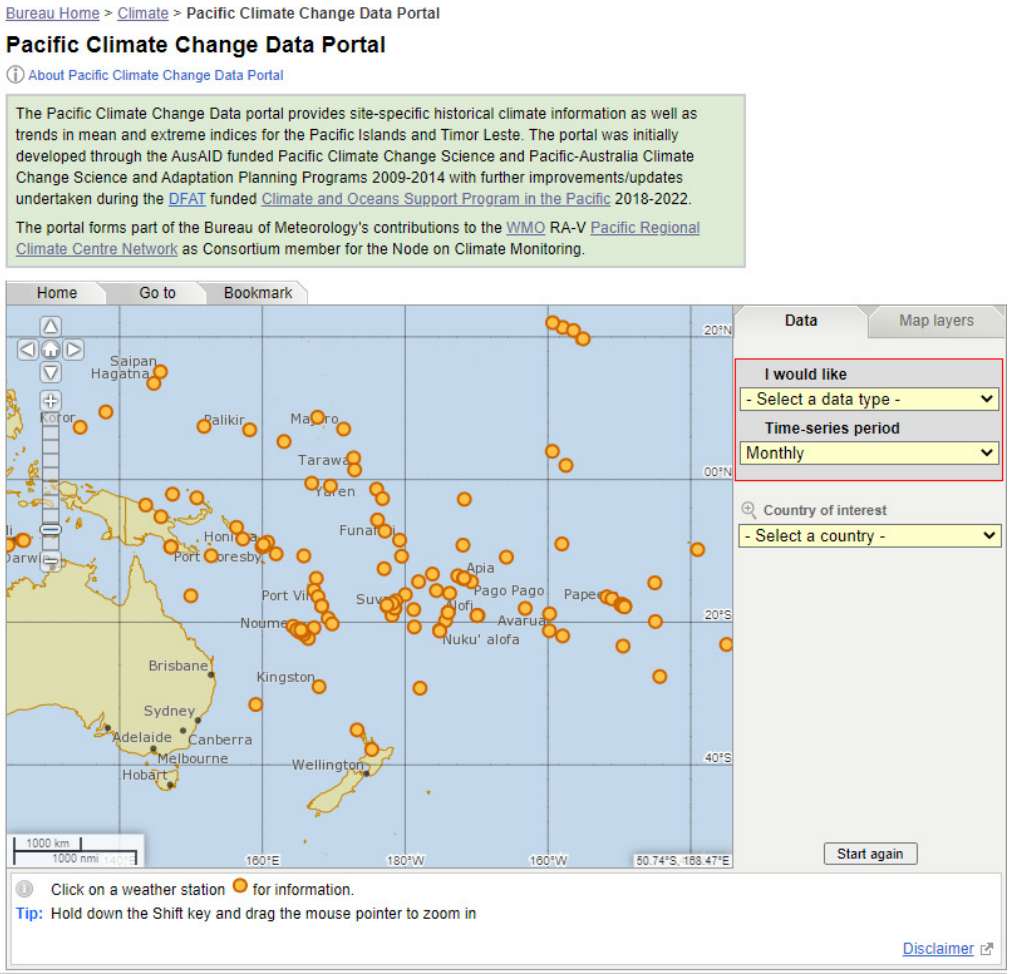
Climate and Oceans Support
Program in the Pacific

Pacific Climate Change Data Portal

Module 23: 13/10/2022

Climate and Oceans Support Program in the Pacific

A portal for the upload, analysis and visualisation of station climate data in Pacific



100+ stations across 23 countries and territories

http://www.bom.gov.au/climate/pccsp/

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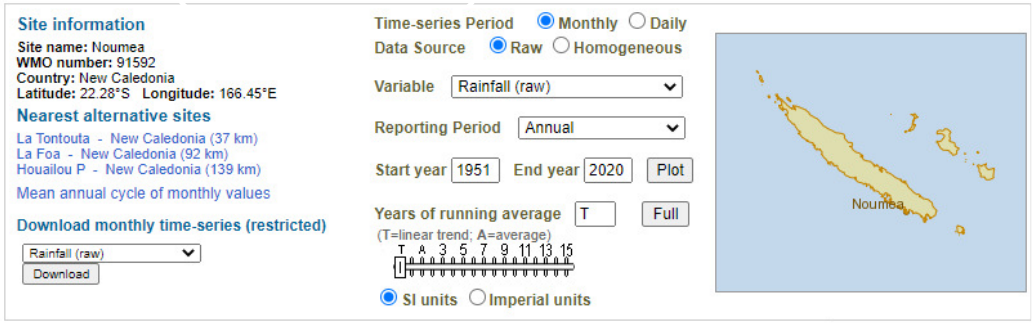
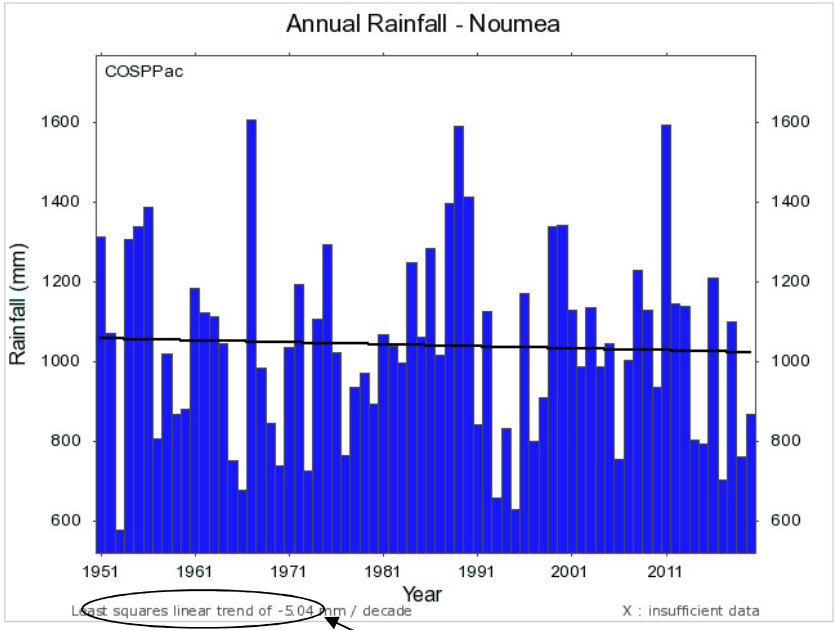
Portal features





Trends available in metric and imperial units

Variables include raw and homogenised:
- Rainfall
- TMax, TMin, TMean and DTR
- MSLP

Periods include:
- Nov to Apr
- May to Oct
- DJF, MAM, JJA, SON
- Monthly

User can select any Start or End year for the trends and averages provided data is available

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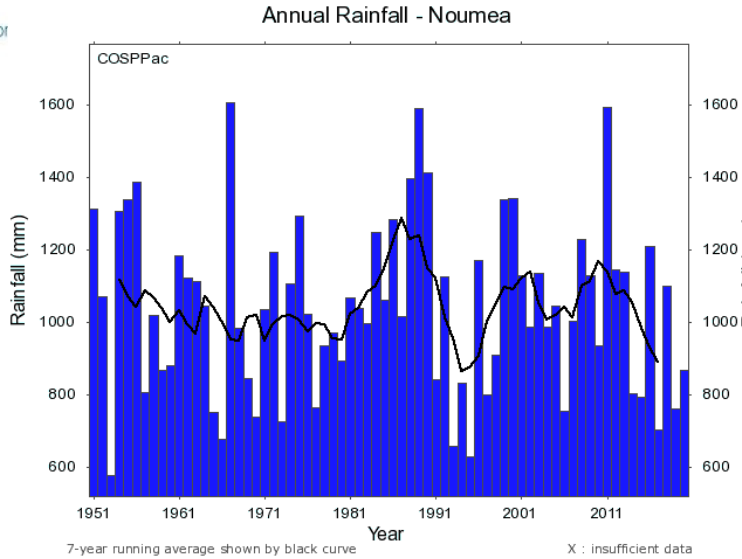
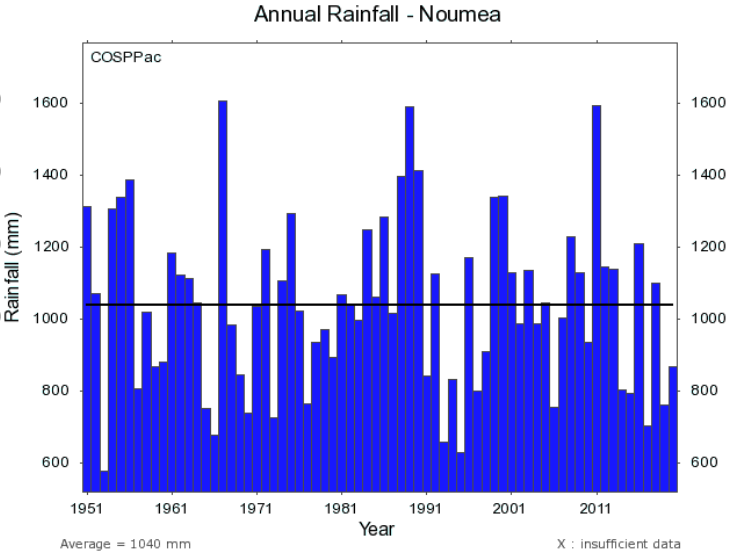
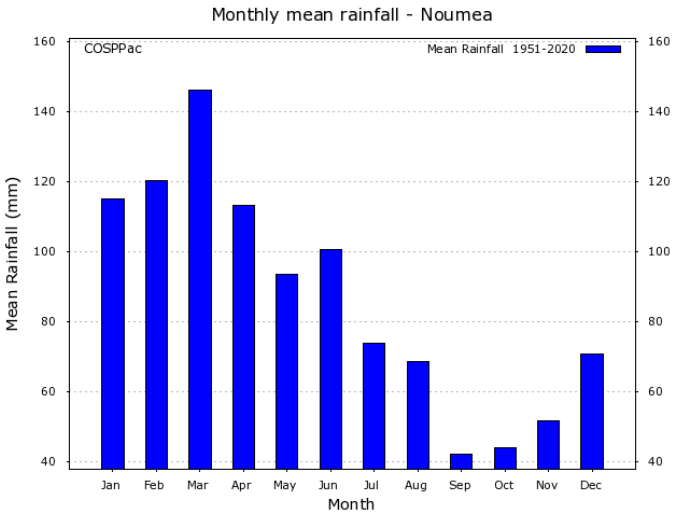
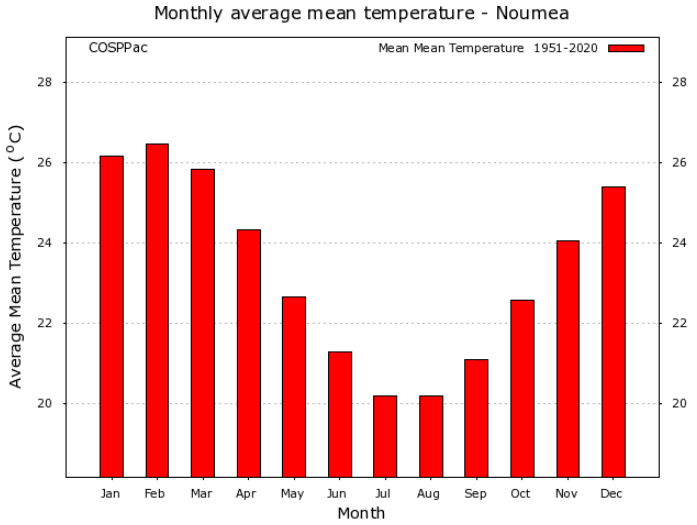
Portal features









Users can view running averages
over 3 -15 years, long-term means

and

mean annual cycle

for the period they are interested in

Climate and Oceans Support Program in the Pacific

Partner countries able and encouraged to manage their own data

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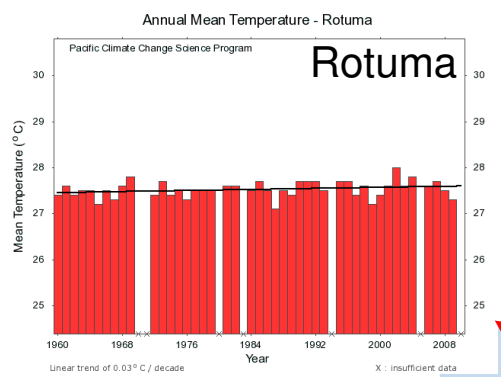

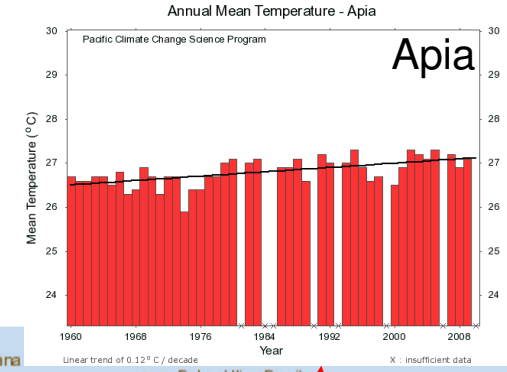

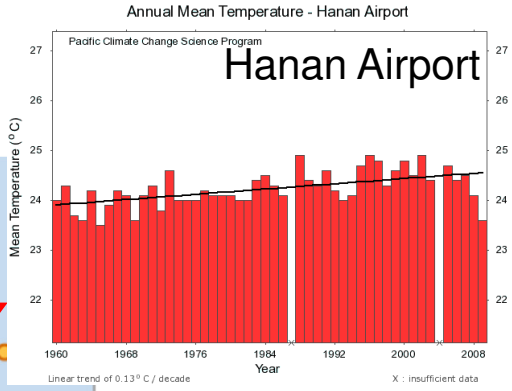

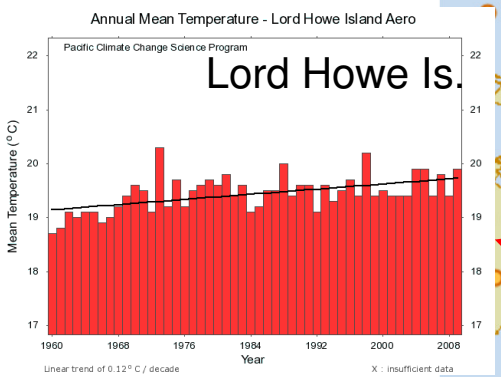

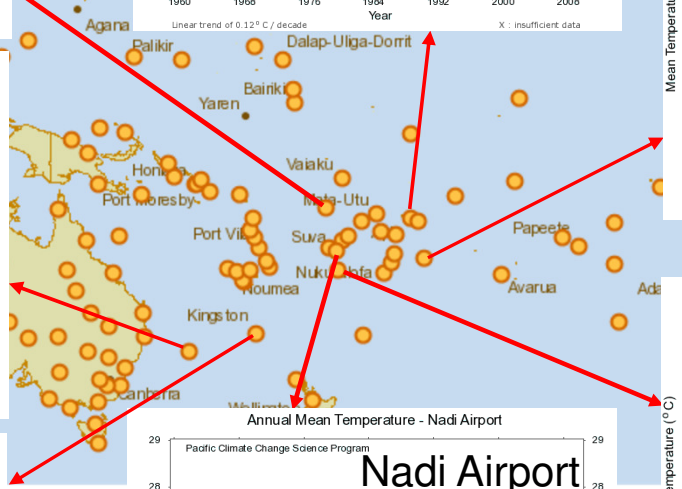

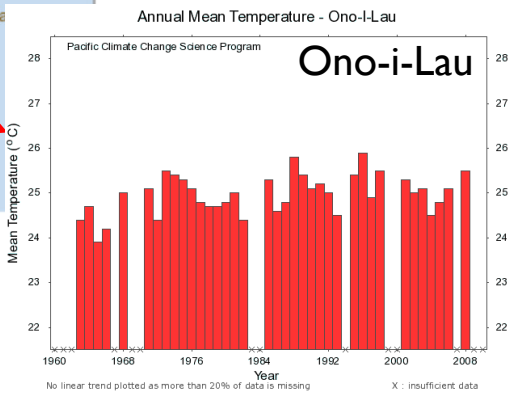

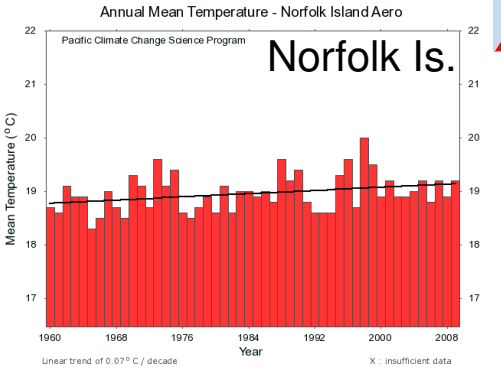

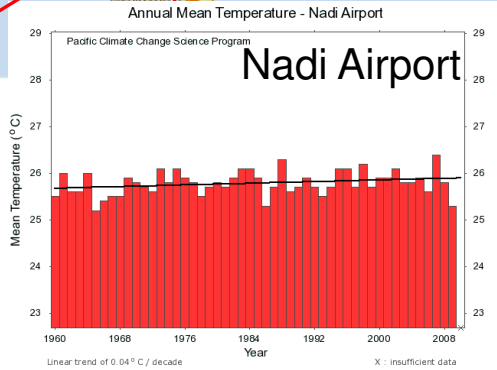

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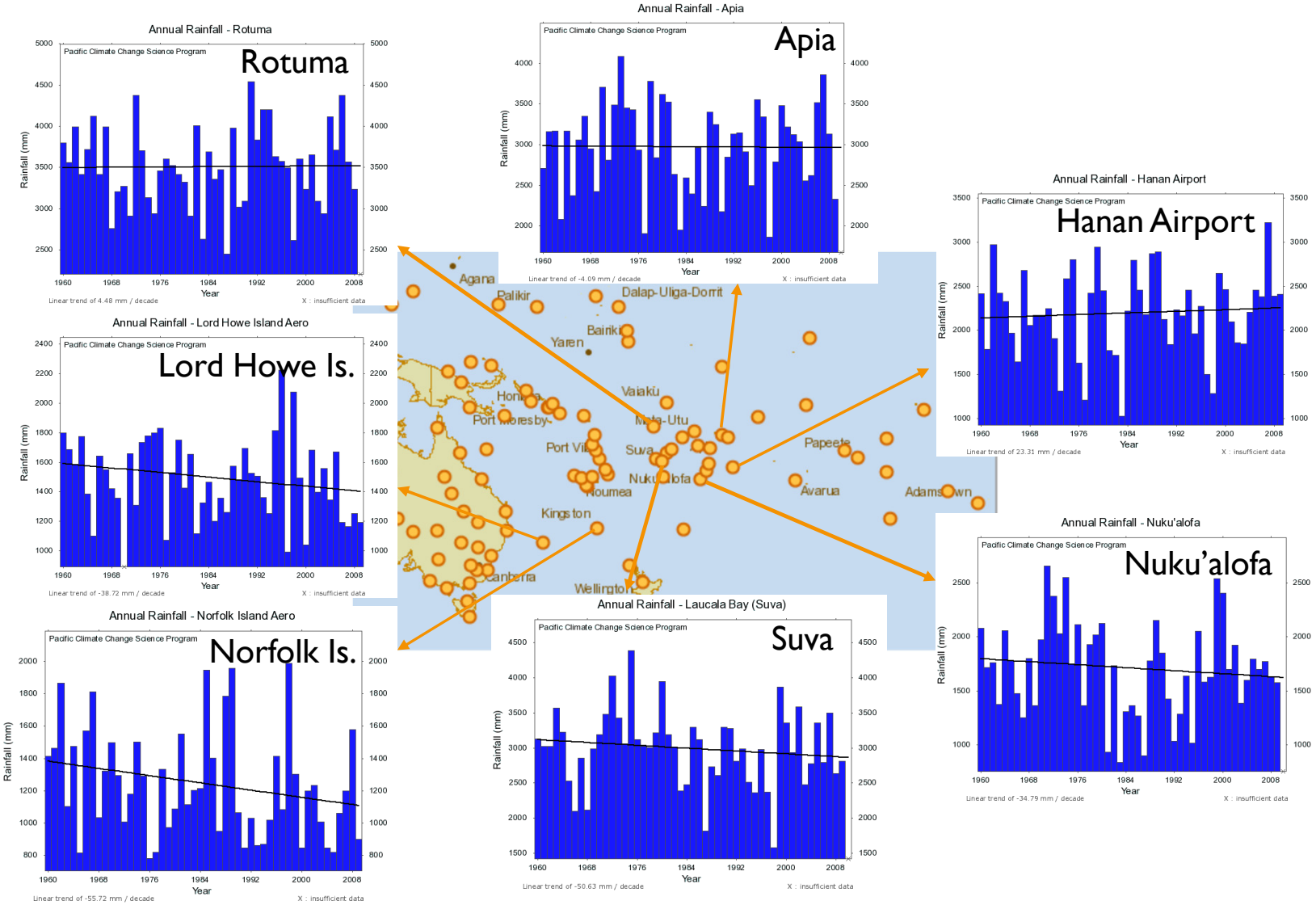

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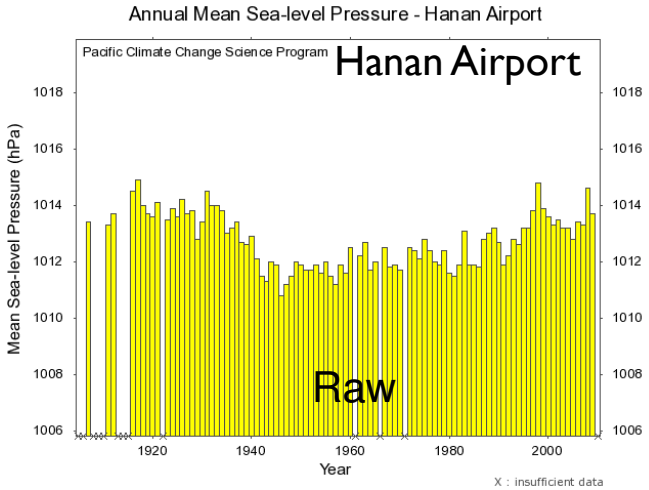
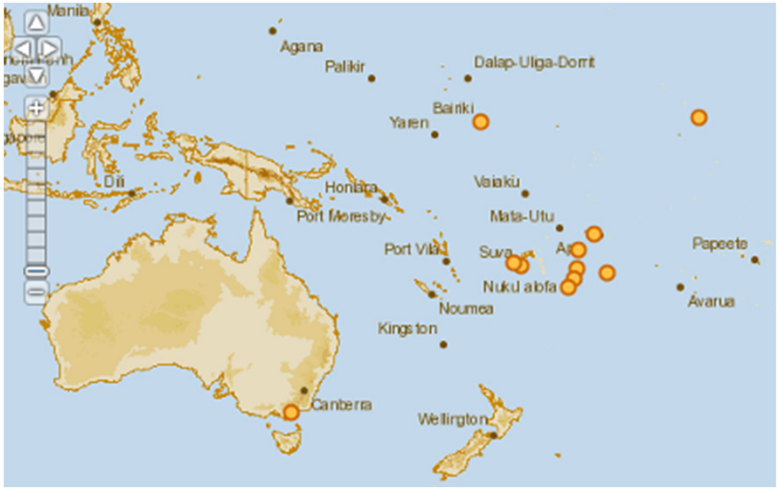
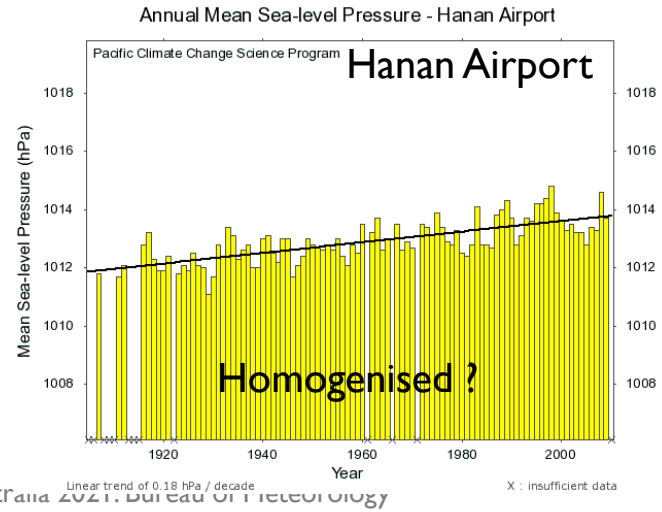
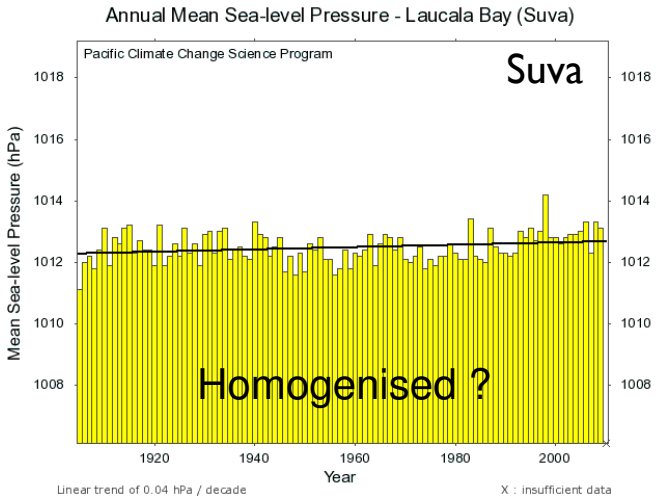
Analysis of other variables such as MSLP difficult due to lack of data and metadata









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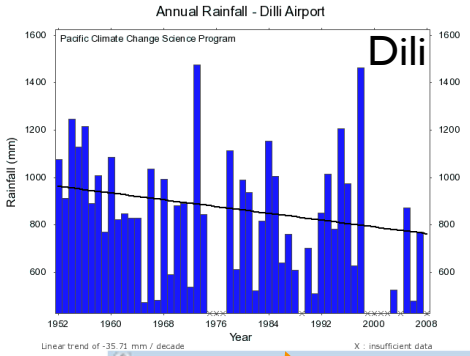
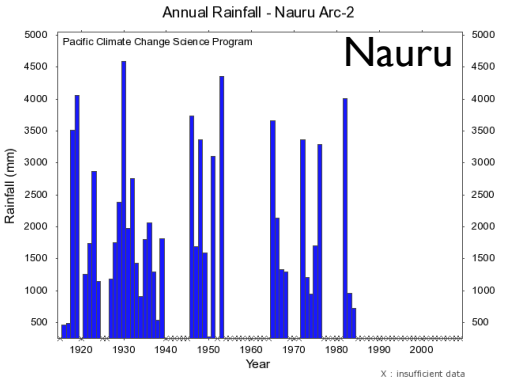
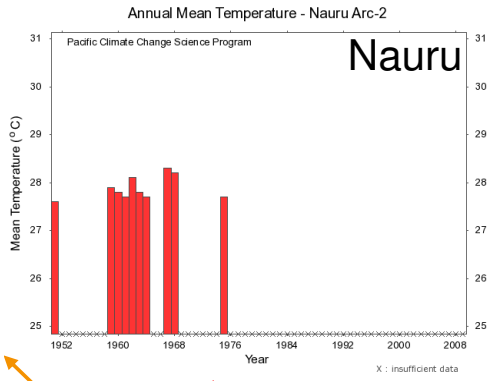
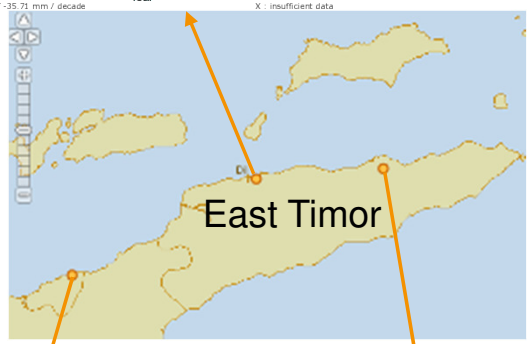
Climate and Oceans Support Program in the Pacific

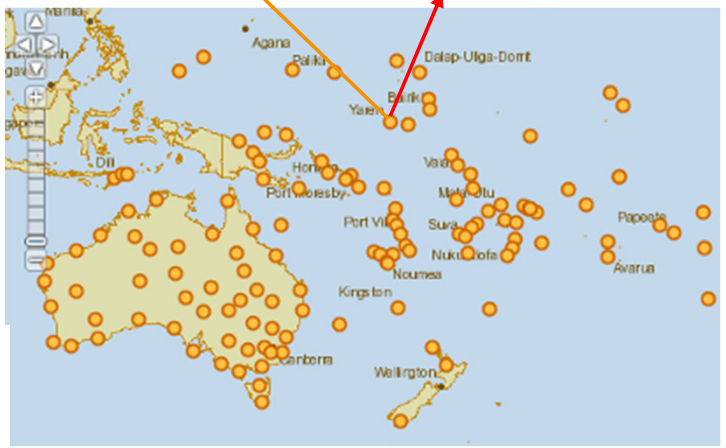
Limited data for some locations

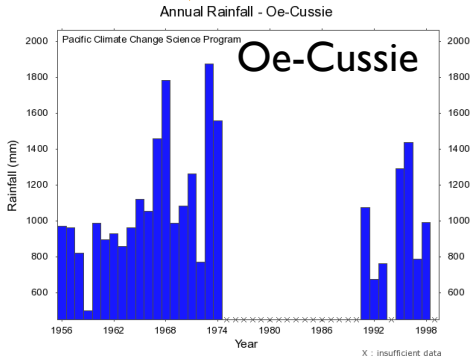


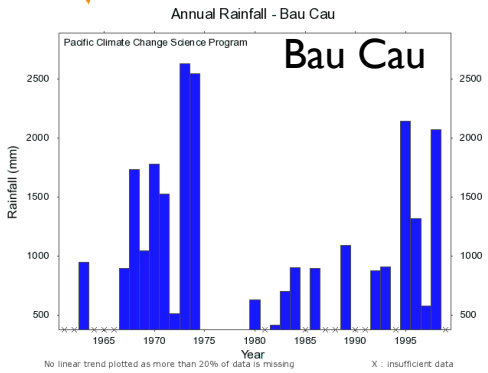












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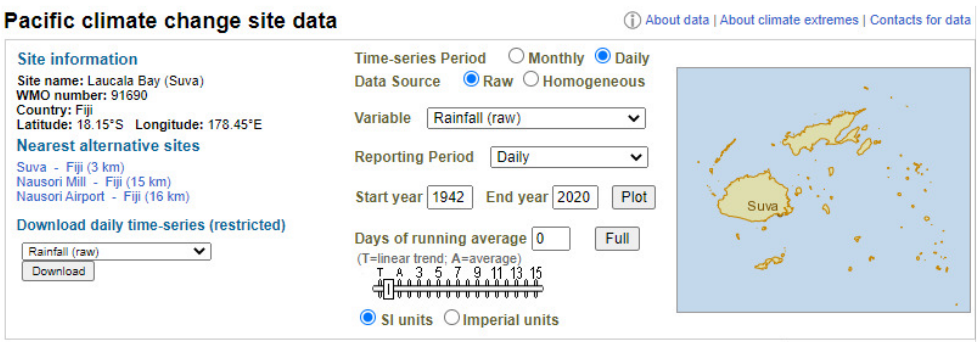
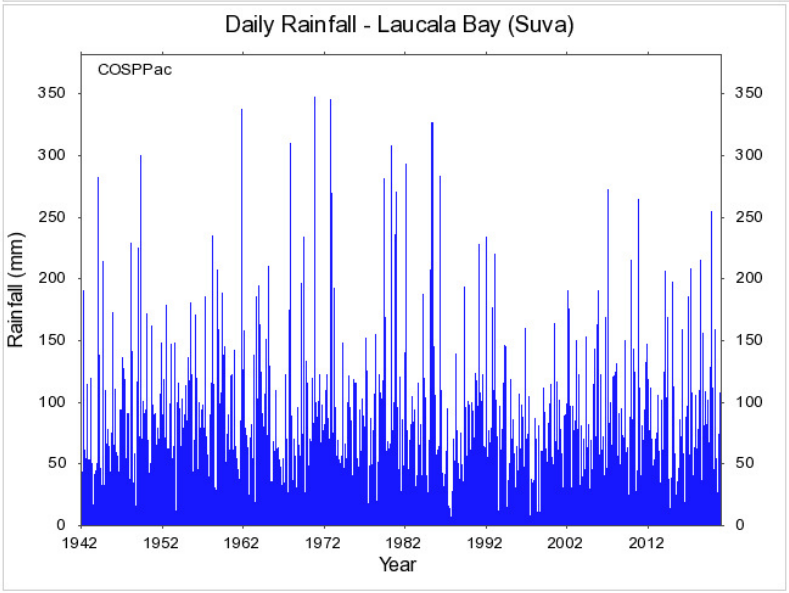
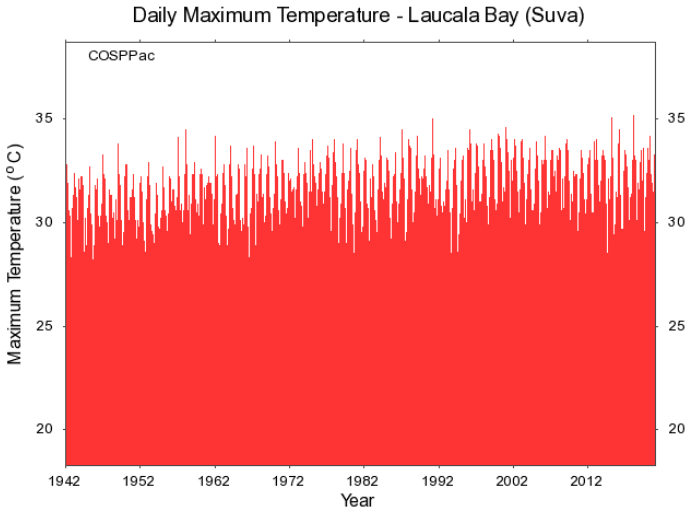
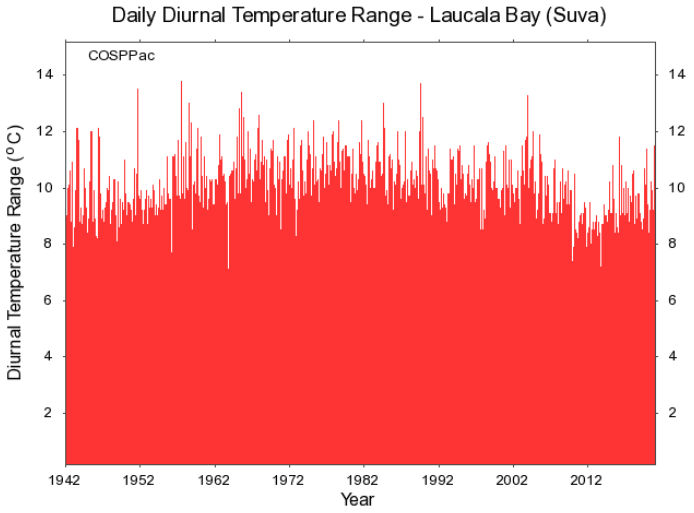
During PACCSAP we advanced the Pacific Climate Change Data Portal by adding daily data









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Climate and Oceans Support Program in the Pacific

and climate extremes indices associated with the WMO ET-CCDI (replaced by ET-CDI then ET-CID)

Extreme Climate Indices used

Extreme climate events such as heat waves, cold snaps, floods and dry spells have significant impacts on society. To examine whether such extremes have changed over time a variety of extreme climate indices can be defined, such as the number of days per year which exceed, or fail to exceed, fixed thresholds. However, since people tend to adapt to their local climate, a threshold considered extreme in one part of the world could be considered quite normal in another. To overcome this problem, thresholds based on percentile values can also be defined.

Twenty-five of the total thirty extreme temperature and rainfall indices used here are based on those defined by the WMO Expert Team on Climate Change Detection Monitoring and Indices. The core temperature indices which count the number of days where maximum temperature and minimum temperature are less than 0°C have not been included.

Extreme Temperature Indices	Definition
Highest maximum temperature (TXx)	Monthly maximum value of daily maximum temperature (TX)
Highest minimum temperature (TNx)	Monthly maximum value of daily minimum temperature (TN)
Lowest maximum temperature (TXn)	Monthly minimum value of daily maximum temperature (TX)
Lowest minimum temperature (TNn)	Monthly minimum value of daily minimum temperature (TN)
Summer days (SU25)	Annual count of days with maximum temperature (TX) > 25°C
Tropical nights (TR20)	Annual count of days with minimum temperature (TN) > 20°C
User-defined hot days (SUx)	Annual count of days with maximum temperature (TX) > 26 to 37°C (1°C intervals)
User-defined hot nights (TRx)	Annual count of nights with minimum temperature (TN) > 21 to 32°C (1°C intervals)
Cool days (TX10p)	Number of days with maximum temperature (TX) < 10th percentile
Cool nights (TN10p)	Number of nights with minimum temperature (TN) < 10th percentile
Warm days (TX90p)	Number of days with maximum temperature (TX) > 90th percentile
Warm nights (TN90p)	Number of nights with minimum temperature (TN) > 90th percentile
Warm spell duration (WSDI)	Annual count of days with 6+ consecutive days when TX > 90th percentile
Cold spell duration (CSDI)	Annual count of days with 6+ consecutive days when TN < 10th percentile
Diurnal temperature range (DTR)	Monthly mean difference between TX and TN
Growing Season Length (GSL)	Annual (1st July to 30th June in SH and 1st January to 31st December in NH) count between first span of 6+ days with TG > 5°C and first span of 6+ days with TG < 5°C, where TG is the daily mean T

Extreme Precipitation Indices	Definition
Max 1-day rainfall (Rx1day)	Monthly maximum 1-day precipitation (PRCP)
Max 5-day rainfall (Rx5days)	Monthly maximum consecutive 5-day precipitation (PRCP)
Simple daily intensity (SDII)	Annual total precipitation divided by the number of wet days in the year; wet days defined as PRCP ≥ 1.0 mm
Rain days ≥ 10 mm (R10)	Annual count of days with PRCP ≥ 10 mm
Rain days ≥ 20 mm (R20)	Annual count of days with PRCP ≥ 20 mm
User defined rain days (Rnn)	Annual count of days when PRCP ≥ 1, 5, 30, 40, 50, 60, 70, 80 and 100 mm
Consecutive dry days (CDD)	Maximum number of consecutive days with daily rainfall (RR) < 1 mm
Consecutive wet days (CWD)	Maximum number of consecutive days with daily rainfall (RR) ≥ 1 mm
Very wet days rainfall (R95p)	Annual total precipitation when daily rainfall (RR) > 95th percetile
Extremely wet day rainfall (R99p)	Annual total precipitation when daily rainfall (RR) > 99th percentile
Annual total wet day rainfall (PRCPTOT)	Annual total precipitation in wet days (RR ≥ 1 mm)

Extreme Mean Sea Level Pressure (MSLP) Indices	Definition
Low MSLP days (MSLP10p)	Annual count of days when MSLP 0900 hrs < 10th percentile
High MSLP days (MSLP90p)	Annual count of days when MSLP 0900 hrs > 90th percentile
Very low MSLP days (MSLPn)	Annual count of days when MSLP 0900 hrs < 995 hPa

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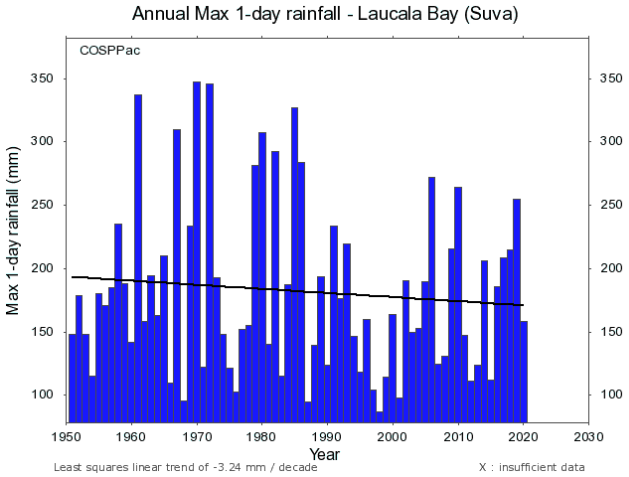
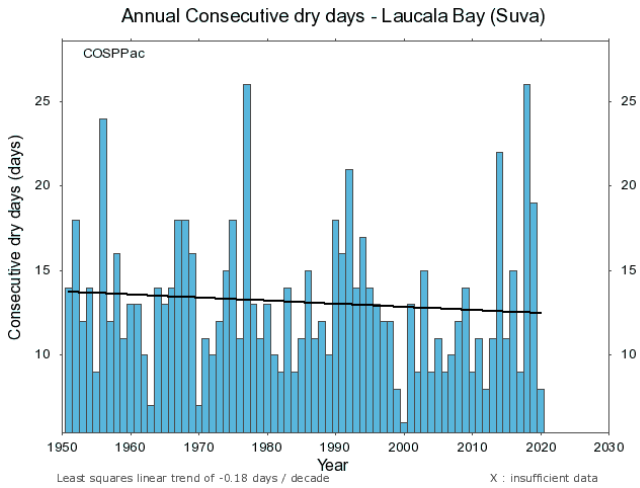
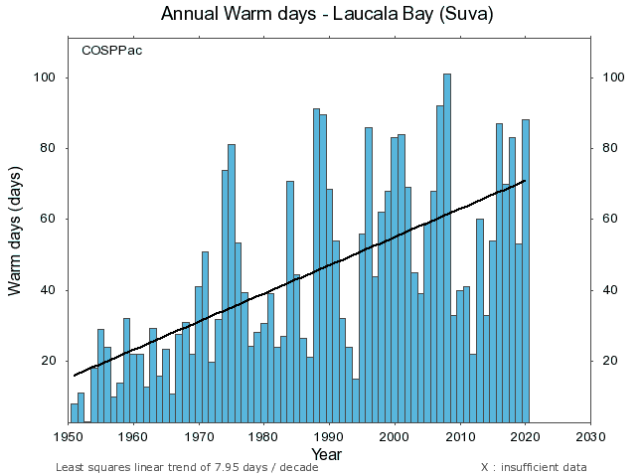
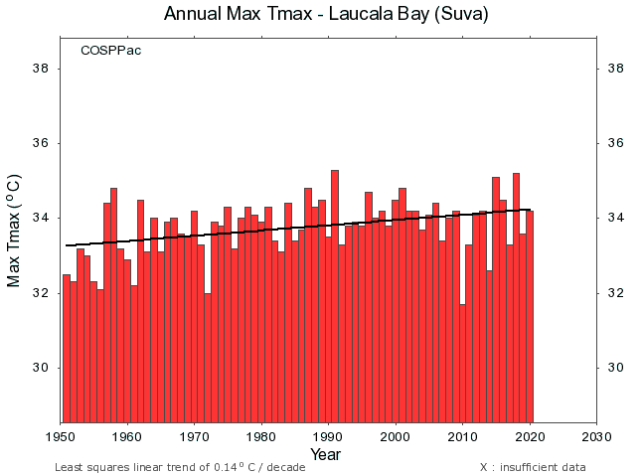
Examples of trends in the ET-CCDI indices for Suva









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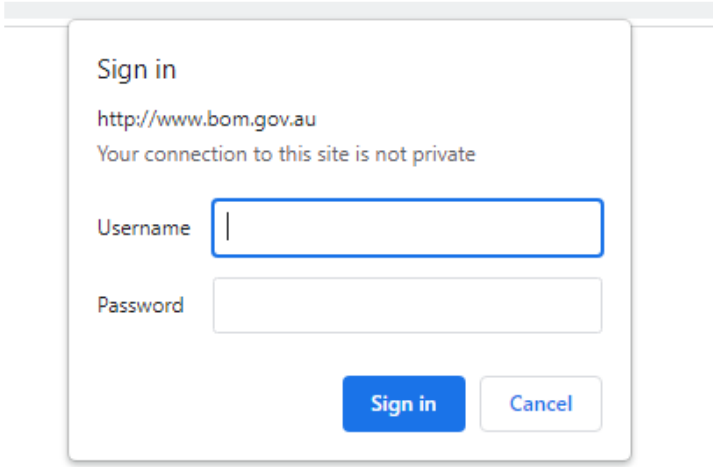
The portal isn't but the data is password protected (for most countries). Contact Simon for username/password. Remember the Bureau won't share your data without your permission



Further Information

For all queries related to the Pacific Climate Change Data portal please email cosppac_support@bom.gov.au.

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Data Access

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The analyses presented here are based on data collected, maintained and owned by Pacific Island meteorological services. Please contact the relevant meteorological service for access to this data.

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Climate and Oceans Support Program in the Pacific

If you have data access you can get to the indices and raw and homogenised data used to produce the graphs

Not secure | bom.gov.au/web01/ncc/www/pccsp/fclimdex/output/TN10p/USA_000001_raw_TN10p.txt

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
1951	0.0	7.1	9.7	23.3	9.7	10.0	3.2	6.5	20.0	9.7	6.7	9.7	35.0
1952	6.5	0.0	9.7	23.3	16.1	13.3	25.8	19.4	20.0	16.1	0.0	19.4	52.0
1953	9.7	17.9	16.1	23.3	0.0	6.7	3.2	9.7	13.3	25.8	3.3	22.6	46.0
1954	16.1	25.0	32.3	13.3	3.2	3.3	19.4	3.2	3.3	32.3	23.3	32.3	63.0
1955	0.0	17.9	25.8	36.7	9.7	36.7	74.2	45.2	66.7	64.5	26.7	22.6	130.0
1956	0.0	10.3	9.7	13.3	12.9	20.0	48.4	16.1	50.0	29.0	26.7	12.9	76.0
1957	3.2	28.6	32.3	16.7	22.6	3.3	9.7	0.0	3.3	12.9	6.7	3.2	43.0
1958	9.7	17.9	35.5	6.7	3.2	23.3	3.2	0.0	10.0	12.9	13.3	29.0	50.0
1959	3.2	3.6	9.7	0.0	0.0	16.7	19.4	3.2	16.7	25.8	6.7	12.9	36.0
1960	19.4	20.7	12.9	3.3	9.7	10.0	19.4	12.9	10.0	22.6	10.0	16.1	51.0
1961	6.5	0.0	16.1	20.0	3.2	6.7	25.8	6.5	20.0	9.7	3.3	16.1	41.0
1962	9.7	25.0	16.1	10.0	3.2	26.7	41.9	25.8	16.7	45.2	13.3	41.9	84.0
1963	19.4	7.1	3.2	0.0	6.5	13.3	22.6	19.4	3.3	19.4	6.7	0.0	37.0
1964	0.0	3.4	3.2	6.7	6.5	6.7	25.8	29.0	13.3	22.6	40.0	3.2	49.0
1965	0.0	32.1	29.0	10.0	0.0	10.0	35.5	19.4	0.0	29.0	3.3	9.7	54.0
1966	6.5	0.0	12.9	20.0	9.7	13.3	0.0	3.2	0.0	0.0	0.0	0.0	20.0
1967	9.7	3.6	0.0	10.0	0.0	0.0	0.0	0.0	0.0	3.2	0.0	3.2	9.0
1968	0.0	0.0	0.0	0.0	0.0	0.0	3.2	0.0	0.0	3.2	0.0	3.2	3.0
1969	22.6	0.0	6.5	6.7	16.1	13.3	12.9	0.0	6.7	38.7	20.0	16.1	49.0
1970	12.9	3.6	19.4	13.3	3.2	40.0	58.1	35.5	46.7	22.6	13.3	0.0	82.0
1971	19.2	16.7	57.1	13.0	45.4	23.0	9.7	18.9	10.0	25.8	6.7	6.1	77.0
1972	19.2	20.6	25.1	3.3	24.5	16.7	9.5	19.4	13.2	15.7	10.0	22.6	61.1

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Please check the contacts for data .pdf – let us know if it needs correcting

CONTACT DETAILS FOR PACIFIC ISLANDS METEOROLOGICAL DATA

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https://www.facebook.com/pages/category/Media-News-Company/Weather-Service-Office-Chuuk-263592613801421/

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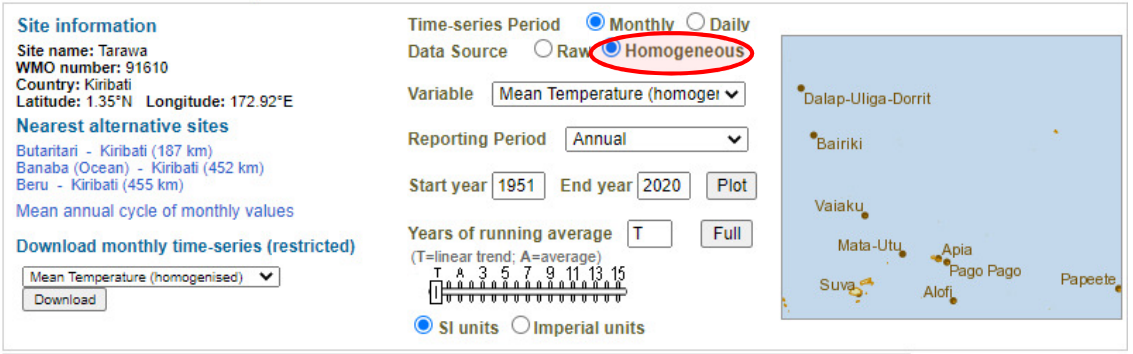
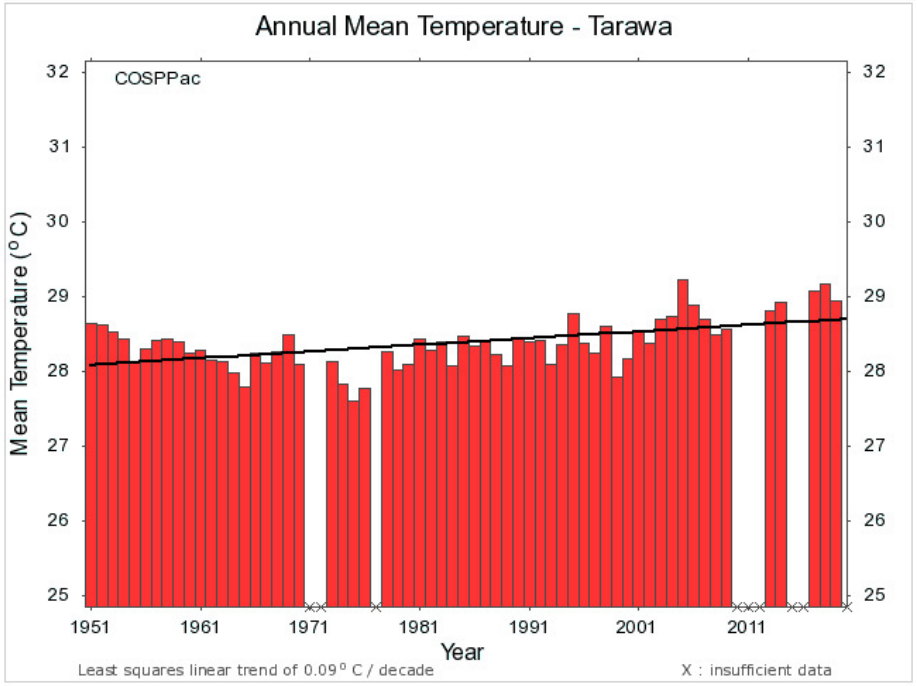
Final point. If you use the graphs for research or operations use the homogenised dataset





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Exercise: Question 1

http://www.bom.gov.au/climate/pccsp/

- When does Koror's (Palau) rainfall record start and end? As in what year?

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Question 2

- Find the trend (SI units) in Mean Air Temperature for Henderson-Honiara from 1951-2020?

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Question 3

- Find the trend (SI units) in the ETCCDI index Max 1-day rainfall for Nadi Airport, Fiji from 1951-2020?

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Question 4

- Let's go to Kwajalein/Bucholz Aaf in the Marshall Islands. What is the wettest month of the year? What is the warmest (tmean) month? Use the homogenised record

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Question 5

- And finally let's visit Hanan Airport in Niue. Use the homogenised record to tell me what the wettest year on record was since 1951? And year with the warmest day?

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Question 6

- Last question – which country doesn't need to send Simon their data to update the portal? ☺

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Next we focus on updating the portal

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