

# Views from the Pacific

**Diane McFadzien,  
Climate Change Advisor,  
Secretariat of the Pacific Regional  
Environment Programme (SPREP)**

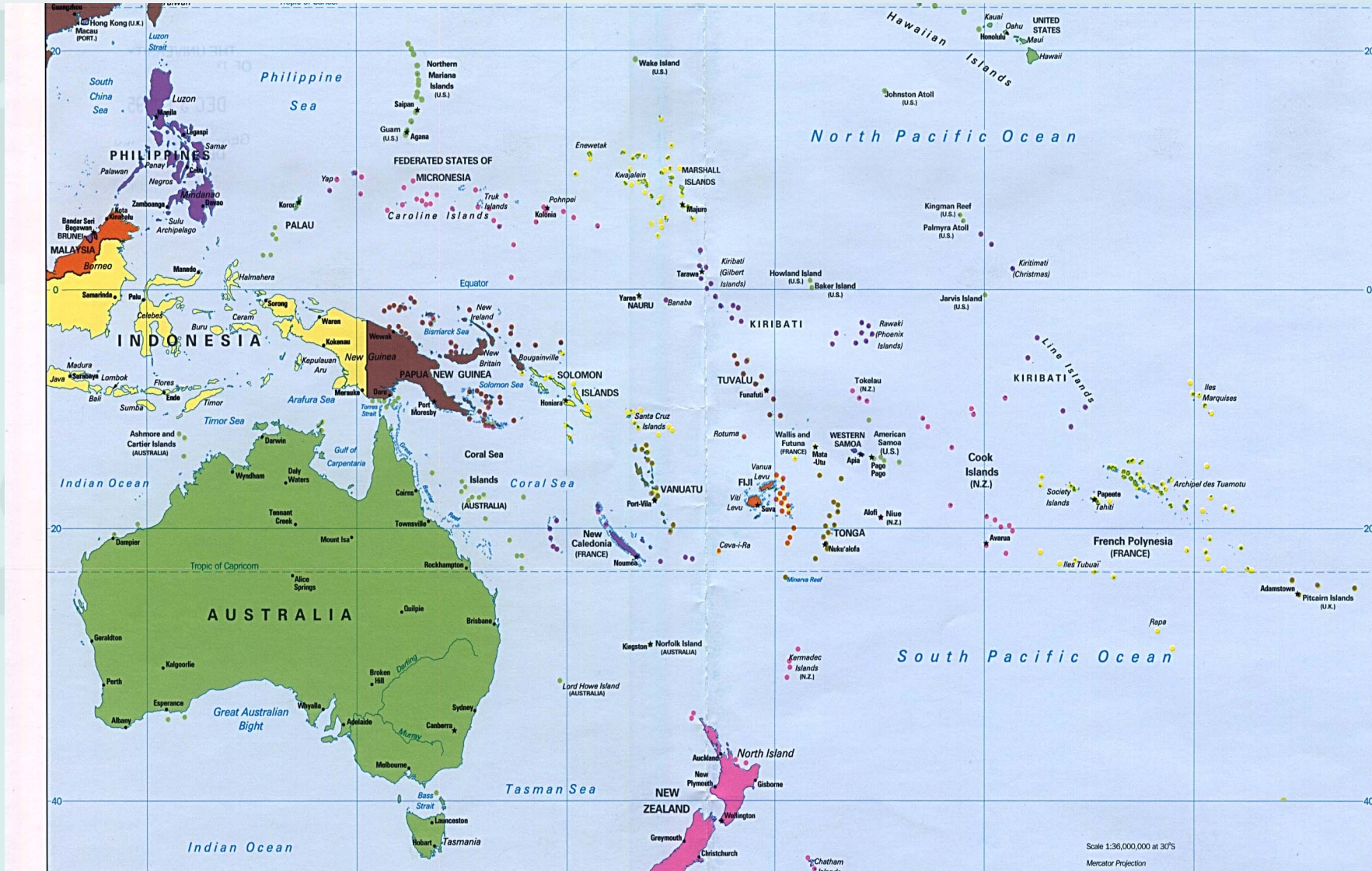


# SPREP

Secretariat of the Pacific Regional Environment Programme



## Natural Solutions for Island Resilience



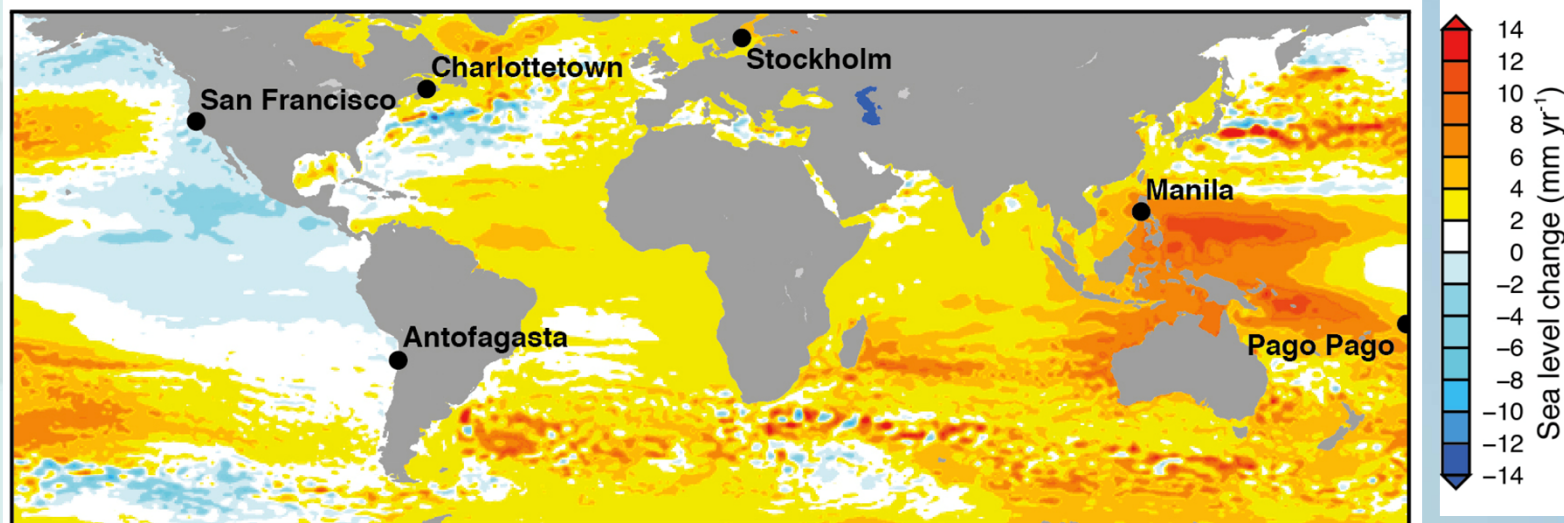
## Observed Impacts: Temperature Rise

- Persistent regional warming trend since 1961 ( $0.18^{\circ}$  C annual), with warmest years on record in the last two decades
- The frequency of warm days and nights has increased more than three-fold: Rare extremes have risen from 20days/year to 45-80 days/years
- Sea surface temperatures have also increased across the Pacific

(CSIRO 2014)

# Observed Impacts: Sea-Level Rise

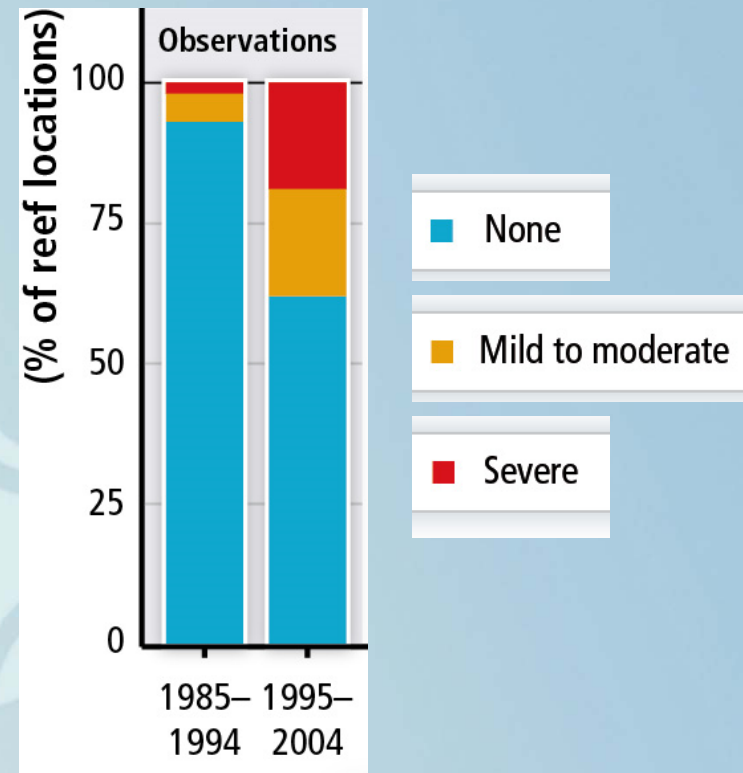
- Observed rate of sea-level rise in the western Pacific three times above the global average from 1993-2012
- While this may be attributed to mainly to natural variability it shows the high regional vulnerability to sea-level rise
- Projections of regional future sea-level rise are above global



Map of rates of change in sea surface height (geocentric sea level) for the period 1993–2012 from satellite altimetry. Source: IPCC AR5 WGI FAQ 13.1, Figure 1

## Observed Impacts on Pacific Coral reefs

- Coral bleaching re-occurrence and severity has increased in the Pacific (CSIRO), 2014)
- Abundance of reef building corals in rapid decline in pacific regions: 1 - 2% per year for 1968–2004 (AR5 CR)
- Loss of eco-systems services and impacts on GDP

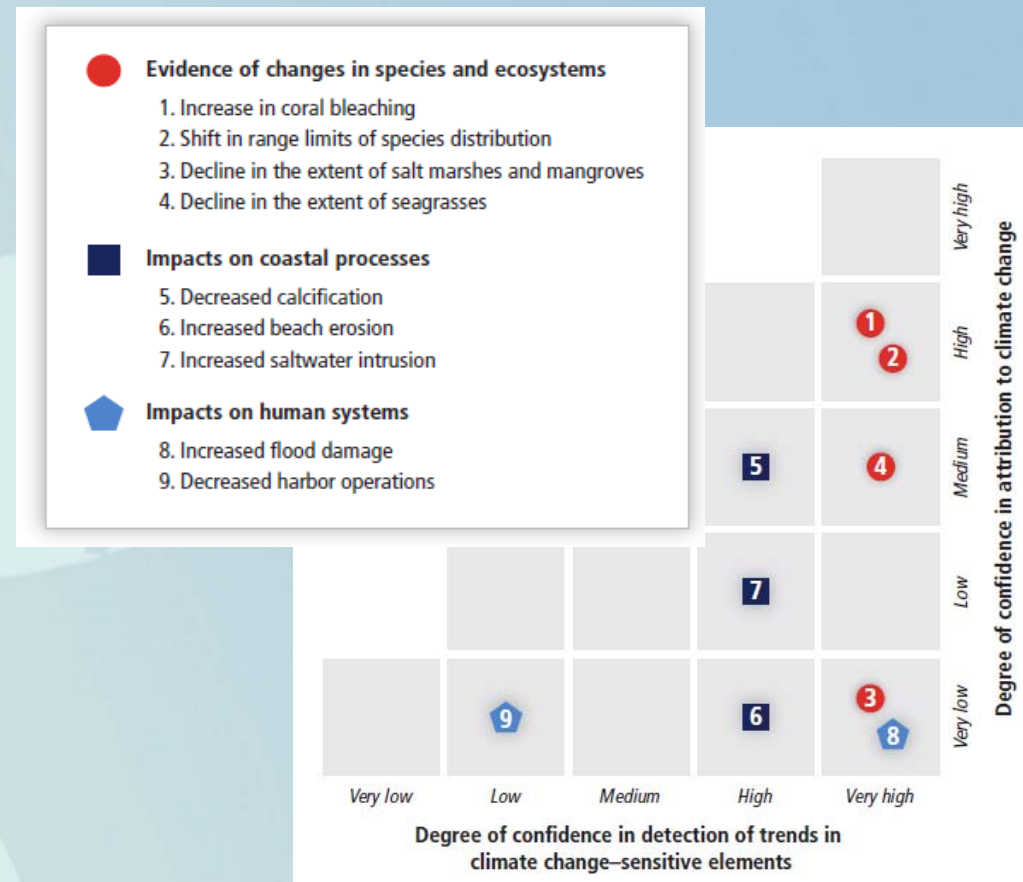


Percent of reef locations that experience severe, mild or no bleaching

Source: IPCC AR5 WGII Ch5, Figure 5-3

# Observed impacts: salt-water intrusion

- Saltwater intrusion and inundation:
  - Salinisation of limited freshwater resources
  - Risks to agricultural production
  - Negative health effects
  - Risks to food security



(IPCC AR5 WGII, Ch5/Ch29)

Source: IPCC AR5 WGII Ch5, Figure 5.5

## Observed Impacts – Human Health

- Increased incidences of vector borne disease – incidences of malaria and dengue has been rising, especially endemic dengue in Samoa, Tonga and Kiribati
- Health is also impacted by changes to water availability – cholera outbreaks after extreme events
- Links have been made between increased outbreaks of Ciguatera fish poisoning and temperature increases

# Vulnerability to Climatic Extremes

- Pacific small Islands rank high in relative exposure to tropical cyclones
- Economic losses by tropical cyclones translate to losses in GDP of 15 -25%, hampering economic development

**Table 29-5** | Top ten countries in the Asia–Pacific region based on absolute and relative physical exposure to storms and impact on GDP (between 1998 and 2009; after Tables 1.10 and 1.11 of ESCAP and UNISDR, 2010).

Rank	Absolute exposure (millions affected)	Relative exposure (% of population affected)	Absolute GDP loss (US\$ billions)	Loss (% of GDP)
1	Japan (30.9)	Northern Mariana Islands (58.2)	Japan (1,226.7)	Northern Mariana Islands (59.4)
2	Philippines (12.1)	Niue (25.4)	Republic of Korea (35.6)	Vanuatu (27.1)
3	China (11.1)	Japan (24.2)	China (28.5)	Niue (24.9)
4	India (10.7)	Philippines (23.6)	Philippines (24.3)	Fiji (24.1)
5	Bangladesh (7.5)	Fiji (23.1)	Hong Kong (13.3)	Japan (23.9)
6	Republic of Korea (2.4)	Samoa (21.4)	India (8.0)	Philippines (23.9)
7	Myanmar (1.2)	New Caledonia (20.7)	Bangladesh (3.9)	New Caledonia (22.4)
8	Vietnam (0.8)	Vanuatu (18.3)	Northern Mariana Islands (1.5)	Samoa (19.2)
9	Hong Kong (0.4)	Tonga (18.1)	Australia (0.8)	Tonga (17.4)
10	Pakistan (0.3)	Cook Islands (10.5)	New Caledonia (0.7)	Bangladesh (5.9)

Note: Small islands are highlighted in yellow.



# Adaptation actions

- Strengthening of meteorological services
- Capacity building programmes – development of Vulnerability & Adaptation assessments, Cost Benefit Analysis and Eco-system Based Adaptation tools
- Pacific Adaptation to Climate Change (PACC) project
- Joint National Action Plans

# Concluding remarks

- The Pacific has a substantial economic dependency on climate sensitive sectors such as ecosystem services and tourism, with limited opportunities for economic diversification.
- For many of the observed impacts of climate change, for example limited fresh-water availability, sea-level rise, extreme events, ocean acidification and coral reef degradation – adaptation potential is limited.
- Implementation of adaptation options, if available, comes at very high costs in relation to countries national budgets.