



Australian  
National  
University



NCCARF

National  
Climate Change Adaptation  
Research Facility

Adaptation Research Network  
HUMAN HEALTH

# Climate Change and Public Health: Australia & Pacific Island Countries

..... is mainstreaming adaptation  
sufficient for our future in the  
**Anthropocene?**

Asia Pacific Climate Change Adaptation Forum

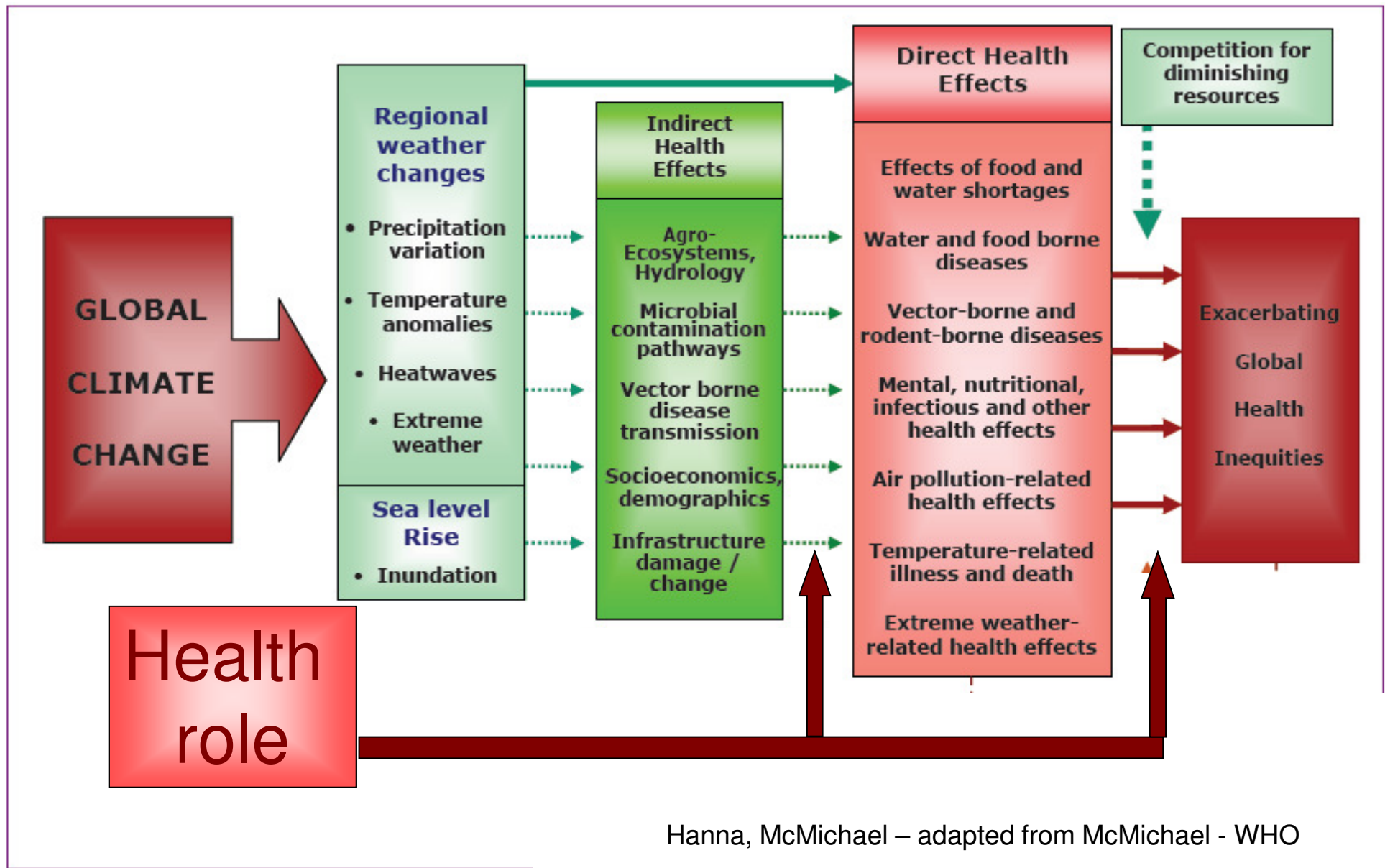
Bangkok March 12<sup>th</sup> 2012

**Dr Liz Hanna**

Australian National University



# Health Effects of Climate Change



# Public Health Risk

- Exposure
- Sensitivity
- Adaptive Capacity (includes health response)
- Vulnerability

## Pacific Adaptation Strategy Assistance Program

Funded by:

AusAID & Department of Climate Change & Energy  
Efficiency

### **Aim:**

To strengthen capacities of regional organisations and  
partner countries to assess their vulnerability to climate  
change and develop evidence-based adaptation strategies

CSIRO & BoM small scale seasonal climate projections

*Health* . . . . . Our project is part of a larger suite

Economics

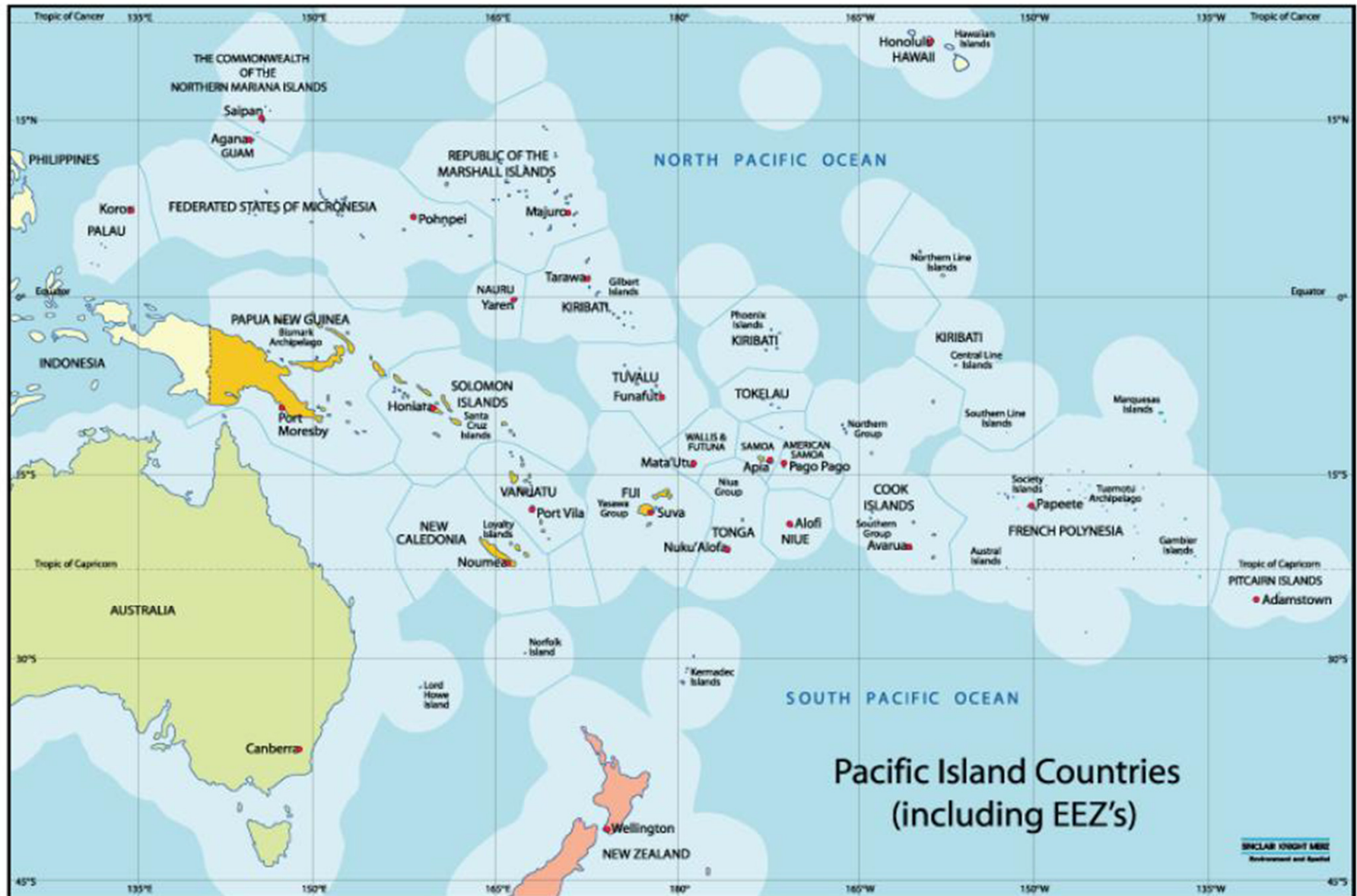
Coastal Inundation Modelling

Food

Water



# Pacific Islands = the Blue Continent



# Pacific Island Vulnerabilities

- ❑ Extreme Exposure to CC effects
  - ❖ SLR, Tuvalu, Kiribati, Marshall Islands, Tokelau 1-3m av,
  - ❖ Storm surges,
  - ❖ Typhoons,
  - ❖ Heat & Humidity
- ❑ Physical geography
  - ❖ water scarcity,
  - ❖ limited agricultural land,
  - ❖ limited relocation options,
- ❑ Isolation

# Pacific Island Vulnerabilities

- ❑ Governance
- ❑ Developing nation conditions
  - ❖ Variable progression towards Millennium Development Goals (MDGs),
  - ❖ Health problems - NCD's, obesity, hunger & stunting
  - ❖ Capacity / infrastructure limitations “Brain drain”
- ❑ Small islands
  - ❖ (Nauru 21 sq km, Tuvalu 26 sq km)
- ❑ Population issues
  - ❖ Density, rapid urbanization, rapid growth, youth
- ❑ Small economies – post disaster rebound difficult
  - ❖ (Nauru, Tuvalu pop'n ~10 000, Niue <1500)

# Pacific Island Health Vulnerabilities

## ❑ **Prevalence of Climate-sensitive diseases**

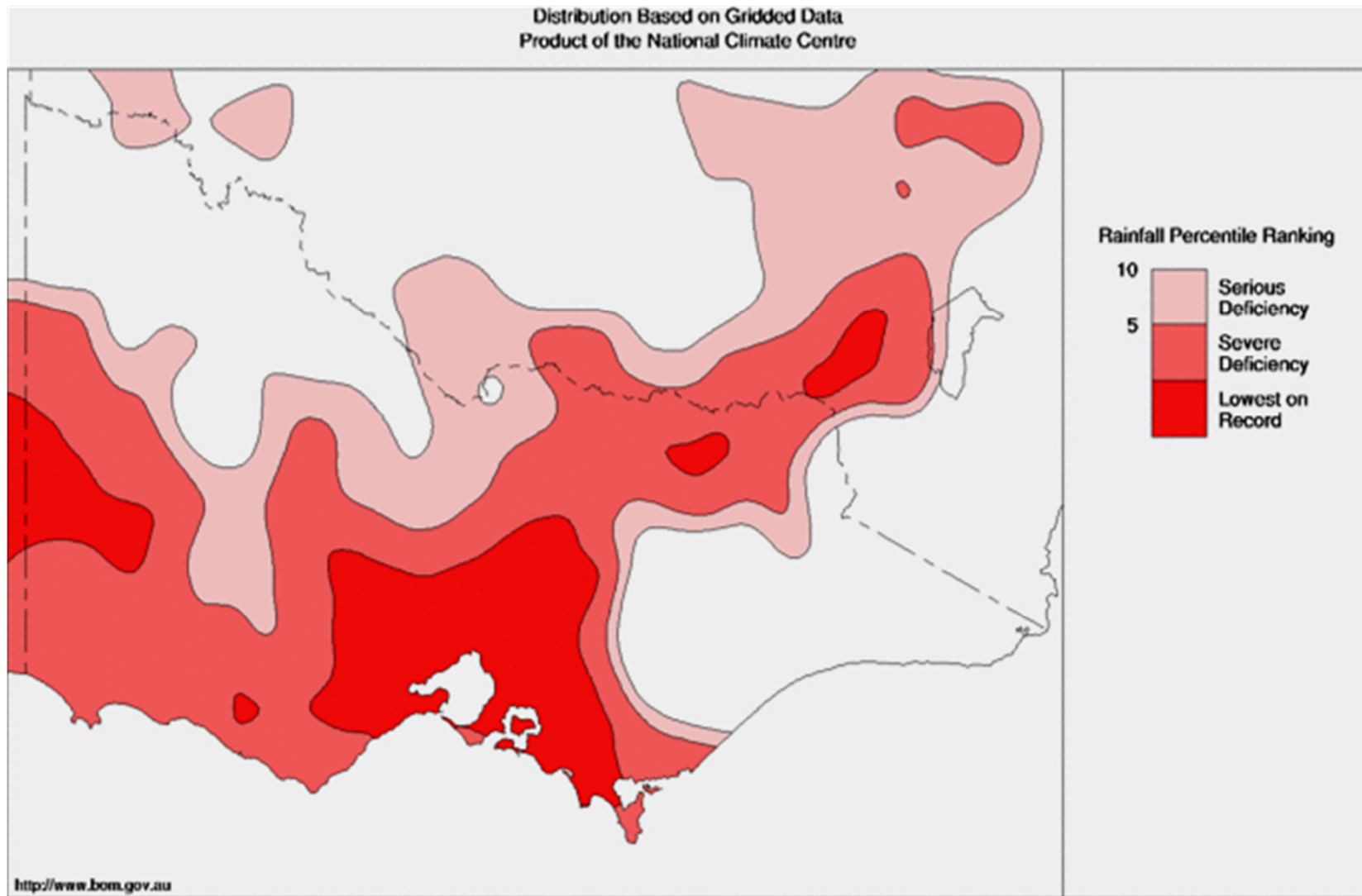
- ❖ Injuries and deaths from extreme weather events
- ❖ Vector-borne diseases (mosquito-borne viruses; malaria)
- ❖ Zoonoses (primarily leptospirosis)
- ❖ Respiratory diseases (infections, obstructive airways diseases)
- ❖ Water - and food-borne diseases (diarrhoea, Ciguatera)
- ❖ Food security and non-communicable diseases
- ❖ Malnutrition
- ❖ Mental health disorders



# Australia's Vulnerabilities

- ❑ Existing climate is extreme
- ❑ Climate change will intensify existing extremes
  - ❖ SLR, Storm surges,
  - ❖ Cyclones,
  - ❖ Floods, Droughts, Fires
  - ❖ Heat & Humidity
- ❑ Physical geography
  - ❖ World's most variable rainfall
  - ❖ Huge landmass, limited & marginal agricultural,
  - ❖ Ample relocation options, limited by water

# Victorian rainfall deficiencies: March 2005 – Feb 2008







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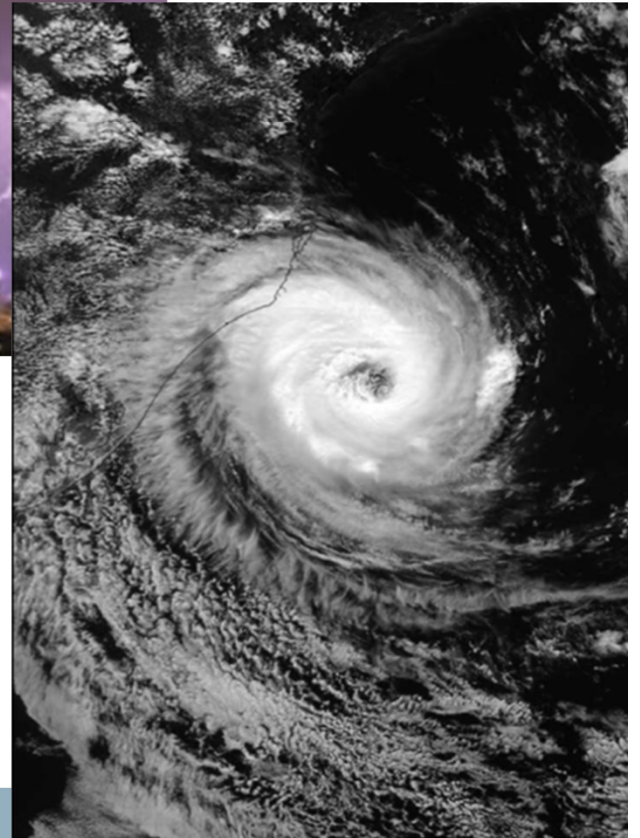
# Droughts & dust







**Darwin Xmas  
Cyclone Tracy  
1975 & 2002**



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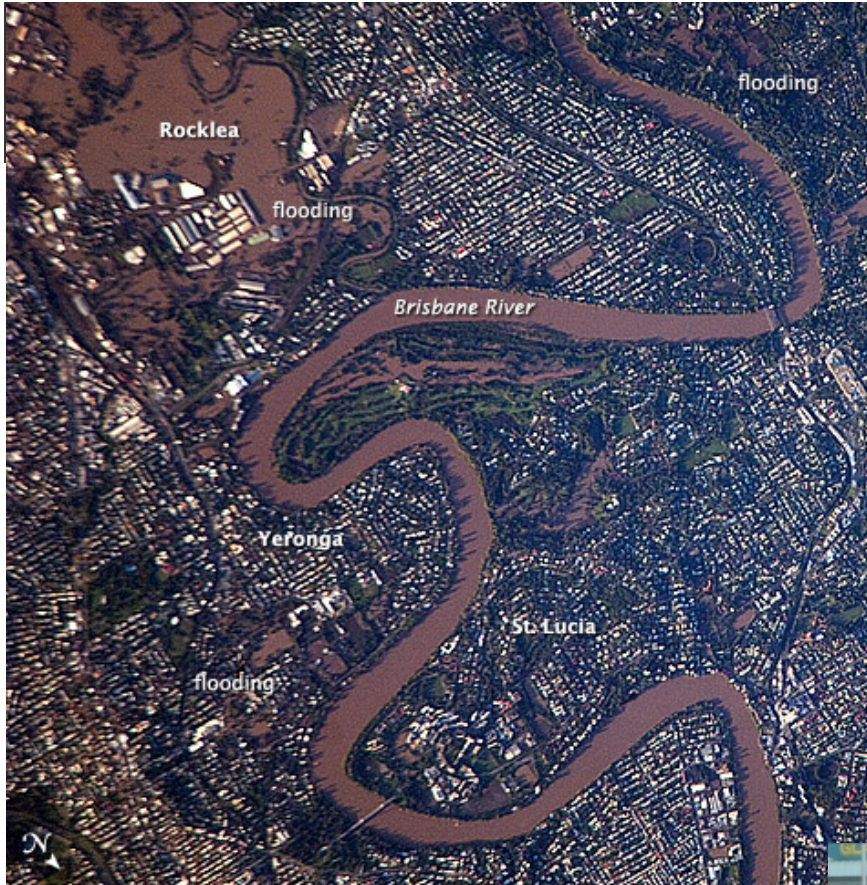




# Rural floods, damage & coastal erosion



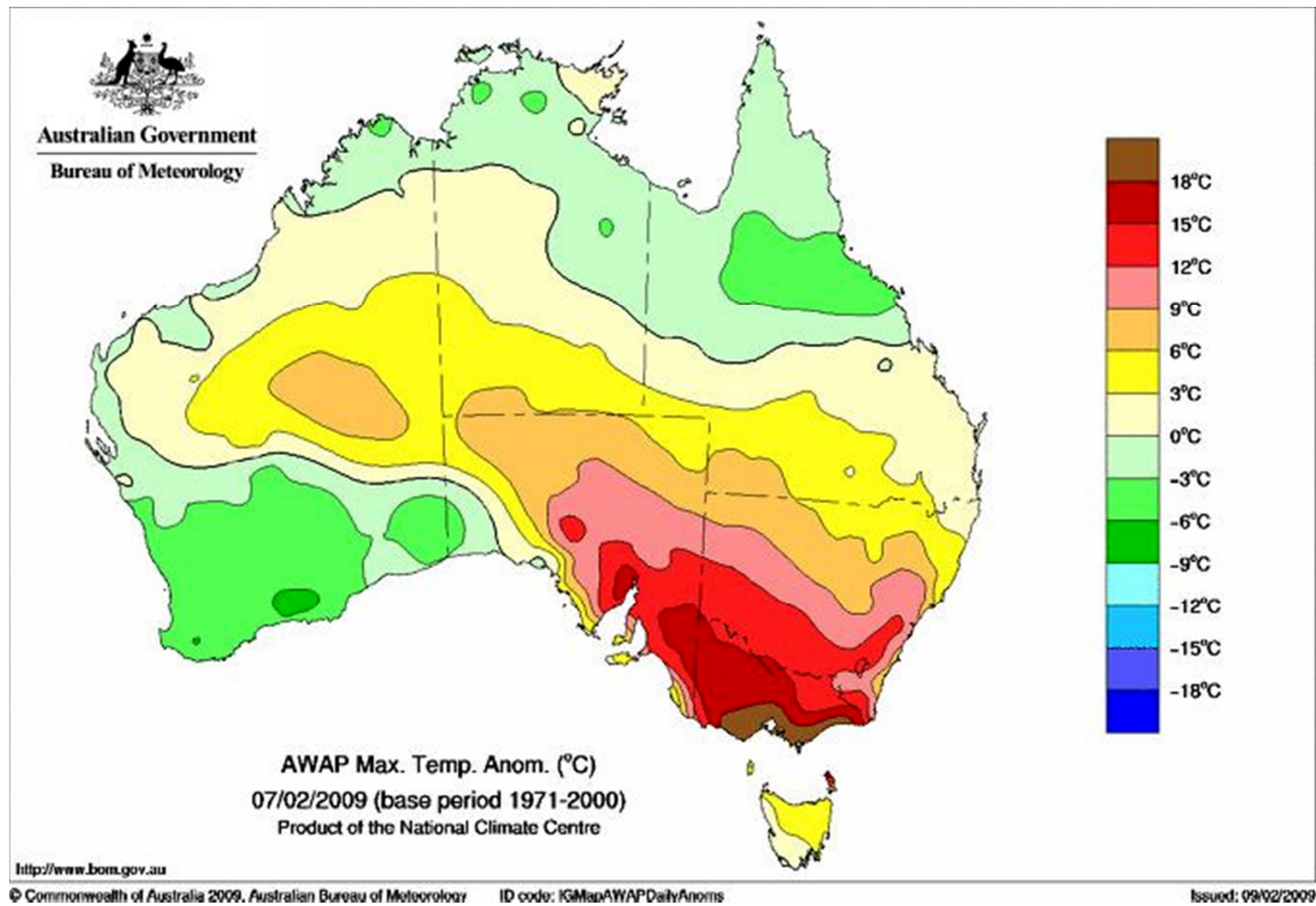




der



# Maximum temperature variance from the 1971-2000 average - 7<sup>th</sup> Feb 2009







# Australia' source of resilience

## **‘Wealthy’**

- Resource rich
- Uncontaminated environment
- Educated, healthy population
- Living in democratic freedom, stable government
- Social welfare, quasi-equitable

**“The Lucky Country”**

# Australia understands its extreme weather

## **Top end**

- Floods & cyclones

## **Southern states**

- Droughts, heat waves & fires

## **Lessons from many disasters – adapted**

- Preparation & response teams & local wisdom

## **But**

- The last 10 years have exceeded all previous extremes

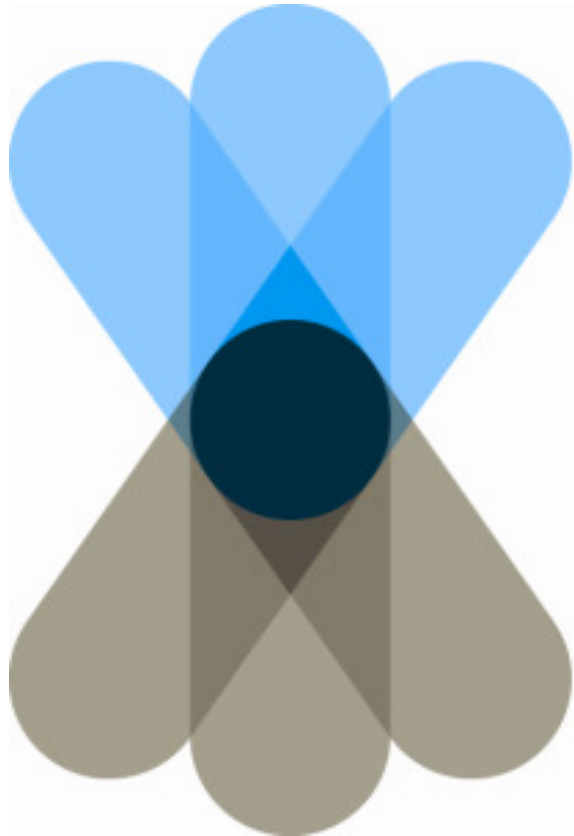




**The future is not like the past**

**. . . . .**

**the threats are getting bigger  
and more serious**



# NCCARF

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[www.nccarf.edu.au](http://www.nccarf.edu.au)

<http://climatehealthresearch.org/>

# Health Adaptation funded projects

Climate Change and **Rural Communities**: Integrated study of physical and social impacts, health risks and adaptive options

Changing Heat: direct impacts of **temperature** on health and productivity - current risks and climate change projections

Projection of the impact of climate change on the **transmission of Ross River** virus disease

Health impacts of climate change on **Indigenous** Australians: identifying climate thresholds to enable the development of informed adaptation strategies

**Dengue transmission** under climate change in Northern Australia: linking ecological and population based models to develop adaptive strategies

Climate Change impacts on **Workplace Heat** Extremes: Health Risk Estimates and Adaptive Options

Displaced twice? Investigating the impact of Queensland **floods** on the wellbeing and settlement of a cohort of men from **refugee** backgrounds living in Brisbane and Toowoomba

# Australia & Pacific Island Countries

## Mainstreaming Adaptation

### Australia

- Fortunate
- Options +++
- Capacity +++

### But

- Climate already at extremes
- Will wealth erode?
- At what point will wealth no longer be protective

### Pacific Island Countries

- **Not** fortunate
- Minimal options
- Limited capacity

### And

- Re CC = Aid dependant
- Will supports be timely, sufficient, appropriate, adaptive and protective?
- Will these be sufficient to remain in situ?



# Health Effects of Climate Change

