Sea Level

10th session of the Pacific Islands Climate Outlook Forum (PICOF-10)

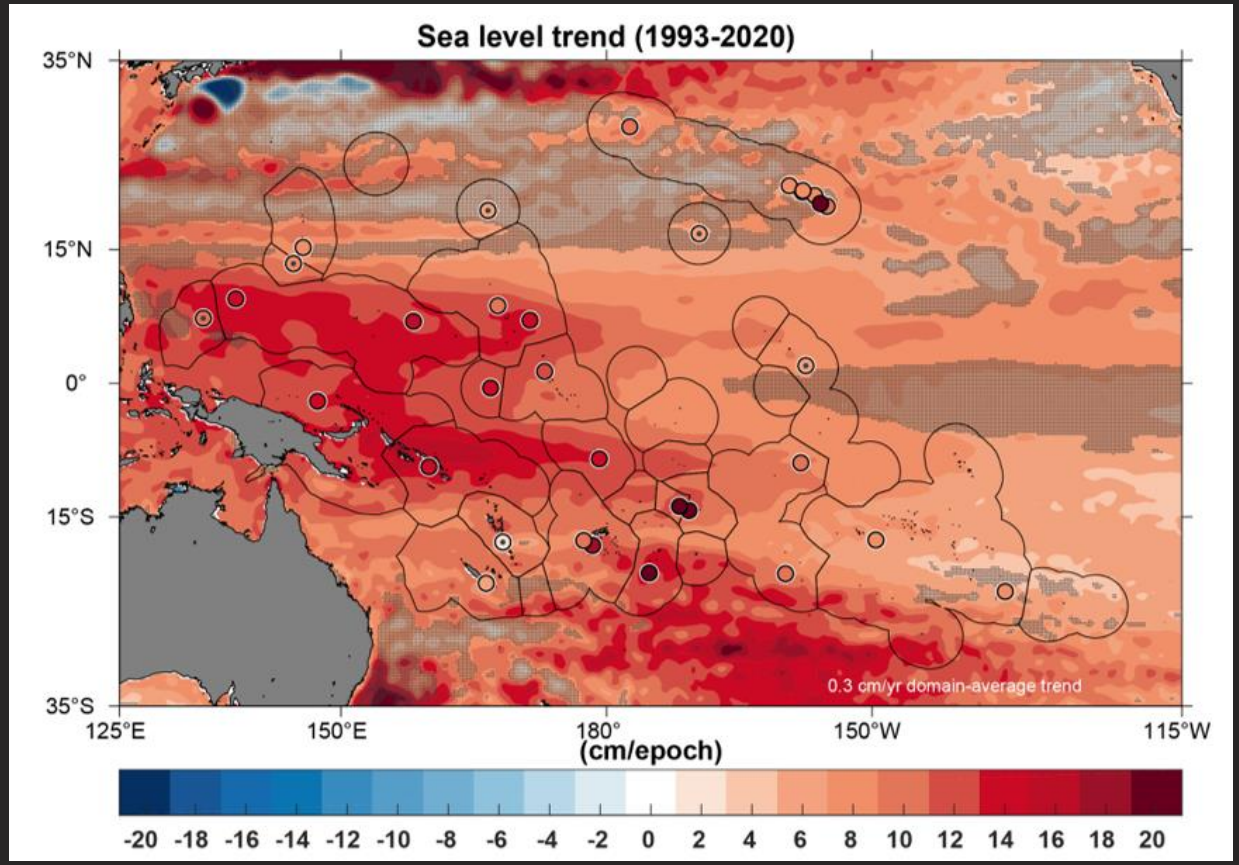
Virtual Meeting 27-29 April 2022
(26-28 April, Hawaii)

Agenda 4: Looking Back Long-Term: Status of Key Variables

Sea Level

Sea level has risen across the Pacific Islands region.

- 10—15 cm in the western tropical Pacific and 5—10 cm in the central tropical Pacific since 1993.
- Local rates of change obtained from tide gauges are in agreement with those derived from satellites. However there are exceptions - in Pago Pago, American Samoa a local change of 31 ±7 cm since 1993 is measured from the tide gauge.
- Natural patterns of variability play an important role in regional and local variation in sea level. – they can reach 30 cm above or below normal.



Regional Sea Level Trends from Satellite Altimetry and Tide Gauges.
Sea level trends from satellite altimetry (colored contours) and from tide gauges (circles) from 1993-2020.

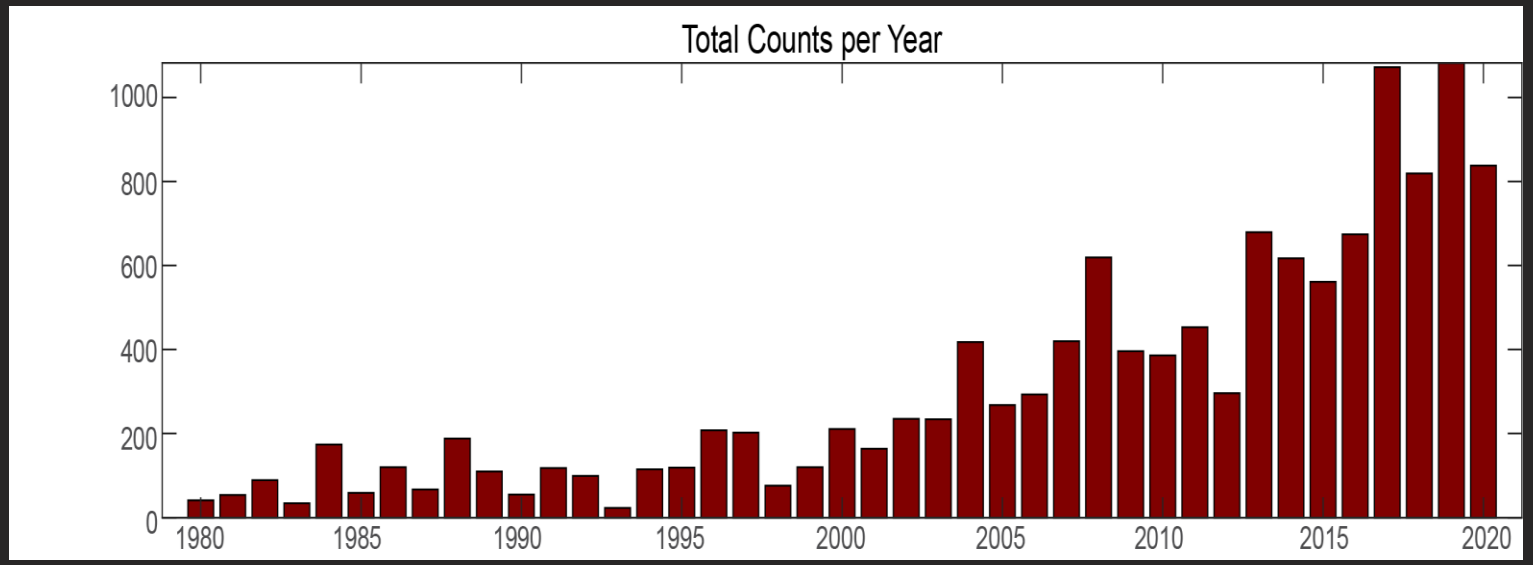
Source PICC Monitor:2021

Sea Level

Rising Mean Sea Levels have resulted in Increases in the Frequency of Minor Flooding

In some cases, the increase since 1980 is dramatic:

- Guam from 2 to 22 times/year;
- Penrhyn, Cook Islands from 5 to 43 times/year;
- Majuro, Republic of the Marshall Islands from 2 to 20 times/year;
- Papeete, French Polynesia from 5 to 34 times/year; and
- Pago Pago, American Samoa from 0 to 102 times/year.



Annual Total of Minor Flood Counts for 31 Tide Gauges Combined.

Source PICC Monitor:2021

A *minor flood day* is defined as a day in which the sea level at a given tide gauge exceeds the elevation reached twice a year on average