CLIMATE OUTLOOK

MAY – OCTOBER 2023

Prepared by:
PAGASA-DOST
Climatology & Agrometeorology Division (CAD)
Climate Monitoring and Prediction Section
(CLIMPS)

Presented by:
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CMO- Davao PAGASA Complex Station
May 19, 2023

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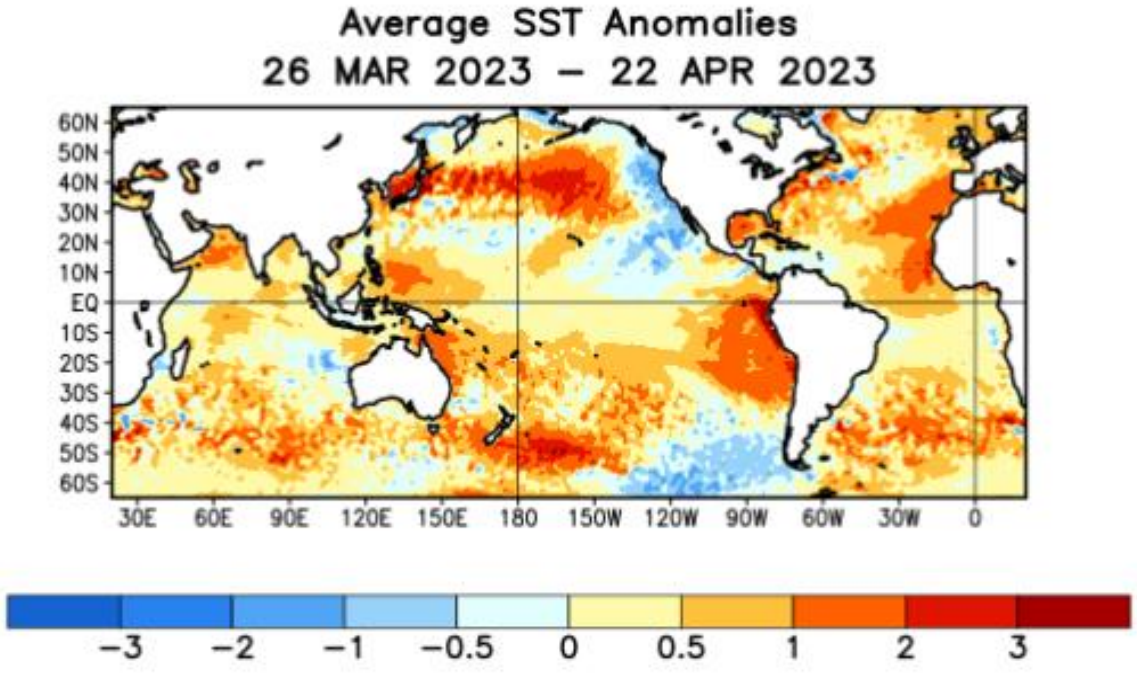
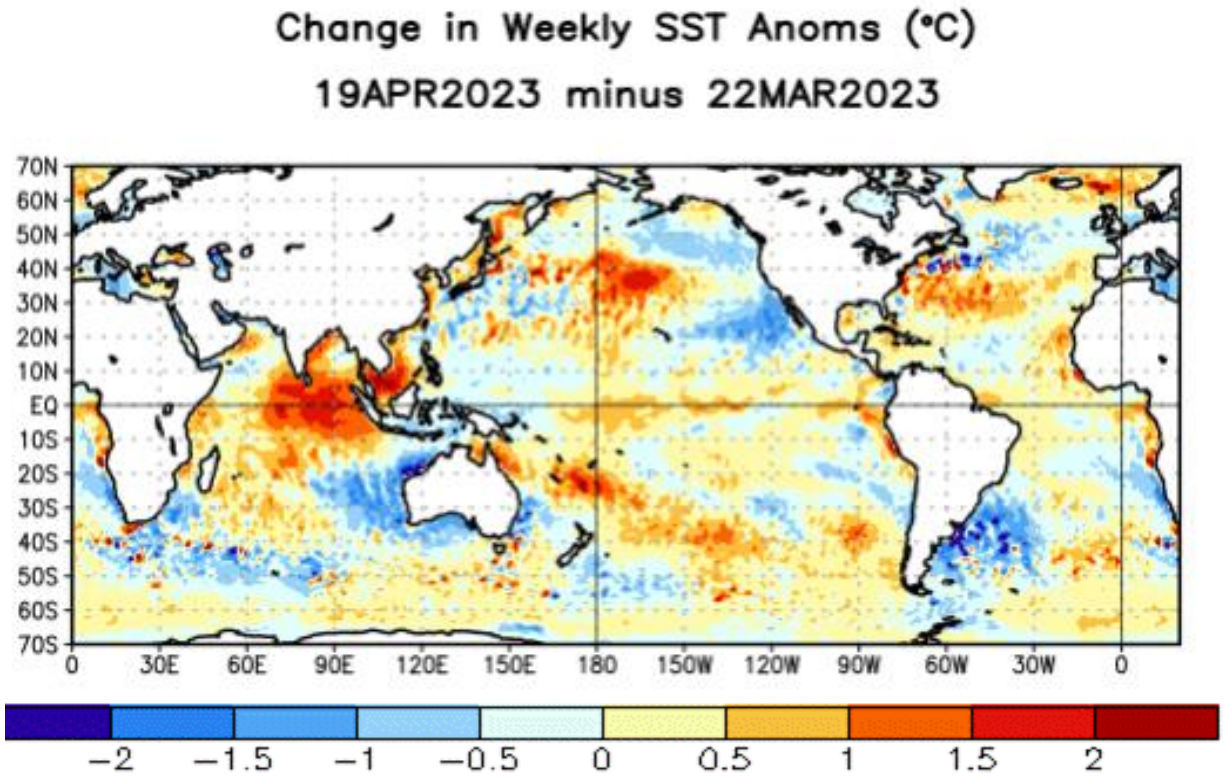
El Niño Update
as of 24 April 2023

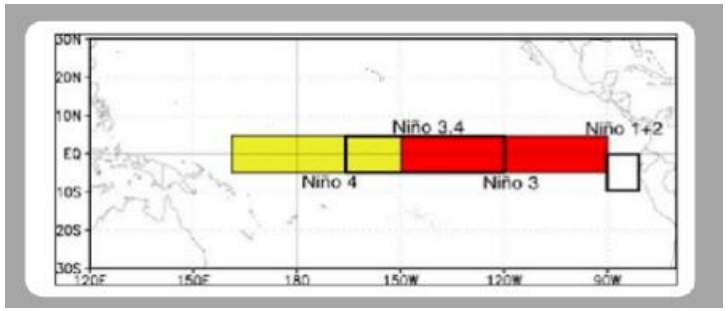
Conditions in the Global Tropics – *Ocean*

Sea Surface Temperature Anomalies (SSTAs)





- During the last four weeks, equatorial SSTs were above average in the eastern and western Pacific Ocean and in the central Atlantic and Indian Oceans.



- During the last four weeks, positive SST anomaly changes were evident in the central and far eastern equatorial Pacific Ocean, while negative changes were observed in the far western Pacific Ocean.

https://www.cpc.ncep.noaa.gov/products/analysis_monitoring/lanina/enso_evolution-status-fcsts-web.pdf

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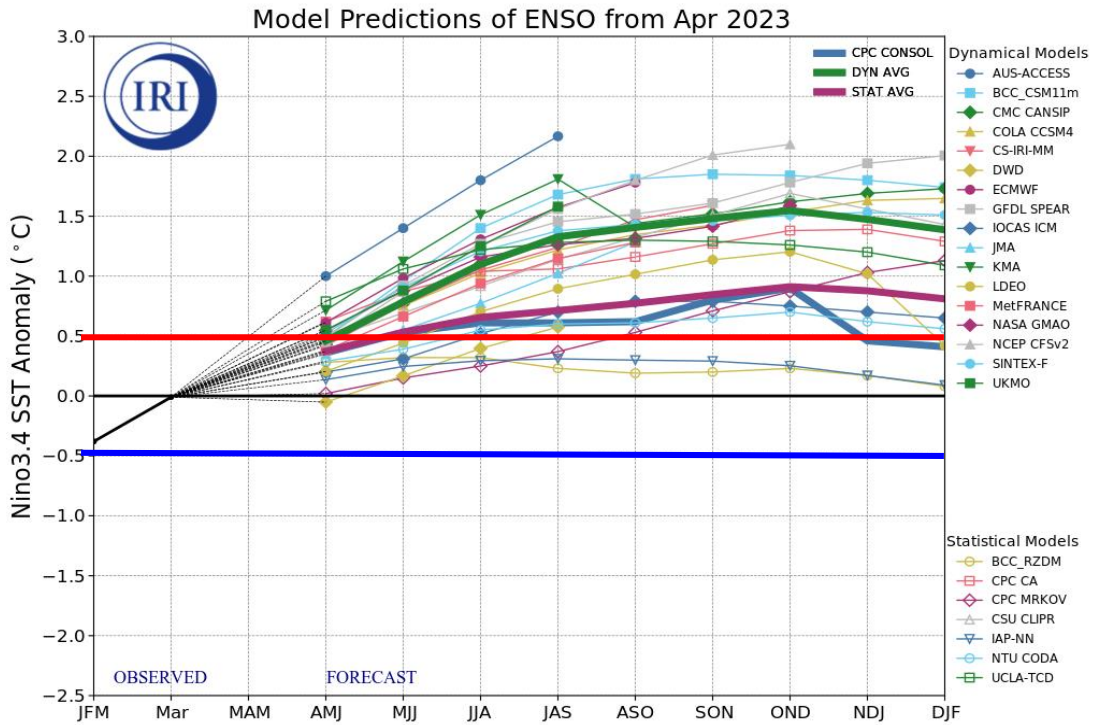
El Niño Update
as of 24 April 2023

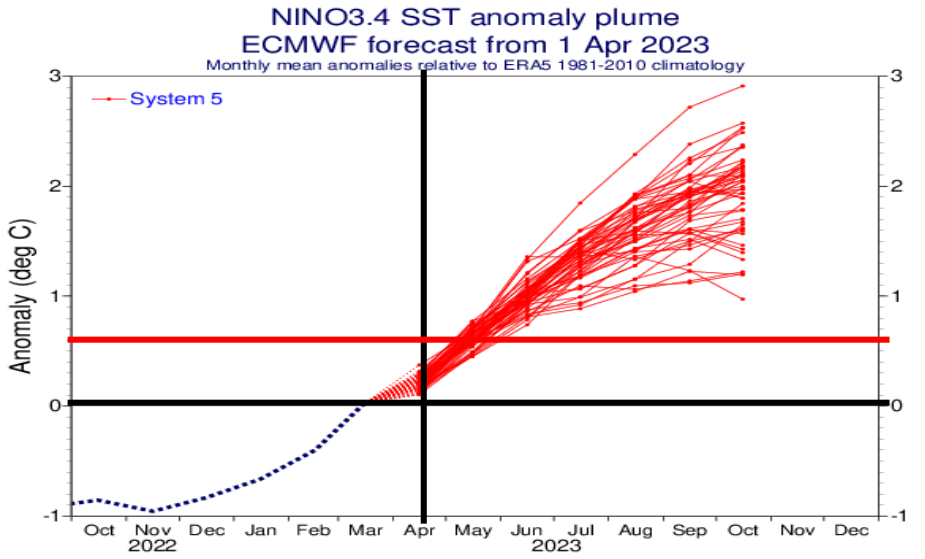
until when?

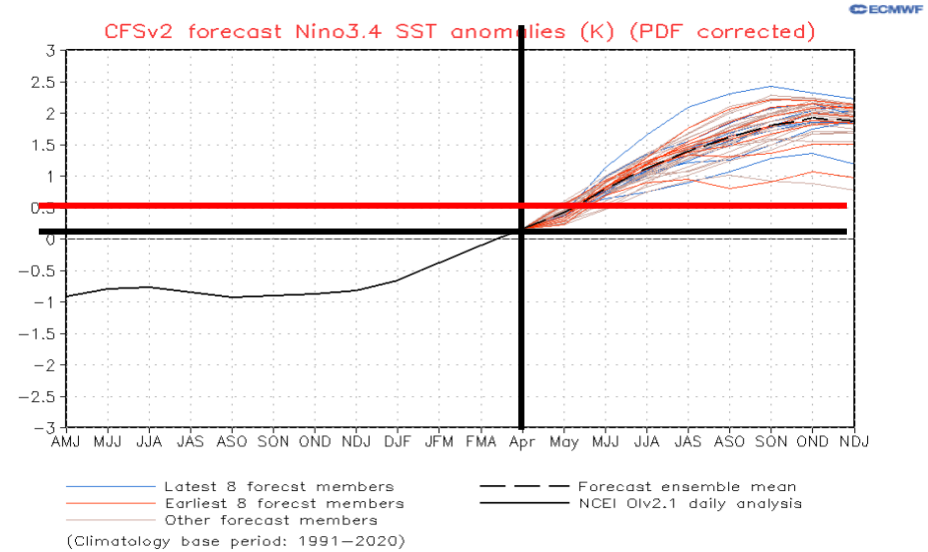


	AMJ	MJJ	JJA	JAS	ASO	SON	OND	NDJ	DJF
Average, Dynamical models	0.46	0.79	1.10	1.33	1.41	1.48	1.55	1.47	1.39
Average, Statistical models	0.37	0.53	0.66	0.71	0.77	0.85	0.91	0.88	0.81
Average, All models	0.43	0.71	0.97	1.15	1.20	1.22	1.27	1.18	1.10

Both the dynamical and statistical models suggest a potential return to El Niño by May-July 2023, with the warming generally stronger in the dynamical models.

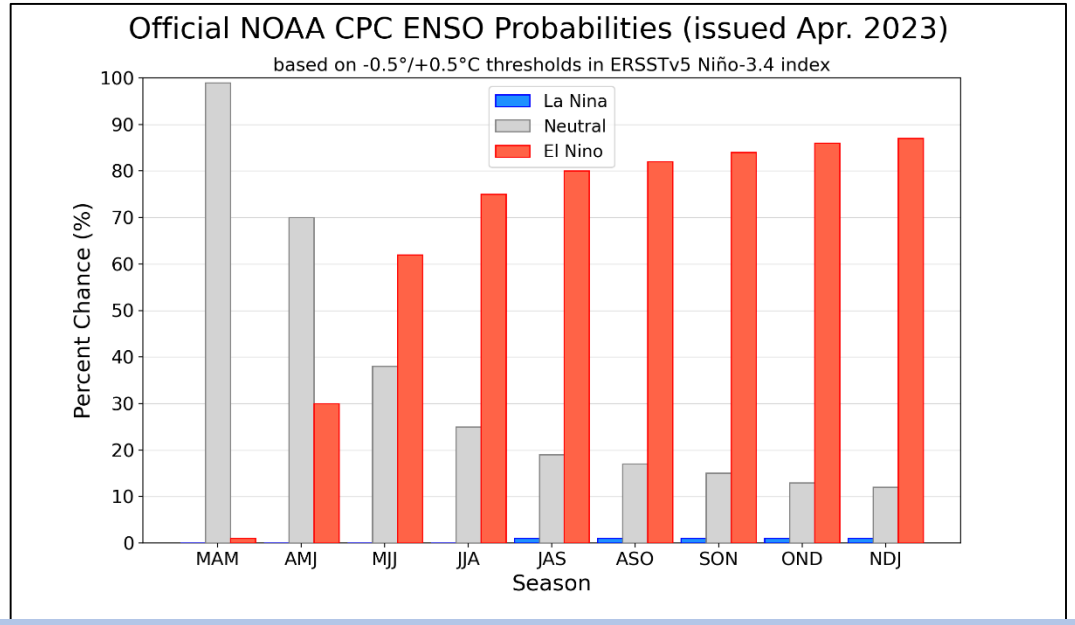
Global Model Forecast Guidance





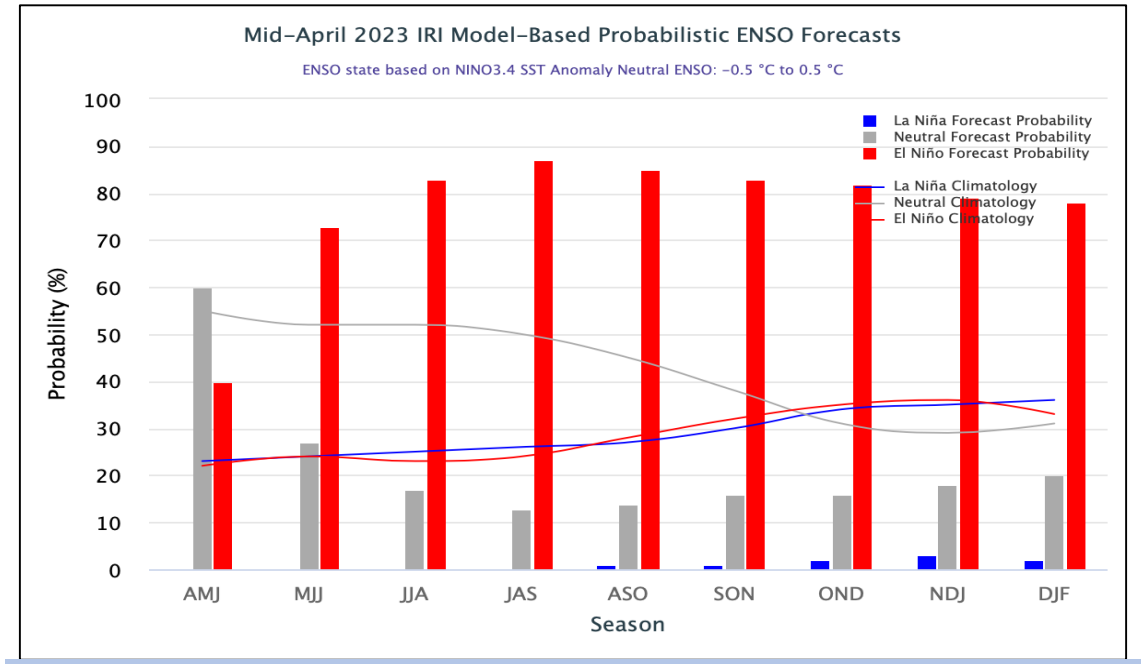
The CFS.v2 ensemble mean (black dashed line) favors a transition from ENSO-neutral to El Niño in the next few months.

What are the chances?



Model output + Expert judgment
ENSO probability forecast

Season	La Niña	Neutral	El Niño
MAM	0	99	1
AMJ	0	70	38
MJJ	0	38	62
JJA	0	25	75
JAS	1	19	80
ASO	1	17	82
SON	1	1	84
OND	1	13	86
NDJ	1	12	87



Model output (*Purely objective*)
ENSO probability forecast

A transition from ENSO-neutral to El Niño is favored during May-July 2023, with chances of El Niño increasing through the fall and early winter 2023-24.

El Niño Watch - issued when conditions are favorable for the development of El Niño within the next six months and probability is 55% or more.

https://iri.columbia.edu/our-expertise/climate/forecasts/enso/current/?enso_tab=enso-iri_plume

ENSO Strengths

This table shows the forecast probability (%) of Niño-3.4 index exceeding a certain threshold (in degrees Celsius).
For negative thresholds, the table shows the probability (%) of a Niño-3.4 index value that is less than (more negative) that value.
For positive thresholds, the table shows the probability (%) of a Niño-3.4 index value that is greater than (more positive) that value.
This tool supports the official ENSO Diagnostic discussion updated on the 2nd Thursday of each month.

Target	< -1.5°C	< -1.0°C	< -0.5°C	> 0.5°C (Weak El Niño)	> 1.0°C (Moderate El Niño)	> 1.5°C (Strong El Niño)
MAM	~0	~0	~0	1	~0	~0
AMJ	~0	~0	~0	30	1	~0
MJJ	~0	~0	~0	62	11	~0
JJA	~0	~0	~0	75	32	6
JAS	~0	~0	1	80	47	16
ASO	~0	~0	1	82	54	24
SON	~0	~0	1	84	61	32
OND	~0	~0	1	86	66	39
NDJ	~0	~0	1	87	67	41
	< -1.5°C	< -1.0°C	< -0.5°C	> 0.5°C	> 1.0°C	> 1.5°C

Historical El Niño and La Niña Episodes

Year	DJF	JFM	FMA	MAM	AMJ	MJJ	JJA	JAS	ASO	SON	OND	NDJ
1980	0.6	0.5	0.3	0.4	0.5	0.5	0.3	0.0	-0.1	0.0	0.1	0.0
1981	-0.3	-0.5	-0.5	-0.4	-0.3	-0.3	-0.3	-0.2	-0.2	-0.1	-0.2	-0.1
1982	0.0	0.1	0.2	0.5	0.7	0.7	0.8	1.1	1.6	2.0	2.2	2.2
1983	2.2	1.9	1.5	1.3	1.1	0.7	0.3	-0.1	-0.5	-0.8	-1.0	-0.9
1984	-0.6	-0.4	-0.3	-0.4	-0.5	-0.4	-0.3	-0.2	-0.2	-0.6	-0.9	-1.1
1985	-1.0	-0.8	-0.8	-0.8	-0.8	-0.6	-0.5	-0.5	-0.4	-0.3	-0.3	-0.4
1986	-0.5	-0.5	-0.3	-0.2	-0.1	0.0	0.2	0.4	0.7	0.9	1.1	1.2
1987	1.2	1.2	1.1	0.9	1.0	1.2	1.5	1.7	1.6	1.5	1.3	1.1
1988	0.8	0.5	0.1	-0.3	-0.9	-1.3	-1.3	-1.1	-1.2	-1.5	-1.8	-1.8
1989	-1.7	-1.4	-1.1	-0.8	-0.6	-0.4	-0.3	-0.3	-0.2	-0.2	-0.2	-0.1
1990	0.1	0.2	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.3	0.4	0.4
1991	0.4	0.3	0.2	0.3	0.5	0.6	0.7	0.6	0.6	0.8	1.2	1.5
1992	1.7	1.6	1.5	1.3	1.1	0.7	0.4	0.1	-0.1	-0.2	-0.3	-0.1
1993	0.1	0.3	0.5	0.7	0.7	0.6	0.3	0.3	0.2	0.1	0.0	0.1
1994	0.1	0.1	0.2	0.3	0.4	0.4	0.4	0.4	0.6	0.7	1.0	1.1
1995	1.0	0.7	0.5	0.3	0.1	0.0	-0.2	-0.5	-0.8	-1.0	-1.0	-1.0
1996	-0.9	-0.8	-0.6	-0.4	-0.3	-0.3	-0.3	-0.3	-0.4	-0.4	-0.4	-0.5
1997	-0.5	-0.4	-0.1	0.3	0.8	1.2	1.6	1.9	2.1	2.3	2.4	2.4
1998	2.2	1.9	1.4	1.0	0.5	-0.1	-0.8	-1.1	-1.3	-1.4	-1.5	-1.6
1999	-1.5	-1.3	-1.1	-1.0	-1.0	-1.0	-1.1	-1.1	-1.2	-1.3	-1.5	-1.7
2000	-1.7	-1.4	-1.1	-0.8	-0.7	-0.6	-0.6	-0.5	-0.5	-0.6	-0.7	-0.7
2001	-0.7	-0.5	-0.4	-0.3	-0.3	-0.1	-0.1	-0.1	-0.2	-0.3	-0.3	-0.3
2002	-0.1	0.0	0.1	0.2	0.4	0.7	0.8	0.9	1.0	1.2	1.3	1.1
2003	0.9	0.6	0.4	0.0	-0.3	-0.2	0.1	0.2	0.3	0.3	0.4	0.4
2004	0.4	0.3	0.2	0.2	0.2	0.3	0.5	0.6	0.7	0.7	0.7	0.7
2005	0.6	0.6	0.4	0.4	0.3	0.1	-0.1	-0.1	-0.1	-0.3	-0.6	-0.8
2006	-0.9	-0.8	-0.6	-0.4	-0.1	0.0	0.1	0.3	0.5	0.8	0.9	0.9
2007	0.7	0.2	-0.1	-0.3	-0.4	-0.5	-0.6	-0.8	-1.1	-1.3	-1.5	-1.6
2008	-1.6	-1.5	-1.3	-1.0	-0.8	-0.6	-0.4	-0.2	-0.2	-0.4	-0.6	-0.7
2009	-0.8	-0.8	-0.6	-0.3	0.0	0.3	0.5	0.6	0.7	1.0	1.4	1.6

Year	DJF	JFM	FMA	MAM	AMJ	MJJ	JJA	JAS	ASO	SON	OND	NDJ
2010	1.5	1.2	0.8	0.4	-0.2	-0.7	-1.0	-1.3	-1.6	-1.6	-1.6	-1.6
2011	-1.4	-1.2	-0.9	-0.7	-0.6	-0.4	-0.5	-0.6	-0.8	-1.0	-1.1	-1.0
2012	-0.9	-0.7	-0.6	-0.5	-0.3	0.0	0.2	0.4	0.4	0.3	0.1	-0.2
2013	-0.4	-0.4	-0.3	-0.3	-0.4	-0.4	-0.4	-0.3	-0.3	-0.2	-0.2	-0.3
2014	-0.4	-0.5	-0.3	0.0	0.2	0.2	0.0	0.1	0.2	0.5	0.6	0.7
2015	0.5	0.5	0.5	0.7	0.9	1.2	1.5	1.9	2.2	2.4	2.6	2.6
2016	2.5	2.1	1.6	0.9	0.4	-0.1	-0.4	-0.5	-0.6	-0.7	-0.7	-0.6
2017	-0.3	-0.2	0.1	0.2	0.3	0.3	0.1	-0.1	-0.4	-0.7	-0.8	-1.0
2018	-0.9	-0.9	-0.7	-0.5	-0.2	0.0	0.1	0.2	0.5	0.8	0.9	0.8
2019	0.7	0.7	0.7	0.7	0.5	0.5	0.3	0.1	0.2	0.3	0.5	0.5
Year	DJF	JFM	FMA	MAM	AMJ	MJJ	JJA	JAS	ASO	SON	OND	NDJ
2020	0.5	0.5	0.4	0.2	-0.1	-0.3	-0.4	-0.6	-0.9	-1.2	-1.3	-1.2
2021	-1.0	-0.9	-0.8	-0.7	-0.5	-0.4	-0.4	-0.5	-0.7	-0.8	-1.0	-1.0
2022	-1.0	-0.9	-1.0	-1.1	-1.0	-0.9	-0.8	-0.9	-1.0	-1.0	-0.9	-0.8
2023	-0.7	-0.4										

- **Last La Niña episode**
  - 2020-2021 (Weak to Moderate)
- **La Niña 3 years in a row** (triple dip La Niña)
  - 1973-1976, 1998-2001

2020-2021, 2021- 2023

The first triple-dip La Nina of the 21st century

Last El Nino episode: 2018-2019 (weak)

Similar conditions of the forecasted El Nino event:

2004-2005 (weak)

2002-2003 (moderate)

2009-2010 (strong), after La Nina

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ENSO Alert System Status:

El Niño Watch

A transition from ENSO-neutral to El Niño is favored during May-June-July 2023 season, with chances of El Niño increasing towards the first quarter of 2024.

(updated: 26 April 2023)

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Weather systems that may affect the country

May – October 2023

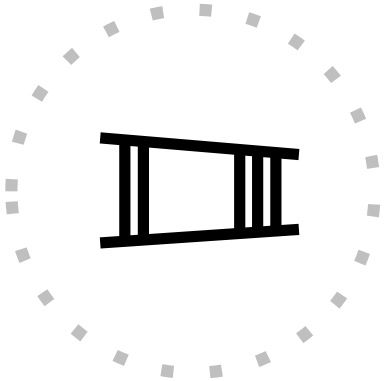
RIDGE OF HIGH PRESSURE AREA (HPA)

LOCALIZED THUNDERSTORMS

EASTERLIES

SOUTHWEST MONSOON

In transition towards SW Monsoon



INTER-TROPICAL CONVERGENCE ZONE (ITCZ)

SHEAR LINE

LOW PRESSURE AREAS (LPAs)

TROPICAL CYCLONES

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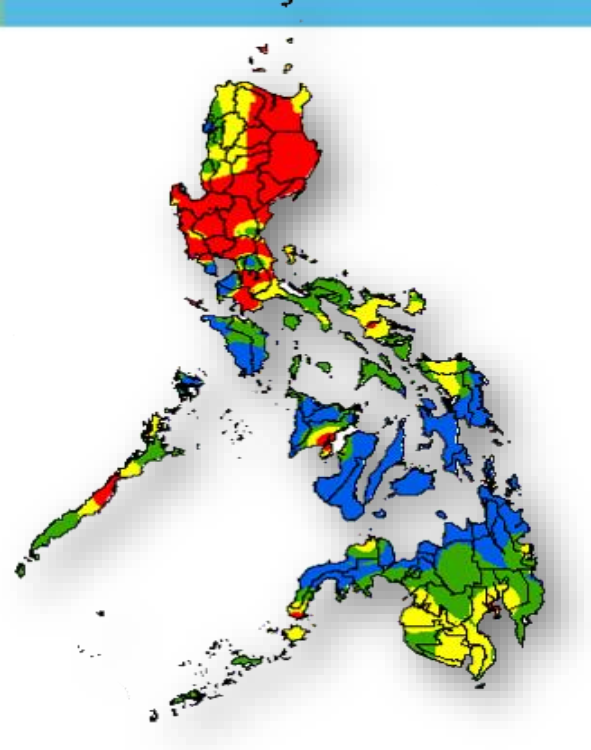
ABOUT OUR RAINFALL MAPS

SCAN ME

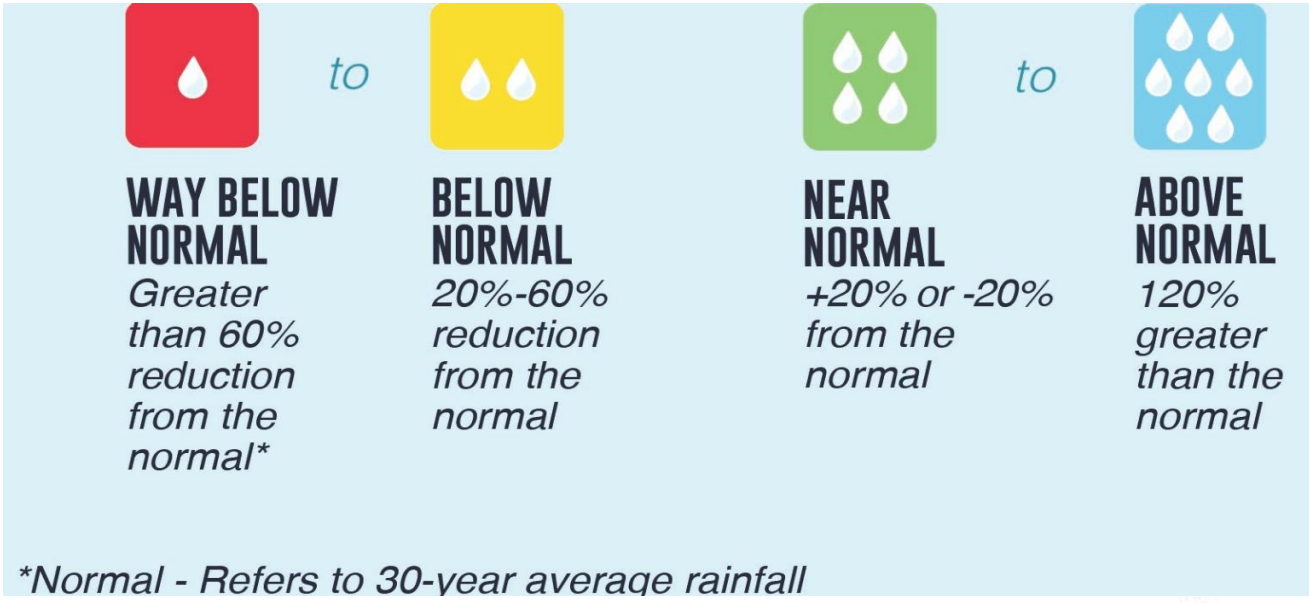
For more details and updates

PERCENTAGE (%)	RAINFALL CONDITION
Less than or = 40	way below normal
41 – 80	below normal
81 – 120	near normal
Greater than 120	above normal



$$Percent\ of\ Normal = \frac{Forecast\ Rainfall}{Normal\ Rainfall} x\ 100\%$$

Rainfall Surplus or Reduction



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RAINFALL OUTLOOK (PN)
MAY 2023
Region 11

Legend

- ≤ 40% WAY BELOW NORMAL
- 41-80 BELOW NORMAL
- 81-120 NEAR NORMAL
- >120 ABOVE NORMAL

LOCATION INDEX

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0 30 60 120
Kilometers

N W E S

RAINFALL OUTLOOK (PN)
JUNE 2023
Region 11

Legend

- ≤ 40% WAY BELOW NORMAL
- 41-80 BELOW NORMAL
- 81-120 NEAR NORMAL
- >120 ABOVE NORMAL

LOCATION INDEX

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0 30 60 120
Kilometers

N W E S

Payong PAGASA

RAINFALL OUTLOOK (PN)
JULY 2023
Region 11

Legend

- ≤ 40% WAY BELOW NORMAL
- 41-80 BELOW NORMAL
- 81-120 NEAR NORMAL
- >120 ABOVE NORMAL

LOCATION INDEX

DOST PAGASA The Weather and Climate Authority

0 30 60 120
Kilometers

N W E S

RAINFALL OUTLOOK (PN)
AUGUST 2023
Region 11

Legend

- ≤ 40% WAY BELOW NORMAL
- 41-80 BELOW NORMAL
- 81-120 NEAR NORMAL
- >120 ABOVE NORMAL

LOCATION INDEX

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0 30 60 120
Kilometers

N W E S

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RAINFALL OUTLOOK (PN)
SEPTEMBER 2023
Region 11

Legend

- ≤ 40% WAY BELOW NORMAL
- 41-80 BELOW NORMAL
- 81-120 NEAR NORMAL
- >120 ABOVE NORMAL

LOCATION INDEX

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0 30 60 120
Kilometers

N W E S

RAINFALL OUTLOOK (PN)
OCTOBER 2023
Region 11

Legend

- ≤ 40% WAY BELOW NORMAL
- 41-80 BELOW NORMAL
- 81-120 NEAR NORMAL
- >120 ABOVE NORMAL

LOCATION INDEX

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0 30 60 120
Kilometers

N W E S

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FORECAST RAINFALL in Percent of Normal (May - October 2023) as of April 18, 2023

PROVINCE	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER
REGION IX (ZAMBOANGA PENINSULA)						
ZAMBOANGA DEL NORTE	99.4	101.0	93.3	79.9	92.7	89.2
ZAMBOANGA DEL SUR	98.2	101.7	92.0	80.3	93.3	89.4
ZAMBOANGA SIBUGAY	98.2	101.4	91.7	81.0	94.3	90.4
REGION X (NORTHERN MINDANAO)						
BUKIDNON	102.2	94.8	90.6	90.1	100.7	91.2
CAMIGUIN	104.1	107.9	101.9	81.9	96.9	84.6
LANAO DEL NORTE	100.1	100.5	96.0	87.7	93.2	88.9
MISAMIS OCCIDENTAL	100.6	101.5	95.6	81.5	89.7	89.4
MISAMIS ORIENTAL	104.4	101.6	100.6	85.9	99.8	87.0
REGION XI (DAVAO REGION)						
DAVAO DE ORO	101.2	97.9	100.7	89.6	93.8	86.2
DAVAO CITY	98.6	90.5	79.0	86.2	96.3	95.3
DAVAO DEL NORTE	101.3	94.0	88.2	85.6	96.0	88.1
DAVAO DEL SUR	95.2	90.4	78.0	87.7	95.4	93.0
DAVAO OCCIDENTAL	95.1	94.9	86.7	86.4	93.7	87.2
DAVAO ORIENTAL	99.9	98.9	107.0	90.4	93.1	86.0
REGION XII (SOCCSKSARGEN)						
SOUTH COTABATO	94.0	95.0	84.2	86.7	93.3	86.9
COTABATO	95.6	91.5	78.0	89.0	96.2	90.6
SARANGANI	94.5	96.2	86.7	86.0	92.9	86.2
SULTAN KUDARAT	93.6	95.4	84.9	87.4	93.9	88.8
REGION XIII- CARAGA						
AGUSAN DEL NORTE	100.6	104.1	93.6	75.6	100.4	81.5
AGUSAN DEL SUR	101.1	99.8	91.1	82.8	100.7	83.7
DINAGAT ISLANDS	99.9	102.6	93.9	60.4	94.0	80.0
SURIGAO DEL NORTE	99.4	107.2	90.3	62.0	96.3	80.8
SURIGAO DEL SUR	99.6	103.2	89.1	75.1	99.1	80.9
BARMM						
BASILAN	98.5	103.1	91.2	74.5	99.9	88.6
MAGUINDANAO	92.6	95.2	84.7	90.3	93.7	90.9
LANAO DEL SUR	98.5	97.5	93.1	90.9	95.3	89.4
SULU	99.8	100.0	92.8	83.8	97.4	90.6
TAWI-TAWI	100.8	98.9	95.2	85.2	98.6	88.7

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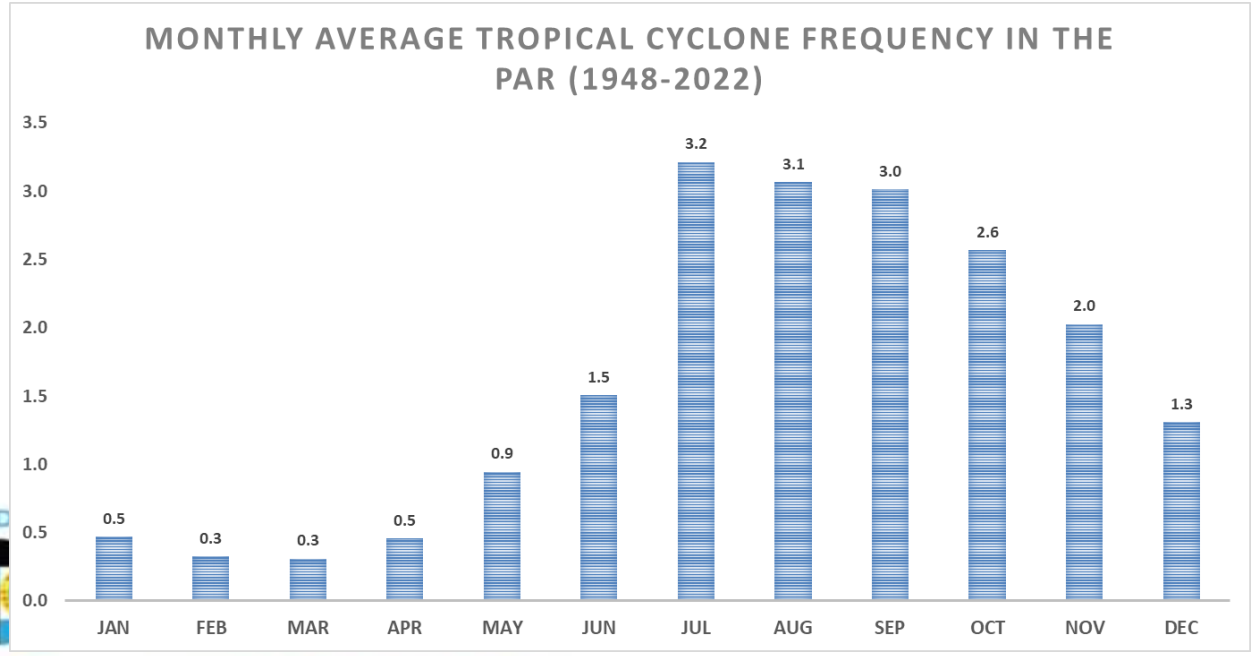
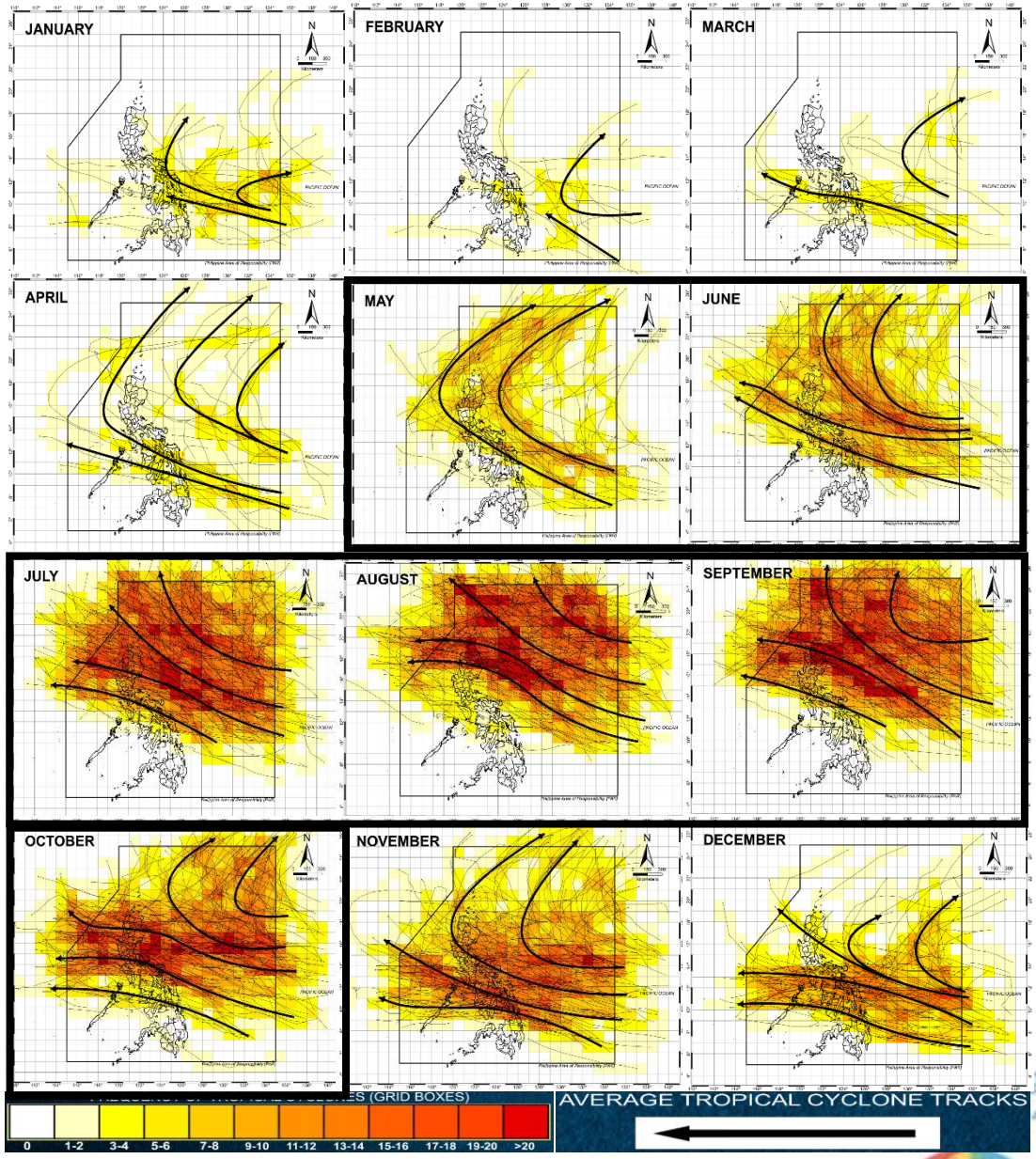
HOW MANY TROPICAL CYCLONES SHOULD YOU EXPECT?

MAY 2023	**1 or 2**	**AUGUST 2023**	**2 or 3**
JUNE 2023	**1 or 2**	**SEPTEMBER 2023**	**2 or 3**
JULY 2023	**2 to 4**	**OCTOBER 2023**	**2 or 3**
10-14 TCs expected			



Tropical Cyclone Tracks Climatology with actual tracks from 1948-2015



SUMMARY

ENSO Alert System Status	**El Niño Watch ....** *to be upgraded to El Niño Alert*
	➢ A transition from ENSO-neutral to El Niño is favored during May-June-July 2023 season, with chances of El Niño increasing towards the first quarter of 2024.
Forecast Rainfall Conditions:	
May – June 2023	➢ generally *near normal* rainfall is expected in Davao Region
July 2023	➢ generally *near normal in most parts of Davao Region, with patches of below normal rainfall* in Davao City and Davao del Sur ;

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SUMMARY

Forecast Rainfall Conditions:	
August 2023-October 2023	➢ generally *near normal rainfall is expected in Davao Region.*

SUMMARY

Forecast Temperature	➢ Generally, surface air temperatures range from below average to above average throughout the country during the forecast period. ➢ Warmer and humid weather conditions may still be felt in the coming months.
Tropical Cyclones	➢ **10 – 14** tropical cyclones are expected to enter/develop in the Philippine Area of Responsibility (PAR) from **May – October 2023**.
Onset of Rainy Season	➢ Normal onset is expected (between the 2nd half of May to 1st half of June): for areas over the western section of the country that are under Climate Type I. • Associated with the Southwest (SW) monsoon (Habagat).

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Payong PAGASA

PRESS RELEASE
EL NIÑO ALERT
02 May 2023

DOST-PAGASA S & T Media Service
Quezon City, 02 May 2023

PAGASA has been continuously monitoring the developing El Niño conditions in the tropical Pacific. Recent conditions and model forecasts indicate that El Niño may emerge in the coming season (June-July-August) at 80% probability and may persist until the first quarter of 2024. With this development, the PAGASA El Niño Southern Oscillation (ENSO) Alert and Warning System is now raised to **EL NIÑO ALERT**. El Niño (warm phase of ENSO) is characterized by unusually warmer than average sea surface temperatures (SSTs) at the central and eastern equatorial Pacific (CEEP). When conditions are favorable for the development of El Niño within the next two months at a probability of 70% or more, an El Niño **ALERT** is issued.

El Niño increases the likelihood of below-normal rainfall conditions, which could have negative impacts (such as dry spells and droughts) in some areas of the country. However, over the western part of the country, above-normal rainfall conditions during the Southwest Monsoon season (Habagat) may also be expected.

PAGASA will continue to closely monitor the development of this ENSO phenomenon. All concerned government agencies and the general public are encouraged to keep on monitoring and take precautionary measures against the impending impacts of El Niño.

For more information, please call the Climate Monitoring and Prediction Section (CLIMPS), Climatology and Agrometeorology Division (CAD) at the telephone number (02) 8284-0800 local 4920 or 4921 or through email: pagasa.climps@gmail.com.

Original Signed:

VICENTE B. MALANO, Ph.D.
Administrator

DOST PAGASA The Weather and Climate Authority

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PAGASA will continue to closely monitor the possible El Nino and updates/advisories shall be issued as appropriate.

Tentative schedule of

160th CF:

24 May 2023

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