Republic of Korea-Pacific Islands
Climate Prediction Services Project
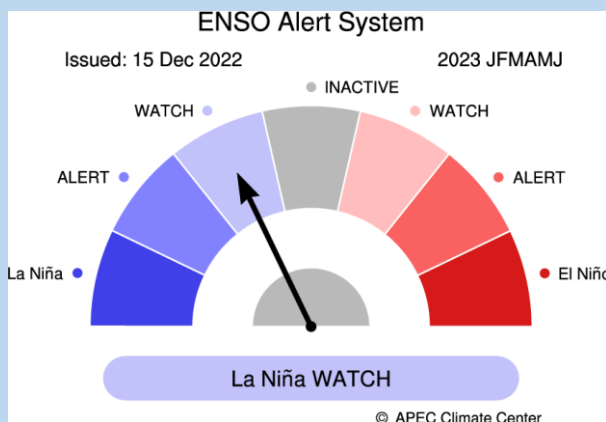# Summary: January to March 2023 (JFM)

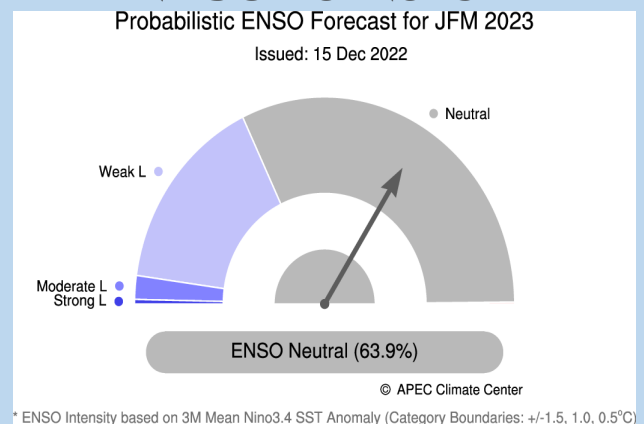## Climate Outlook for January ~ June 2023

- The APCC ENSO Alert suggests "La Niña WATCH". During November 2022, negative sea surface temperature anomalies were observed over the tropical Pacific. The Niño3.4 index is expected to be around -0.7°C and then gradually increase to 0.6°C during January – June 2023. The probability for ENSO-neutral conditions is expected to be dominant through the whole forecast period.
- Strongly enhanced probability for above normal temperatures is predicted for Micronesia and Melanesia (excluding the equator), and Polynesia south of 15°S for January – June 2023. The probability above 60% for near normal temperatures along the equator east of the Date Line is expected to decrease for the last half of the forecast period.
- Enhanced probability for above normal precipitation is predicted for Micronesia and Melanesia (excluding the equator) during January – June 2023. Strongly enhanced probability for below normal precipitation is expected for the boundary between Micronesia and Melanesia, and off-equatorial southern Polynesia during the first half of the forecast period, which is likely to decrease during the remaining period.
- Please see https://apcc21.org/ser/outlook.do?lang=en for more information.
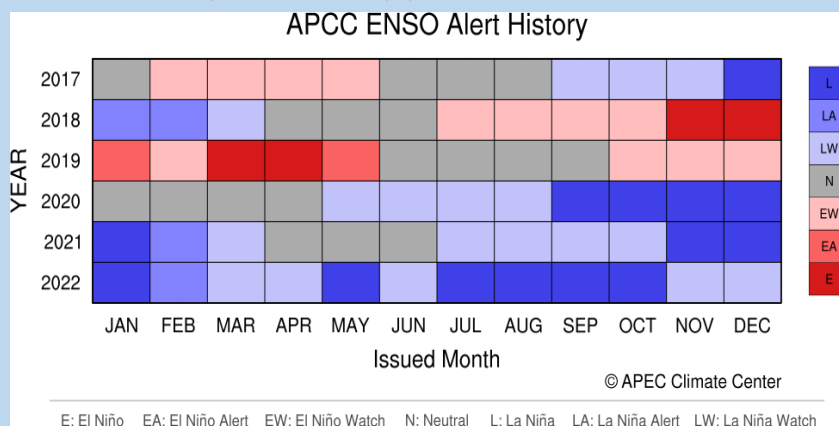
ENSO

CURRENT STATUS

ENSO Alert System

Issued: 15 Dec 2022   2023 JFMAMJ

● INACTIVE

WATCH ●   ● WATCH

ALERT ●   ● ALERT

La Niña ●   ● El Niño

La Niña WATCH

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ENSO FORECAST

Probabilistic ENSO Forecast for JFM 2023

Issued: 15 Dec 2022

Weak L   Neutral

Moderate L ●
Strong L ●

ENSO Neutral (63.9%)

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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

Issued Month

Legend: L | LA | LW | N | EW | EA | E

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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

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Republic of Korea-Pacific Islands
Climate Prediction Services Project
PICASO & CLIK℗ Summary

RAINFALL OUTLOOK

| Model	PICASO	CLIK℗
Status	**COUNTRY** (Area)	
Above Normal	**Cook Islands** (Rarotonga) **Fiji** (*Suva, Nabouwalu, Nadi, Ono-i-lau, Udu Point, Rotuma) **FSM** (Chuuk, Pohnpei, Yap) **Kiribati** (Butaritari) **Republic of Marshall Islands** (Majuro, Kwajalein) **Niue** (**Hanan**) **Palau** (Koror) **PNG** (Port Moresby, Misima, *Momote, *Kavieng) **Samoa** (Apia, Afiamalu, Lauli'i, *Faleolo) **Solomon Islands** (Henderson, Kirakira, Honiara, Santa Cruz) **Tonga** (Nukualofa, Keppel Mata'aho, Ha'apai, Lupepau'u, Niuafo'ou) **Vanuatu** (Sola, Pekoa, Bauerfield, Port Vila, Whitegrass, Aneityum, Lamap)	**Cook Islands –** (Rarotonga) **Fiji** **FSM** (Yap, Chuuk, Pohnpei) **Niue** **Palau** (Koror) **Republic of Marshall Islands** **PNG** (Port Moresby, *Nadzab, Misima) **Solomon Islands** (*Auki, Honiara, Henderson, Santa Cruz, Kirakira, Munda, Taro Island) **Tonga** (Nukualofa, Lupepau'u, Ha'apai, *Niuafo'ou, *Keppel Mata'aho) **Vanuatu**
Normal	**Kiribati** (Tarawa)	**Cook Islands -** (*Penrhyn) **PNG** (Madang)
Below Normal	**Cook Islands -** (Penrhyn) **Kiribati** (Kanton, Kiritimati) **Nauru** **PNG** (Nadzab, Madang) **Solomon Islands** (Munda, Auki, Taro Island) **Tuvalu** (Nanumea, Nui, Funafuti, *Niulakita)	**Kiribati** (Butaritari, Tarawa, Kanton, Kiritimati) **Nauru** **PNG** (Momote, Kavieng) **Samoa** (*Apia, *Afiamalu, *Faleolo, *Lauli'i) **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, Vanuatu**.
Normal	**Fiji** (Rotuma), **Tuvalu** (Nanumea)
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 (JFM)
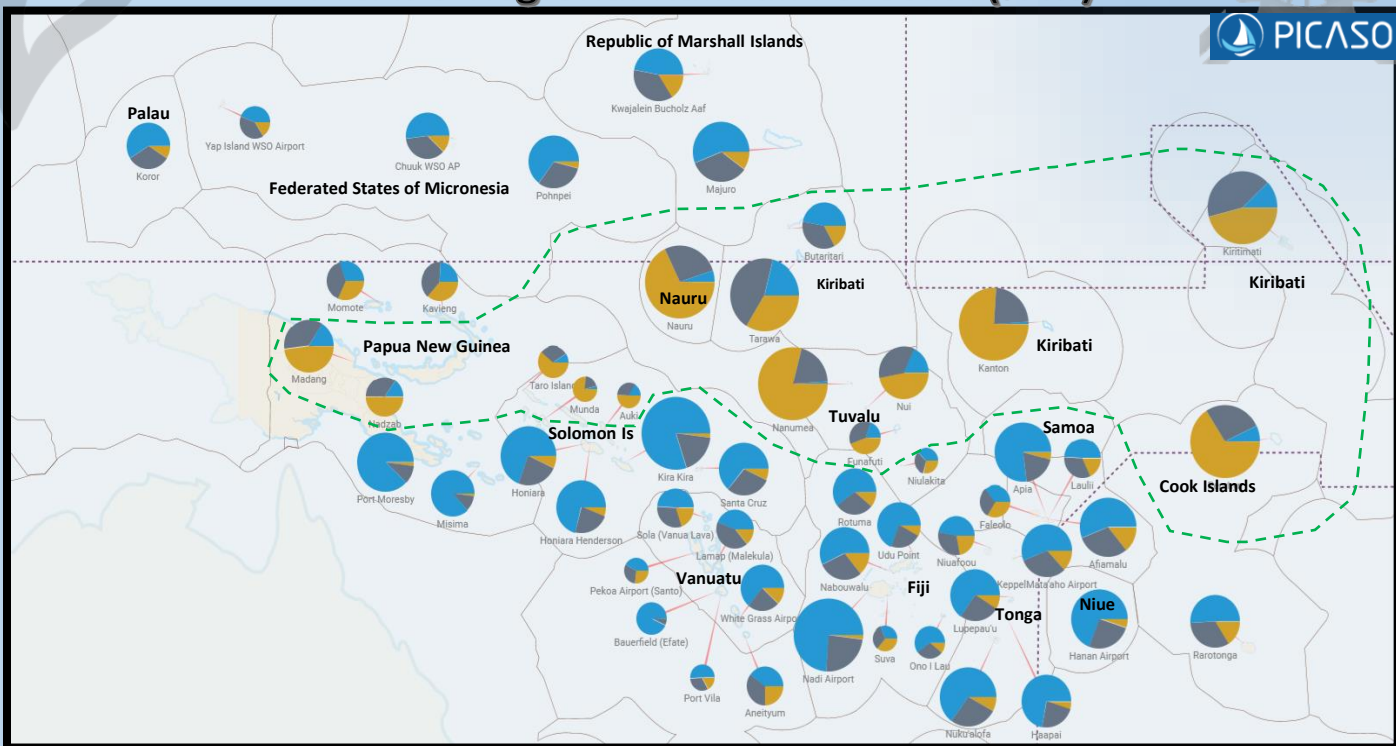
Figure 1: Regional outlook map of the Pacific. In general, all stations enclose within the green-dash line anticipated to have Below Normal (BN) rainfall. Normal (N) to Above Normal (AN) rainfall is predicted for stations outside the green-dashed line. *(Note: the larger the pie chart the higher the forecast skills.)*

OUTLOOK TABLE BY COUNTRY

Station	Tercile Probability			Verification Score (LEPS)		Verification Score (HSS)	Hit/NearMiss/Miss		
Cook Islands	KEY	BN	N	AN					
Penrhyn	66%		27%	7%	35.2	Excellent	64.7	13	4	0
Rarotonga	16%	33%	51%		24	High	29.4	9	8	0
Fiji										
Rotuma	11%	29%	60%		10.8	Good	16.2	6	9	2
Udu Point	8%	23%	69%		11.9	Good	25	7	4	3
Nabouwalu	14%	29%	57%		15	High	62.5	9	1	2
Nadi Airport	24%	74%			41.8	Excellent	55.9	12	3	2
Suva	36%	33%	31%		-0.6	Very Low	-1.5	5	4	8
Ono I Lau	11%	29%	60%		3.2	Low	15.6	7	3	6
Kiribati										
Kiritimati	46%	42%	12%		37.8	Excellent	38.2	10	5	2
Butaritari	17%	36%	47%		10.7	Good	2.9	6	6	5
Tarawa	34%	45%	21%		52	Excellent	73.5	14	3	0
Kanton	76%	23%			65.1	Excellent	70	12	3	0
Marshall Islands										
Kwajalein Bucholz Aaf	16%	37%	47%		22.6	High	11.8	7	9	1
Majuro	10%	34%	56%		28.8	Very High	29.4	9	7	1

Station	Tercile Probability (BN / N / AN)			Verification Score (LEPS)		Verification Score (HSS)	Hit/NearMiss/Miss		
Micronesia	KEY	BN	N	AN					
Chuuk WSO AP	12%	36%	52%	10.9	Good	20.6	8	4	5
Pohnpei		31%	65%	24.4	High	20.6	8	8	1
Yap Island WSO Airport	16%	40%	44%	4.5	Low	20.6	8	3	6
Nauru									
Nauru	68%		27%	56.8	Excellent	81.2	7	1	0
Niue									
Hanan Airport	26%		69%	31.3	Very High	47.1	11	5	1
Palau									
Koror	9%	32%	59%	13.8	Good	6.3	6	7	3
Papua New Guinea									
Madang	48%	36%	16%	15.1	High	11.8	7	6	4
Port Moresby	10%	88%		28.9	Very High	47.1	11	4	2
Momote	32%	38%	30%	6.8	Moderate	20.6	8	7	2
Nadzab	50%	35%	15%	9.9	Moderate	-5.9	5	9	3
Kavieng	37%	39%	24%	6	Moderate	-5.9	5	7	5
Misima	11%	87%		11.1	Good	6.3	6	7	3
Samoa									
Afiamalu	14%	30%	56%	25.4	Very High	60.3	12	4	1
Laulii	18%	33%	49%	7.6	Moderate	15.6	7	6	3
Faleolo	34%	30%	36%	0.3	Low	11.8	5	3	9
Apia	19%	77%		26.5	Very High	55.9	12	2	3
Solomon Islands									
Taro Island	61%	30%	9%	1	Low	-5.9	5	6	6
Munda	77%	19%		-17.6	Very Low	-14.7	4	7	6
Auki	51%	33%	16%	-16.8	Very Low	-23.5	3	6	8
Honiara	7%	24%	69%	29.2	Very High	55.9	12	3	2
Honiara Henderson	6%	23%	71%	21.2	High	20.6	8	7	2
Kira Kira	18%	80%		46.6	Excellent	55.9	12	4	1
Santa Cruz	7%	29%	64%	24.4	High	38.2	10	5	2
Tonga									
Niuafoou	22%	31%	47%	7.4	Moderate	20.6	8	5	4
KeppelMata'aho Airport	13%	31%	56%	16.7	High	34.4	9	5	2
Lupepau'u	9%	26%	65%	23.8	High	29.4	9	5	3
Haapai		23%	72%	22.4	High	42.6	9	5	3
Nuku'alofa	8%	27%	65%	29.3	Very High	60.3	12	3	2
Tuvalu									
Nanumea	79%		20%	54.8	Excellent	47.1	11	6	0
Nui	47%	35%	18%	20.4	High	29.4	9	6	2
Funafuti	44%	37%	19%	4.4	Low	2.9	6	7	4
Niulakita	29%	33%	38%	-6.9	Very Low	-23.5	3	5	9
Vanuatu									
Sola (Vanua Lava)	20%	31%	49%	5.5	Moderate	1.9	4	6	3
Pekoa Airport (Santo)	27%	31%	42%	-0.2	Very Low	11.8	7	4	6
Lamap (Malekula)	14%	42%	44%	9.5	Moderate	2.9	6	11	0
Bauerfield (Efate)	6%	93%		-1.7	Low	2.9	6	3	8
Port Vila	17%	32%	51%	-4.6	Very Low	11.8	7	3	7
White Grass Airport	12%	24%	64%	10.3	Good	11.8	7	6	4
Aneityum	25%	35%	40%	6.4	Moderate	29.4	9	7	1

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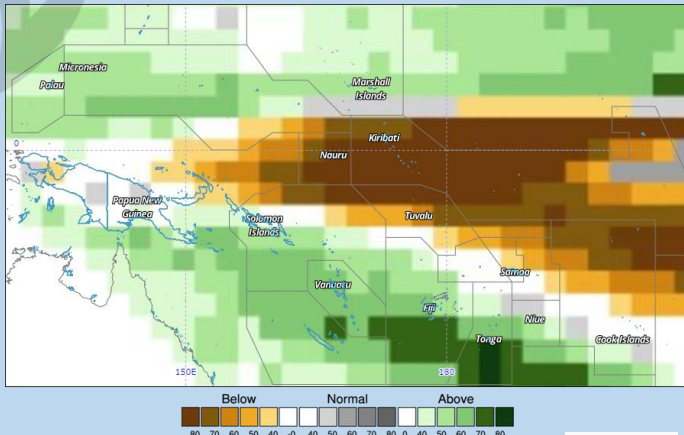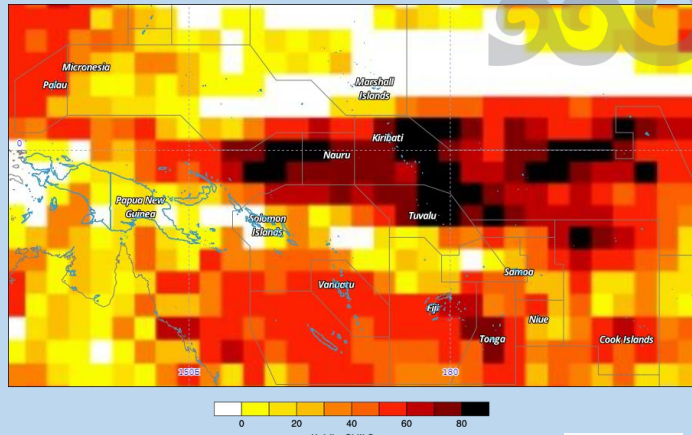

Year: 2023, Season: JFM, Lead Month: 3, Method: GAUS
Model: APCC, BOM, CMCC, CWB, MSC, NASA, NCEP
Generated using CLIK℗ (2022-12-16)
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Figure 1: MME Rainfall Forecast for the Pacific Islands – JFM 2023 period

Year: 2023, Season: JFM, Lead Month: 3, Method: GAUS
Model: APCC, BOM, CMCC, CWB, MSC, NASA, NCEP
Generated using CLIK℗ (2022-12-16)
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Figure 2: Rainfall Forecast Skill for the Pacific Islands – JFM 2023 period

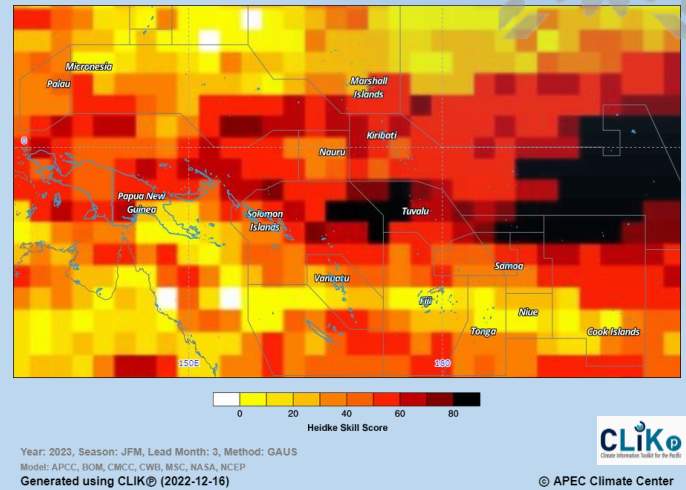| Country	Rainfall Outlook	Skill
Cook Islands	Below Normal - Penrhyn Little guidance - Rarotonga	High
FSM	Above Normal	Very Low - Moderate
Fiji	Above Normal	Low – High
Kiribati	Below Normal	High
Marshall Islands	Above Normal	Very Low
Nauru	Below Normal	High
Niue	Above Normal	Low
Palau	Above Normal	High
PNG	Below Normal – Momote, Kavieng, Normal - Madang Above Normal – Port Moresby, Misima Little guidance - Nadzab	Very Low – High
Samoa	Little guidance (Climatology)	Moderate
Solomon Islands	Above Normal – Honiara, Henderson, Kirakira, Munda, Santa Cruz, Taro Island Little guidance – Auki	Very Low - Moderate
Tonga	Above Normal – Ha'apai, Lupepauu, Nukualofa Little guidance – Keppel Mata'aho, Niuafo'ou	Moderate - High
Tokelau	Below Normal	Moderate
Tuvalu	Below Normal	Moderate - High
Vanuatu	Above Normal	Moderate – 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.*

Republic of Korea-Pacific Islands
Climate Prediction Services Project
CLIK® Temperature Forecast (JFM)

Year: 2023, Season: JFM, Lead Month: 3, Method: GAUS
Model: APCC, BOM, CMCC, CWB, MSC, NASA, NCEP
Generated using CLIK® (2022-12-16)

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Year: 2023, Season: JFM, Lead Month: 3, Method: GAUS
Model: APCC, BOM, CMCC, CWB, MSC, NASA, NCEP
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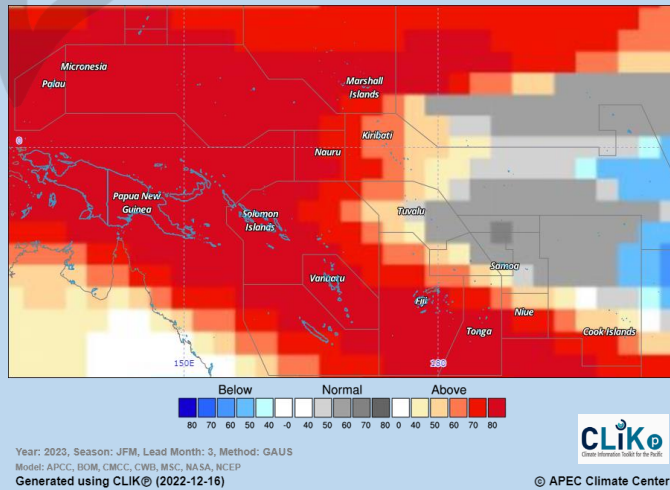
Figure 3: MME Temperature Forecast for the Pacific Islands – JFM 2023 period

Figure 4: Air Temperature Forecast Skill for the Pacific Islands – JFM 2023 period

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

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

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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).

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

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