Republic of Korea-Pacific Islands
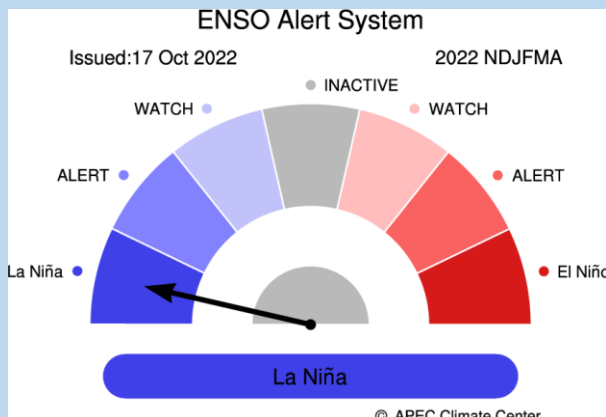# Climate Prediction Services Project
Summary: November 2022 to January 2023 (NDJ)
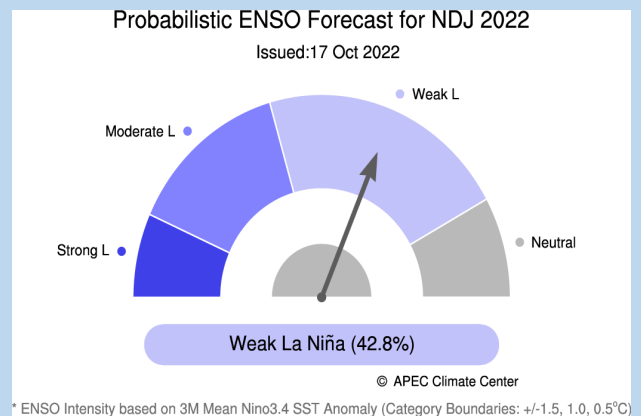
Climate Outlook for November 2022 ~ April 2023

- The APCC ENSO Alert suggests "La Niña". During September 2022, negative sea surface temperature anomalies were observed over the tropical Pacific. The Niño3.4 index is expected to be below -0.5°C until January 2023 and then gradually increase to 0°C. The probability for La Niña conditions is expected to be 84% during November 2022 – January 2023 and decrease to 24% by February – April 2023. Its intensity is likely to be weak.
- Strongly enhanced probability for above normal temperatures is predicted for Micronesia and Melanesia (excluding the equator), and Polynesia south of 15°S for November 2022 – April 2023. The probability above 80% for below normal temperatures for off-equatorial southern Polynesia is expected to decrease for the last half of the forecast period.
- Strongly enhanced probability for above normal precipitation is predicted for southern Melanesia during November 2022 – January 2023, which is likely to decrease during February – April 2023. Strongly enhanced probability for below normal precipitation is expected for off-equatorial southern Polynesia and the boundary between Micronesia and Melanesia during the first half of the forecast period, which is also likely to decrease during the remaining period.
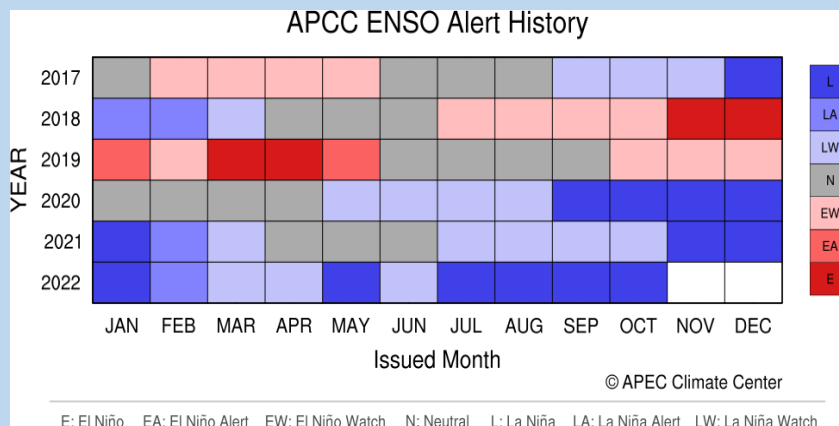- Please see https://apcc21.org/ser/outlook.do?lang=en for more information.

ENSO

CURRENT STATUS

ENSO Alert System

Issued:17 Oct 2022   2022 NDJFMA

- INACTIVE
WATCH   WATCH
ALERT   ALERT
La Niña   El Niño

La Niña

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ENSO FORECAST

Probabilistic ENSO Forecast for NDJ 2022

Issued:17 Oct 2022

Weak L
Moderate L   Neutral
Strong L

Weak La Niña (42.8%)

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* ENSO Intensity based on 3M Mean Nino3.4 SST Anomaly (Category Boundaries: +/-1.5, 1.0, 0.5°C)

ENSO ALERT HISTORY

APCC ENSO Alert History

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC

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E: El Niño   EA: El Niño Alert   EW: El Niño Watch   N: Neutral   L: La Niña   LA: La Niña Alert   LW: La Niña Watch

A resilient Pacific environment, sustaining our livelihoods and natural heritage in harmony with our cultures.

RAINFALL OUTLOOK

Model	PICASO	CLIK℗
Status	COUNTRY (Area)	
Above Normal	**Cook Islands -** (Rarotonga) **Fiji -** (Suva, Nabouwalu, Nadi, Udu Point, Rotuma) **FSM** (Chuuk, Pohnpei, Yap) **Republic of Marshall Islands -** (Majuro) **Niue – (**Hanan**)** **Palau -** (Koror) **PNG –** (Port Moresby, Madang, Misima, *Kavieng) **Samoa –** (Apia, Afiamalu) **Solomon Islands** (Henderson, Kirakira, Munda, Honiara, Taro Island, Auki, Santa Cruz) **Tonga** (Nukualofa, Keppel Mata'aho, Ha'apai, Lupepau'u, Niuafo'ou) **Tuvalu -** (Niulakita) **Vanuatu –** (Sola, Pekoa, Bauerfield, Port Vila, Whitegrass, Aneityum, Lamap)	**Cook Islands –** (Rarotonga) **Fiji** **FSM** **Niue** **Palau** (Koror) **Republic of Marshall Islands** **PNG –** (Port Moresby, Nadzab, Misima, *Madang) **Samoa** **Solomon Islands** **Tonga –** (Nukualofa, Lupepau'u, Ha'apai, Niuafo'ou, Keppel Mata'aho) **Vanuatu**
Normal	**Republic of Marshall Islands -** (Kwajalein)	
Below Normal	**Cook Islands -** (*Penrhyn) **Fiji -** (Ono-i-lau) **Kiribati -** (Tarawa, Kanton, Butaritari, Kiritimati) **Nauru** **PNG –** (Nadzab, Momote) **Samoa –** (Lauli'i, Faleolo) **Tuvalu -** (Nanumea, Nui, Funafuti)	**Cook Islands -** (Penrhyn) **Kiribati –** (Butaritari, Tarawa, Kanton, Kiritimati) **Nauru** **PNG –** (Momote, Kavieng) **Tuvalu** **Tokelau**

*Note: * indicate stations that have an <u>equal or similar probability </u>of getting Above Normal, Normal, and Below Normal (Climatology)*

TEMPERATURE OUTLOOK : CLIK℗ toolkit

Status	COUNTRY (Area)
Above Normal	**Cook Is (**Rarotonga, southern group**), FSM, Fiji, Kiribati**(Tarawa, Butaritari), **Republic of Marshall Is, Nauru, Niue, Palau, PNG, Samoa, Solomon Islands, Tonga, Tuvalu** (Nanumea), **Vanuatu**.
Normal	
Below Normal	**Cook Is (**Penrhyn, northern group**), Kiribati**(Kanton, Kiritimati), **Tuvalu** (Funafuti, Niulakita, Nui), **Tokelau**

Republic of Korea-Pacific Islands
Climate Prediction Services Project
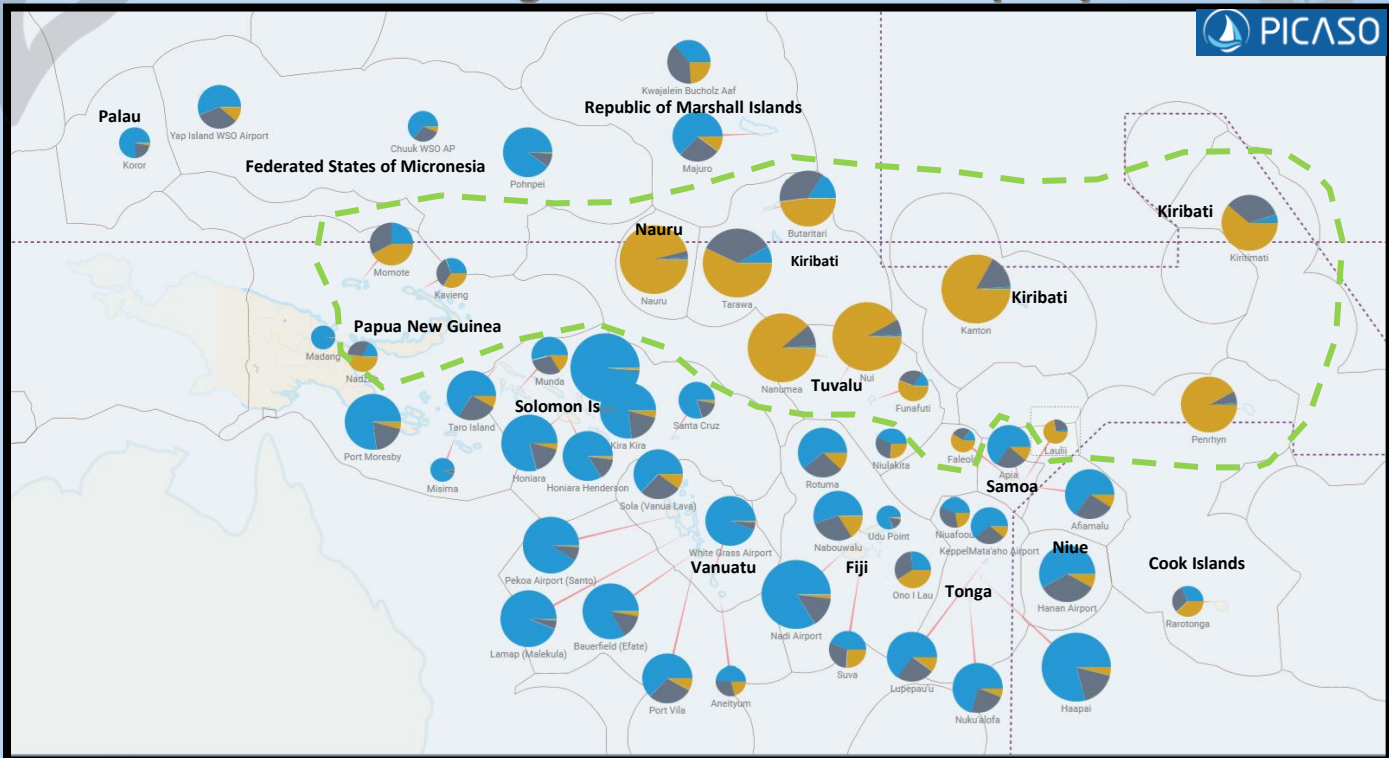## PICASO Regional Rainfall Forecast (NDJ)

Figure 1: Regional outlook map of the Pacific. In general, all stations enclose within the green-dash line anticipated to have Below Normal (BN) rainfall. Normal (N) to Above Normal (AN) rainfall is predicted for stations outside the green-dashed line. *(Note: the larger the pie chart the higher the forecast skills.)*

OUTLOOK TABLE BY COUNTRY

Station	Tercile Probability			Verification Score (LEPS)		Verification Score (HSS)		Hit/NearMiss/Miss		
KEY	BN	N	AN							
Cook Islands										
Penrhyn	92%		7%	34.2	Very High	43.8		10	4	2
Rarotonga	38%	30%	32%	0.9	Low	15.6		7	4	5
Fiji										
Rotuma	12%	27%	61%	15.5	High	10.9		5	10	1
Udu Point	3% 16%		81%	-6.3	Very Low	25		6	2	5
Nabouwalu	16%	29%	55%	16.5	High	79.5		8	2	1
Nadi Airport	14%		84%	44.9	Excellent	53.1		11	5	0
Suva	26%	30%	44%	7.9	Moderate	62.5		12	1	3
Ono I Lau	41%	32%	27%	6.3	Moderate	40		9	2	4
Kiribati										
Kiritimati	61%	34%	5%	33.5	Very High	15.6		7	8	1
Butaritari	48%	36%	16%	30.6	Very High	34.4		9	6	1
Tarawa	57%	35%	8%	42.1	Excellent	57.8		10	4	2
Kanton	83%		16%	44.4	Excellent	50		8	2	2
Marshall Islands										
Kwajalein Bucholz Aaf	24%	40%	36%	12.8	Good	25		8	7	1
Majuro	10%	27%	63%	24	High	39.1		9	6	1

Republic of Korea-Pacific Islands
Climate Prediction Services Project
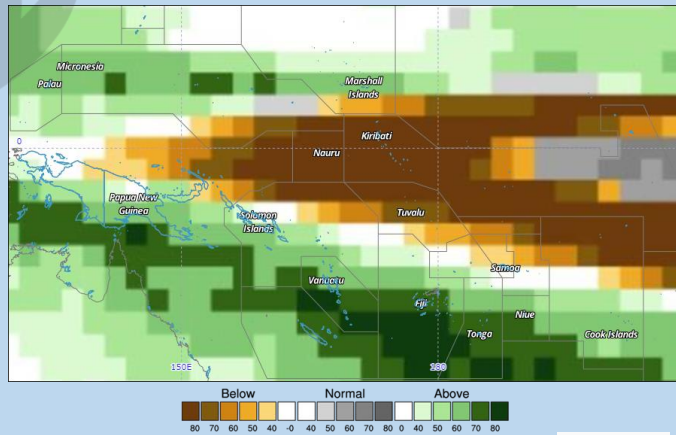## PICASO Regional Rainfall Forecast (NDJ)

PICASO

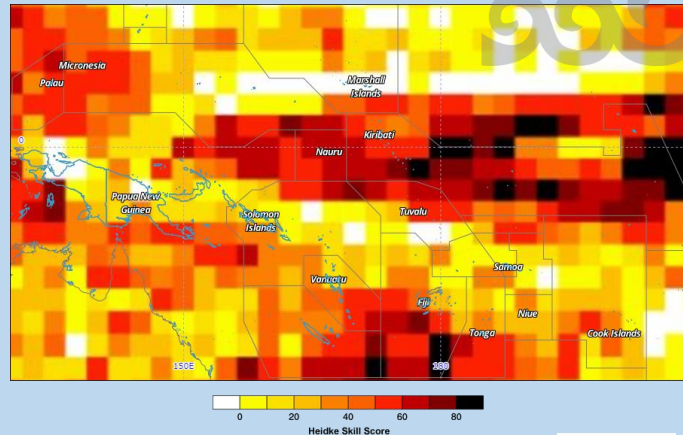| Station	Tercile Probability (BN / N / AN)			Verification Score (LEPS)		Verification Score (HSS)	Hit / NearMiss / Miss		
KEY	BN	N	AN						

Micronesia

Station	BN	N	AN	LEPS	Rating	HSS	Hit	NearMiss	Miss
Chuuk WSO AP	6%	30%	64%	4	Low	6.3	6	4	6
Pohnpei	9%		90%	21.4	High	25	8	6	2
Yap Island WSO Airport	11%	33%	56%	10	Good	34.4	9	2	5

Nauru

| Nauru | 96% | | 3% | 56.9 | Excellent | 57.1 | 5 | 2 | 0 |

Niue

| Hanan Airport | 8% | 34% | 58% | 27.2 | Very High | 57.8 | 10 | 5 | 1 |

Palau

| Koror | 3% | 21% | 76% | 1 | Low | 1.6 | 5 | 9 | 2 |

Papua New Guinea

Madang		98%		-28.6	Very Low	-21.9	3	8	5
Port Moresby	4%	19%	77%	29.9	Very High	53.1	11	3	2
Momote	42%	33%	25%	10	Good	25	8	4	4
Nadzab	52%	30%	18%	3.7	Low	-3.1	5	8	2
Kavieng	34%	35%	31%	3.6	Low	1.6	4	10	2
Misima	5%	94%		-27.1	Very Low	-26.6	1	12	3

Samoa

Afiamalu	9%	26%	65%	16	High	6.3	6	8	2
Laulii	73%	24%	3%	-12.5	Very Low	-21.9	3	11	2
Faleolo	59%	26%	15%	-13.9	Very Low	15.6	6	2	8
Apia	11%	24%	65%	11.9	Good	34.4	9	3	4

Solomon Islands

Taro Island	8%	26%	66%	16.4	High	25	8	6	2
Munda	16%	30%	54%	6.9	Moderate	15.6	7	4	5
Auki		98%		35.7	Excellent	25	8	7	1
Honiara	4%	17%	79%	27.6	Very High	43.8	10	2	4
Honiara Henderson		14%	84%	21.5	High	43.8	10	3	3
Kira Kira	4%	19%	77%	25	Very High	25	8	6	3
Santa Cruz	3%	17%	80%	7.5	Moderate	-3.1	5	6	5

Tonga

Niuafoou	22%	34%	44%	1.6	Low	-12.5	4	6	6
KeppelMata'aho Airport	11%	28%	61%	9.7	Moderate	0	5	7	3
Lupepau'u	10%	25%	65%	24.2	High	67.2	12	1	3
Haapai	4%	17%	79%	36.9	Excellent	62.5	12	2	2
Nuku'alofa	6%	23%	71%	16.5	High	34.4	9	3	4

Tuvalu

Nanumea	89%	10%		42.3	Excellent	34.4	9	6	1
Nui	92%	7%		51.7	Excellent	53.1	11	5	0
Funafuti	56%	29%	15%	0.1	Low	1.6	4	6	6
Niulakita	26%	31%	43%	2.6	Low	20.3	7	5	4

Vanuatu

Sola (Vanua Lava)	10%	27%	63%	23	High	7.7	5	7	1
Pekoa Airport (Santo)	8%		91%	25.3	Very High	53.1	11	2	3
Lamap (Malekula)	5%		94%	26.8	Very High	57.8	11	3	2
Bauerfield (Efate)	3%	14%	83%	26.1	Very High	34.4	9	5	2
Port Vila	8%	29%	63%	22.6	High	34.4	9	6	1
White Grass Airport	5%		94%	24.3	High	15.6	7	7	2
Aneityum	21%	30%	49%	3.7	Low	20.3	7	5	4

Republic of Korea-Pacific Islands
Climate Prediction Services Project
CLIK℗ Rainfall Forecast (NDJ)

Year: 2022, Season: NDJ, Lead Month: 3, Method: GAUS
Model: APCC, BOM, CMCC, CWB, MSC, NASA, NCEP
Generated using CLIK℗ (2022-10-26)

Figure 1: MME Rainfall Forecast for the Pacific Islands – NDJ 2022 period

Year: 2022, Season: NDJ, Lead Month: 3, Method: GAUS
Model: APCC, BOM, CMCC, CWB, MSC, NASA, NCEP
Generated using CLIK℗ (2022-10-26)

Figure 2: Rainfall Forecast Skill for the Pacific Islands – NDJ 2022 period

Country	Rainfall Outlook	Skill
Cook Islands	Below Normal - Penrhyn Above Normal - Rarotonga	Moderate - High
FSM	Above Normal	Very Low - Moderate
Fiji	Above Normal	Low – Moderate
Kiribati	Below Normal	Moderate – High
Marshall Islands	Above Normal	Very Low
Nauru	Below Normal	High
Niue	Above Normal	Low
Palau	Above Normal	High
PNG	Below Normal – Momote, Kavieng Above Normal – Port Moresby, Nadzab, Misima Little guidance (Climatology) – Madang	Very Low – High
Samoa	Above Normal	Moderate
Solomon Islands	Above Normal	Very Low - Moderate
Tonga	Above Normal	Low - Moderate
Tokelau	Below Normal	High
Tuvalu	Below Normal	Very Low - High
Vanuatu	Above Normal	Low – High

Table 1: *Rainfall Outlook and Skill for the Pacific Islands.*

Note: *Variation in the skill is due to model agreement and data availability at each location.*

Year: 2022, Season: NDJ, Lead Month: 3, Method: GAUS
Model: APCC, BOM, CMCC, CWB, MSC, NASA, NCEP
Generated using CLIK℗ (2022-10-26)

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Year: 2022, Season: NDJ, Lead Month: 3, Method: GAUS
Model: APCC, BOM, CMCC, CWB, MSC, NASA, NCEP
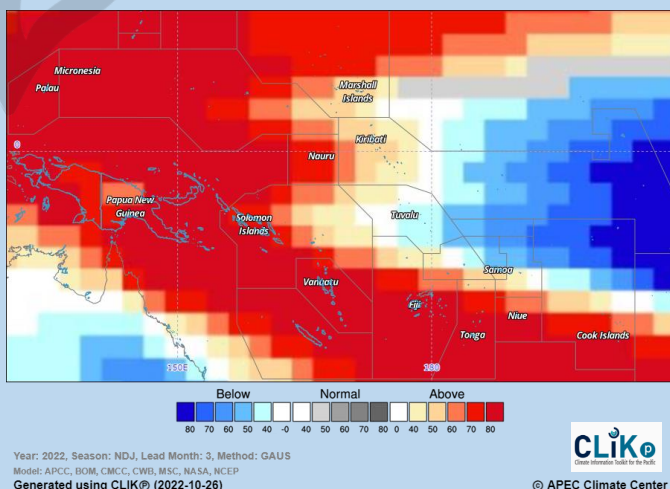Generated using CLIK℗ (2022-10-26)

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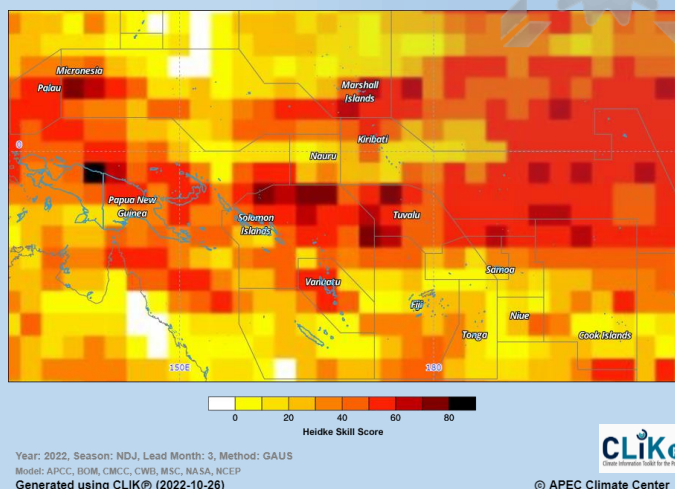*Figure 3:* MME Temperature Forecast for the Pacific Islands – NDJ 2022 period

Figure 4: Air Temperature Forecast Skill for the Pacific Islands – NDJ 2022 period

Country	Air Temperature Outlook	Skill
Cook Islands	Above Normal (Rarotonga) Below Normal (Penrhyn)	Low - High
FSM	Above Normal	Low - Moderate
Fiji	Above Normal	Low - Moderate
Kiribati	Above Normal (Tarawa/Butaritari) Below Normal (Kanton/Kiritimati)	High
Marshall Islands	Above Normal	Low – High
Nauru	Above Normal	Low
Niue	Above Normal	Low
Palau	Above Normal	High
PNG	Above Normal	Moderate – High
Samoa	Above Normal	Low
Solomon Islands	Above Normal	Low – High
Tonga	Above Normal	Very Low – High
Tokelau	Below Normal	High
Tuvalu	Below Normal (Funafuti, Niulakita, Nui) Above Normal (Nanumea)	Moderate - High
Vanuatu	Above Normal	Very Low – High

Table 2: Temperature Outlook and Skill for the Pacific Islands.

Republic of Korea-Pacific Islands
Climate Prediction Services Project

Important:
This publication is developed from information in PICASO and CLIK®, products of the Republic of Korea-Pacific Islands Climate Prediction Services Project (ROK-PI CliPS).

This resource is compiled to provide dynamical model data to support and complement information generated by Pacific Islands NMHS.

Contact your location Meteorology Service for site specific forecasts.

PICASO
PICASO (Pacific Island Countries Advanced Seasonal Outlook) is a PC-based seasonal prediction tool tailored for the Pacific Island countries jointly developed by APCC and SPREP through the ROK-PI CliPS project.

PICASO produces probabilistic forecasts of the seasonal mean rainfall of the given weather stations by customizing the data from the APCC dynamical seasonal prediction multi-model ensemble.

CLIK®
The rainfall and temperature forecasts are derived from a multi-model ensemble (MME) of all available Dynamical Models that are provided by WMO Global Producing Centers (GPCs) available on the Climate Services Toolkit for the Pacific (CLIK Pacific or CLIK®).

CLIK® is a product of the Republic of Korea-Pacific Islands Climate Prediction Services Project (ROK-PI CliPS).

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Visit the CLIK® Online Climate Prediction System: clikp.sprep.org

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