Republic of Korea-Pacific Islands Climate Prediction Services Project
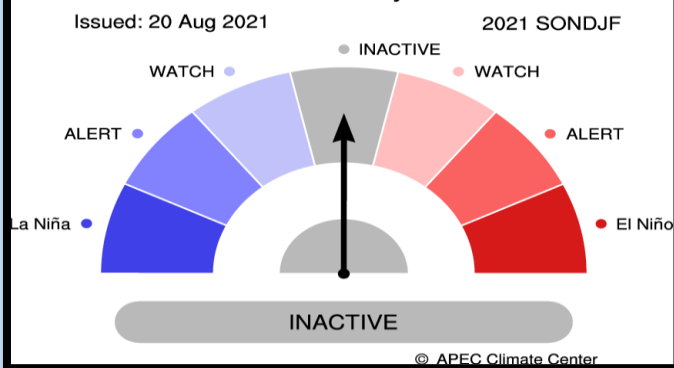## Summary: September to November 2021 (SON)

Climate Outlook for September 2021 ~ February 2022

- The APCC ENSO Alert suggests "INACTIVE". During July 2021, negative sea surface temperature anomalies were observed over the equatorial Pacific. The Niño3.4 index is expected to decrease from -0.44 °C and gradually increase to -0.29 °C during September 2021 – February 2022. Based on the running 3-month mean Niño3.4 index, the latest APCC ENSO outlook suggests an around 52% chance of neutral conditions during the forecast period.

- Strongly enhanced probability for above normal temperatures is predicted for Micronesia, Melanesia (excluding equatorial region) and southern Polynesia for September 2021 – February 2022.

- A tendency for above normal precipitation is predicted for Melanesia (excluding equatorial region) for September 2021 – February 2022.
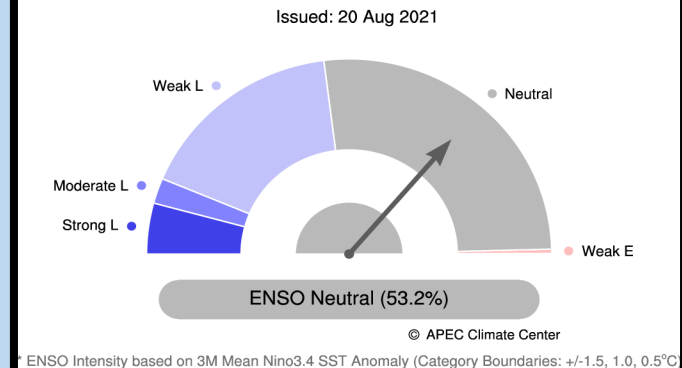
- Please see https://apcc21.org/ser/outlook.do?lang=en for more information.

ENSO

Current Status

ENSO Forecast SON

ENSO Alert History

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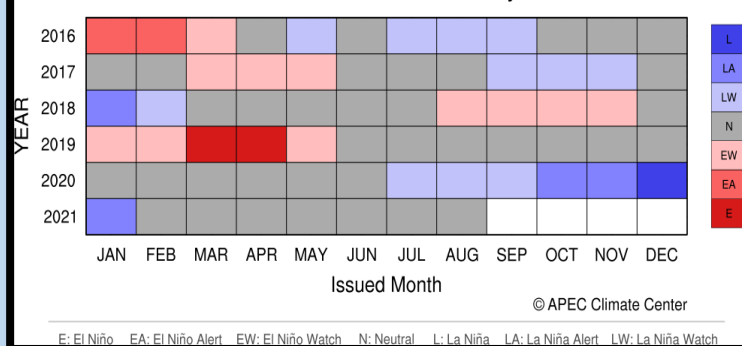
RAINFALL OUTLOOK

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

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

TEMPERATURE OUTLOOK : CLIK℗ toolkit

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

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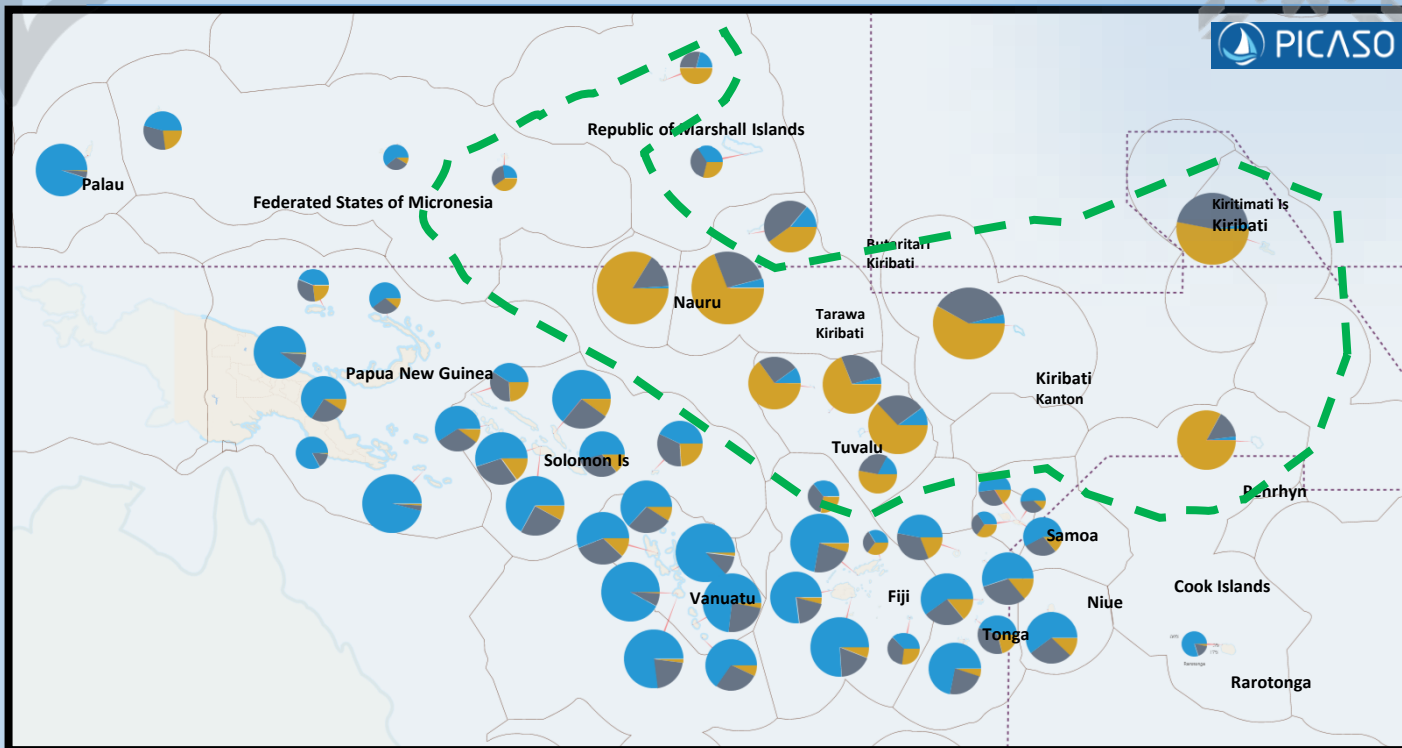## PICASO Regional Rainfall Forecast (SON)

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	83%		15%	31.4	Very High	50	10	4	1
☑ Rarotonga	17%	80%		-6.8	Very Low	-20	3	5	7
Fiji									
☑ Rotuma	28%	36%	36%	4.9	Low	20	7	6	2
☑ Udu Point	36%	30%	34%	-10	Very Low	31.8	4	1	6
☑ Nabouwalu	5	23%	72%	26.7	Very High	33.3	5	4	0
☑ Nadi Airport	4	19%	77%	20.2	High	40	9	2	4
☑ Suva	6%	18%	76%	30.7	Very High	40	9	5	1
☑ Ono I Lau	27%	36%	37%	2.7	Low	3.6	5	6	3
Kiribati									
☑ Kiritimati	53%	45%		51.5	Excellent	70	12	3	0
☑ Butaritari	40%	46%	14%	16	High	20	7	7	1
☑ Tarawa	69%	27%	4	46.7	Excellent	40	9	5	1
☑ Kanton	58%	38%	4	52.8	Excellent	62.5	9	3	0
Marshall Islands									
☑ Kwajalein Bucholz Aaf	50%	29%	21%	4.4	Low	30	8	4	3
☑ Majuro	29%	37%	34%	2.5	Low	10	6	4	5

Republic of Korea-Pacific Islands
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PICASO Regional Rainfall Forecast (SON)

Station	Tercile Probability (BN / N / AN)			Verification Score (LEPS)		Verification Score (HSS)	Hit/NearMiss/Miss		
Micronesia	KEY	BN	N	AN					
Chuuk WSO AP	9%	30%	61%	-11.5	Very Low	0	5	6	4
Pohnpei	40%	33%	27%	-0.1	Very Low	-5	4	8	3
Yap Island WSO Airport	23%	31%	46%	8.8	Moderate	70	12	0	3
Nauru									
Nauru	84%		15%	38.5	Excellent	57.1	5	2	0
Niue									
Hanan Airport	12%	28%	60%	24.1	High	40	9	5	1
Palau									
Koror	4	95%		17.6	High	25	6	6	3
Papua New Guinea									
Madang	9%	90%		15	High	-3.8	4	8	1
Port Moresby	15%	83%		4.3	Low	3.6	5	6	3
Momote	23%	33%	44%	3.7	Low	8.9	5	4	5
Nadzab	9%	25%	66%	14.7	Good	51.8	9	3	2
Kavieng	11%	29%	60%	4	Low	3.6	5	4	5
Misima		96%		29.9	Very High	14.3	6	7	1
Samoa									
Afiamalu	14%	28%	58%	7.4	Moderate	25	6	5	4
Laulii	12%	37%	51%	-2.1	Very Low	15	6	8	1
Faleolo	35%	31%	34%	-0.5	Very Low	45	7	3	5
Apia	16%	32%	52%	1.7	Low	10	6	3	6
Solomon Islands									
Taro Island	24%	35%	41%	5.3	Moderate	-20	3	10	2
Munda	10%	31%	59%	13.1	Good	0	5	6	4
Auki	10%	26%	64%	26.5	Very High	40	9	5	1
Honiara	15%	30%	55%	22.8	High	25	6	7	2
Honiara Henderson	8%	25%	67%	28.4	Very High	40	9	6	0
Kira Kira	14%	32%	54%	11.1	Good	5	5	5	5
Santa Cruz	24%	33%	43%	12.3	Good	30	8	4	3
Tonga									
Niuafoou	19%	34%	47%	12	Good	20	7	4	4
KeppelMata'aho Airport	14%	31%	55%	19.6	High	67.9	11	2	1
Lupepau'u	14%	26%	60%	18.3	High	10	6	8	1
Haapai	21%	35%	44%	9	Moderate	45	8	5	2
Nuku'alofa	5	23%	72%	18	High	10	6	8	1
Tuvalu									
Nanumea	65%	25%	10%	21.9	High	45	9	4	2
Nui	69%	27%	4	31.2	Very High	40	9	4	2
Funafuti	63%	27%	10%	28.3	Very High	40	9	5	1
Niulakita	53%	30%	17%	9.6	Moderate	20	7	2	6
Vanuatu									
Sola (Vanua Lava)	9%	28%	63%	24.6	High	56.2	7	4	1
Pekoa Airport (Santo)	12%	32%	56%	23.3	High	60	10	4	1
Lamap (Malekula)	11%	87%		26.2	Very High	40	9	5	1
Bauerfield (Efate)	7%	92%		27.5	Very High	50	10	2	3
Port Vila	21%	77%		26.5	Very High	30	8	5	2
White Grass Airport	24%	73%		32.6	Very High	50	10	4	1
Aneityum	7%	28%	65%	15.5	High	40	9	3	3

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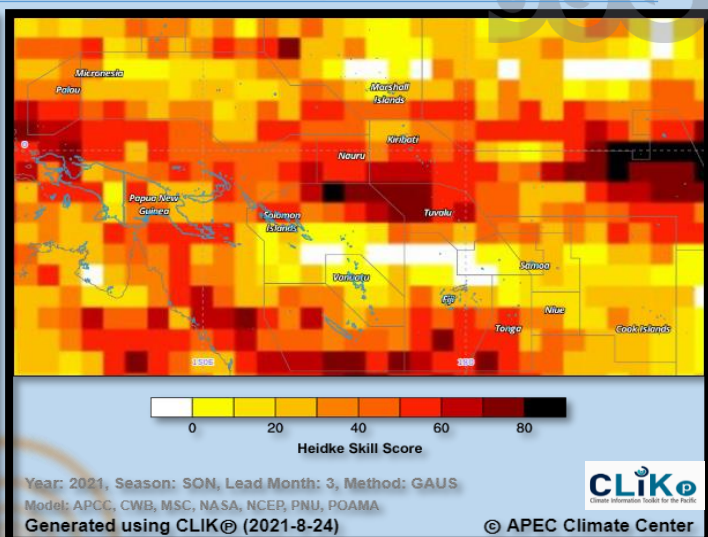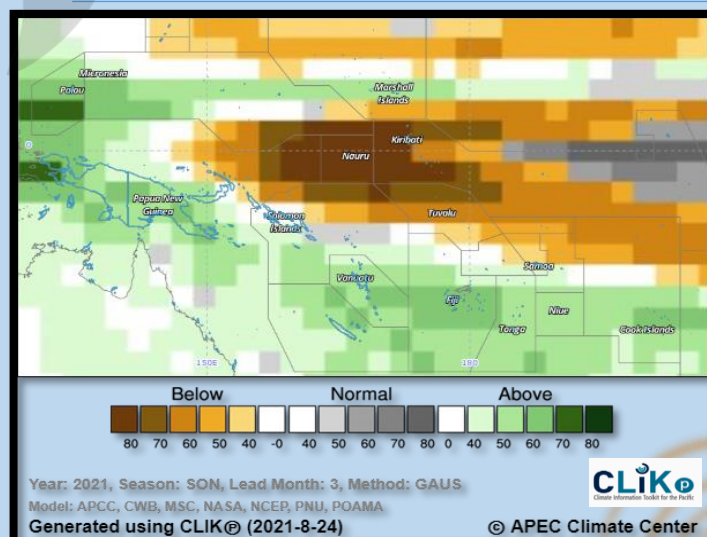## CLIK℗ Rainfall Forecast (SON)

Figure 1: MME Rainfall Forecast for the Pacific Islands – SON 2021 period

Figure 2: Rainfall Forecast Skill for the Pacific Islands – SON 2021 period

Country	Rainfall Outlook	Skill
Cook Islands	Below Normal - Penrhyn Above Normal - Rarotonga	High Low
FSM	Above Normal	Low - Moderate
Fiji	Above Normal	Low – Moderate
Kiribati	Below Normal – (Tarawa, Butaritari, Kanton) Normal – (Kiritimati)	Low - Moderate High
Marshall Islands	Above Normal	Low
Nauru	Below Normal	High
Niue	Above Normal	Moderate
Palau	Above Normal	Moderate
PNG	Below Normal – (Kavieng) Above Normal (Elsewhere)	Moderate Low – High
Samoa	Above Normal	Low
Solomon Islands	Above Normal - (Honiara/Henderson) Normal – (Kirakira, Santa Cruz, Taro Is, Munda) Below Normal – (Auki)	Low Very Low - High Very Low – Moderate
Tonga	Above Normal	Very Low - High
Tokelau	Below Normal	Moderate
Tuvalu	Below Normal	Low - High
Vanuatu	Above Normal	Very Low - Moderate

***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.*
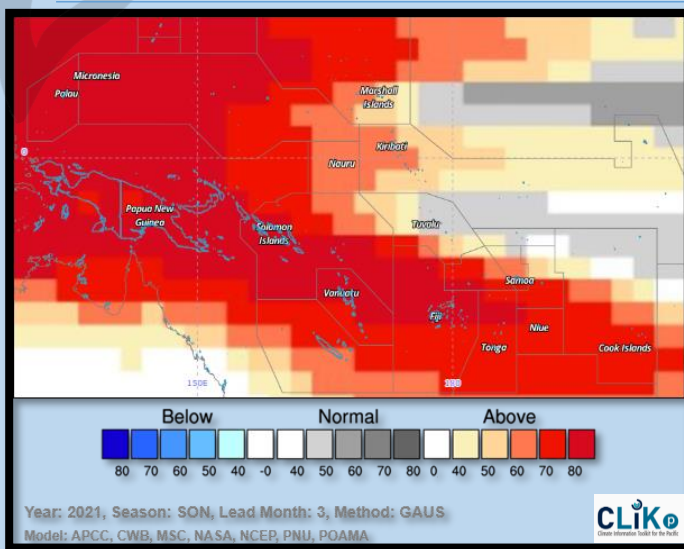
Figure 3: *MME Temperature Forecast for the Pacific Islands – SON 2021 period*

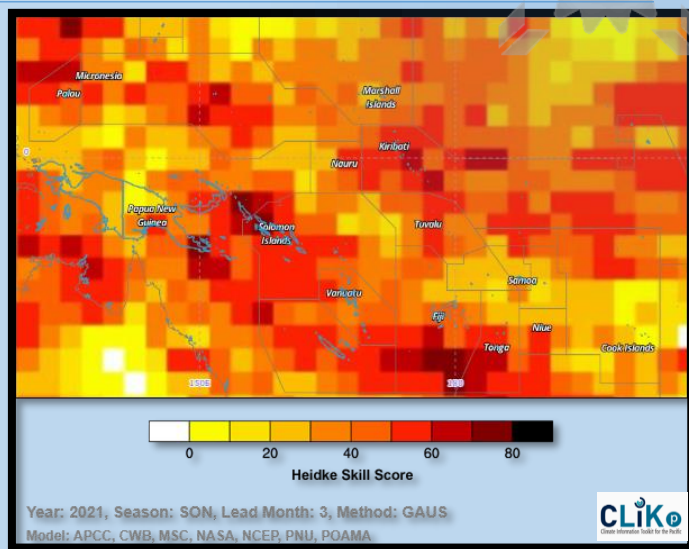**Figure 4:** *Air Temperature Forecast Skill for the Pacific Islands – SON 2021 period*

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

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

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