

# Climate Change, Leadership, Adaptation, and Innovation in the Pacific Islands

Professor Elisabeth Holland

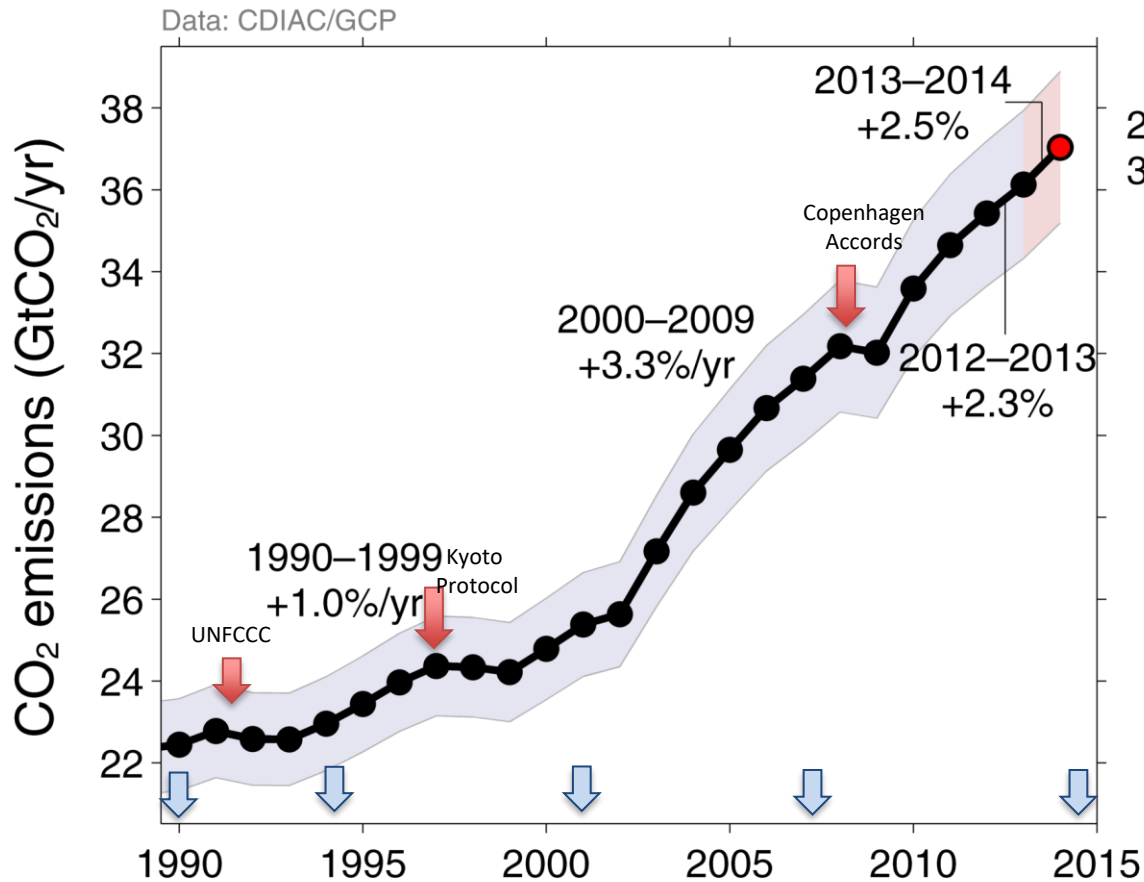
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# Fossil fuel and Cement Emissions of CO<sub>2</sub>

Global fossil fuel and cement emissions:  $36.1 \pm 1.8$  GtCO<sub>2</sub> in 2013, 61% over 1990

● Projection for 2014 :  $37.0 \pm 1.9$  GtCO<sub>2</sub>, 65% over 1990



Uncertainty is  $\pm 5\%$  for one standard deviation (IPCC "likely" range)

↓ IPCC report

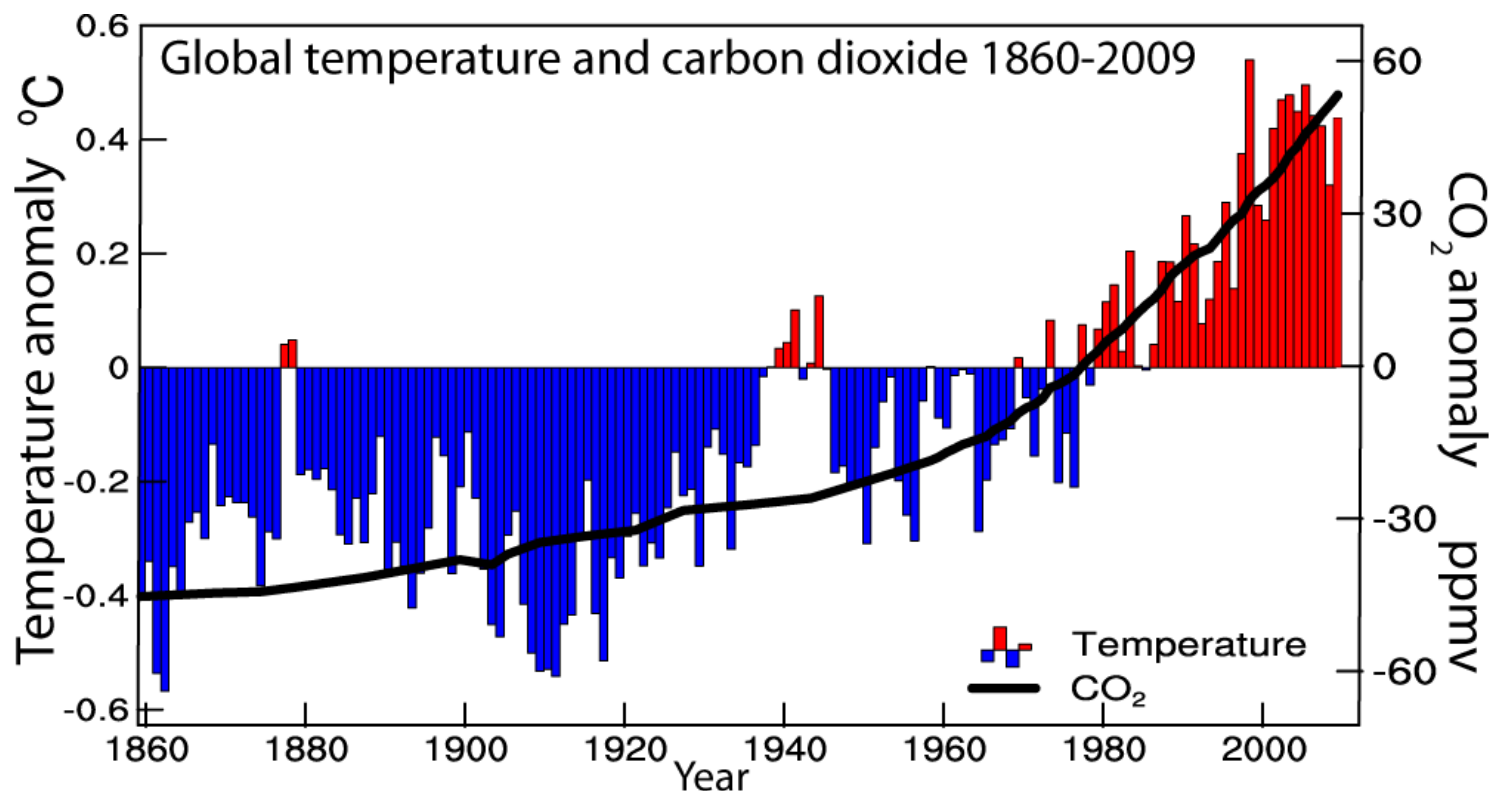
Estimates for 2011, 2012, and 2013 are preliminary

Source: [CDIAC](#); [Le Quéré et al 2014](#); [Global Carbon Budget 2014](#)

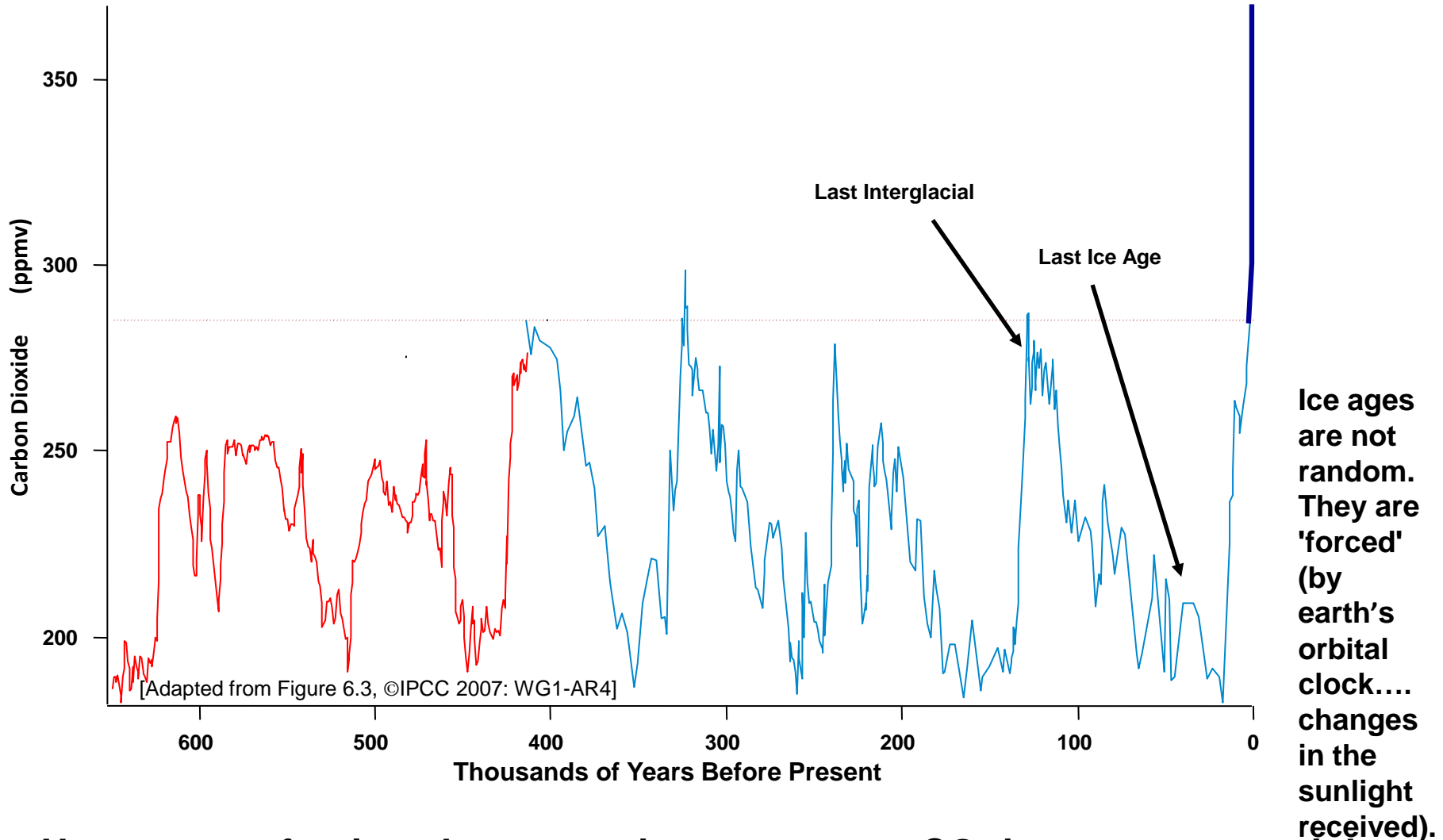
# IPCC AR5 Physical Science Basis

approved 27 September, 2013 Stockholm, Sweden

- **Warming in the climate system is unequivocal**



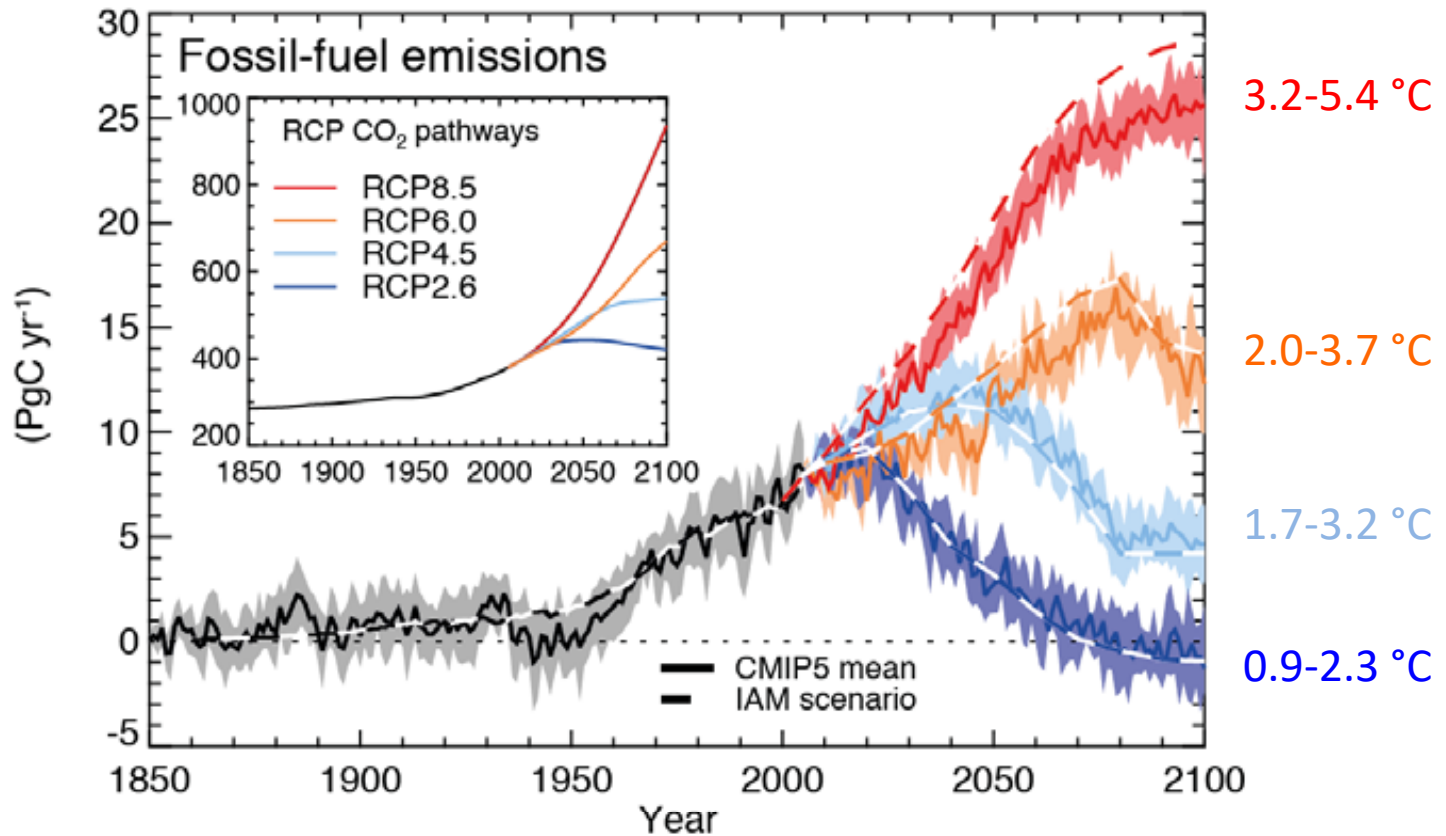
# Atmospheric CO<sub>2</sub> now exceeds 400 ppm



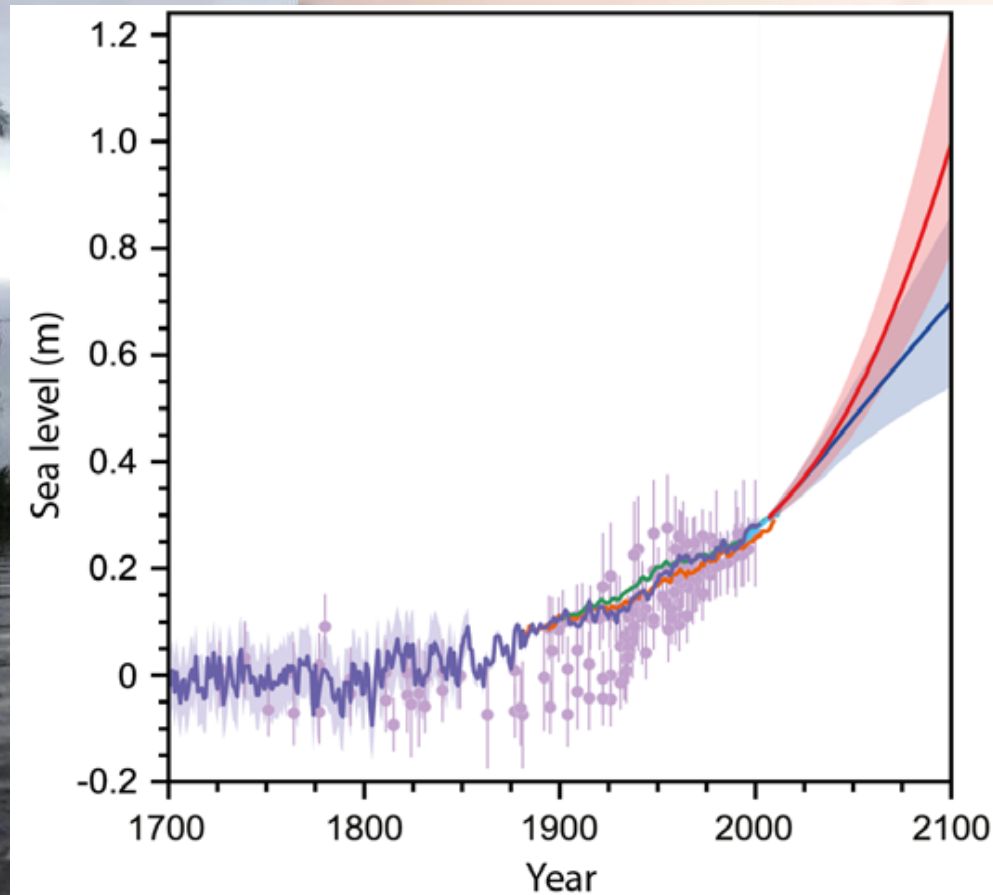
**Humans are 'forcing' the system in a new way. CO<sub>2</sub> increases are mainly due to fossil fuel burning. CO<sub>2</sub> has not been this high in a million years.**

# What does the Future Hold?

## Warming to 2013: 0.85°C



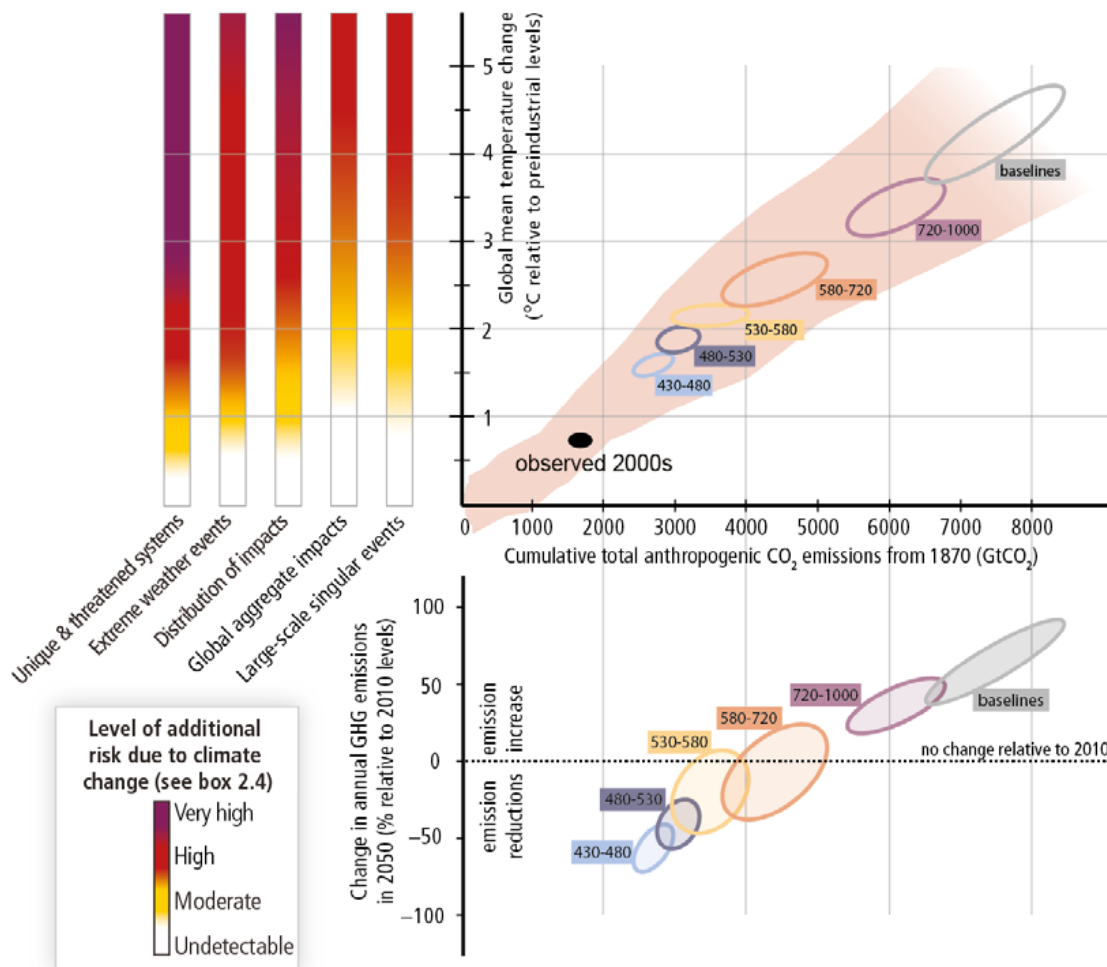
# Sea Level Rise



**Figure SPM.10,  
A reader's guide**

**From climate  
change risks to GHG  
emissions**

**(A) Risks from climate change... (B) ...depend on cumulative CO<sub>2</sub> emissions...**

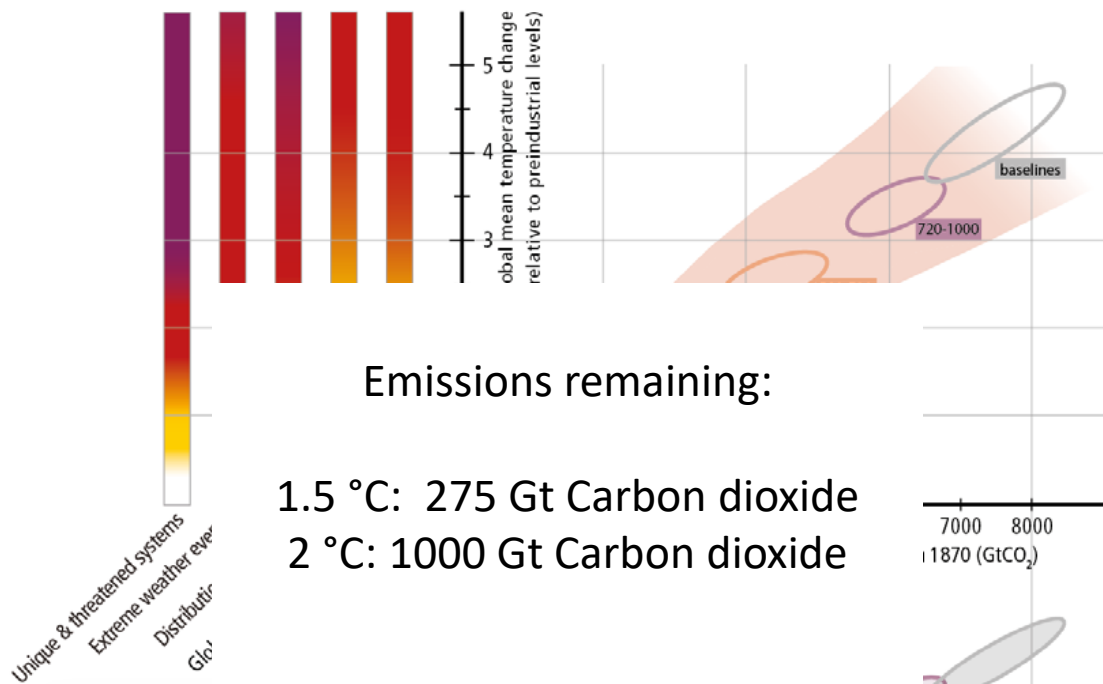


**(C) ...which in turn depend on annual  
GHG emissions over the next decades**

**Figure SPM.10,  
A reader's guide**

**From climate  
change risks to GHG  
emissions**

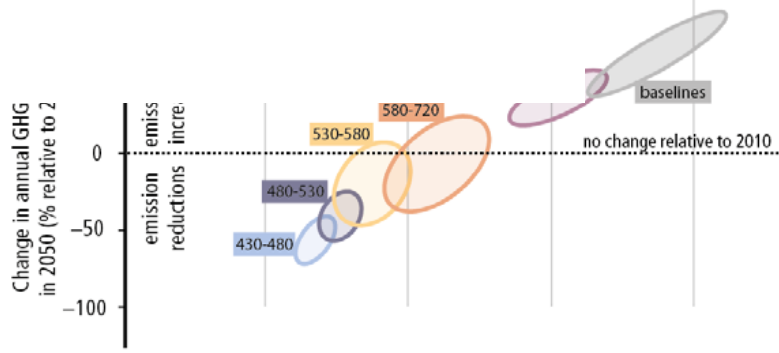
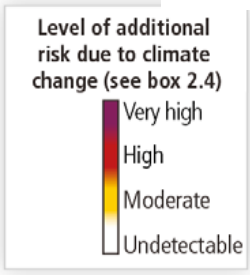
**(A) Risks from climate change... (B) ...depend on cumulative CO<sub>2</sub> emissions...**



**Emissions remaining:**

**1.5 °C: 275 Gt Carbon dioxide  
2 °C: 1000 Gt Carbon dioxide**

7000 8000  
1870 (GtCO<sub>2</sub>)



**(C) ...which in turn depend on annual  
GHG emissions over the next decades**



# What are the Solutions?

- Mitigation-shift to renewable energy to reduce emissions.  
Sustainable Transport MUST be included.
  - Pacific Leadership-building a better tomorrow
- Adaptation- building climate change and disaster resilience today
  - Innovation-finding new solutions

Requires unprecedented **COLLABORATION** from communities to governments and world leaders

# MITIGATION

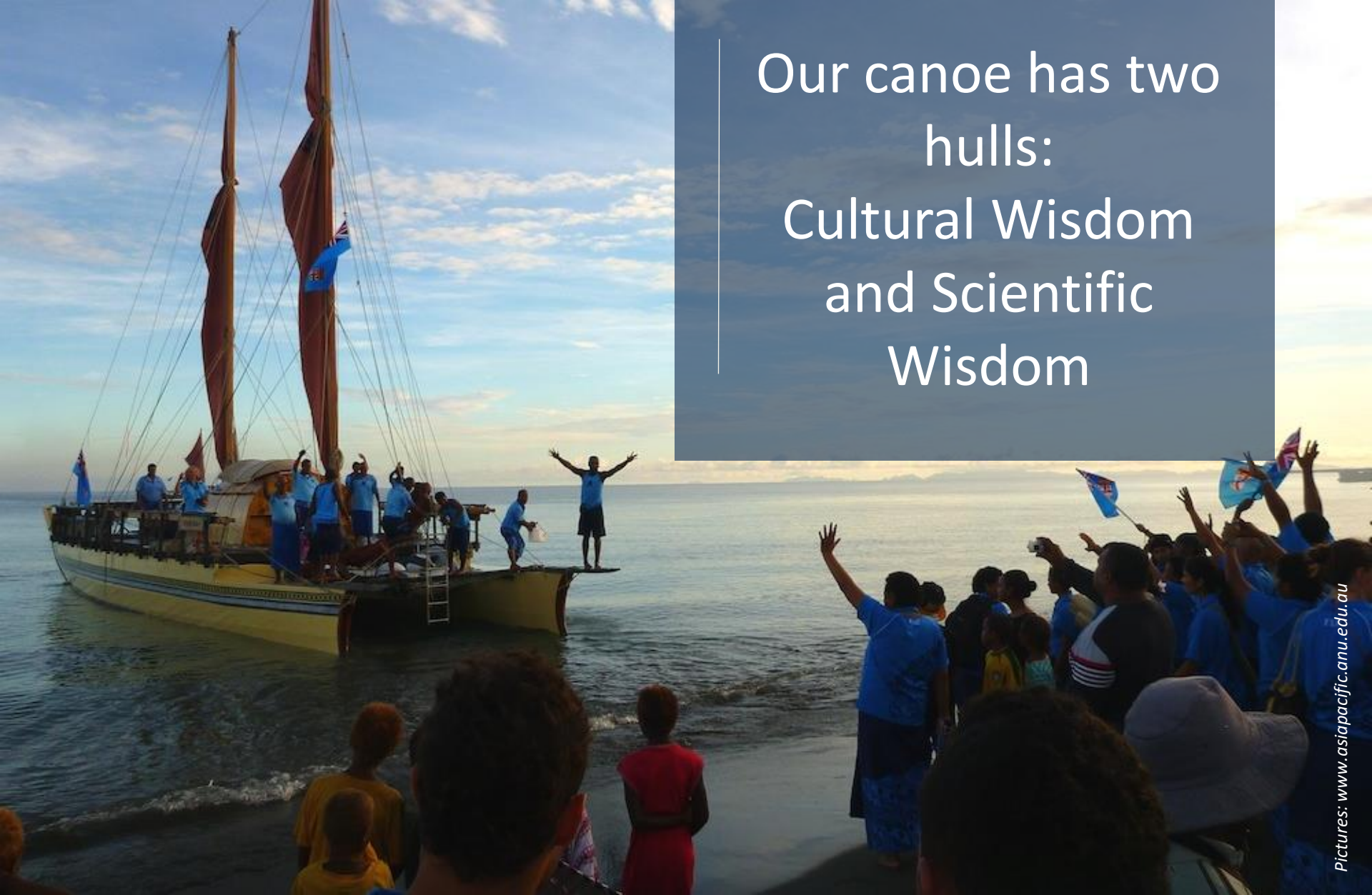


<http://www.majurodeclaration.org/>



## MAJURO DECLARATION FOR CLIMATE LEADERSHIP

Developed World	Pacific
Australia: 5% emission reduction	FSM: 50% decrease in imported petroleum fuel
Canada: increasing emissions	RMI: A 40% reduction in CO <sub>2</sub> emissions below 2009 levels by 2020; A 20% efficiency improvement in transportation sector fuel use by 2020
EU: 20-30% emission reduction	Solomon Islands: 100% renewable by 2050
New Zealand: 5% emission reduction	Tuvalu: 100% renewable by 2020



Our canoe has two  
hulls:  
Cultural Wisdom  
and Scientific  
Wisdom

Kommol tata