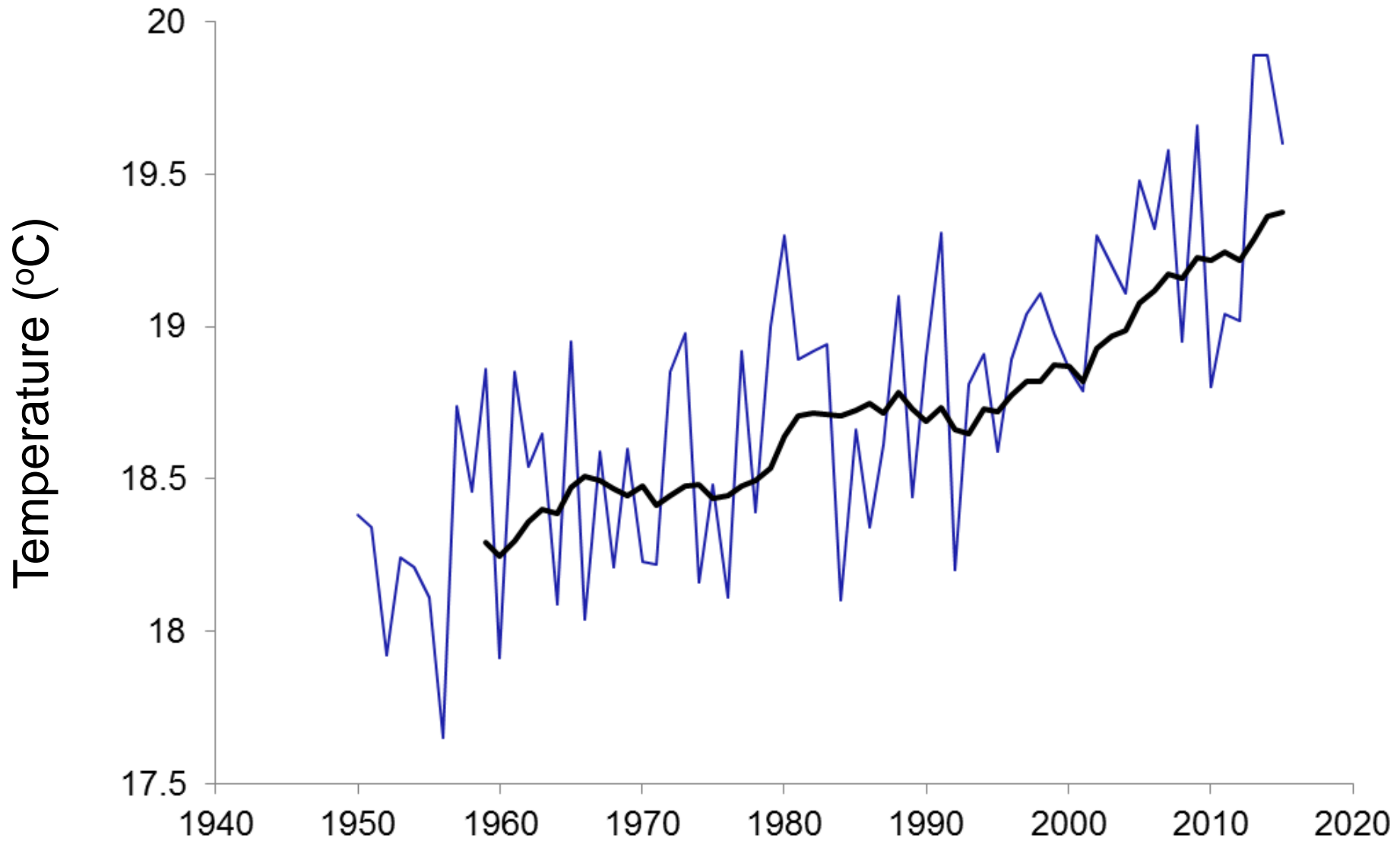


Global temperatures keep rising



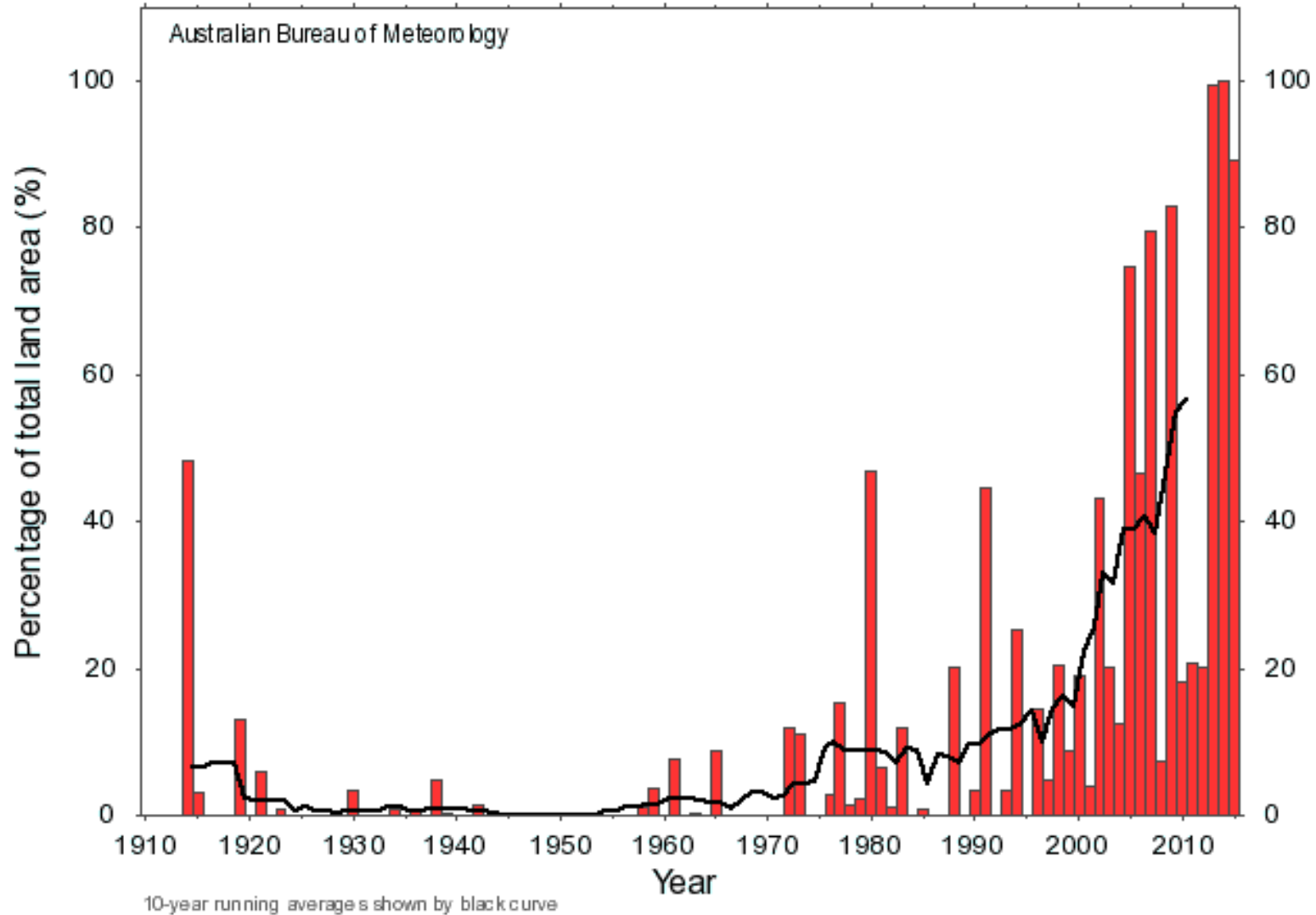
- Highly unlikely without human influence
- 16 months running with record-breaking temperatures

Southern Australia is warming too



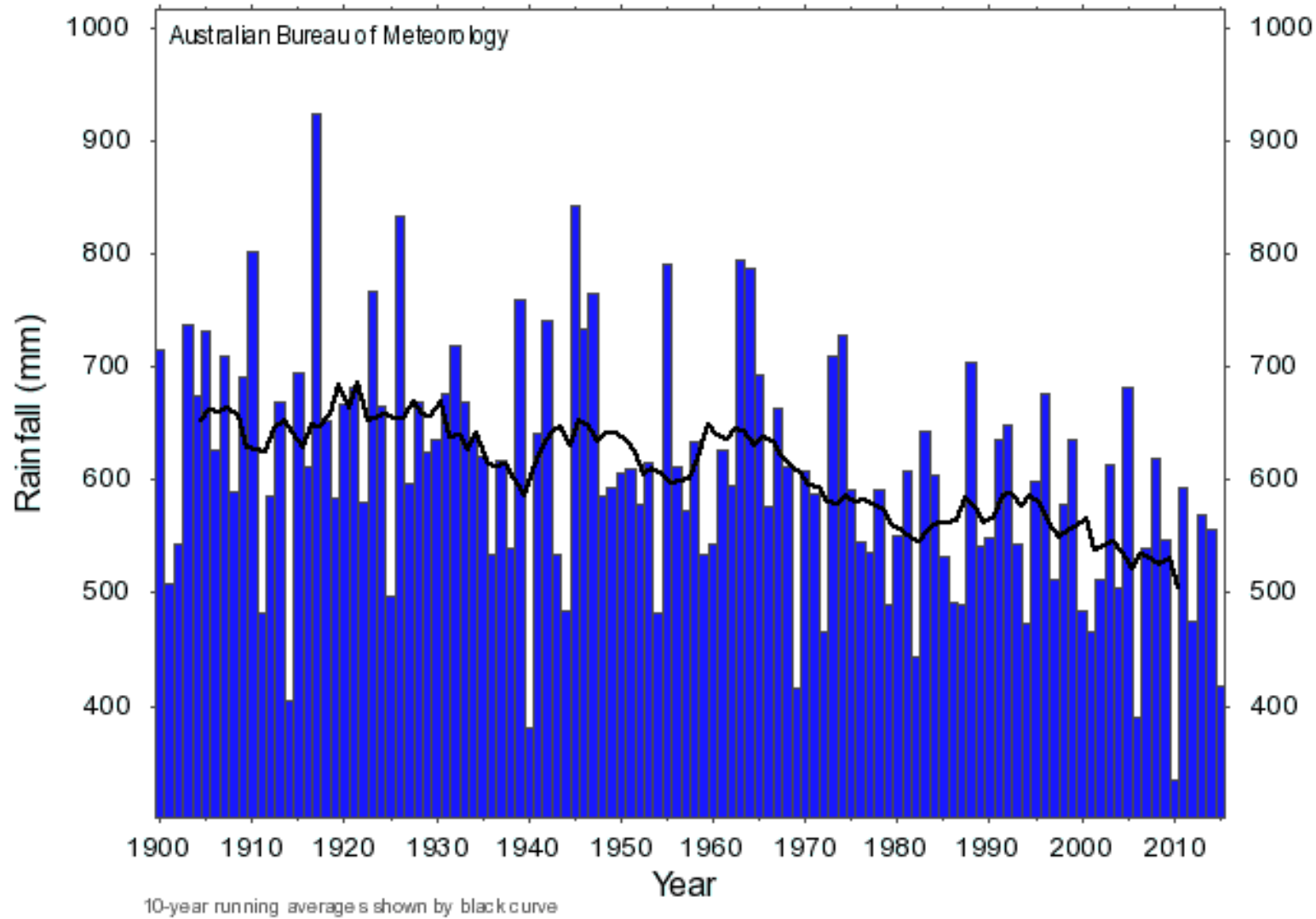
Extremes almost everywhere, all the time

Annual percentage area in decile 10 - Southern Australia (1910-2015)



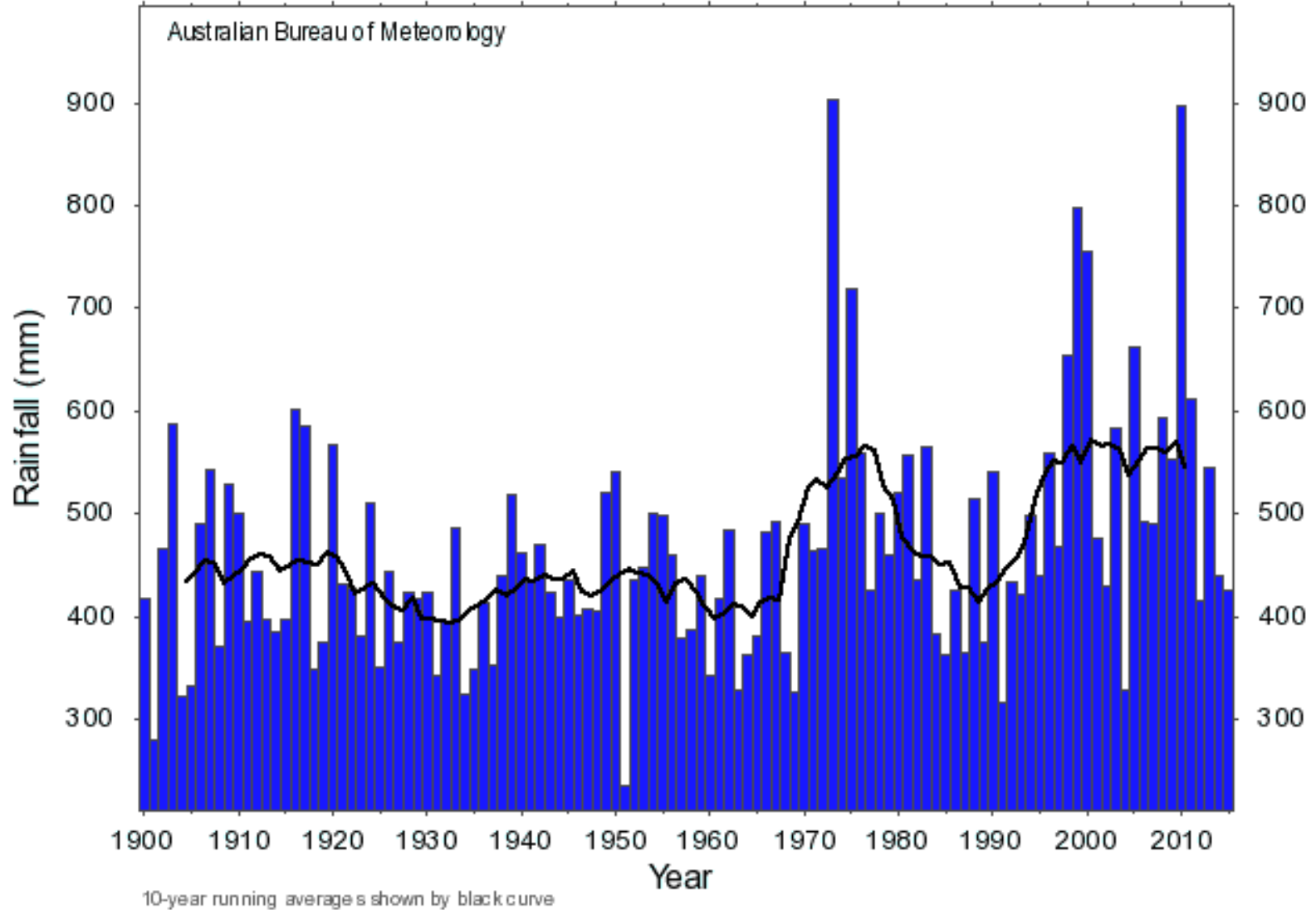
Drying trends in the SW and SE

Southern wet season rainfall - Southwestern Australia (1900-2015)

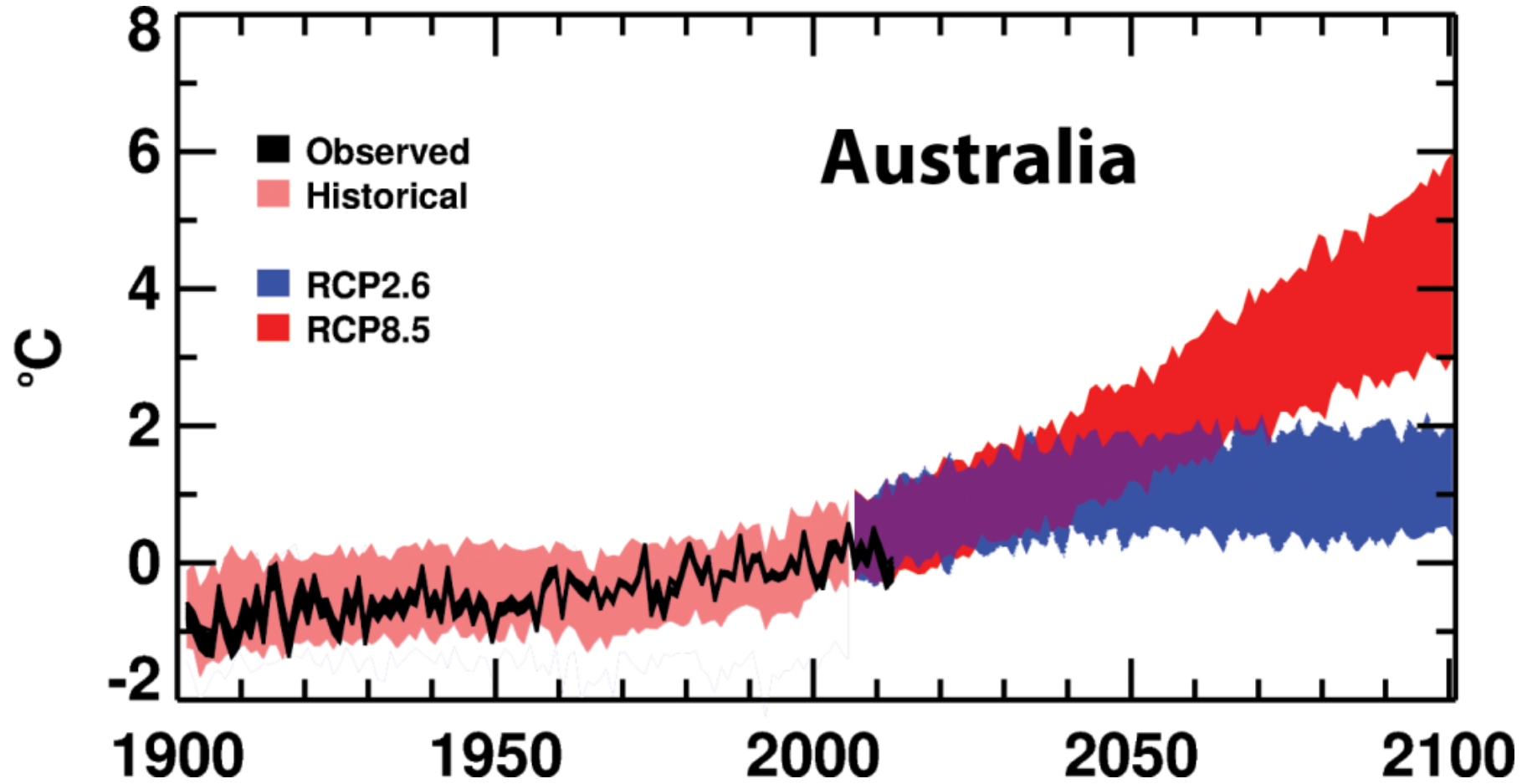


Wet trends in the NW

Northern wet season rainfall - Northern Australia (1900-2015)

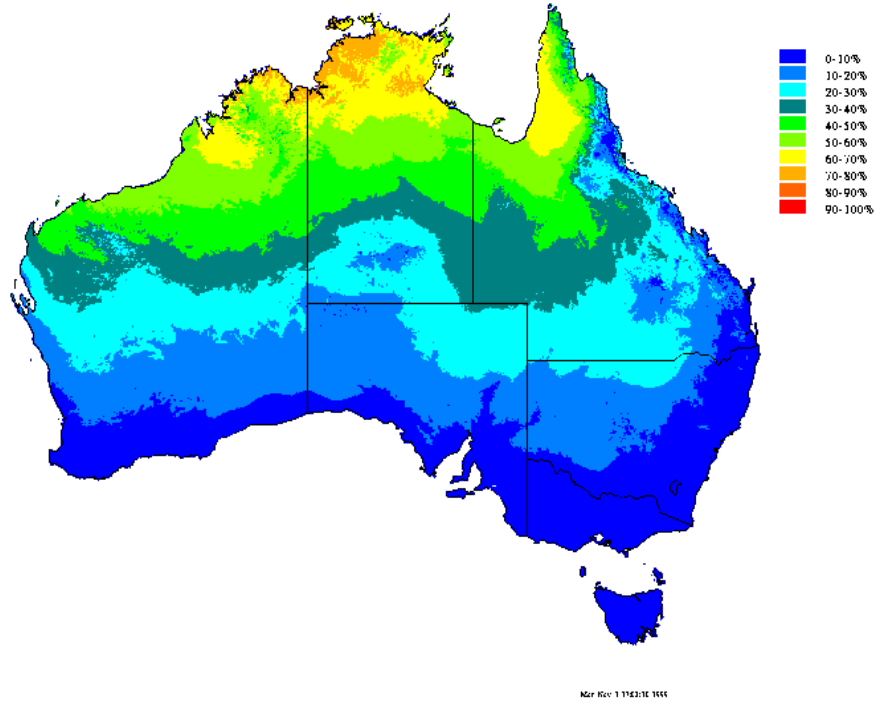


Temperature projections

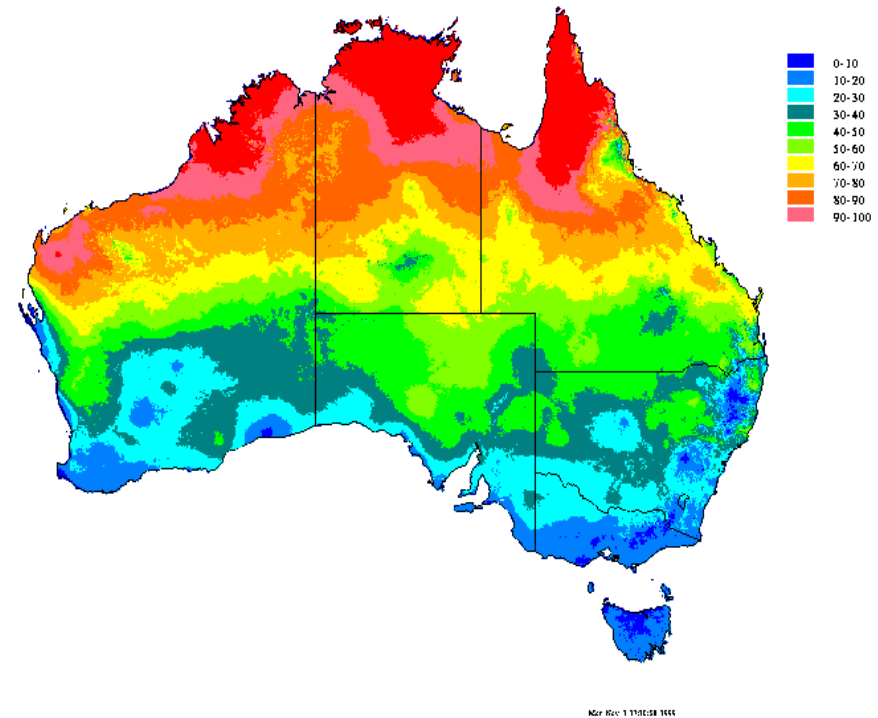


Heat stress frequency

Current heat stress

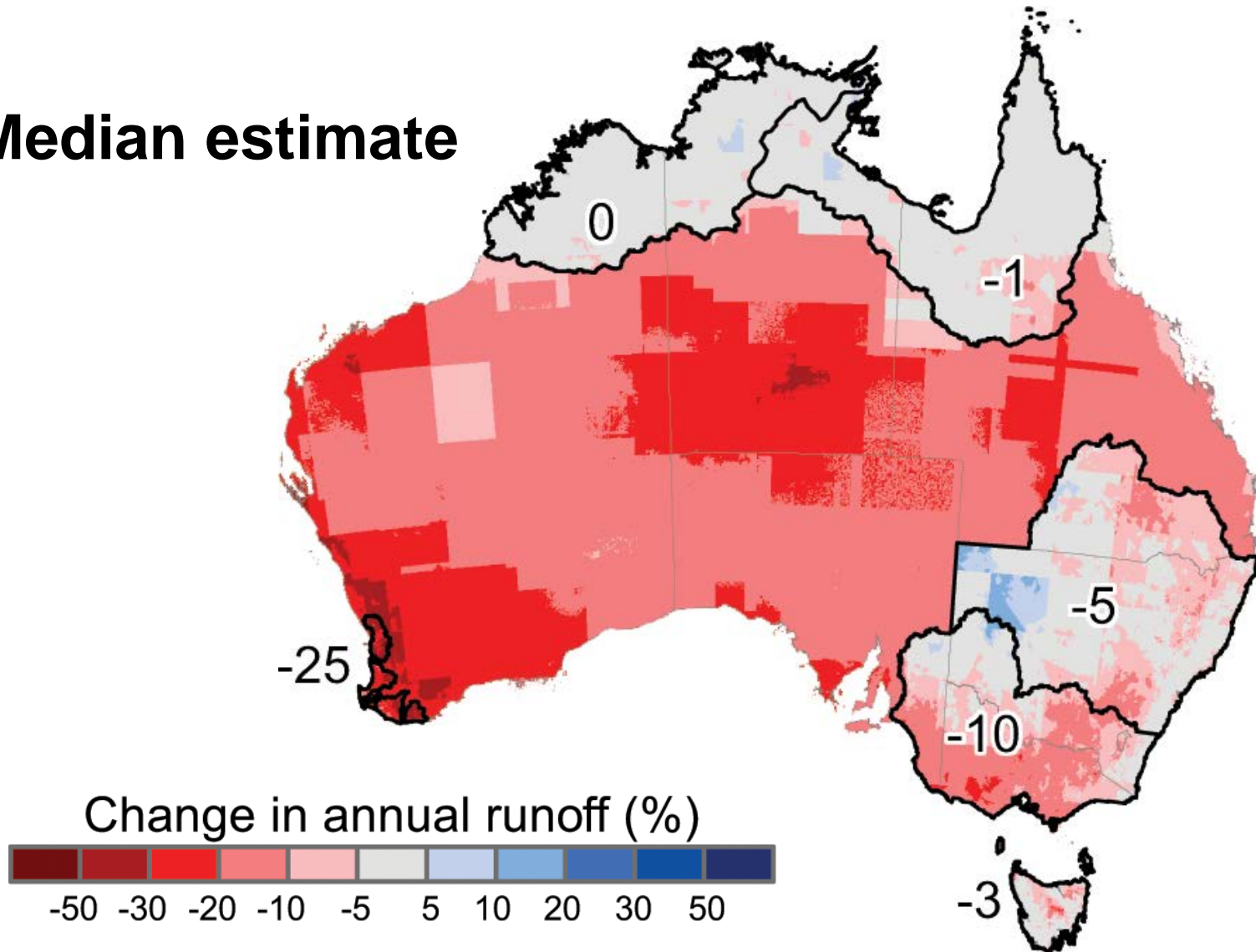


Heat stress 2.7°C warmer

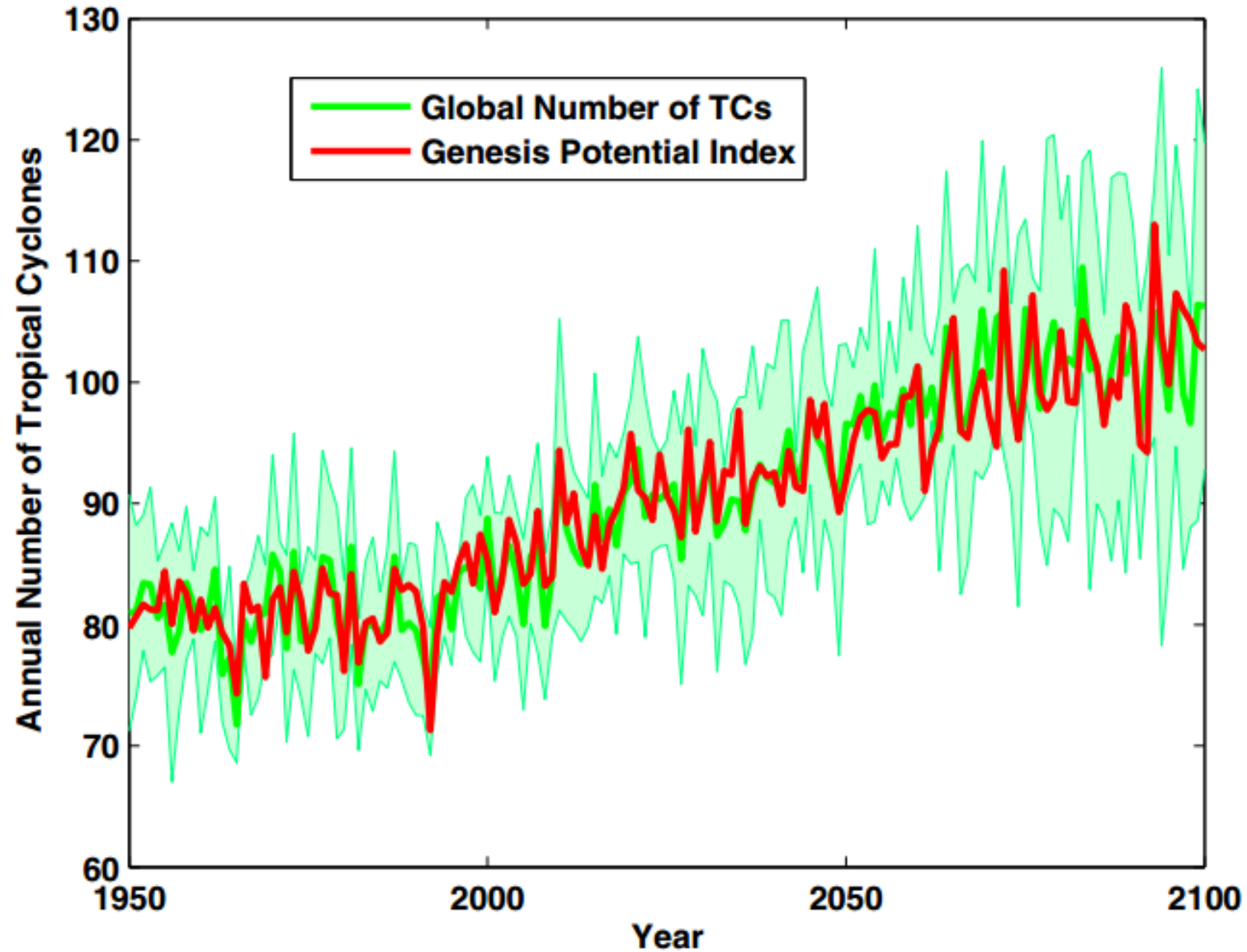


Runoff change per °C warming

Median estimate



Tropical cyclone changes



- There are already changes in many climate-related factors that could impact on national, regional and individual interests in meat production
- The existing changes are consistent with projections of future change
- We can assess the likely impacts of these changes to important systems
- Importantly, we can prepare by implementing effective adaptations to reduce risk and grab opportunities

Thankyou

Prof Mark Howden
ANU Climate Change
Institute

mark.howden@anu.edu.au

+61 2 6125 7266

Vice Chair, IPCC Working Group II

