

“114th Climate Outlook Forum”

25 June 2019

2F, Amihan Conference Room, PAGASA, Quezon City

CLIMATE OUTLOOK

[JULY-DECEMBER 2019]



**PREPARED BY:
PAGASA-DOST
CLIMATOLOGY & AGROMETEOROLOGY DIVISION (CAD)
CLIMATE MONITORING AND PREDICTION SECTION (CLIMPS)**

Updated: 22 May 2019

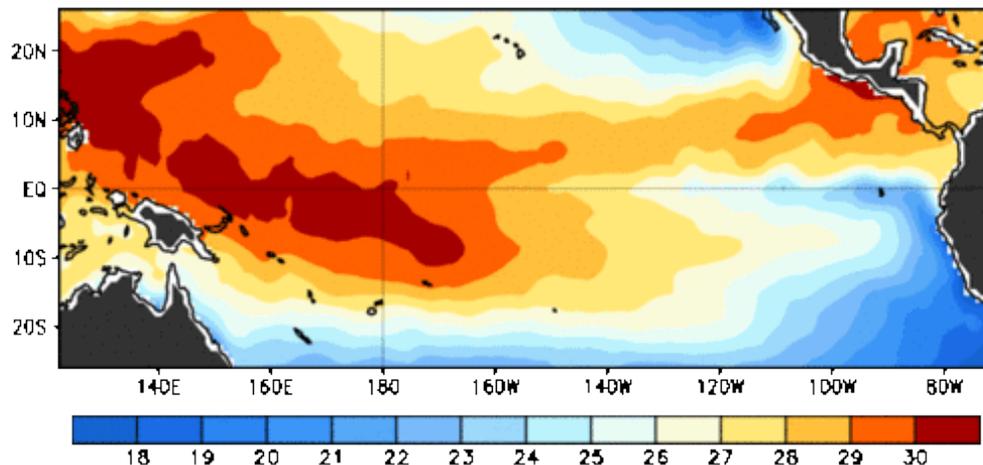
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- **ENSO Updates and Outlook**
- **Climate Outlook (July - December 2019)**
 - Forecast Rainfall
 - Forecast Mean Temperature
 - Dry day forecast
 - Tropical Cyclone Frequency
 - Temperature Extremes
- **Summary**

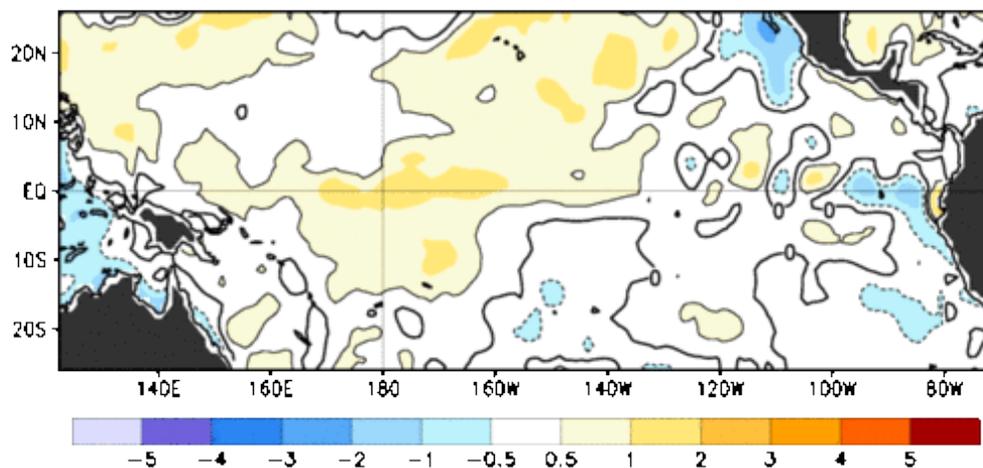
INTERNATIONAL PREDICTION CENTERS		SUMMARY
 <p>CPC, NOAA/ International Research Institute (IRI), USA As of : 19 June 2019</p>	<ul style="list-style-type: none"> El Niño is predicted to persist through the Northern Hemisphere summer 2019 (66% chance), with lower odds of continuing through the fall and winter (50-55% chance); ENSO Alert System Status: El Niño Advisory 	
 <p>Bureau of Meteorology (BOM)-Australia As of : 11 June 2019</p>	<ul style="list-style-type: none"> ENSO Outlook: El Niño WATCH most climate models suggest the tropical Pacific will cool, shifting away from El Niño thresholds, during JJA 2019. 	
 <p>Tokyo Climate Center/JMA -Japan As of: 10 June 2019</p>	<ul style="list-style-type: none"> El Niño conditions continue in the equatorial Pacific, and likely to continue in JJA 2019 (70%); It is more likely that El Niño conditions will continue until SON 2019 (60%) than that ENSO neutral conditions will return (40%). 	
 <p>APEC Climate Center, Busan, S. Korea As of : 25 May 2019</p>	<ul style="list-style-type: none"> APCC ENSO outlook suggests weak El Niño conditions (~35% probability) for June – August 2019 and the conditions are likely to persist (30% probability) through September to November 2019. 	
 <p>WMO, Geneva, Switzerland As of: 27 May 2019</p>	<ul style="list-style-type: none"> WMO GPCLRF predict ocean temperatures to remain close to current levels through the June-August period, but may ease in September-November. The chance of El Niño during June-August 2019 is estimated at 60-65%, decreasing to 50% from September 2019 onwards. 	
 <p>PAGASA As of : 25 June 2019</p>	<ul style="list-style-type: none"> Weak El Nino conditions will likely to continue in JJA 2019 (> 60% probability); with a chance to continue until end of 2019 at weak El Nino level, but still, with high uncertainty. ENSO Alert System Status: El Niño Advisory No. 5 	

SST Departures (°C) in the Tropical Pacific Last Week

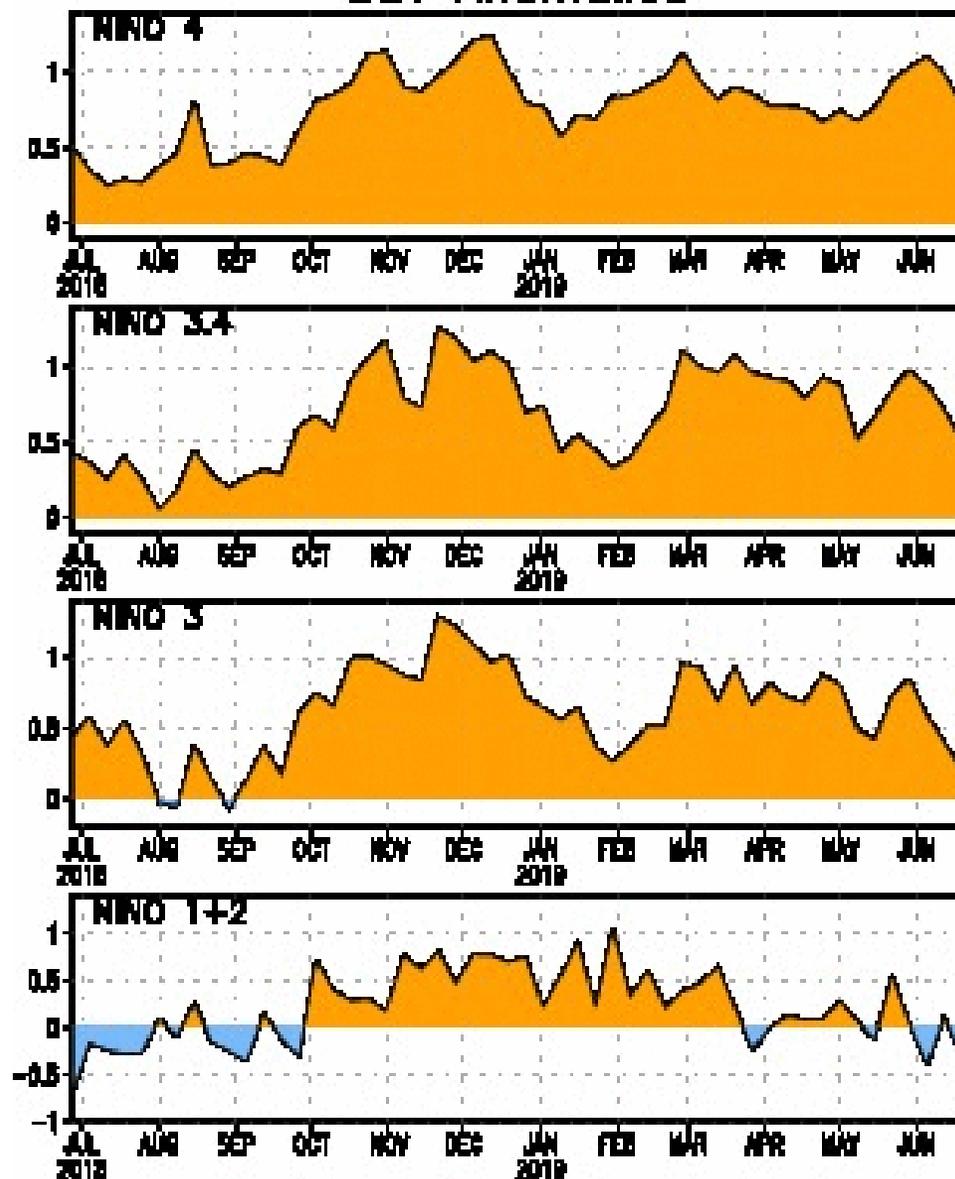
Observed Sea Surface Temperature (°C)



Observed Sea Surface Temperature Anomalies (°C)

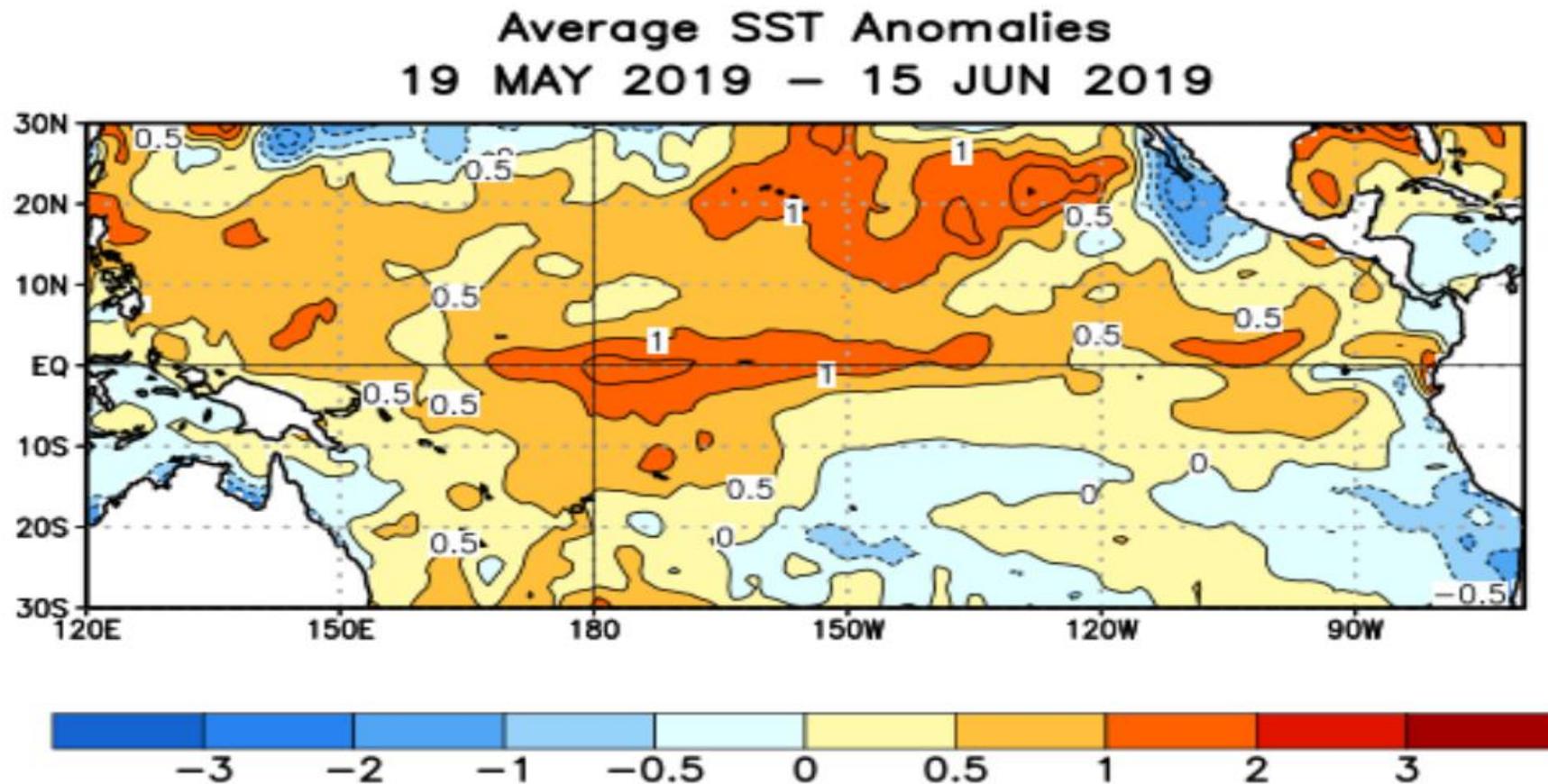


SST Anomalies



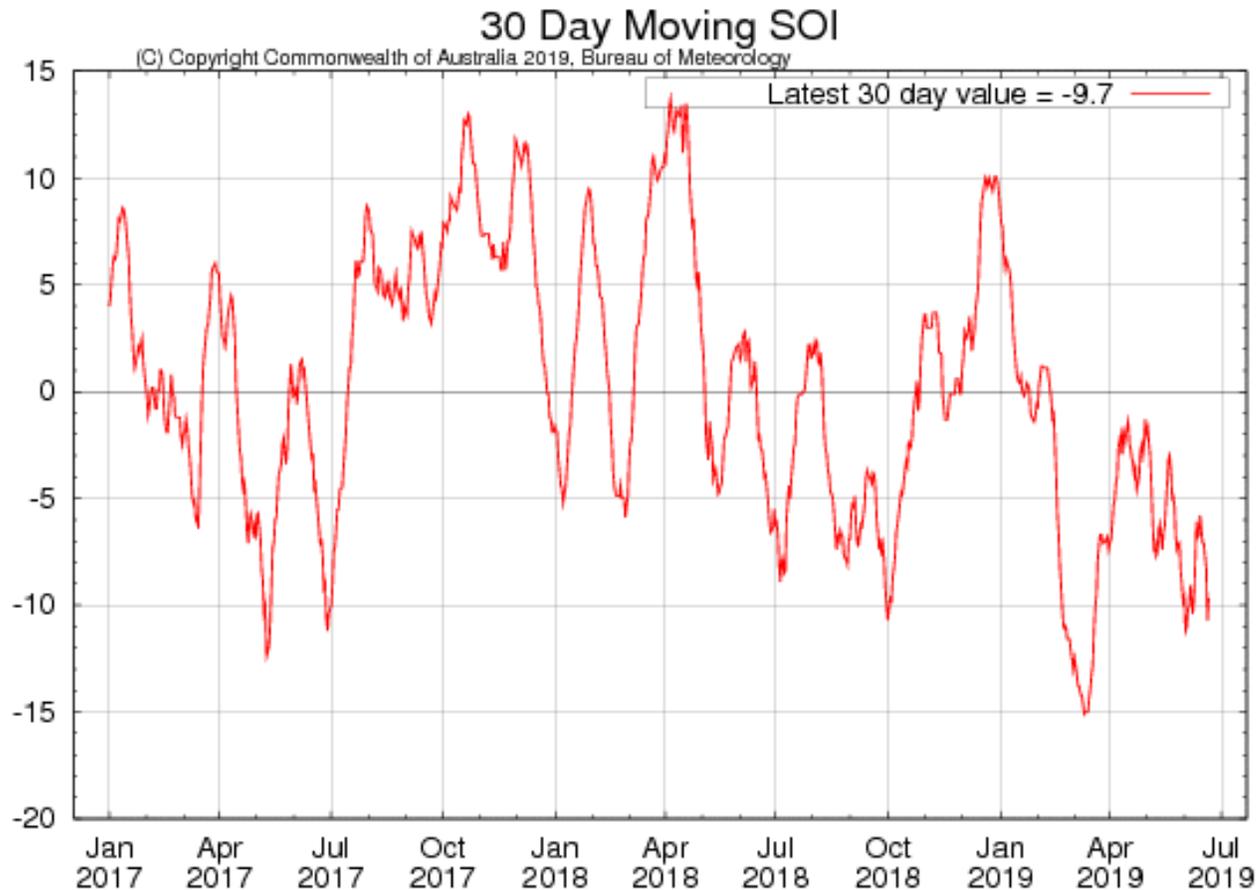
SST Departures (°C) in the Tropical Pacific During the Last Four Weeks

During the last four weeks, equatorial SSTs were above average across most of the Pacific Ocean, with the largest departures between 170°E and 140°W. SSTs were near-to-below average around Indonesia.



Atmospheric indicator(s)

Trade Winds and Cloudiness



The SOI for the 30 days ending 9 June is -9.6 , with the 90-day average -6.2 ;

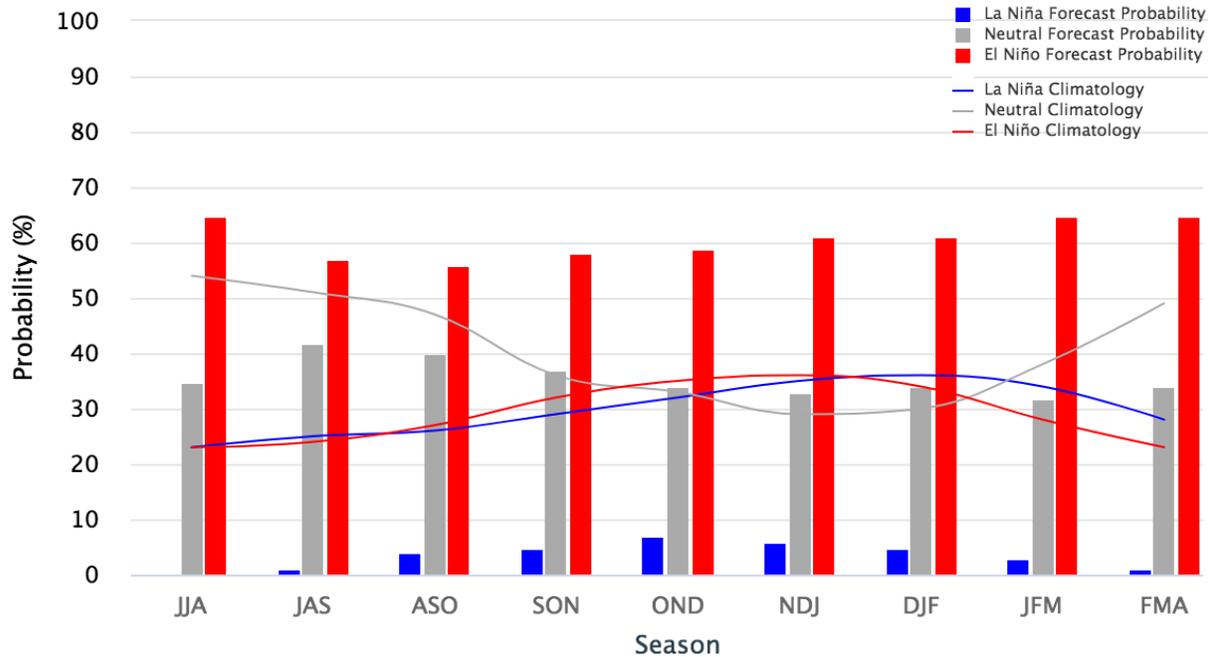
- Sustained positive values of the SOI above $+7$ typically indicate La Niña while sustained negative values below -7 typically indicate El Niño. Values between $+7$ and -7 generally indicate neutral conditions.
- This indicates that coupling of the ocean and atmosphere has occurred during the past 3 months .

- Daily or weekly values of the SOI do not convey much in the way of useful information about the current state of the climate. Daily values in particular can fluctuate markedly because of daily weather patterns, and should not be used for climate purposes.

Model-based PROBABILISTIC ENSO FORECASTS

Mid-June 2019 IRI/CPC Model-Based Probabilistic ENSO Forecasts

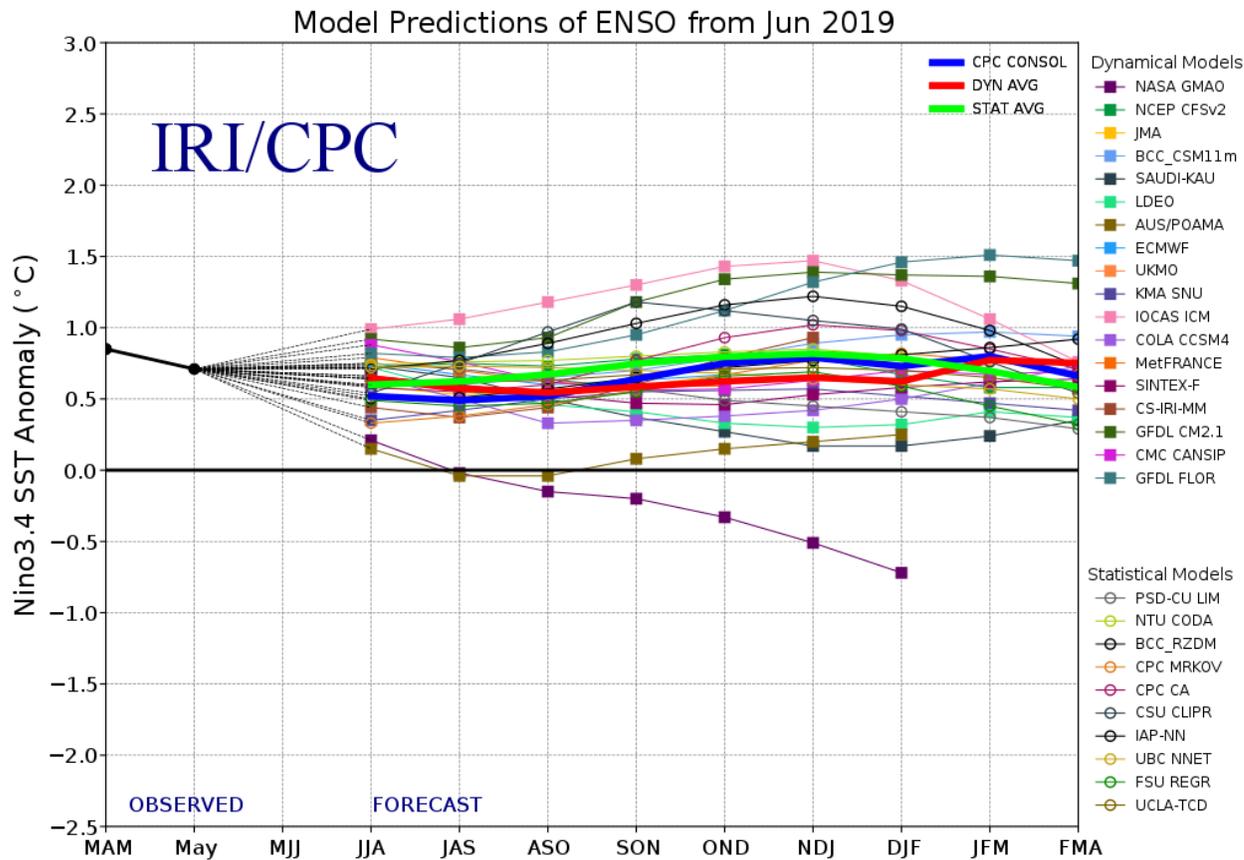
ENSO state based on NINO3.4 SST Anomaly
Neutral ENSO: -0.5 °C to 0.5 °C



IRI/CPC Mid-Month Model-Based ENSO Forecast Probabilities

Season	La Niña	Neutral	El Niño
JJA 2019	0%	35%	65%
JAS 2019	1%	42%	57%
ASO 2019	4%	40%	56%
SON 2019	5%	37%	58%
OND 2019	7%	34%	59%
NDJ 2019	6%	33%	61%
DJF 2020	5%	34%	61%
JFM 2020	3%	32%	65%
FMA 2020	1%	34%	65%

MODEL PREDICTION ENSO Outlook



Most models indicate that SSTs in the tropical Pacific are likely to persist above El Niño thresholds, meaning El Niño remains a possibility in 2020, but still, with high uncertainty.

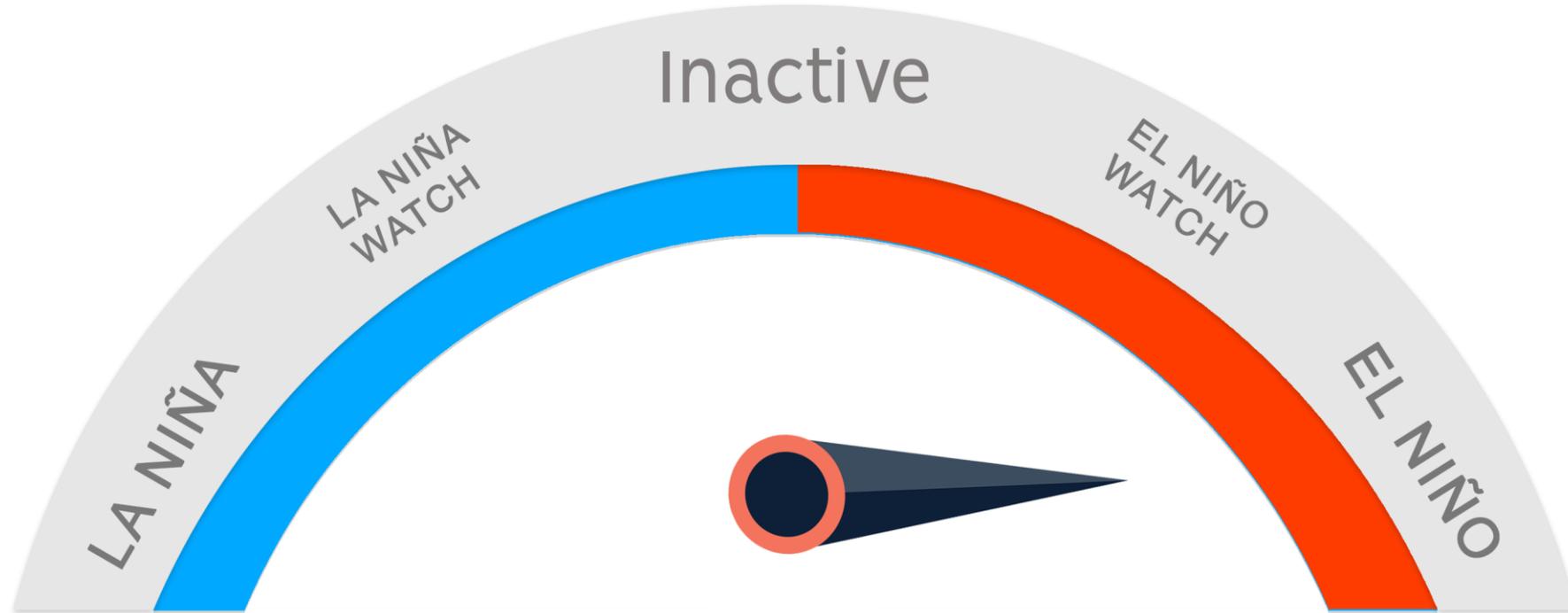
FORECAST SSTA

	JJA	JAS	ASO	SON	OND	NDJ	DJF	JFM20	FMA 20
Average dynamical	0.65	0.57	0.55	0.58	0.62	0.65	0.62	0.77	0.75
Average, statistical	0.60	0.62	0.67	0.75	0.80	0.82	0.79	0.70	0.58
Ave, all models	0.62	0.59	0.61	0.66	0.71	0.73	0.70	0.73	0.66

20 out of 27 models, El Niño until JJA
 16 out of 24 models, El Niño until OND
 11 out of 20 models, El Niño until JFM2020

22 out of 28 models, El Niño until JAS
 20 out of 27 models, El Niño until OND
 15 out of 20 models, El Niño until FMA2020

PAGASA ENSO Alert System Status



➤ **EL NIÑO ADVISORY NO. 5 issued by PAGASA (June 6, 2019)**

- Weak El Nino will likely to continue until JJA 2019 (70% probability);
- There is a chance to continue until 1st quarter 2020 at weak El Nino level, but still, with high uncertainty.

CLIMATE OUTLOOK

(JULY – DECEMBER 2019)

WEATHER SYSTEMS THAT MAY AFFECT THE COUNTRY DURING THE PERIOD (JULY – DECEMBER 2019)

Severe Local Thunderstorms

SW monsoon

Easterlies

Intertropical Convergence Zone (ITCZ)

Low Pressure Areas (LPAs)

Ridge of High Pressure Area

Tropical Cyclones

Transition from SW to NE monsoon season

Tail end of Cold front



DEFINITION OF TERMS

WEATHER SYSTEMS



NE NORTHEAST MONSOON (AMIHAN)

Cold winds from the northeast that bring rains over the eastern side of the country



E EASTERLIES

Warm winds blowing from the east that may bring cloudiness over the eastern part of the country



SW SOUTHWEST MONSOON (HABAGAT)

Warm moist winds from the southwest causing rains over the western portion of the country from May to September



H HIGH PRESSURE AREA (HPA)

Areas of high pressure characterized by light winds and clear skies



INTERTROPICAL CONVERGENCE ZONE (ITCZ)

Series of low pressure areas brought about by converging northeast (NE) and southeast (SE) winds that cause thunderstorms and rainshowers



(((H) RIDGE OF HIGH PRESSURE AREA (HPA)

An extension of a high pressure area characterized by very light winds and clear skies



TAIL-END OF COLD FRONT

Extended zone of converging winds from east to northeast that often brings thunderstorms and rainshowers



L LOW PRESSURE AREA (LPA)

Areas of lowest pressure characterized by cloudiness and rainshowers; areas where a tropical cyclone can form



TROPICAL CYCLONE

'Bagyo'; may refer to a tropical depression, tropical storm, typhoon or super typhoon



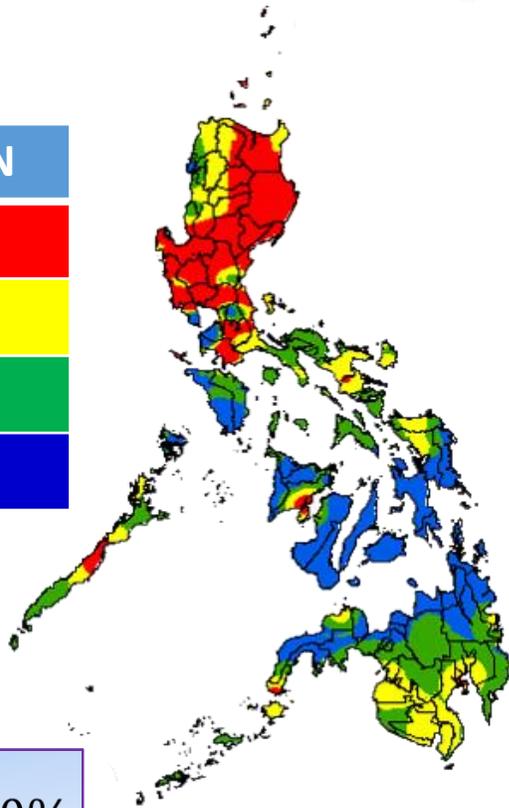
(((L) TROUGH OF LOW PRESSURE AREA (LPA)

An extension of a low pressure area where a tropical cyclone can form

about our
Rainfall
Maps..

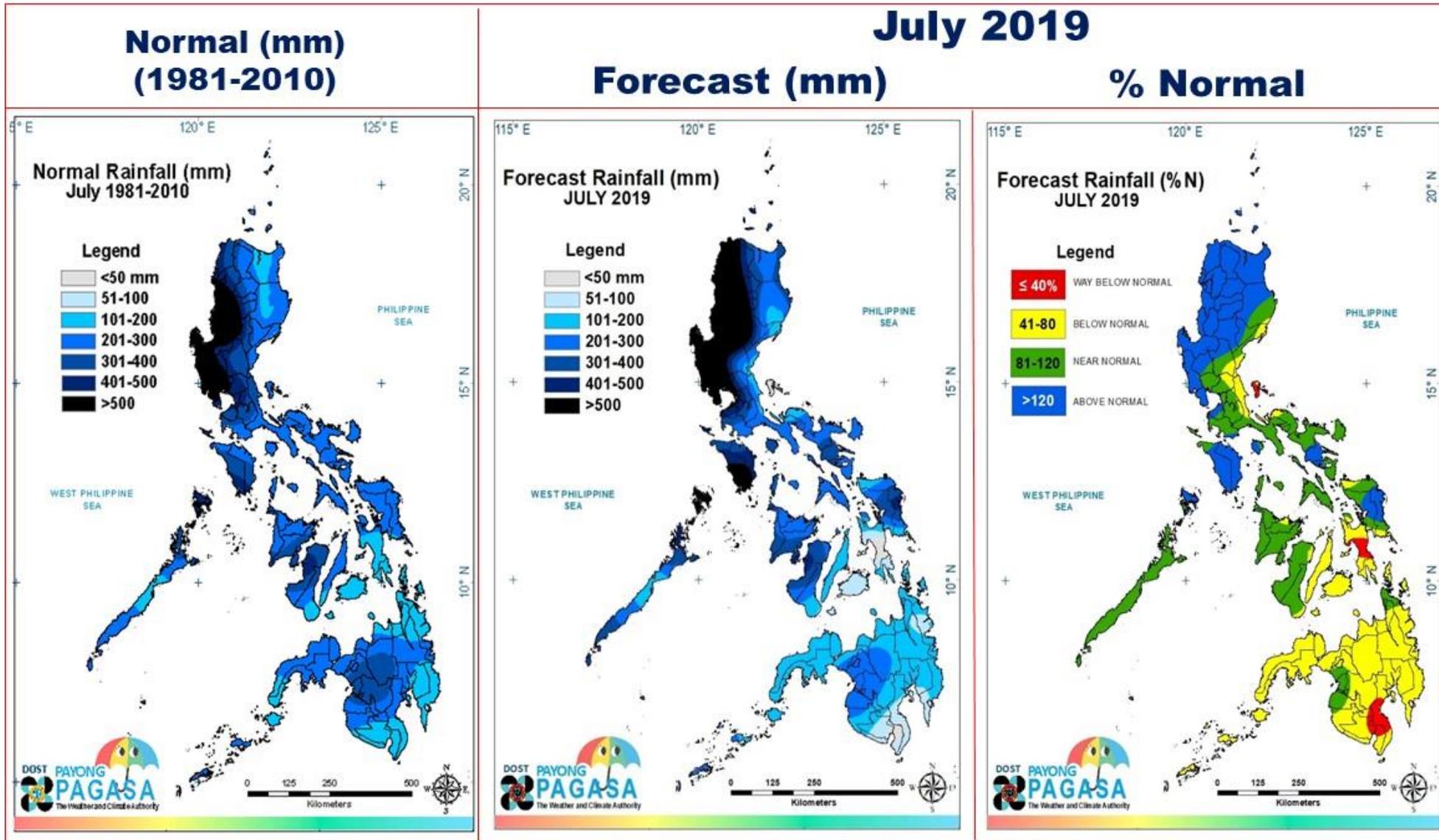


PERCENTAGE (%)	RAINFALL CONDITION
Less than or = 40	way below normal
41 – 80	below normal
81 – 120	near normal
Greater than 120	above normal



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

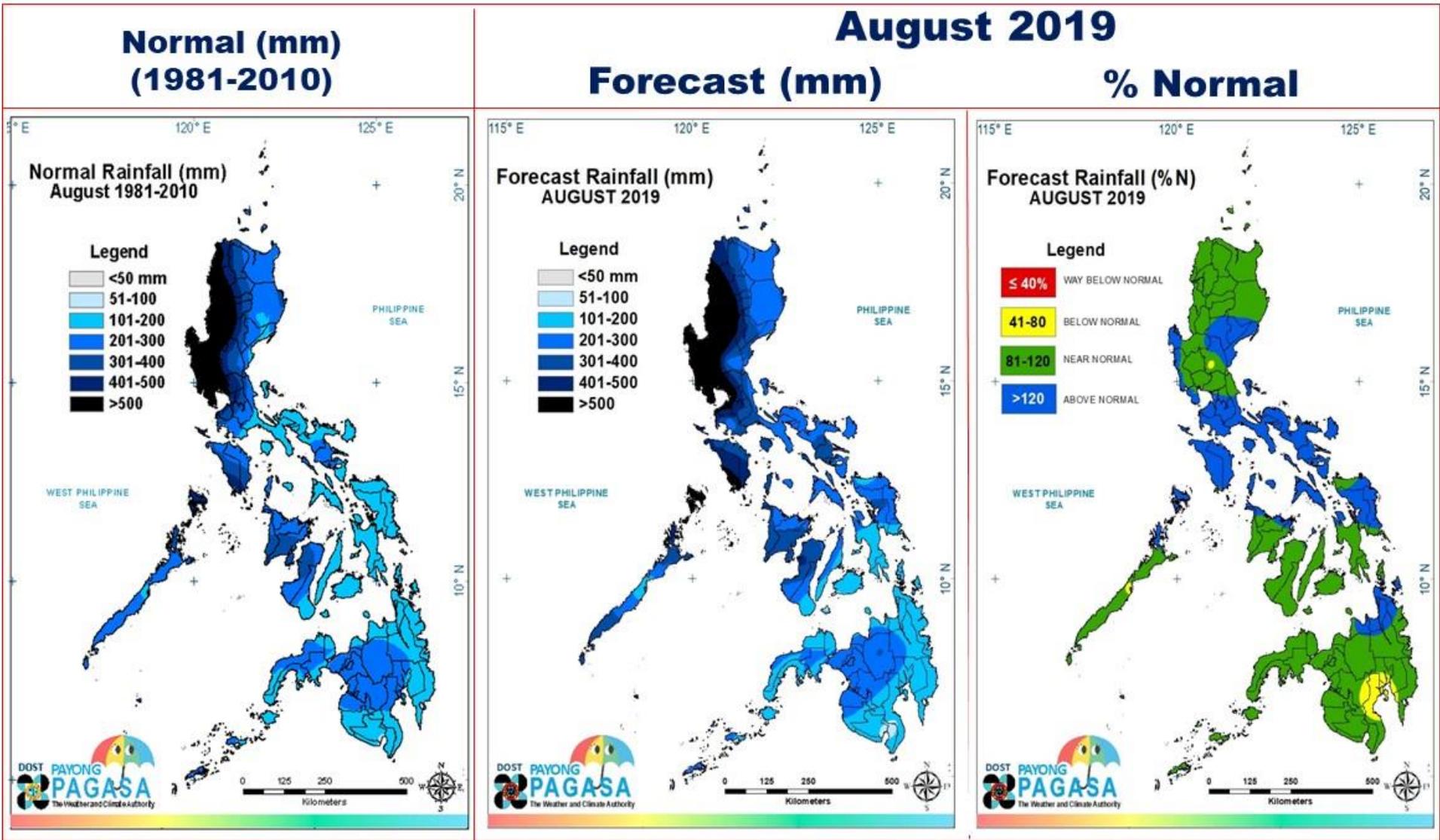
MONTHLY RAINFALL FORECAST



No. of provinces likely to experience:

way below normal	below normal	near normal	above normal
1	33	25	24

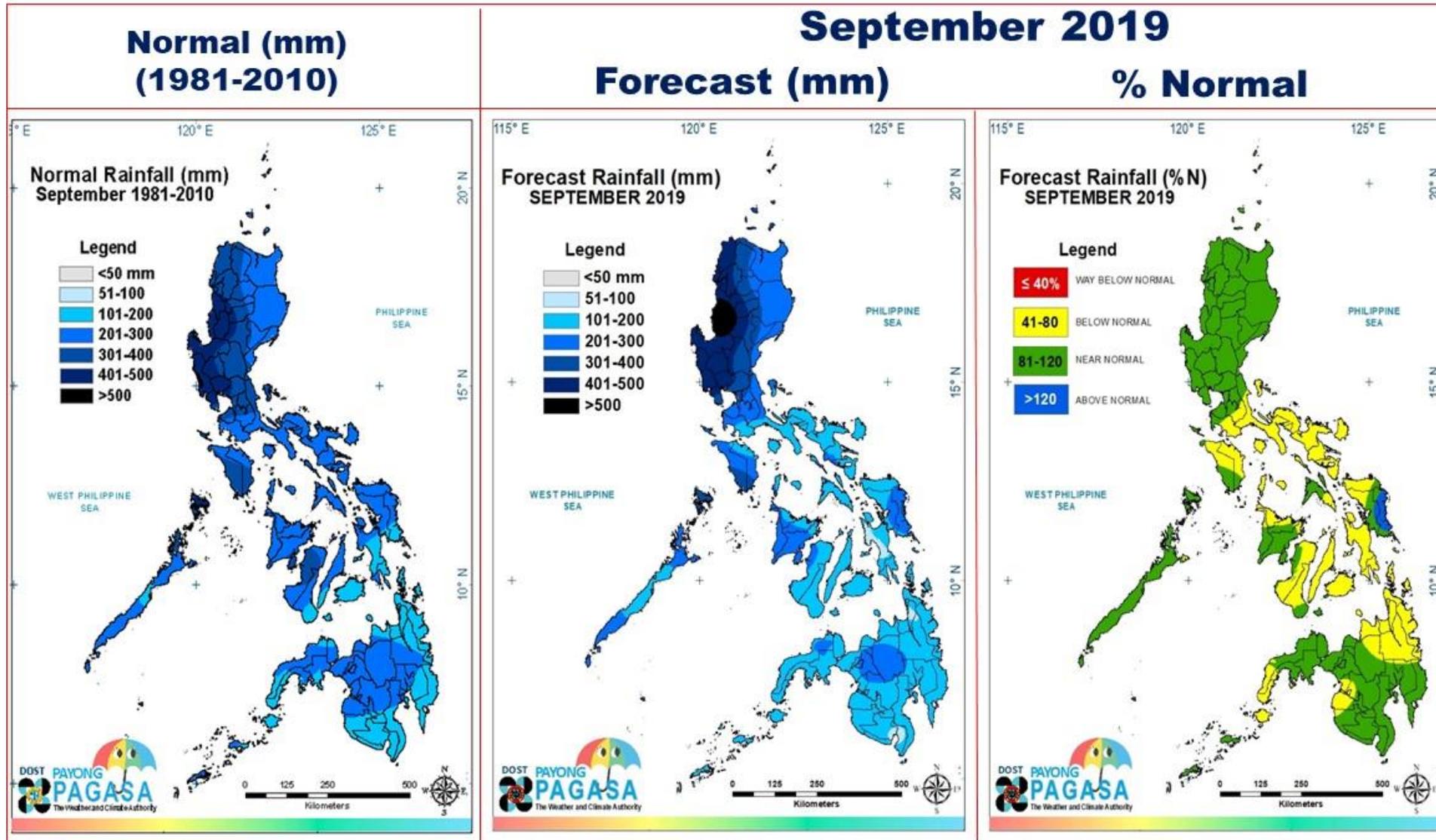
MONTHLY RAINFALL FORECAST



No. of provinces likely to experience:

way below normal	below normal	near normal	above normal
0	2	54	27

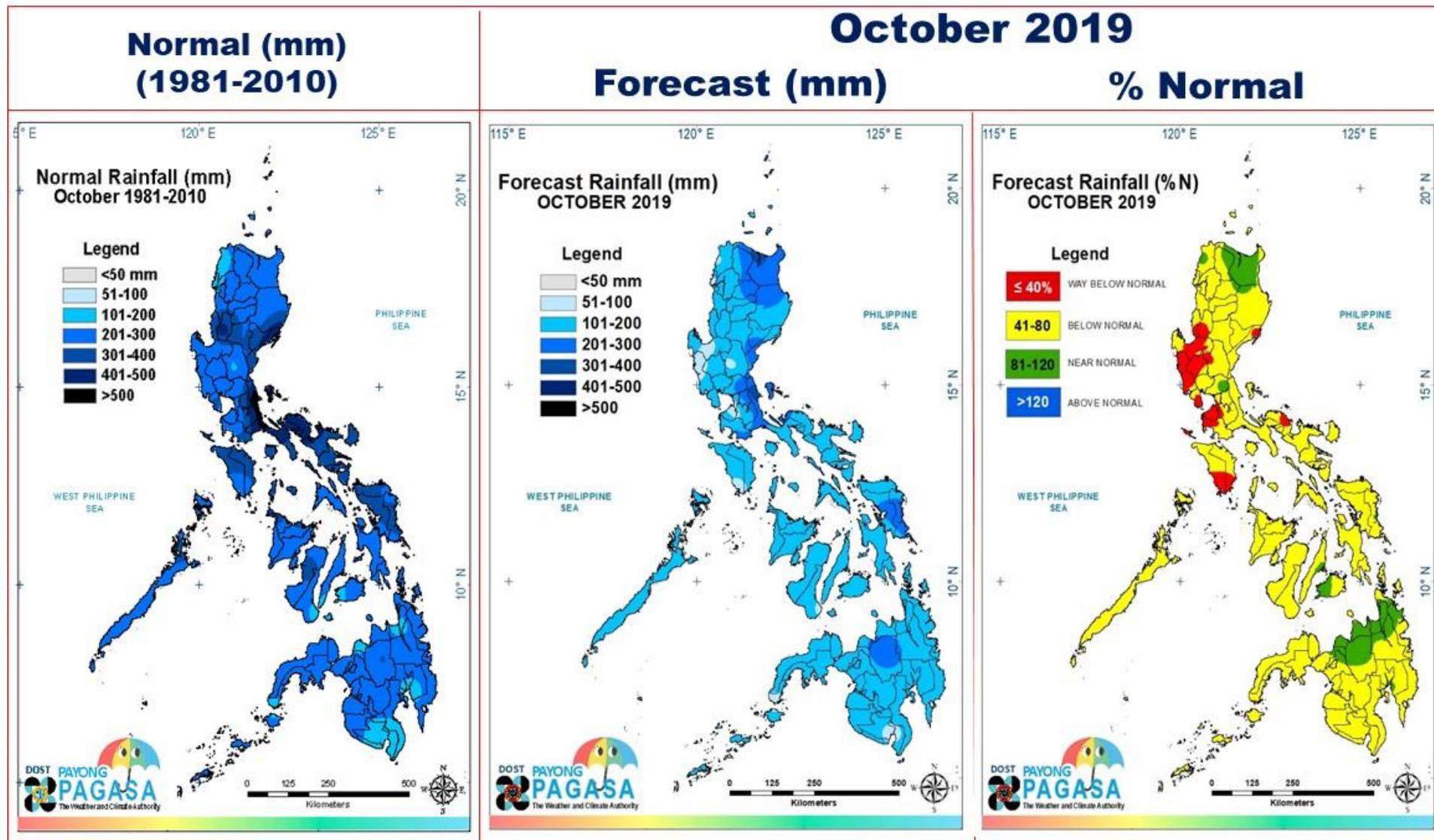
MONTHLY RAINFALL FORECAST



No. of provinces likely to experience:

way below normal	below normal	near normal	above normal
0	29	53	1

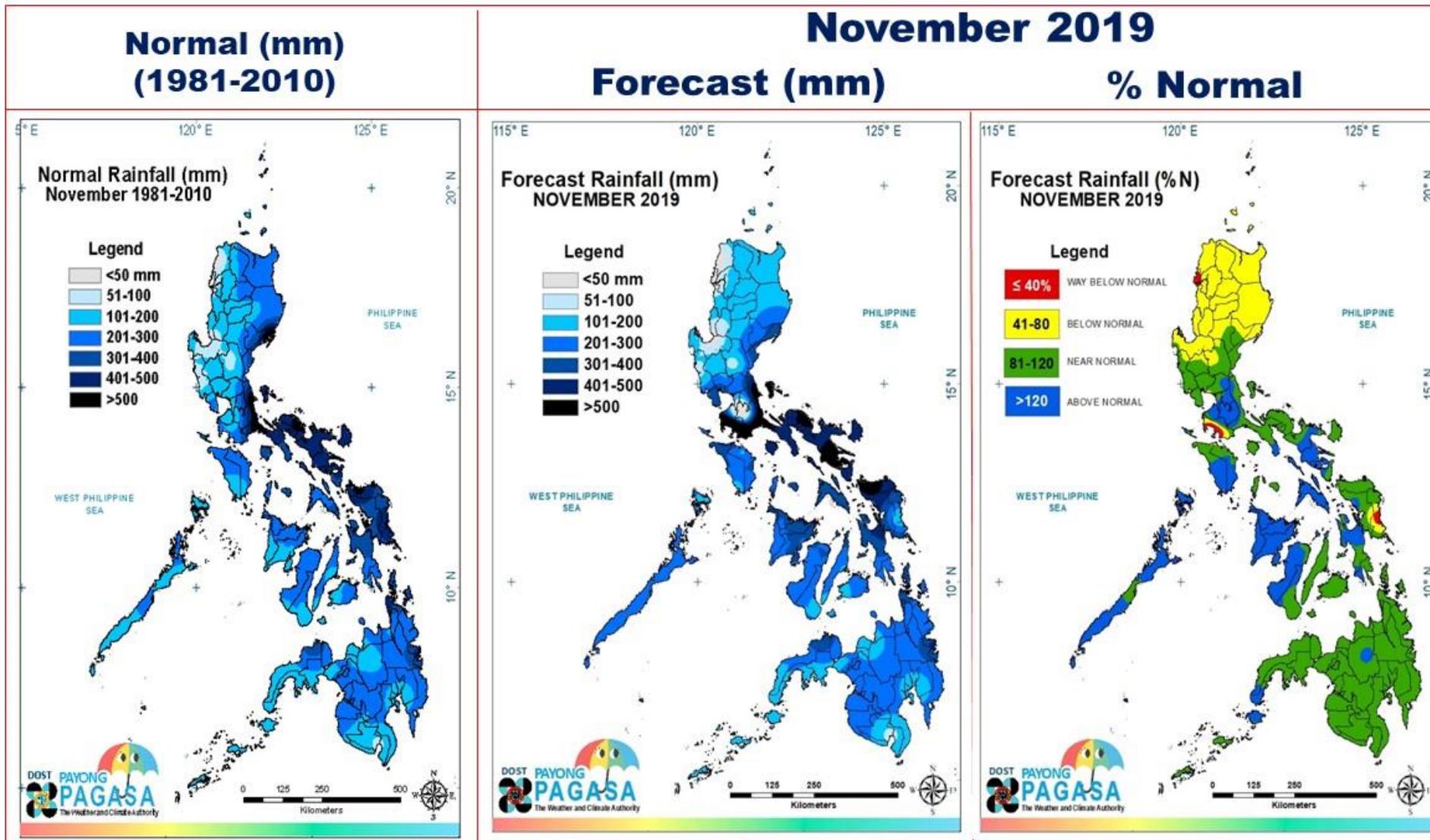
MONTHLY RAINFALL FORECAST



No. of provinces likely to experience:

way below normal	below normal	near normal	above normal
4	73	6	0

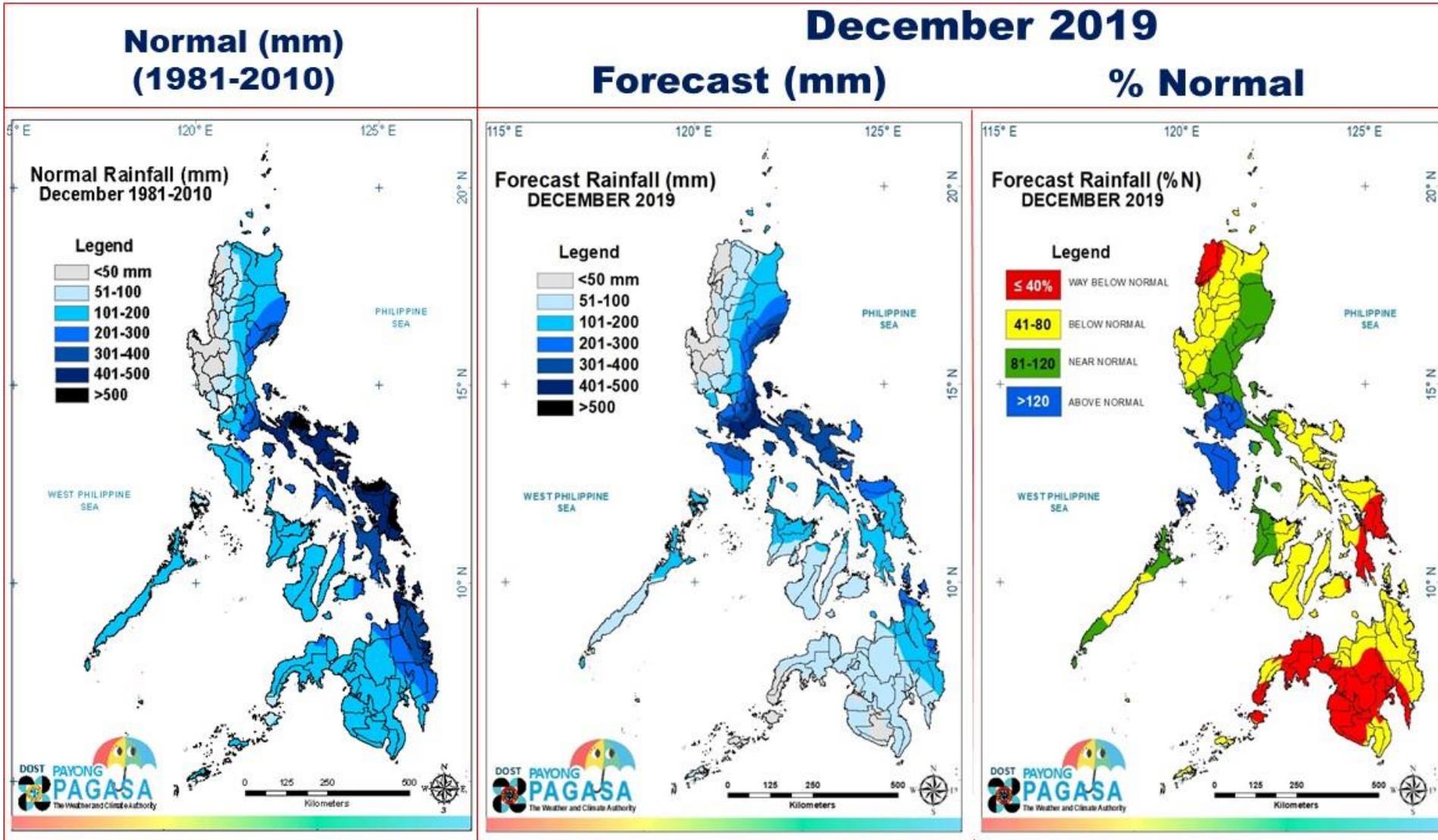
MONTHLY RAINFALL FORECAST



No. of provinces likely to experience:

way below normal	below normal	near normal	above normal
0	16	48	19

MONTHLY RAINFALL FORECAST



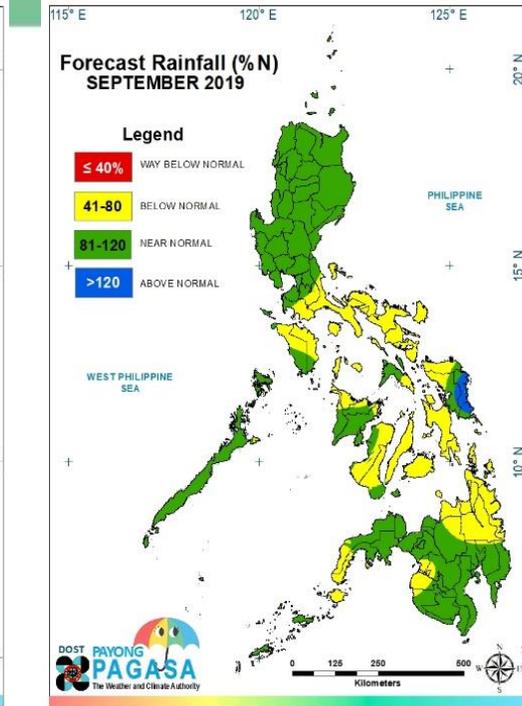
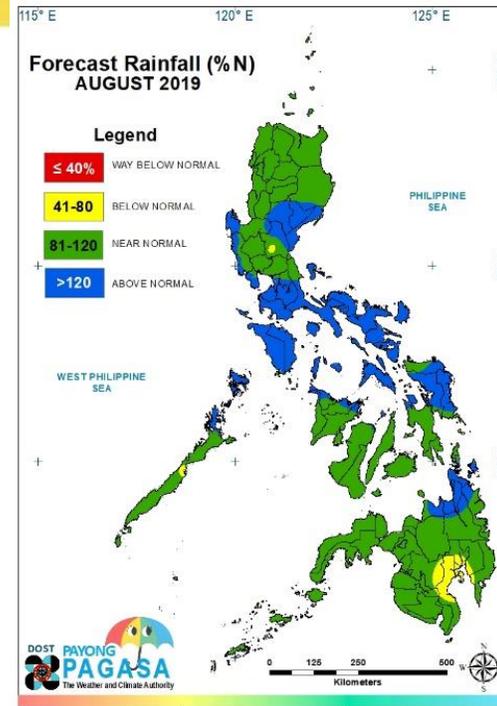
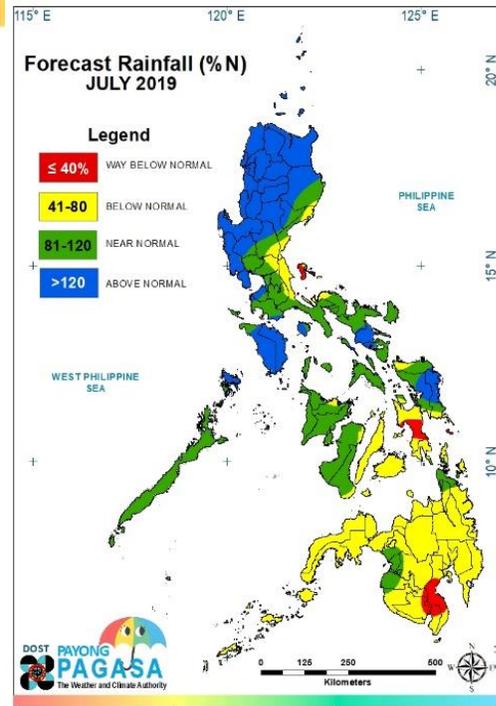
No. of provinces likely to experience:

way below normal	below normal	near normal	above normal
17	45	14	7

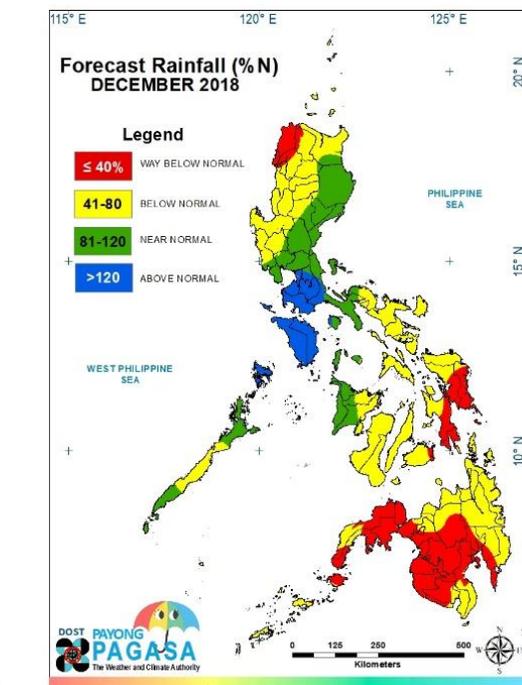
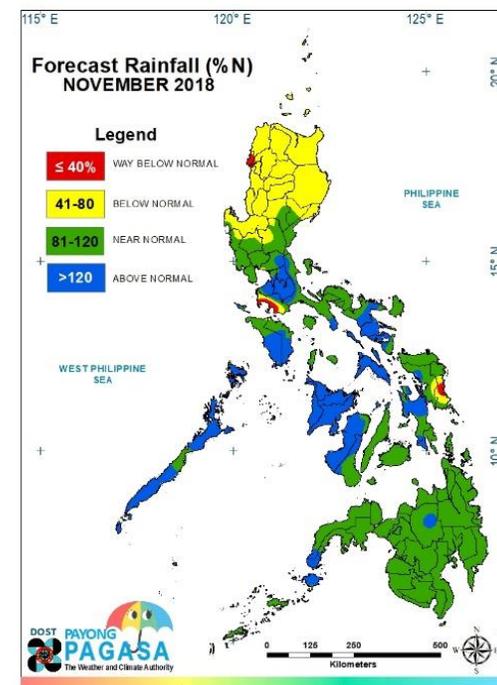
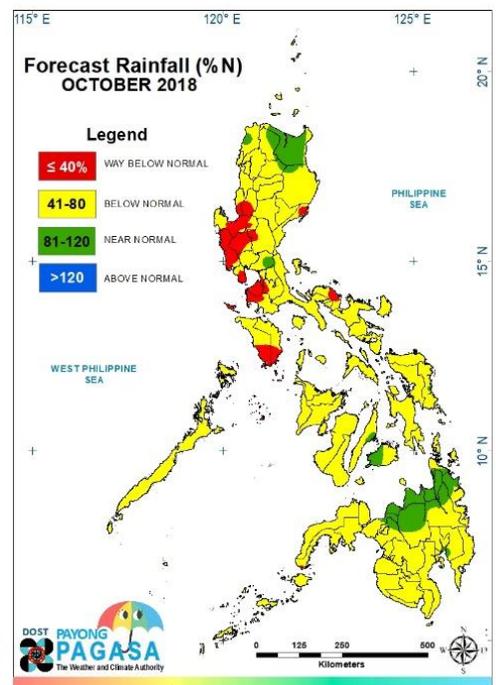
Monthly Rainfall Forecast

Legend

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



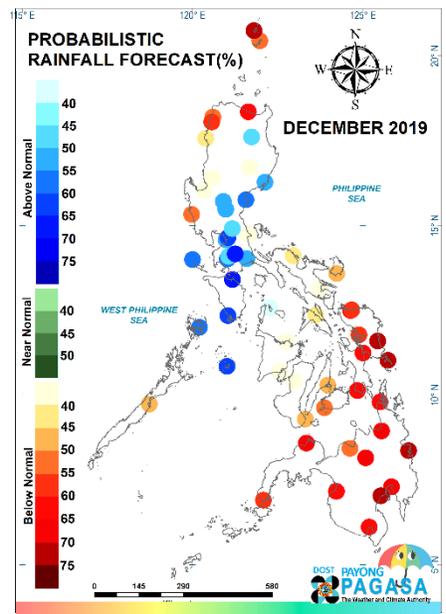
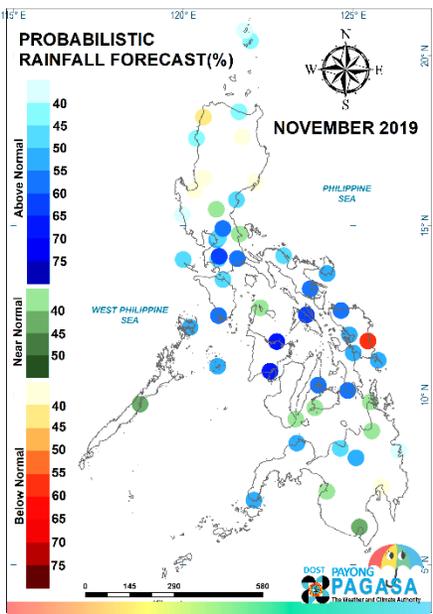
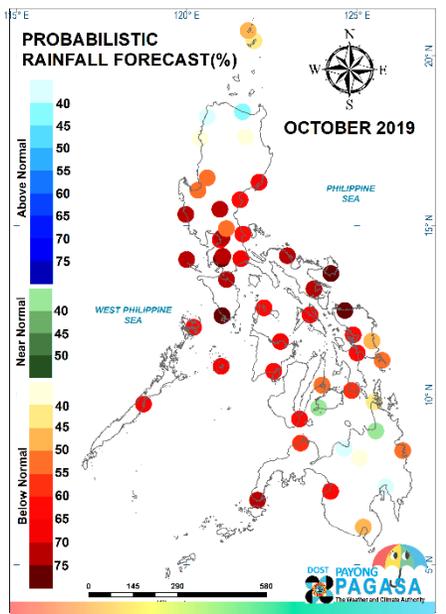
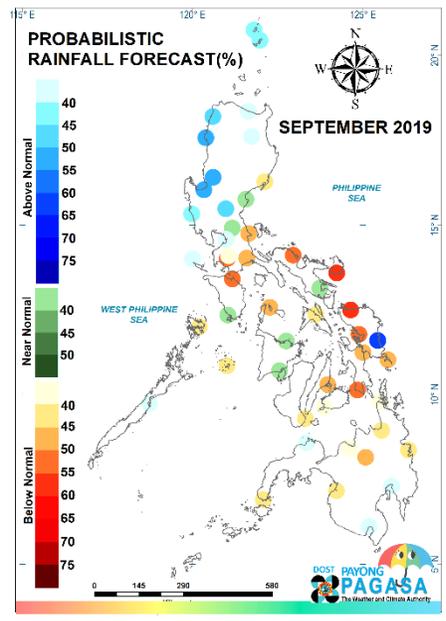
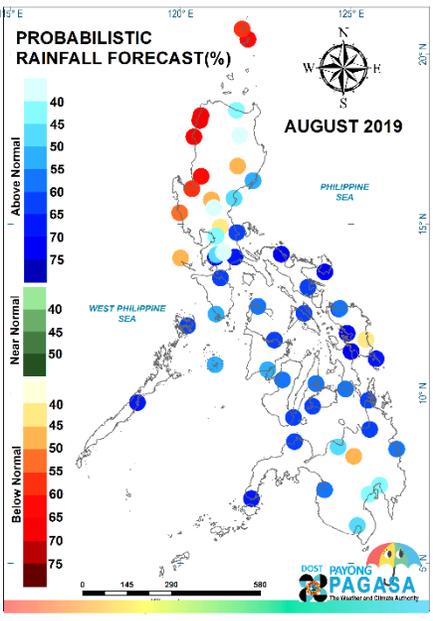
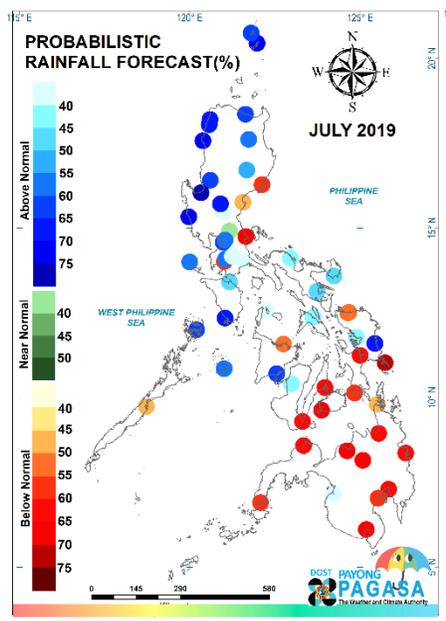
Rainfall Condition (based on recent conditions):
July – December 2019



PROBABILISTIC FORECAST

How certain or uncertain are we?

Forecasting rainfall in probabilistic terms is a way of expressing uncertainty in the future weather/climate.



L U Z O N

FORECAST RAINFALL in Percent of Normal (JULY - DECEMBER 2019) as of Jun 25, 2019						
PROVINCE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
CORDILLERA ADMINISTRATIVE REGION (CAR)						
ABRA	173.7	99.1	110.0	64.8	58.8	42.7
BENGUET	165.5	111.7	108.6	43.9	67.0	54.8
IFUGAO	157.4	109.1	96.4	62.6	72.1	69.9
KALINGA	164.2	93.6	96.2	72.8	71.9	67.9
APAYAO	165.7	93.5	105.9	80.4	67.2	46.3
MOUNTAIN PROVINCE	156.6	100.3	98.3	64.9	71.4	65.0
REGION I						
ILOCOS NORTE	178.8	91.1	114.3	76.6	51.9	25.9
ILOCOS SUR	155.0	106.1	111.0	60.0	56.6	44.2
LA UNION	149.6	110.8	110.2	45.2	65.0	46.8
PANGASINAN	163.0	119.9	110.4	40.9	65.9	53.8
REGION II						
BATANES	190.7	94.5	99.9	89.1	99.2	80.9
CAGAYAN	149.1	98.2	97.2	90.3	70.5	67.8
ISABELA	124.6	102.4	87.0	66.2	71.2	87.4
NUEVA VIZCAYA	163.1	132.8	100.8	52.9	78.0	78.4
QUIRINO	123.1	147.0	89.0	54.6	78.6	93.4
REGION III (CENTRAL LUZON)						
BATAAN	133.7	122.6	92.2	39.4	90.2	105.6
BULACAN	86.6	100.1	94.2	73.6	110.2	103.3
NUEVA ECIIJA	111.6	111.4	107.9	48.9	84.7	92.9
PAMPANGA	105.7	100.8	100.9	49.8	92.0	91.8
TARLAC	133.3	103.0	109.9	38.4	82.3	69.5
ZAMBALES	142.8	119.3	99.7	34.8	84.8	61.8
AURORA	79.5	151.0	89.1	53.6	83.9	103.3
NATIONAL CAPITAL REGION						
METRO MANILA	115.7	126.9	86.6	46.9	130.2	131.5
REGION IV-A (CALABARZON)						
BATANGAS	115.3	167.3	76.9	43.6	75.8	143.1
CAVITE	122.2	150.1	84.6	34.9	166.6	131.2
LAGUNA	95.6	151.4	80.0	43.7	207.4	141.9
RIZAL	92.1	121.2	83.7	61.8	143.9	124.6
QUEZON	79.8	148.9	74.6	51.6	111.9	105.1
REGION IV-B (MIMAROPA)						
MARINDUQUE	122.4	167.6	64.6	48.7	114.1	117.2
OCCIDENTAL MINDORO	134.1	145.2	80.4	43.8	126.9	151.8
ORIENTAL MINDORO	139.1	157.3	72.6	48.7	122.5	151.6
ROMBLON	101.1	132.5	66.6	47.7	108.8	94.3
PALAWAN	103.4	107.8	82.1	46.1	127.7	89.5
REGION V (BICOL)						
ALBAY	123.3	152.9	70.7	54.7	130.2	71.8
CAMARINES NORTE	83.2	144.8	70.0	42.8	100.6	75.2
CAMARINES SUR	104.8	148.8	67.3	47.6	115.6	71.5
CATANDUANES	104.0	156.8	53.5	48.2	107.9	59.7
MASBATE	109.1	148.9	80.9	50.6	124.1	65.5
SORSOGON	110.5	137.5	69.0	54.9	124.8	65.4

V I S A Y A S
M I N D A N A O

FORECAST RAINFALL in Percent of Normal (JULY - DECEMBER 2019) as of Jun 25, 2019						
PROVINCE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
REGION VI (WESTERN VISAYAS)						
AKLAN	88.6	120.3	76.5	49.4	138.7	91.6
ANTIQUE	104.8	106.0	82.6	51.6	135.7	96.3
CAPIZ	84.1	116.8	80.4	48.0	153.7	77.2
GUIMARAS	107.8	94.5	87.1	50.5	172.7	78.9
ILOILO	96.7	103.4	84.4	51.2	155.3	79.6
NEGROS OCCIDENTAL	94.1	111.3	79.0	58.4	126.2	67.0
REGION VII (CENTRAL VISAYAS)						
NEGROS ORIENTAL	89.2	102.2	79.1	58.8	115.0	60.2
BOHOL	49.5	95.6	72.5	79.6	105.5	44.0
CEBU	63.0	109.3	68.7	72.0	114.7	54.6
SIQUIJOR	63.5	87.0	88.4	61.0	102.8	48.7
REGION VIII (EASTERN VISAYAS)						
BILIRAN	79.7	133.6	43.6	62.9	121.3	47.0
EASTERN SAMAR	120.4	150.0	128.0	70.6	76.5	33.9
LEYTE	46.5	96.5	53.8	61.6	122.0	40.2
NORTHERN SAMAR	91.4	121.1	61.4	57.4	115.4	48.5
SAMAR (WESTERN SAMAR)	112.2	147.6	86.5	64.5	107.5	40.6
SOUTHERN LEYTE	61.4	95.3	60.0	71.1	115.7	35.4
REGION IX (ZAMBOANGA PENINSULA)						
ZAMBOANGA DEL NORTE	57.4	93.2	89.1	62.3	113.9	39.3
ZAMBOANGA DEL SUR	59.8	97.2	85.4	64.8	114.6	36.9
ZAMBOANGA SIBUGAY	61.4	95.4	82.7	69.6	112.9	39.0
REGION X (NORTHERN MINDANAO)						
BUKIDNON	65.5	103.0	80.9	84.9	110.4	40.1
CAMIGUIN	68.0	113.0	76.0	74.2	105.3	43.9
LANAO DEL NORTE	70.2	106.3	87.7	77.5	103.2	39.5
MISAMIS OCCIDENTAL	54.1	94.9	96.8	65.8	107.5	37.3
MISAMIS ORIENTAL	70.3	117.5	77.8	91.1	98.9	44.8
REGION XI (DAVAO REGION)						
COMPOSTELA VALLEY	64.8	84.5	82.3	76.7	100.0	41.0
DAVAO CITY	48.6	67.5	84.7	76.1	100.5	39.1
DAVAO DEL NORTE	58.9	80.1	82.9	77.2	101.1	39.5
DAVAO DEL SUR	35.4	72.4	87.6	71.1	100.4	39.8
DAVAO OCCIDENTAL	40.4	88.0	89.1	69.8	98.8	40.8
DAVAO ORIENTAL	64.4	87.1	83.1	75.2	100.7	41.2
REGION XII (SOCCSKSARGEN)						
SOUTH COTABATO	47.7	95.2	87.9	69.4	97.4	39.3
COTABATO	62.4	90.4	82.2	70.2	101.1	38.0
SARANGANI	44.3	95.2	89.4	69.0	96.2	40.6
SULTAN KUDARAT	65.3	101.4	82.8	70.1	101.4	37.8
REGION XIII- CARAGA						
AGUSAN DEL NORTE	74.1	134.3	67.7	86.0	104.4	44.4
AGUSAN DEL SUR	58.7	106.9	72.3	78.1	104.1	43.4
DINAGAT ISLANDS	66.3	106.3	67.4	78.1	96.8	45.1
SURIGAO DEL NORTE	87.0	135.0	76.4	78.9	94.7	49.3
SURIGAO DEL SUR	60.2	109.7	72.3	78.1	101.5	47.0
ARMM						
BASILAN	67.0	94.7	73.5	56.5	125.7	38.9
MAGUINDANAO	81.1	109.0	79.6	63.7	98.6	36.0
LANAO DEL SUR	78.8	109.0	83.6	74.4	100.7	39.3
SULU	72.4	95.7	81.8	63.0	113.7	46.5

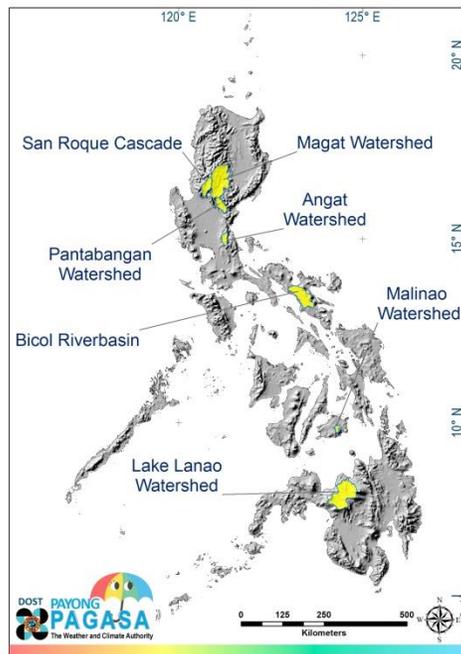
LUZON

PROVINCE	JULY			AUGUST			SEPTEMBER			OCTOBER			NOVEMBER			DECEMBER		
CORDILLERA ADMINISTRATIVE REGION (CAR)	MIN	MAX	MEAN	MIN	MAX	MEAN	MIN	MAX	MEAN	MIN	MAX	MEAN	MIN	MAX	MEAN	MIN	MAX	MEAN
ABRA	547.9	1026.9	780.0	382.1	702.8	547.8	344.7	480.4	421.5	97.3	197.5	148.0	18.4	177.0	105.0	24.0	73.6	47.6
BENGUET	1096.8	1335.0	1254.3	725.3	975.8	844.3	502.6	550.8	532.9	120.7	171.0	155.6	29.7	134.0	93.6	30.4	85.3	56.4
IFUGAO	339.1	1233.6	745.9	284.6	740.7	510.0	300.1	519.1	413.3	170.2	203.2	188.6	119.5	186.6	175.8	78.6	155.6	116.2
KALINGA	314.9	841.5	512.5	240.8	585.7	375.7	237.5	428.1	318.2	182.2	269.1	215.9	153.4	183.4	176.6	67.2	133.3	96.5
APAYAO	311.6	630.5	473.5	231.7	417.8	327.4	265.5	406.2	336.9	148.0	310.7	212.8	94.7	182.5	147.1	44.4	98.0	67.4
MOUNTAIN PROVINCE	355.3	1122.2	735.2	285.4	742.6	517.8	275.1	510.1	400.7	163.2	226.3	189.5	132.0	184.1	168.3	62.6	141.5	95.3
REGION I																		
ILOCOS NORTE	592.4	841.2	716.4	366.2	602.4	454.2	394.6	464.5	437.3	90.0	172.3	125.5	11.9	133.5	57.5	14.1	56.7	33.2
ILOCOS SUR	809.1	1331.5	1057.1	544.1	888.1	726.5	452.4	549.4	488.9	83.7	170.4	141.0	10.8	135.2	89.8	19.6	66.2	42.7
LA UNION	1040.3	1326.6	1215.2	811.0	932.7	878.1	506.9	550.0	532.8	109.7	170.0	148.5	22.8	129.0	89.0	25.1	48.2	37.3
PANGASINAN	635.9	1101.7	861.3	543.1	880.5	747.5	427.0	515.2	464.5	79.8	149.7	110.5	18.4	165.7	92.3	19.4	99.3	35.6
REGION II																		
BATANES	397.0	515.0	459.7	303.6	389.4	344.4	349.8	352.6	350.6	213.7	287.8	255.4	194.1	288.0	254.6	84.3	114.2	101.9
CAGAYAN	251.1	599.1	324.2	187.6	372.2	258.0	217.4	402.6	262.2	165.8	371.2	260.8	119.7	196.8	172.0	51.5	162.1	109.7
ISABELA	161.8	609.0	264.5	218.5	437.1	254.8	221.1	388.2	264.9	182.7	272.9	205.3	167.0	307.0	202.7	129.4	369.5	212.2
NUEVA VIZCAYA	354.0	1241.7	845.5	343.8	782.7	537.3	296.5	521.2	426.2	146.8	238.4	178.7	95.2	331.3	188.4	65.1	310.7	155.3
QUIRINO	164.2	728.7	388.9	248.1	468.9	345.0	247.9	385.2	306.9	168.4	238.9	196.2	185.4	332.8	257.7	165.1	386.9	280.9
REGION III (CENTRAL LUZON)																		
BATAAN	614.3	935.3	787.7	607.2	833.3	732.2	332.7	447.0	399.9	111.0	149.6	134.9	286.7	372.9	335.4	82.1	186.8	119.7
BULACAN	187.0	706.5	399.9	312.9	678.2	466.8	303.0	414.0	357.9	133.3	297.1	207.3	165.3	405.4	276.7	97.5	266.5	151.9
NUEVA ECIJA	165.1	952.3	449.4	265.0	653.9	402.3	301.7	467.7	383.4	80.3	218.1	136.4	71.0	319.0	157.3	41.4	265.5	127.6
PAMPANGA	384.8	948.3	680.6	419.1	852.9	654.3	385.2	472.9	432.4	122.5	185.7	147.5	153.6	358.1	247.9	45.9	117.6	83.9
TARLAC	518.6	1091.5	780.3	487.9	968.0	721.7	422.1	482.4	456.7	87.5	134.3	108.4	89.0	200.0	150.8	28.0	67.6	39.4
ZAMBALES	858.6	1247.0	1052.1	786.5	1122.5	926.5	427.5	488.3	471.7	56.8	147.1	103.6	50.6	315.9	142.1	21.0	97.4	49.2
AURORA	148.2	359.5	218.2	253.3	355.4	299.3	227.2	327.8	270.7	171.1	278.8	208.4	247.8	406.3	328.3	235.8	474.3	354.3
NATIONAL CAPITAL REGION																		
METRO MANILA	453.9	575.4	512.7	510.4	622.2	567.6	279.4	360.0	322.9	77.5	214.3	129.0	0.0	259.7	115.7	121.9	246.6	170.6
REGION IV-A (CALABARZON)																		
BATANGAS	274.0	513.8	319.5	240.6	539.6	345.7	159.0	298.6	203.9	87.6	206.5	175.3	0.0	1163.1	729.1	230.1	467.2	393.5
CAVITE	368.7	549.0	462.2	388.3	555.8	496.3	233.8	321.8	274.2	76.8	142.3	103.4	0.0	727.4	252.1	175.4	368.6	267.9
LAGUNA	192.6	499.9	331.7	305.4	534.3	394.9	194.0	301.4	238.6	80.8	273.8	165.3	0.0	545.1	162.9	205.5	430.6	357.5
RIZAL	272.6	493.8	388.8	339.1	567.7	444.8	242.3	332.7	290.4	125.4	297.9	221.5	0.0	414.8	191.3	170.0	384.2	272.3
QUEZON	7.4	317.3	209.6	140.4	382.2	280.5	106.1	310.0	208.1	163.7	367.1	226.5	287.6	684.6	512.1	150.6	499.1	387.5
REGION IV-B (MIMAROPA)																		
MARINDUQUE	296.5	371.2	330.7	297.8	341.4	317.9	174.6	187.2	178.6	174.4	193.4	186.4	387.9	478.4	444.1	312.7	363.9	335.3
OCCIDENTAL MINDORO	298.1	603.9	480.4	355.9	563.5	456.6	183.2	396.0	279.1	69.4	198.9	142.9	154.5	527.9	278.7	118.9	362.0	237.0
ORIENTAL MINDORO	293.8	564.8	449.5	347.5	521.2	417.9	164.7	362.9	235.7	90.7	204.3	157.5	194.5	578.8	263.5	132.3	397.4	274.2
ROMBLON	213.8	416.3	279.3	259.1	370.9	298.5	157.6	229.3	181.1	145.2	175.5	156.0	238.6	417.4	306.9	160.0	281.8	192.3
PALAWAN	143.1	604.0	318.5	139.3	596.2	330.4	158.0	403.3	223.2	99.8	145.7	122.3	145.2	282.3	234.8	67.0	145.6	100.6
REGION V (BICOL)																		
ALBAY	235.9	334.6	320.6	245.6	336.9	321.9	131.9	208.2	189.5	169.3	195.9	188.5	495.1	659.0	589.4	287.1	350.7	323.7
CAMARINES NORTE	143.3	238.1	192.0	213.7	260.2	231.1	177.5	186.9	181.7	169.9	208.6	185.5	473.1	519.9	500.3	311.9	403.3	343.4
CAMARINES SUR	207.7	322.3	266.9	238.6	322.4	281.7	140.0	198.9	180.0	176.8	196.0	184.4	453.5	571.1	487.4	291.3	353.5	316.3
CATANDUANES	234.2	278.3	251.2	245.6	276.6	259.6	114.4	140.5	126.9	179.0	195.5	185.3	448.1	489.9	469.7	263.4	290.5	279.3
MASBATE	199.2	319.4	254.9	254.0	323.5	278.2	123.8	210.2	180.4	107.2	182.8	141.8	319.3	467.6	362.3	139.8	287.2	199.3
SORSOGON	200.2	331.6	262.9	236.3	328.8	275.2	136.4	207.6	169.9	151.5	187.2	173.2	397.7	634.1	509.7	247.7	327.8	288.2

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PROVINCE	JULY			AUGUST			SEPTEMBER			OCTOBER			NOVEMBER			DECEMBER		
REGION VI (WESTERN VISAYAS)	MIN	MAX	MEAN	MIN	MAX	MEAN	MIN	MAX	MEAN	MIN	MAX	MEAN	MIN	MAX	MEAN	MIN	MAX	MEAN
AKLAN	203.5	357.7	252.8	260.5	361.0	292.1	180.0	242.3	200.3	132.8	150.0	140.4	275.3	390.2	326.7	110.1	157.7	130.8
ANTIQUE	261.2	526.2	328.4	294.9	481.1	328.2	198.1	345.0	238.7	110.9	150.1	135.9	244.6	344.0	276.7	89.9	150.3	108.4
CAPIZ	195.9	288.8	234.3	258.3	313.6	285.0	174.1	229.4	198.3	129.2	138.5	134.3	276.6	405.6	354.8	105.8	129.7	113.6
GUIMARAS	376.5	421.8	402.0	344.4	383.1	362.1	231.5	249.6	245.0	131.5	139.0	135.5	290.1	314.5	305.4	86.0	91.1	88.0
ILOILO	209.3	380.8	307.5	265.8	352.6	317.2	170.1	256.3	226.5	127.9	160.1	136.2	249.1	373.7	312.3	88.9	143.1	101.8
NEGROS OCCIDENTAL	221.6	426.6	343.7	230.0	426.7	332.7	151.1	227.3	184.0	127.7	156.9	139.3	224.9	343.4	278.0	69.0	108.2	87.6
REGION VII (CENTRAL VISAYAS)																		
NEGROS ORIENTAL	95.1	390.5	216.4	103.6	384.7	216.4	117.4	188.2	142.3	74.7	148.7	125.7	136.4	295.3	223.4	65.2	89.0	76.6
BOHOL	57.8	114.9	71.7	94.4	165.2	129.0	107.8	135.8	117.6	134.3	168.1	160.1	157.3	267.9	218.8	71.5	96.7	81.1
CEBU	33.2	231.9	151.4	119.6	268.7	198.5	92.2	157.4	123.5	92.1	172.2	154.9	140.3	359.8	244.6	72.2	150.4	90.8
SIQUIJOR	66.6	77.4	70.4	97.2	103.8	100.0	120.2	138.7	130.1	100.5	132.7	118.5	161.4	217.0	189.8	70.3	71.3	70.7
REGION VIII (EASTERN VISAYAS)																		
BILIRAN	178.1	230.7	207.1	243.6	274.1	259.4	99.6	114.9	105.5	164.8	180.3	173.3	363.5	412.4	393.8	147.4	174.4	157.0
EASTERN SAMAR	41.9	423.7	298.0	120.8	298.7	238.9	113.3	317.2	249.3	164.1	285.5	217.2	114.3	426.7	285.0	129.0	207.9	154.8
LEYTE	13.6	207.7	73.5	135.2	250.2	169.1	90.7	172.9	106.8	121.4	170.1	146.9	248.0	425.9	355.7	84.7	154.0	131.0
NORTHERN SAMAR	147.0	346.9	213.5	161.5	264.2	213.9	103.2	234.6	135.1	151.2	188.2	178.6	386.7	610.2	510.8	193.3	276.4	236.4
SAMAR (WESTERN SAMAR)	79.0	410.4	287.4	145.9	342.6	264.9	105.2	284.0	183.4	129.7	251.0	195.7	178.0	547.5	389.9	136.9	242.5	172.1
SOUTHERN LEYTE	29.7	155.2	95.2	140.4	183.9	161.9	101.9	134.4	117.0	130.8	175.2	154.4	247.9	362.0	273.4	83.0	212.2	131.3
REGION IX (ZAMBOANGA PENINSULA)																		
ZAMBOANGA DEL NORTE	85.7	199.0	141.7	129.8	235.4	190.1	121.6	205.8	177.4	98.1	151.9	141.5	178.4	404.2	258.1	37.4	70.2	55.2
ZAMBOANGA DEL SUR	104.3	194.9	146.1	136.3	214.1	187.6	112.5	204.9	164.1	65.4	151.9	132.4	172.3	305.1	200.9	30.7	59.2	49.5
ZAMBOANGA SIBUGAY	125.8	164.8	148.1	167.5	204.4	189.5	129.6	178.0	156.5	130.5	144.6	143.5	188.2	208.3	197.9	43.7	56.0	49.5
REGION X (NORTHERN MINDANAO)																		
BUKIDNON	148.4	250.6	203.6	220.0	310.1	268.5	161.3	229.0	211.8	156.7	284.3	212.6	123.9	231.8	211.3	59.6	95.8	67.8
CAMIGUIN	108.5	122.7	114.7	156.5	169.6	162.5	126.0	132.5	129.3	163.5	170.8	165.3	234.3	281.3	261.4	99.8	111.2	105.0
LANAO DEL NORTE	167.2	241.5	194.1	204.8	258.6	227.7	183.4	210.1	193.2	143.6	200.3	156.9	144.1	235.5	197.3	51.8	67.6	59.0
MISAMIS OCCIDENTAL	101.7	170.3	139.2	150.9	210.4	186.5	184.1	201.7	193.9	143.0	153.8	149.7	198.9	358.2	269.2	55.5	69.8	61.7
MISAMIS ORIENTAL	117.2	199.3	149.9	166.0	249.7	206.0	109.5	206.7	164.0	165.1	221.7	184.9	123.7	241.1	187.6	64.1	129.3	85.1
REGION XI (DAVAO REGION)																		
COMPOSTELA VALLEY	91.7	145.8	113.1	121.7	207.9	156.5	137.5	186.5	157.3	144.0	173.4	152.7	136.0	301.8	198.3	63.1	161.5	104.8
DAVAO CITY	93.5	180.6	130.6	129.0	232.4	173.2	137.4	200.2	163.8	146.4	164.7	153.0	145.5	223.5	203.2	59.1	73.1	62.7
DAVAO DEL NORTE	81.0	186.3	135.1	114.7	249.7	184.7	130.2	209.9	176.0	145.1	202.7	156.9	138.5	230.6	192.9	61.0	118.8	80.8
DAVAO DEL SUR	52.1	118.8	83.9	101.2	153.6	125.5	104.2	141.2	122.1	108.7	154.9	138.9	141.7	222.1	200.7	51.6	60.4	56.5
DAVAO OCCIDENTAL	46.4	91.2	56.4	97.1	139.2	108.6	100.8	121.4	106.3	97.8	149.7	125.4	115.9	220.5	178.9	50.7	79.4	62.1
DAVAO ORIENTAL	87.7	115.1	105.1	119.6	168.9	142.1	128.7	161.4	143.8	148.8	175.0	158.0	166.4	315.8	229.6	71.1	173.9	107.3
REGION XII (SOCCSKSARGEN)																		
SOUTH COTABATO	43.0	168.9	90.4	85.6	180.6	130.1	96.6	141.0	113.6	60.6	150.0	118.3	67.8	222.4	162.2	41.6	53.6	48.0
COTABATO	108.7	292.5	211.2	144.6	283.7	229.3	128.9	215.6	178.4	143.6	168.9	152.7	207.0	228.7	221.3	49.3	67.0	57.0
SARANGANI	42.3	134.0	60.2	87.6	163.6	110.7	96.6	131.9	104.6	69.0	150.0	111.1	70.7	221.4	146.3	42.5	71.7	54.7
SULTAN KUDARAT	71.0	247.1	173.6	115.3	232.0	185.3	111.1	165.4	143.2	123.2	151.6	147.6	175.7	222.9	216.9	47.1	55.6	51.9
REGION XIII- CARAGA																		
AGUSAN DEL NORTE	99.1	141.6	114.6	145.4	207.1	162.3	94.4	147.5	109.8	164.8	184.1	169.7	210.0	317.3	233.5	100.5	210.0	144.6
AGUSAN DEL SUR	95.2	180.1	124.8	145.3	255.5	190.4	95.4	210.5	153.6	158.8	221.5	176.8	217.0	411.0	262.1	83.5	227.5	141.0
DINAGAT ISLANDS	56.7	151.6	114.5	133.3	180.7	164.3	107.5	131.9	124.0	181.7	190.1	187.1	298.5	390.1	334.0	178.1	255.9	215.6
SURIGAO DEL NORTE	123.2	159.4	145.8	154.9	184.6	173.5	108.4	138.2	125.9	178.3	189.8	184.5	262.5	408.8	333.6	195.1	278.9	228.1
SURIGAO DEL SUR	94.4	133.3	103.7	145.1	170.2	154.3	100.3	158.3	125.6	170.6	190.6	179.1	240.0	415.2	298.4	163.4	239.0	193.2
ARMM																		
BASILAN	106.5	131.7	114.4	145.0	169.2	155.1	113.6	139.7	119.6	87.9	138.4	112.7	175.9	196.7	185.1	34.1	42.7	37.8
MAGUINDANAO	123.7	297.0	257.1	153.6	293.9	248.9	130.6	206.1	174.0	142.5	155.2	152.1	205.4	221.4	213.7	48.3	60.9	50.7
LANAO DEL SUR	188.8	290.1	244.4	230.4	284.6	264.7	185.6	220.9	204.1	145.6	185.9	159.6	175.4	228.4	216.0	51.8	67.5	60.1
SULU	136.2	214.4	181.0	173.6	231.2	206.7	131.2	170.1	162.9	134.3	144.6	135.4	193.5	199.1	194.5	42.4	53.5	47.7
TAWI-TAWI	209.5	291.4	215.8	226.9	300.1	232.5	170.1	213.3	173.4	121.2	134.3	133.5	193.5	224.5	195.5	52.9	66.9	54.4

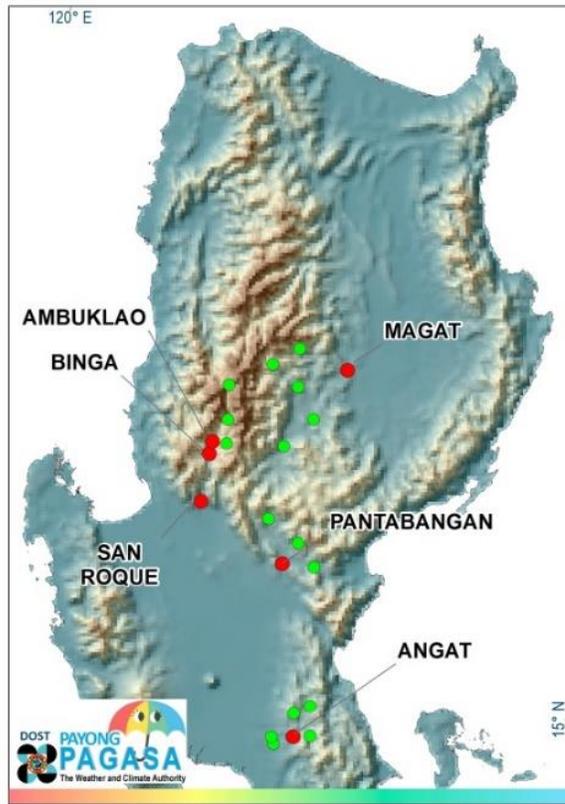


LEGEND:

- < or =40% way below normal
- 41-80 below normal
- 81 - 120 near normal
- >120 above normal

FORECAST WATERSHED RAINFALL for selected Dams and Lakes in (mm) and (%N)

FORECAST WATERSHED RAINFALL (JULY - DECEMBER 2019)								
	NAME	Angat Watershed	Lake Buhi	Lake Lanao	Magat Watershed	Malinao Watershed	Pantabangan Watershed	San Roque Cascade WS
JULY	MIN	185.1	250.0	166.9	472.9	62.5	325.4	1051.0
	MAX	358.5	334.2	272.2	1246.0	79.3	882.7	1316.9
	MEAN	279.9	300.8	220.0	908.6	68.3	586.0	1239.5
	%NORMAL	70.3	115.3	74.5	165.7	48.0	142.8	173.9
AUGUST	MIN	314.6	268.2	213.4	361.3	120.9	328.1	739.3
	MAX	440.2	336.1	289.3	750.7	144.2	568.2	964.8
	MEAN	378.6	307.1	259.1	574.0	130.2	437.6	826.4
	%NORMAL	99.2	151.0	109.2	119.7	96.2	142.3	114.2
SEPTEMBER	MIN	305.1	181.2	187.4	351.5	116.8	323.1	498.8
	MAX	348.7	206.8	226.7	522.1	122.0	442.1	546.8
	MEAN	329.7	190.5	207.1	447.2	119.7	378.9	528.2
	%NORMAL	91.6	70.2	84.4	100.1	71.3	104.9	108.8
OCTOBER	MIN	215.9	180.7	145.7	151.7	156.8	142.6	132.6
	MAX	294.2	196.0	240.6	192.3	162.9	209.4	170.3
	MEAN	260.9	186.3	181.0	179.0	160.7	175.7	152.7
	%NORMAL	87.1	51.0	86.0	56.3	77.2	52.3	41.2
NOVEMBER	MIN	276.4	475.0	123.9	116.7	224.3	169.8	52.2
	MAX	397.4	650.3	225.5	205.5	255.7	287.7	134.7
	MEAN	328.0	523.3	191.9	171.0	242.1	217.0	91.1
	%NORMAL	127.9	124.2	99.7	73.6	110.3	85.1	67.4
DECEMBER	MIN	156.7	307.0	54.0	78.8	80.8	125.3	36.0
	MAX	258.1	340.5	69.3	197.7	86.0	248.9	86.4
	MEAN	199.4	318.4	63.2	122.1	83.3	178.4	62.7
	%NORMAL	98.7	72.7	41.9	71.1	42.4	90.4	58.0



LEGEND:

	< or =40%	way below normal
	41-80	below normal
	81 - 120	near normal
	>120	above normal

FORECAST RAINFALL OF RAIN STATIONS OVER SELECTED DAM AREAS in (mm) and (%N) FOR JULY - DECEMBER 2019

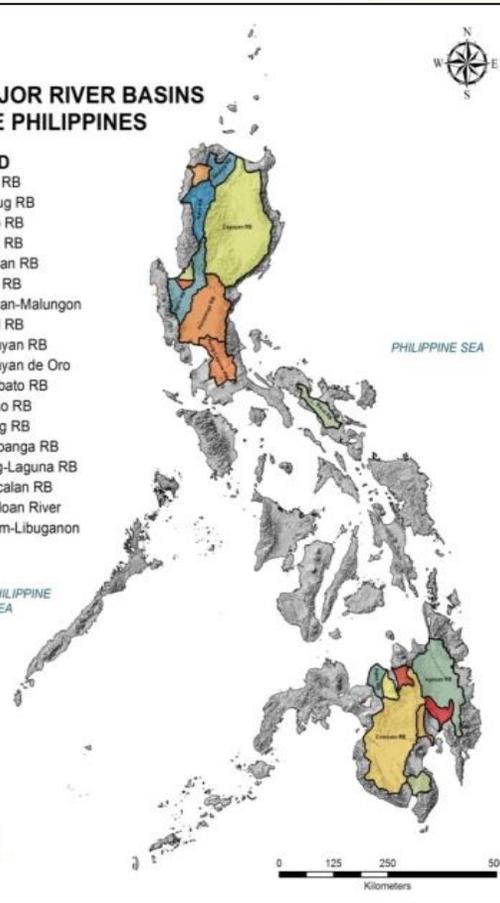
SITES	MM	%NORMAL	MM	%NORMAL	MM	%NORMAL	MM	%NORMAL	MM	%NORMAL	MM	%NORMAL
AMBUKLAODAM	1285.4	173.1	864.4	112.8	538.0	108.8	150.6	39.4	84.7	68.0	59.0	56.3
ANGATDAM	364.9	83.4	445.9	98.9	339.5	90.6	270.8	96.5	283.9	125.2	156.0	97.8
APUNAN	1286.3	168.0	798.8	113.5	533.6	106.5	168.1	49.3	107.7	69.1	72.8	58.7
BADAYAN	1256.0	159.1	764.4	110.8	523.8	105.2	170.5	55.0	125.8	70.0	73.6	57.8
BINGADAM	1258.3	175.8	871.6	113.1	534.6	109.7	147.4	37.7	76.9	66.3	55.0	56.0
BOBOK	1260.4	175.8	807.6	115.3	528.4	107.8	151.5	42.2	95.1	69.5	71.5	59.8
BUNGA	803.3	168.8	536.3	134.2	427.4	107.5	164.8	49.2	178.6	78.6	136.3	82.1
BUYOC	787.9	159.7	534.2	114.6	432.1	97.0	189.8	62.9	181.3	72.3	121.7	70.4
DANTOR	708.4	157.5	501.5	106.0	405.6	96.3	190.5	63.9	183.7	72.4	110.1	68.6
DUMAYUP	730.4	160.6	488.1	123.3	414.0	95.8	189.9	63.0	183.4	72.4	150.6	76.1
HALONG	911.9	157.7	610.6	109.3	459.1	100.1	189.3	62.2	179.2	72.2	96.9	64.3
IPODAM	442.5	94.6	511.4	101.8	356.4	91.7	225.9	81.1	248.8	112.6	137.3	106.0
MAGATDAM	459.7	150.3	354.3	109.4	347.1	90.8	190.5	63.9	185.7	72.4	145.7	77.2
MAPUTI	234.8	63.5	348.7	98.9	330.8	93.3	248.3	83.1	337.5	127.1	208.6	98.0
MARIKIT	383.8	113.9	352.4	152.6	332.5	101.6	193.0	55.3	269.2	92.7	231.0	97.8
MATULID	303.8	74.3	390.8	101.4	320.8	88.7	282.3	89.9	341.2	129.7	211.2	100.3
NORZAGARAY	431.7	91.8	499.7	98.9	362.5	93.1	223.4	82.0	253.8	114.8	133.0	103.2
PADALIS	550.4	140.6	416.5	146.6	367.7	103.6	183.5	54.9	223.5	84.4	193.9	92.1
PANTABANGAN DAM	502.4	131.4	412.0	134.5	375.0	107.9	154.4	47.5	206.7	84.2	153.8	93.2
SANROQUEDAM	1051.5	180.4	749.1	117.6	499.5	113.1	133.1	38.7	75.7	62.0	52.1	60.7
STODOMINGO	998.8	173.2	578.5	126.1	460.3	101.0	167.2	52.1	166.3	73.0	132.5	73.2
TALAGUIO	302.7	72.8	397.5	95.1	343.6	94.4	238.4	86.5	292.0	127.1	166.9	97.4
UMIRAY	405.9	85.5	472.5	93.0	376.1	96.8	201.9	77.9	249.8	116.4	127.5	99.7

**18 MAJOR RIVER BASINS
IN THE PHILIPPINES**

LEGEND

- Abra RB
- Abulug RB
- Agno RB
- Agus RB
- Agusan RB
- Bicol RB
- Buayan-Malungon
- Bued RB
- Cagayan RB
- Cagayan de Oro
- Cotabato RB
- Davao RB
- Laoag RB
- Pampanga RB
- Pasig-Laguna RB
- Sinocalan RB
- Tagoloan River
- Tagum-Libuganon

WEST PHILIPPINE
SEA



LEGEND:

- < or =40% way below normal
- 41-80 below normal
- 81 - 120 near normal
- >120 above normal

FORECAST RAINFALL OVER SELECTED RIVER BASINS in millimeter and percent of normal (%N) JULY - SEPTEMBER 2019

CATCHMENT	JULY 2019				AUGUST 2019				SEPTEMBER 2019			
	MIN	MAX	MEAN	%Normal	MIN	MAX	MEAN	%Normal	MIN	MAX	MEAN	%Normal
LUZON												
Abra RB	560.1	1302.4	852.8	168.9	392.3	806.2	590.1	100.8	350.0	536.1	439.2	109.4
Abulug RB	295.5	617.4	460.1	163.6	212.6	409.2	318.0	93.5	273.4	407.7	337.2	106.7
Agno RB	635.8	1319.6	937.5	159.0	544.4	973.7	752.8	113.3	427.9	546.8	478.4	110.4
Bicol RB	209.4	334.0	286.9	111.0	240.3	335.9	297.2	149.5	182.0	205.5	189.4	70.0
Bued RB	894.6	1253.4	1031.0	175.2	695.2	972.8	778.8	115.7	479.0	541.1	502.0	113.2
Cagayan RB	161.8	1246.0	459.3	145.2	187.6	756.9	348.7	109.8	217.4	522.1	314.0	93.0
Laoag RB	564.3	797.5	698.7	182.7	372.5	546.1	452.9	92.1	382.1	463.7	427.9	114.0
Pampanga RB	166.4	966.1	506.5	105.1	265.0	861.2	484.7	106.4	289.9	473.2	393.7	104.0
Pasig-Laguna RB	238.7	651.9	408.7	102.2	323.3	643.3	465.5	136.6	197.4	408.5	280.7	83.6
Sinocalan RB	798.0	942.3	862.8	170.4	675.6	725.4	702.2	116.6	462.9	482.3	473.0	114.1
MINDANAO												
Agus RB	144.7	237.3	182.9	71.1	191.1	274.6	229.0	108.6	174.0	216.9	195.7	86.0
Agusan RB	96.3	181.1	123.9	61.1	131.3	255.1	185.7	106.3	94.7	211.0	152.3	73.3
Buayan-Malungon	42.3	71.3	50.4	35.3	85.6	115.9	99.2	85.0	96.6	109.9	102.1	90.1
Cagayan de Oro	168.0	235.5	211.1	71.0	217.3	294.7	266.9	109.6	186.2	228.5	214.5	83.3
Cotabato RB	65.2	297.0	202.3	64.7	112.4	310.1	230.5	97.6	103.9	229.0	177.8	82.2
Davao RB	94.8	187.7	153.1	53.4	129.8	248.2	202.5	75.6	140.7	212.0	183.3	83.8
Tagoloan River	157.0	220.7	184.8	67.6	220.1	298.8	262.1	113.4	169.7	225.8	199.8	78.3
Tagum-Libuganon	108.4	173.0	135.1	62.1	142.8	241.6	187.4	84.3	154.1	205.9	177.6	82.0



**18 MAJOR RIVER BASINS
IN THE PHILIPPINES**

LEGEND

- Abra RB
- Abulug RB
- Agno RB
- Agus RB
- Agusan RB
- Bicol RB
- Buayan-Malungon
- Bued RB
- Cagayan RB
- Cagayan de Oro
- Cotabato RB
- Davao RB
- Laoag RB
- Pampanga RB
- Pasig-Laguna RB
- Sinocalan RB
- Tagoloan River
- Tagum-Libuganon

WEST PHILIPPINE
SEA

PHILIPPINE SEA



FORECAST RAINFALL OVER SELECTED RIVER BASINS in millimeter and percent of normal (%N) OCTOBER - DECEMBER 2019

CATCHMENT	OCTOBER 2019				NOVEMBER 2019				DECEMBER 2019			
	MIN	MAX	MEAN	%Normal	MIN	MAX	MEAN	%Normal	MIN	MAX	MEAN	%Normal
LUZON												
Abra RB	89.2	195.0	150.9	63.5	12.7	176.0	109.0	60.5	21.7	76.2	50.4	44.8
Abulug RB	149.7	337.4	221.8	83.6	92.8	188.2	148.3	66.3	44.4	82.4	65.8	44.4
Agno RB	84.4	170.9	119.8	39.8	35.0	194.5	115.9	72.1	20.8	101.3	47.0	61.7
Bicol RB	175.3	192.1	185.0	49.1	475.9	648.0	517.2	119.8	310.0	339.3	318.8	72.2
Bued RB	81.0	144.6	115.4	36.5	18.4	80.2	40.5	54.2	20.2	48.8	34.7	53.3
Cagayan RB	151.7	371.2	212.7	68.8	116.1	346.3	194.7	72.9	64.9	418.9	163.1	78.5
Laoag RB	90.0	168.7	126.4	76.4	12.3	116.0	59.7	52.3	17.6	53.1	33.1	26.6
Pampanga RB	80.3	294.0	151.7	53.1	71.0	396.9	202.7	91.8	40.2	296.6	119.4	93.0
Pasig-Laguna RB	78.6	289.4	163.8	50.2	0.0	588.9	143.3	176.5	98.5	427.4	274.4	133.8
Sinocalan RB	79.8	123.1	97.8	38.6	23.4	91.5	55.6	55.2	19.8	51.6	30.3	54.9
MINDANAO												
Agus RB	169.7	205.4	183.7	94.7	123.9	210.4	165.5	94.4	62.2	74.3	66.4	44.7
Agusan RB	148.6	222.2	172.2	78.9	164.3	379.2	244.2	103.9	82.5	202.5	130.8	42.8
Buayan-Malungon	60.6	130.6	103.7	68.6	67.8	190.7	132.0	95.0	43.3	60.3	52.8	40.4
Cagayan de Oro	186.0	238.3	212.8	95.1	123.7	220.1	173.2	102.8	60.6	70.8	62.9	43.0
Cotabato RB	101.3	284.3	164.9	72.1	123.9	231.8	217.1	103.6	43.9	89.8	57.0	38.1
Davao RB	148.9	190.5	160.6	76.1	167.2	228.0	210.6	102.0	60.2	82.7	66.9	38.8
Tagoloan River	202.5	272.8	236.5	93.2	142.1	227.4	192.5	112.4	60.8	86.8	72.1	41.9
Tagum-Libuganon	145.5	194.8	157.4	76.7	140.3	245.2	201.8	101.2	63.7	136.7	94.4	40.2

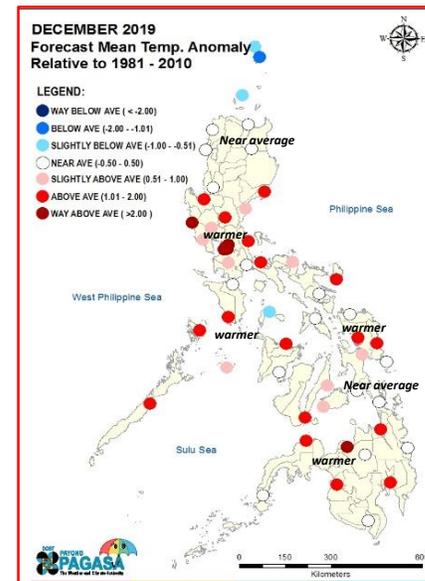
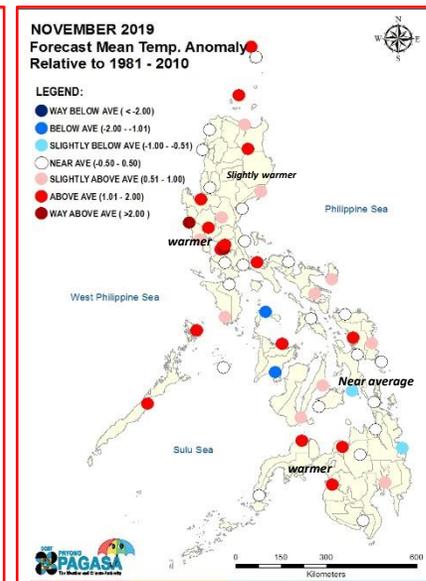
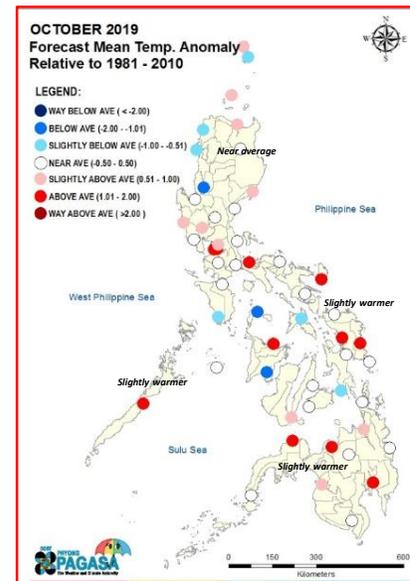
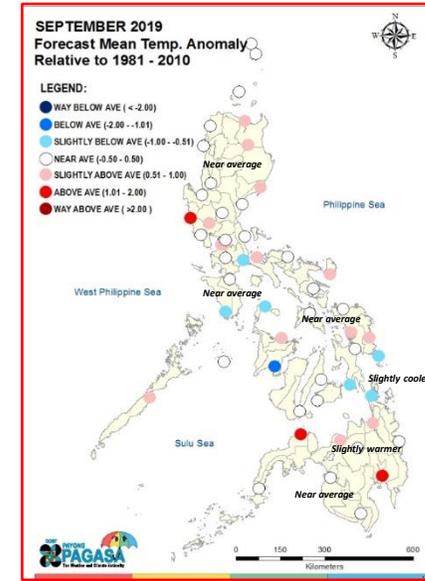
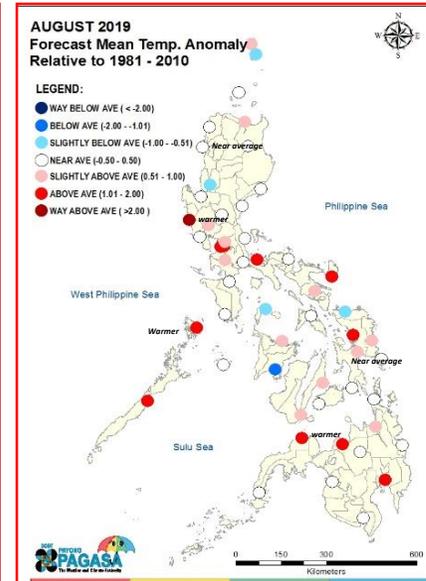
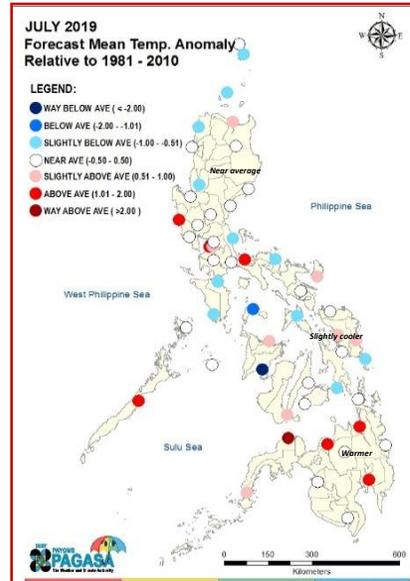
LEGEND:

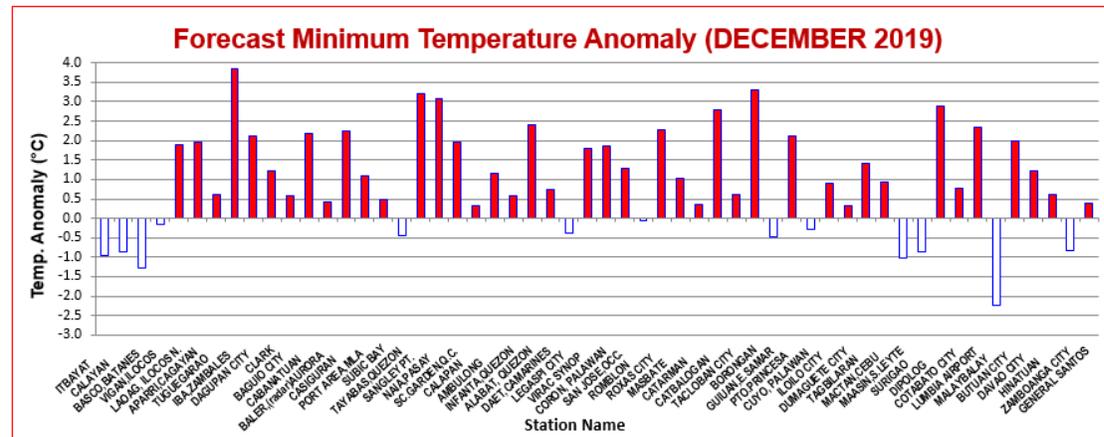
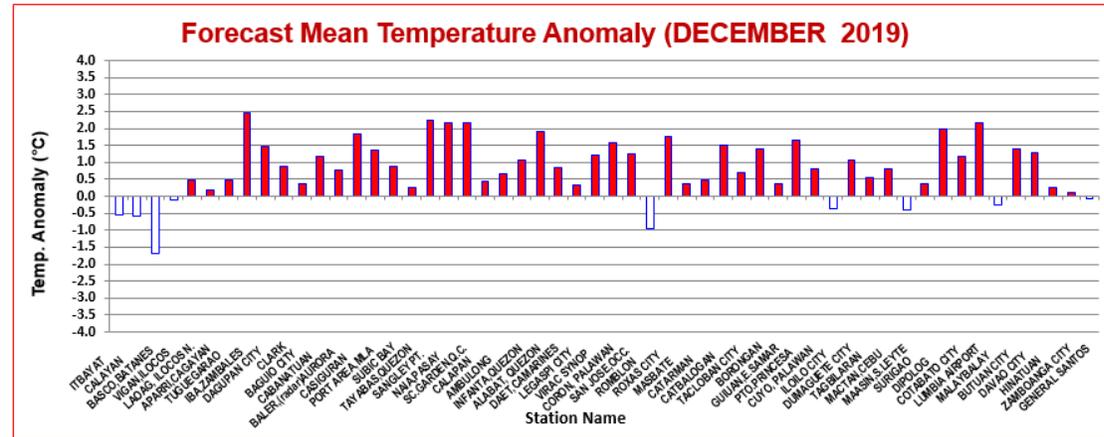
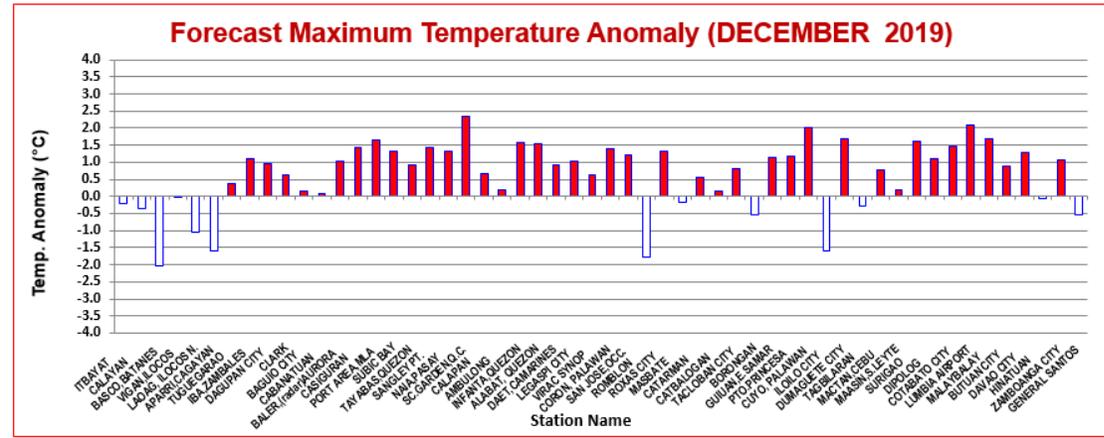
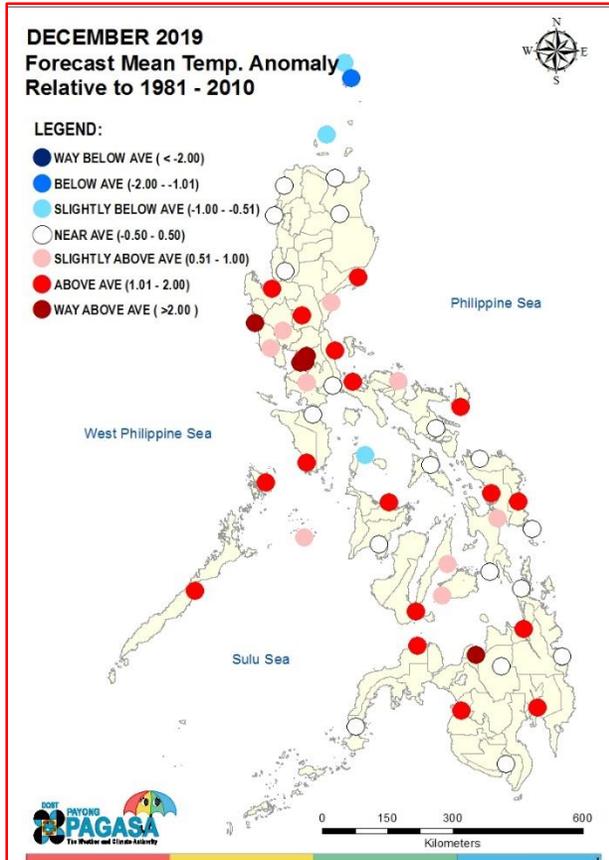
- < or =40% way below normal
- 41-80 below normal
- 81 - 120 near normal
- >120 above normal

MONTHLY MEAN TEMPERATURE FORECAST (JULY-DECEMBER 2019)

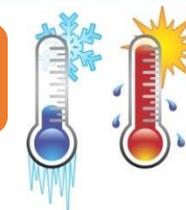
LEGEND

- WAY BELOW AVE (< -2.00)
- BELOW AVE (-2.00 - -1.01)
- SLIGHTLY BELOW AVE (-1.00 - -0.51)
- NEAR AVE (-0.50 - 0.50)
- SLIGHTLY ABOVE AVE (0.51 - 1.00)
- ABOVE AVE (1.01 - 2.00)
- WAY ABOVE AVE (>2.00)





FORECAST RANGES OF TEMPERATURE (EXTREME)



Updated : 24 June 2019

TMAX Summary	Jul-19		Aug-19		Sep-19		Oct-19		Nov-19		Dec-19	
	Tmax-Range		Tmax-Range		Tmax-Range		Tmax-Range		Tmax-Range		Tmax-Range	
Northern Luzon	32.6	37.5	31.2	36.7	31.2	36.5	29.7	37.0	29.0	36.5	26.8	35.1
Lowlands Luzon	30.5	37.6	30.3	37.2	31.3	36.7	30.4	36.8	29.8	39.1	28.5	36.0
Mountainous Luzon	25.0	26.4	23.7	26.6	25.3	27.1	25.3	26.6	26.4	28.1	25.4	27.2
Metro Manila	32.3	35.9	31.8	35.0	32.1	34.9	33.0	35.6	32.7	35.0	32.1	34.6
Lowlands Visayas	32.0	36.5	31.8	36.9	32.2	36.1	32.0	37.3	31.8	35.5	30.0	36.0
Lowlands Mindanao	31.9	37.1	32.5	38.3	32.5	36.4	32.0	36.5	32.0	37.0	31.6	37.1
Mountainous Mindanao	30.9	33.0	31.9	33.6	32.0	33.2	32.5	33.9	32.4	33.7	32.0	33.5

TMIN Summary	Jul-19		Aug-19		Sep-19		Oct-19		Nov-19		Dec-19	
	Tmin-Range		Tmin-Range		Tmin-Range		Tmin-Range		Tmin-Range		Tmin-Range	
Northern Luzon	18.7	24.5	18.8	25.3	19.6	24.0	14.6	23.2	15.1	23.0	14.1	22.2
Lowlands Luzon	20.8	25.5	20.5	25.3	20.7	24.8	19.5	24.9	19.5	25.8	17.4	25.7
Mountainous Luzon	15.0	15.7	15.1	15.6	14.4	15.8	13.6	15.0	12.0	14.0	9.6	13.0
Metro Manila	22.5	24.9	22.8	24.8	22.4	25.0	21.8	24.7	21.0	25.8	17.7	23.5
Lowlands Visayas	21.5	25.5	20.4	25.3	20.5	25.1	20.0	25.5	19.9	24.9	17.7	24.5
Lowlands Mindanao	18.5	24.3	17.8	24.4	18.6	24.2	18.3	24.4	19.0	24.4	18.9	23.8
Mountainous Mindanao	16.0	17.3	15.4	18.0	16.5	17.6	17.0	18.7	15.2	17.4	14.8	17.3

FORECAST DRY DAYS PER PROVINCE (JULY – DECEMBER 2019)

NORMAL (1981 - 2010)							FORECAST						ANOMALY					
PROVINCE	JUL	AUG	SEP	OCT	NOV	DEC	JUL	AUG	SEP	OCT	NOV	DEC	JUL	AUG	SEP	OCT	NOV	DEC
CORDILLERA ADMINISTRATIVE REGION (CAR)																		
ABRA	14	14	16	22	25	28	14	18	16	23	26	28	0	4	0	1	1	0
BENGUET	9	8	9	17	23	28	7	11	10	19	25	28	-2	3	1	2	2	0
IFUGAO	13	14	14	18	20	23	14	16	15	20	21	24	1	2	1	2	1	1
KALINGA	16	16	17	19	21	24	17	19	17	22	22	25	1	3	0	3	1	1
APAYAO	19	18	18	21	21	24	18	21	19	22	22	24	-1	3	1	1	1	0
MOUNTAIN PROVINCE	14	14	15	18	22	25	14	17	15	21	22	25	0	3	0	3	0	0
REGION I																		
ILOCOS NORTE	17	15	17	24	26	28	16	20	18	25	26	28	-1	5	1	1	0	0
ILOCOS SUR	11	10	13	21	26	29	11	15	13	23	27	30	0	5	0	2	1	1
LA UNION	9	8	10	19	25	29	7	12	11	21	26	30	-2	4	1	2	1	1
PANGASINAN	12	10	13	21	26	29	10	14	12	23	27	30	-2	4	-1	2	1	1
REGION II																		
BATANES	18	15	15	16	15	16	15	19	15	17	16	16	-3	4	0	1	1	0
CAGAYAN	21	20	19	17	16	19	21	23	19	19	17	19	0	3	0	2	1	0
ISABELA	19	19	18	17	15	18	20	21	18	20	16	18	1	2	0	3	1	0
NUEVA VIZCAYA	13	13	12	17	21	24	13	15	13	20	22	25	0	2	1	3	1	1
QUIRINO	16	17	15	16	17	19	18	19	16	20	17	19	2	2	1	4	0	0
REGION III (CENTRAL LUZON)																		
BATAAN	12	11	12	21	24	27	11	11	12	23	25	28	-1	0	0	2	1	1
BULACAN	10	11	10	16	17	22	12	11	10	18	19	23	2	0	0	2	2	1
NUEVA ECJJA	12	12	12	19	22	26	12	13	12	21	23	26	0	1	0	2	1	0
PAMPANGA	10	10	11	20	22	26	10	10	11	21	24	28	0	0	0	1	2	2
TARLAC	12	10	13	22	25	28	10	12	11	22	26	29	-2	2	-2	0	1	1
ZAMBALES	11	9	12	21	25	28	10	11	11	23	26	29	-1	2	-1	2	1	1
AURORA	16	17	15	15	15	18	18	18	16	19	15	17	2	1	1	4	0	-1
NATIONAL CAPITAL REGION																		
METRO MANILA	12	11	12	17	20	26	12	13	11	20	20	25	0	2	-1	3	0	-1
REGION IV-A (CALABARZON)																		
BATANGAS	16	16	15	18	18	21	17	16	16	22	20	21	1	0	1	4	2	0
CAVITE	15	14	15	20	23	27	15	16	15	25	24	27	0	2	0	5	1	0
LAGUNA	14	14	14	15	14	18	16	15	14	19	14	17	2	1	0	4	0	-1
RIZAL	11	11	11	14	15	19	14	14	11	18	15	18	3	3	0	4	0	-1
QUEZON	16	18	15	11	9	10	19	17	16	13	10	9	3	-1	1	2	1	-1
REGION IV-B (MIMAROPA)																		
MARINDUQUE	17	19	16	12	11	12	19	17	17	14	11	10	2	-2	1	2	0	-2
OCCIDENTAL MINDORO	14	14	14	18	21	23	15	14	15	21	22	23	1	0	1	3	1	0
ORIENTAL MINDORO	15	16	16	16	17	19	17	16	16	19	18	18	2	0	0	3	1	-1
ROMBLON	16	17	16	15	16	18	18	17	17	17	17	16	2	0	1	2	1	-2
PALAWAN	16	16	16	16	19	24	17	15	16	18	20	25	1	-1	0	2	1	1
REGION V (BICOL)																		
ALBAY	15	16	14	13	11	12	17	16	14	15	10	10	2	0	0	2	-1	-2
CAMARINES NORTE	18	20	16	11	7	8	20	19	16	12	8	6	2	-1	0	1	1	-2
CAMARINES SUR	16	18	15	12	10	11	19	17	15	13	11	10	3	-1	0	1	1	-1
CATANDUANES	17	20	16	11	8	9	22	16	17	13	13	15	5	-4	1	2	5	6
MASBATE	17	18	16	16	15	16	18	17	17	19	16	14	1	-1	1	3	1	-2
SORSOGON	16	17	15	14	11	12	18	16	15	18	10	8	2	-1	0	4	-1	-4

(-) ANOMALY means increasing number of wet days

(+) ANOMALY means increasing number of dry days



FORECAST DRY DAYS PER PROVINCE (JULY – DECEMBER 2019)

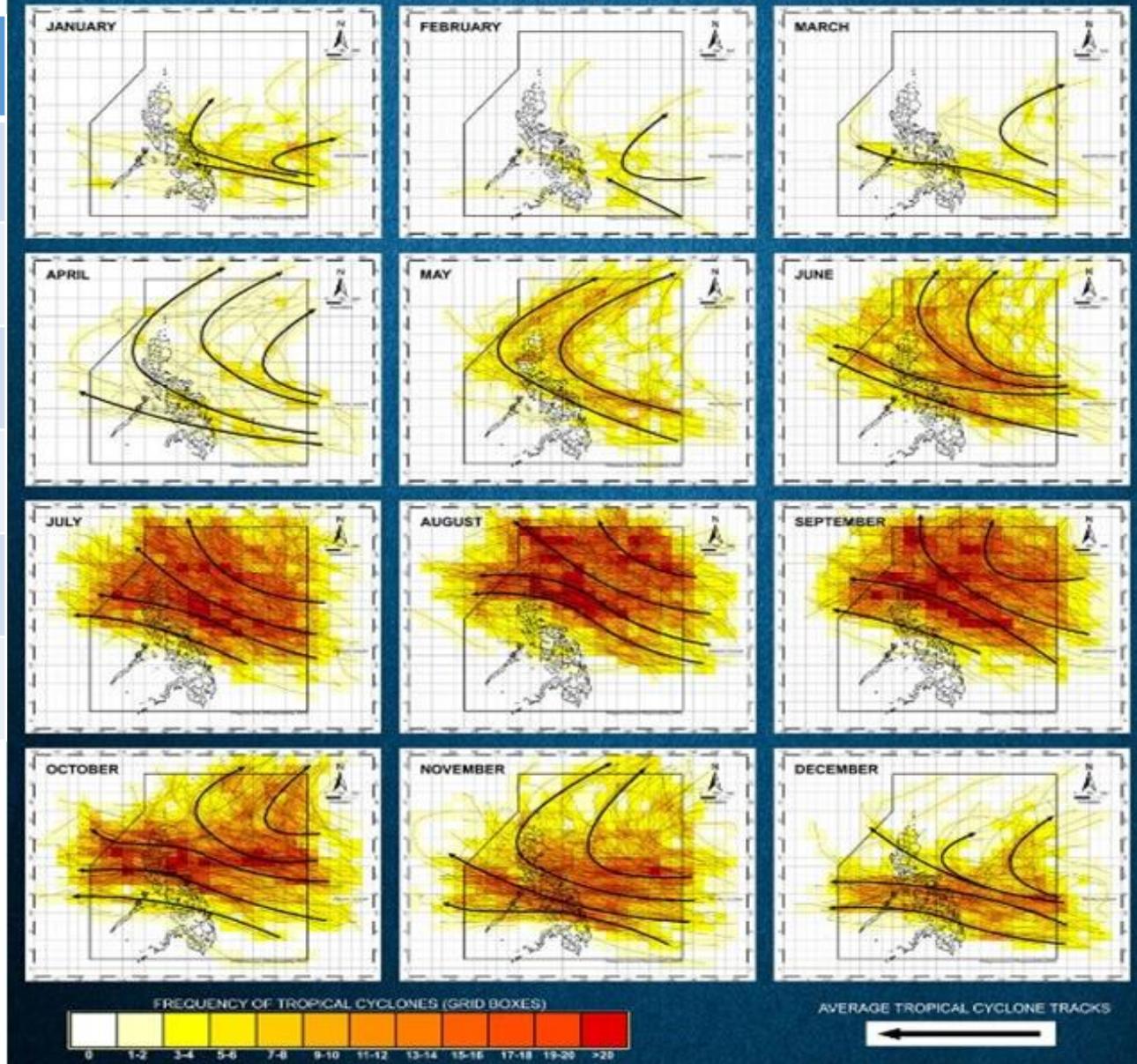
NORMAL (1981 - 2010)							FORECAST						ANOMALY					
PROVINCE	JUL	AUG	SEP	OCT	NOV	DEC	JUL	AUG	SEP	OCT	NOV	DEC	JUL	AUG	SEP	OCT	NOV	DEC
REGION VI (WESTERN VISAYAS)																		
AKLAN	16	16	16	16	18	22	17	17	16	18	18	21	1	1	0	2	0	-1
ANTIQUE	15	14	15	16	20	24	15	15	15	19	21	24	0	1	0	3	1	0
CAPIZ	16	17	16	15	17	20	18	18	16	18	17	20	2	1	0	3	0	0
GUIMARAS	13	14	14	15	19	23	14	14	14	18	20	23	1	0	0	3	1	0
ILOILO	15	15	15	15	19	22	16	16	15	18	19	22	1	1	0	3	0	0
NEGROS OCCIDENTAL	12	16	13	15	19	22	16	15	14	18	19	21	4	-1	1	3	0	-1
REGION VII (CENTRAL VISAYAS)																		
NEGROS ORIENTAL	16	18	16	17	19	21	19	17	16	18	20	20	3	-1	0	1	1	-1
BOHOL	18	20	18	18	19	20	21	19	19	20	20	21	3	-1	1	2	1	1
CEBU	17	19	16	17	19	20	19	17	17	19	19	19	2	-2	1	2	0	-1
SIQUIJOR	19	21	19	19	19	20	22	20	19	19	20	19	3	-1	0	0	1	-1
REGION VIII (EASTERN VISAYAS)																		
BILIRAN	18	19	16	15	15	16	19	15	15	21	16	13	1	-4	-1	6	1	-3
EASTERN SAMAR	16	20	16	13	8	7	20	22	19	12	10	9	4	2	3	-1	2	2
LEYTE	18	19	17	16	15	15	20	18	17	18	15	14	2	-1	0	2	0	-1
NORTHERN SAMAR	17	20	17	13	8	8	21	21	19	12	9	8	4	1	2	-1	1	0
SAMAR (WESTERN SAMAR)	17	20	16	13	10	11	20	19	17	15	11	10	3	-1	1	2	1	-1
SOUTHERN LEYTE	18	19	17	16	14	14	21	19	18	17	14	15	3	0	1	1	0	1
REGION IX (ZAMBOANGA PENINSULA)																		
ZAMBOANGA DEL NORTE	18	19	17	16	14	18	20	19	18	17	15	18	2	0	1	1	1	0
ZAMBOANGA DEL SUR	17	19	17	16	14	19	19	18	17	17	16	19	2	-1	0	1	2	0
ZAMBOANGA SIBUGAY	18	19	17	16	15	19	19	18	18	18	16	19	1	-1	1	2	1	0
REGION X (NORTHERN MINDANAO)																		
BUKIDNON	12	14	12	14	17	20	15	16	11	15	17	20	3	2	-1	1	0	0
CAMIGUIN	18	20	18	19	19	21	21	20	18	20	21	21	3	0	0	1	2	0
LANAO DEL NORTE	15	18	16	16	17	20	19	19	16	18	19	20	4	1	0	2	2	0
MISAMIS OCCIDENTAL	17	19	16	16	15	18	20	20	17	17	17	17	3	1	1	1	2	-1
MISAMIS ORIENTAL	16	19	16	17	19	21	19	20	16	19	21	21	3	1	0	2	2	0
REGION XI (DAVAO REGION)																		
COMPOSTELA VALLEY	19	20	18	19	17	19	19	21	18	21	17	19	0	1	0	2	0	0
DAVAO CITY	16	16	15	15	17	21	16	16	15	16	18	21	0	0	0	1	1	0
DAVAO DEL NORTE	16	17	15	16	16	20	17	18	15	18	17	20	1	1	0	2	1	0
DAVAO DEL SUR	18	18	18	18	19	22	18	18	18	18	20	22	0	0	0	0	1	0
DAVAO OCCIDENTAL	22	21	22	22	22	24	21	22	23	23	24	23	-1	1	1	1	2	-1
DAVAO ORIENTAL	21	21	20	21	17	18	21	23	21	23	18	18	0	2	1	2	1	0
REGION XII (SOCCSKSARGEN)																		
SOUTH COTABATO	19	20	19	20	20	23	20	20	20	21	22	22	1	0	1	1	2	-1
COTABATO	13	15	14	15	17	21	16	16	14	16	18	21	3	1	0	1	1	0
SARANGANI	21	21	22	22	22	24	21	22	22	23	24	23	0	1	0	1	2	-1
SULTAN KUDARAT	16	18	18	17	18	22	18	18	18	19	20	22	2	0	0	2	2	0
REGION XIII- CARAGA																		
AGUSAN DEL NORTE	19	21	19	18	15	15	21	21	20	20	16	15	2	0	1	2	1	0
AGUSAN DEL SUR	17	19	16	16	15	15	18	19	17	18	15	16	1	0	1	2	0	1
DINAGAT ISLANDS	19	22	18	15	10	8	23	21	19	17	11	7	4	-1	1	2	1	-1
SURIGAO DEL NORTE	20	23	19	16	11	9	23	22	20	18	12	8	3	-1	1	2	1	-1
SURIGAO DEL SUR	19	21	19	16	12	9	21	20	20	19	13	10	2	-1	1	3	1	1
ARMM																		
BASILAN	20	22	20	20	21	25	21	19	21	22	21	26	1	-3	1	2	0	1
MAGUINDANAO	14	17	15	16	17	21	17	17	16	17	18	21	3	0	1	1	1	0
LANAO DEL SUR	13	17	14	15	18	21	17	18	14	17	19	21	4	1	0	2	1	0
SULU	21	22	22	21	22	26	21	20	22	22	22	28	0	-2	0	1	0	2
TAWI-TAWI	23	23	23	21	21	26	22	20	23	22	21	28	-1	-3	0	1	0	2



Forecast Tropical Cyclone Frequency

MONTH	NUMBER OF TC
JULY 2019	2 OR 3
AUGUST 2019	2 TO 4
SEPTEMBER 2019	2 TO 4
OCTOBER 2019	2 OR 3
NOVEMBER 2019	1 OR 2
DECEMBER 2019	0 OR 1

Monthly Climatology of Tropical Cyclone Tracks (1948-2016)



SUMMARY:

- Weak El Nino will likely to continue until JJA 2019 (70% probability);
- There is a chance to continue until 1st quarter 2020 at weak El Nino level, but still, with high uncertainty.
- **ENSO Status: El Nino Advisory #5**
- **Rainfall forecast for the whole country:**
 - July 2019: Generally near normal to above normal rainfall conditions over most of Luzon and Eastern Samar in the Visayas, while generally below normal over most of Mindanao including southern Visayas;
 - August 2019 – general near to above normal rainfall conditions over most parts of the country;

SUMMARY:

- Weak El Nino will likely to continue until JJA 2019 (70% probability);
- There is a chance to continue until 1st quarter 2020 at weak El Nino level, but still, with high uncertainty.
- **ENSO Status: El Nino Advisory #5**
- **Rainfall forecast for the whole country:**
 - July 2019: Generally near normal to above normal rainfall conditions over most of Luzon and Eastern Samar, while generally below normal over most of Mindanao including southern Visayas;
 - August 2019 – general near to above normal rainfall conditions over most parts of the country;

SUMMARY:

- September 2019 - generally near normal rainfall conditions over most of Luzon, Panay, Masbate and Western Mindanao area, generally below normal rainfall conditions will be likely over most of Southern Luzon, Southern Visayas and Northeastern Mindanao;
- October 2019: generally way below to below normal rainfall conditions with patches of near normal rainfall over Batanes, Cagayan and northern Mindanao;
- November 2019: generally near to above normal rainfall conditions over Southern and central Luzon, Visayas and Mindanao, while rest of Luzon will likely to receive below normal rainfall;

SUMMARY:

- December 2019: generally way below to below normal rainfall conditions will be likely, except for eastern and southern Luzon including western Panay island will likely to experience near to above normal conditions;
- **Temperature Forecast**: Generally near average to warmer than average temperature is forecasted during the period;
- **Tropical Cyclone Forecast**: 9 to 13 TCs may enter/develop inside the PAR

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

Weekly ENSO monitoring is available at: <http://www.pagasa.dost.gov.ph/index.php/climate/climate-prediction/el-nino-southern-oscillation-ens0-status>



Next National Climate Outlook Forum (115th):

July 24, 2019 (tentative)

Website:

www.pagasa.dost.gov.ph

www.bagong.pagasa.dost.gov.ph

Facebook: 

www.facebook.com/pagasa.dost.gov.ph

Twitter: 

[@dost_pagasa](https://twitter.com/dost_pagasa)

Typhoon

+632-9271541
+632-9271335

Flood

+632-9266970
+632-9204052

Climate

+632-4351675
+632-4340955

IEC

+632-4342696
+632-9279308



DRY CONDITION/ DRY SPELL/ DROUGHT ASSESSMENT

AS OF JUNE 23, 2019

Legend:

- DROUGHT
- DRY SPELL
- DRY CONDITION
- NOT AFFECTED

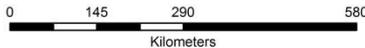
Based on Oct 2018 - 23 June 2019 rainfall assessment

West Philippine Sea

Philippine Sea

Sulu Sea

3% - Dry Condition
39% - Drought



OVER DIFFERENT PROVINCES AS OF 23 JUNE 2019 (ACTUAL)

AREAS	DRY CONDITION	DRY SPELL	DROUGHT
LUZON	(2) TARLAC, ZAMBALES	NONE	(8) BATAAN, PAMPANGA, BATANGAS, CAVITE, OCCIDENTAL MINDORO, ORIENTAL MINDORO, PALAWAN, ALBAY
VISAYAS	NONE	NONE	(10) CAPIZ, ILOILO, NEGROS OCCIDENTAL, NEGROS ORIENTAL, BOHOL, CEBU, SIKUIJOR, BILIRAN, NORTHERN SAMAR, SAMAR (WESTERN SAMAR)
MINDANAO	NONE	NONE	(14) ZAMBOANGA DEL NORTE, ZAMBOANGA DEL SUR, ZAMBOANGA SIBUGAY, CAMIGUIN, MISAMIS ORIENTAL, DAVAO OCCIDENTAL, SOUTH COTABATO, SARANGANI, SULTAN KUDARAT, DINAGAT ISLANDS, BASILAN, MAGUINDANAO, SULU, TAWI-TAWI
TOTAL	2	0	32

NOTE: Based on October 2018 – 23 June 2019 observed monthly rainfall

Payong PAGASA



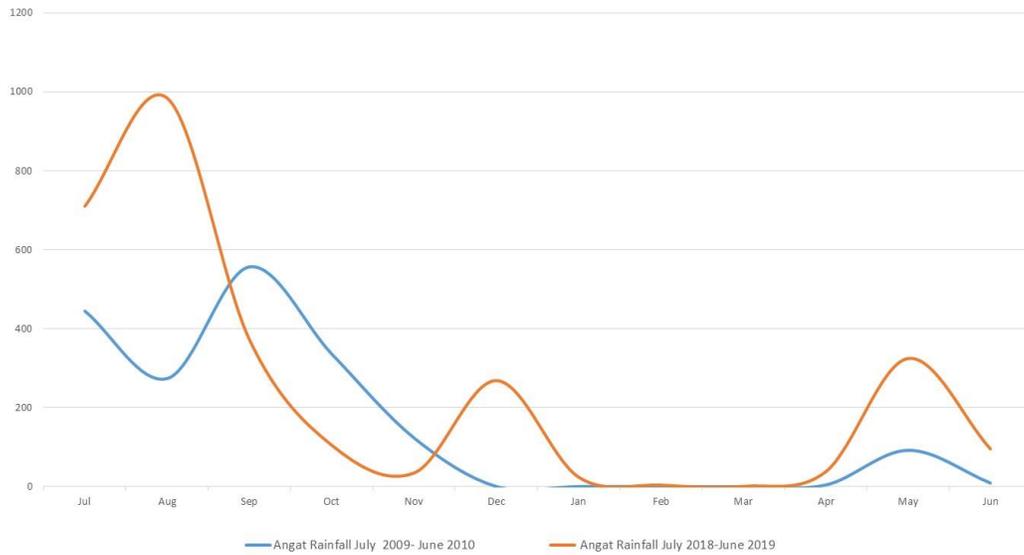
TROPICAL CYCLONE STATISTICS

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
1948	1	0	0	0	1	0	3	1	3	2	6	3	20
1949	1	0	0	0	0	2	5	2	4	3	3	2	22
1950	0	0	0	0	0	2	3	1	2	3	2	1	14
1951	0	0	0	0	1	1	1	4	2	1	1	2	13
1952	0	0	0	0	0	5	2	3	4	4	4	5	27
1953	0	1	0	0	1	2	0	5	2	2	3	2	18
1954	0	0	1	0	1	0	1	6	2	3	3	1	18
1955	1	1	0	1	0	0	2	3	1	4	1	1	15
1956	0	0	1	2	0	0	4	4	5	1	5	3	25
1957	2	0	0	1	0	2	1	2	3	3	1	0	15
1958	1	0	0	0	0	1	4	3	3	2	3	0	17
1959	0	1	1	0	0	0	1	4	2	4	3	2	18
1960	1	0	0	1	1	2	2	6	1	3	0	2	19
1961	1	1	1	0	1	3	4	4	4	1	1	2	23
1962	0	1	0	0	2	0	4	6	4	1	3	0	21
1963	0	0	0	0	1	3	4	2	3	1	0	2	16
1964	0	0	0	0	2	1	9	5	5	3	3	2	30
1965	2	1	1	0	2	2	6	2	3	1	1	0	21
1966	0	0	0	1	3	1	7	1	3	2	2	2	22
1967	0	1	1	1	1	2	4	5	0	2	3	1	21
1968	0	1	0	0	0	2	2	3	3	1	3	0	15
1969	0	0	0	1	1	0	4	2	4	1	1	1	15
1970	0	1	0	0	0	3	2	4	4	4	2	1	21
1971	1	0	1	3	3	3	4	2	3	5	2	0	27
1972	2	0	0	0	0	2	4	2	4	1	1	1	17
1973	0	0	0	0	0	1	2	4	1	3	1	0	12
1974	1	0	0	0	0	3	4	4	2	5	2	2	23
1975	1	0	0	0	0	0	1	2	4	3	2	1	14
1976	1	1	0	1	1	2	4	3	4	0	2	3	22
1977	1	0	0	0	1	1	4	2	4	2	2	2	19
1978	0	0	0	1	0	3	1	7	6	4	2	1	25
1979	0	0	1	1	2	1	3	3	3	4	2	2	22
1980	0	1	1	1	3	2	4	3	2	2	3	1	23
1981	0	1	0	0	0	3	5	4	3	2	3	2	23
1982	0	0	2	0	1	0	5	4	4	2	0	2	20
1983	0	0	0	0	0	0	3	3	4	6	4	3	23
1984	0	0	0	0	0	1	2	7	1	4	3	1	19
1985	1	0	0	0	1	2	2	3	4	3	0	1	17
1986	0	1	0	1	1	2	3	2	1	4	3	3	21
1987	1	0	0	0	0	1	4	3	2	2	2	1	16
1988	1	0	0	0	1	3	3	0	3	6	2	1	20
1989	1	0	0	0	1	2	6	1	2	3	2	1	19
1990	0	0	0	0	0	0	0	3	4	1	2	1	20

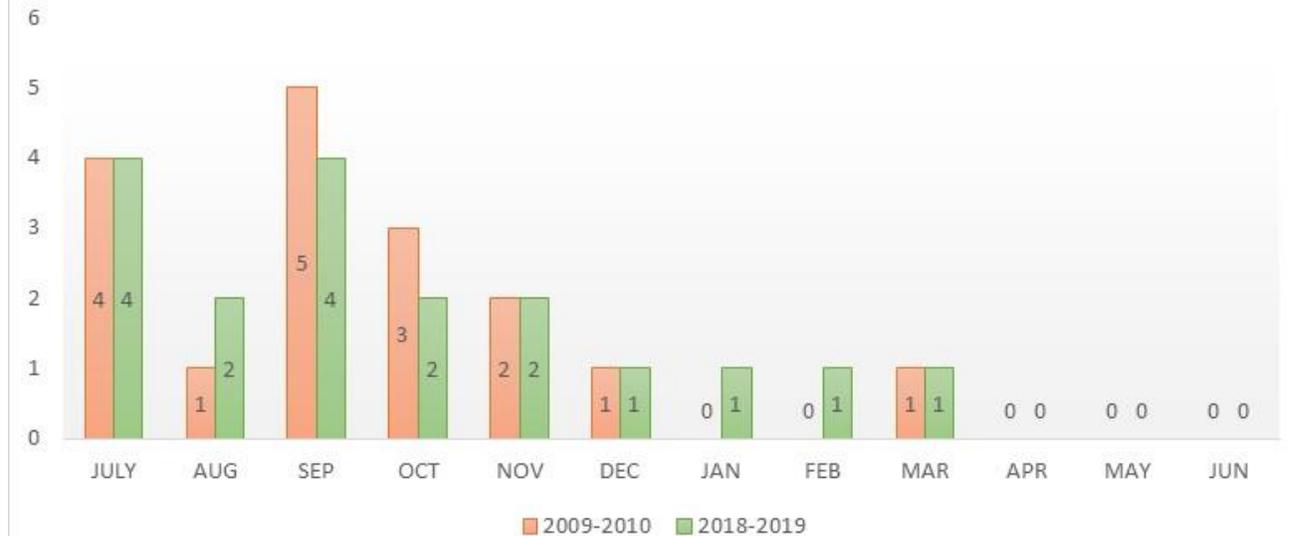
YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
1991	0	0	1	1	1	1	4	2	4	2	2	1	19
1992	0	0	0	0	0	2	3	5	1	3	2	0	16
1993	0	1	0	2	1	2	5	5	6	4	2	4	32
1994	1	0	1	0	2	2	6	4	3	3	1	1	24
1995	0	0	0	0	1	0	2	3	4	4	0	2	16
1996	0	1	0	1	2	0	3	2	4	2	2	0	17
1997	1	0	0	0	1	2	3	3	0	1	2	1	14
1998	0	0	0	0	0	0	1	3	3	2	1	1	11
1999	1	1	0	2	0	2	2	2	2	2	2	0	16
2000	0	0	0	0	3	0	4	2	3	3	2	1	18
2001	0	1	0	1	1	2	4	1	2	1	3	1	17
2002	1	0	2	0	1	2	5	2	0	0	0	0	13
2003	0	0	0	1	3	1	4	6	4	3	2	1	25
2004	0	1	1	1	2	4	1	3	4	3	4	1	25
2005	0	0	1	1	1	1	3	2	4	1	2	1	17
2006	1	0	1	0	1	1	4	3	2	3	2	2	20
2007	0	0	0	0	1	0	1	3	3	2	3	0	13
2008	0	0	0	1	4	1	3	3	4	0	4	1	21
2009	1	1	0	1	2	1	4	1	5	3	2	1	22
2010	0	0	1	0	0	0	2	4	2	2	0	0	11
2011	0	0	0	1	2	3	6	1	4	1	0	1	19
2012	0	0	0	0	1	3	3	3	2	3	0	2	17
2013	2	1	0	0	0	4	3	4	3	5	3	0	25
2014	2	0	1	1	0	1	4	1	3	3	1	2	19
2015	1	0	1	1	1	0	3	2	1	2	1	2	15
2016	0	0	0	0	0	1	2	1	4	4	1	1	14
2017	1	1	0	2	0	0	4	2	4	3	3	2	22
2018	1	1	1	0	0	3	4	2	4	2	2	1	21
2019	1	1	1	0	0								3
AVE	0.5	0.3	0.3	0.5	1.0	1.5	3.3	3.0	3.0	2.6	2.0	1.3	19.3



Angat Rainfall during 2009-2010 and 2018-2019 El Nino events (mm)



NUMBER OF TROPICAL CYCLONES
(2009 - 2010 vs 2018 - 2019)



Actions taken for the current El Niño

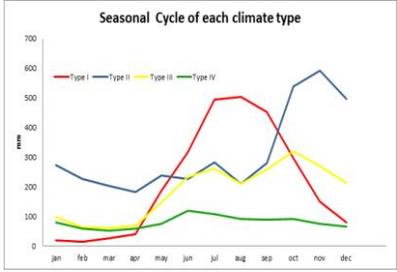
Actions Taken	Date Issued
<ul style="list-style-type: none"> Issued El Niño Watch (<i>more than 50% probability of El Niño in the coming months</i>) 	July 2018 - Jan. 2019
<ul style="list-style-type: none"> Issued Monthly Climate Assessment and Outlook (<i>under El Niño Watch</i>) Issued Monthly Dry Spell/Drought Assessment 	August 2018- February 2019
<ul style="list-style-type: none"> Released Press Statement - Weak El Niño issued El Niño Advisory No. 1 Issued Dry Spell/Drought Assessment and Outlook 	20 February 2019
<ul style="list-style-type: none"> Issued Dry Spell/Drought Assessment and Outlook Issued El Niño Advisory No. 2 Issued PAGASA Briefer on El Niño Issued El Niño Advisory No. 3 Issued El Niño Advisory No. 4 Issued El Niño Advisory No. 5 	01 March 2019, monthly onwards 08 March 2019 14 March 2019 05 Apr 2019 06 May 2019 06 June 2019



Actions taken for the current El Niño

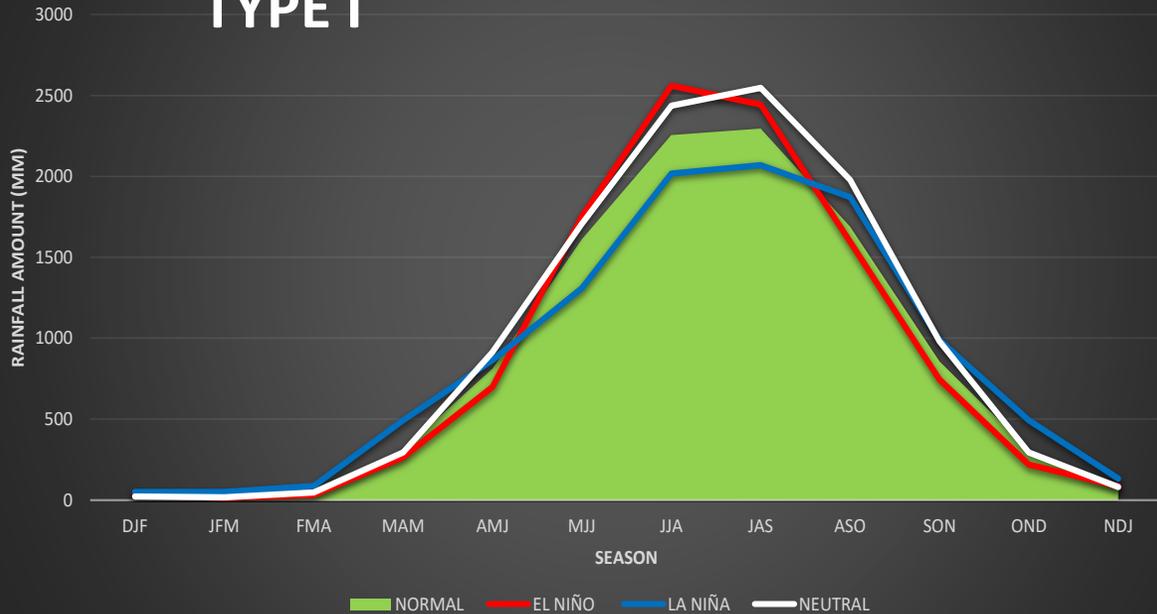
- Conduct of Regular Climate Outlook Forum monthly;
- Provincial Climate Outlook Forum (conducted)
 - *Tarlac, Quirino, Isabela, Pangasinan, Zamboanga del Sur, Siquijor, Bohol, Albay, Occ. Mindoro, N. Cotobato, Sarangani, S. Kudarat, Zambales, Nueva Ecija, Palawan (co-organized with DA and Rice Watch Action Network (NGO)*
- National Forum on El Nino (March 22)
- Regular attendance to meetings and special briefings to various government agencies:
 - Technical Management Group Meeting thru NDRRMC
 - Department of Agriculture- various Philippine Council for Agriculture and Fisheries (PCAF) Committees;
 - National Water Resources Board (NWRB)- Technical Working Group (TWG) for Angat Dam Operation
 - Water Crisis Meeting – Committee on Metro Manila Development (Congress)
 - Meeting with Committee on Public Service (Senate)

GENERAL IMPACTS OF ENSO RAINFALL ON DIFFERENT CLIMATE TYPES



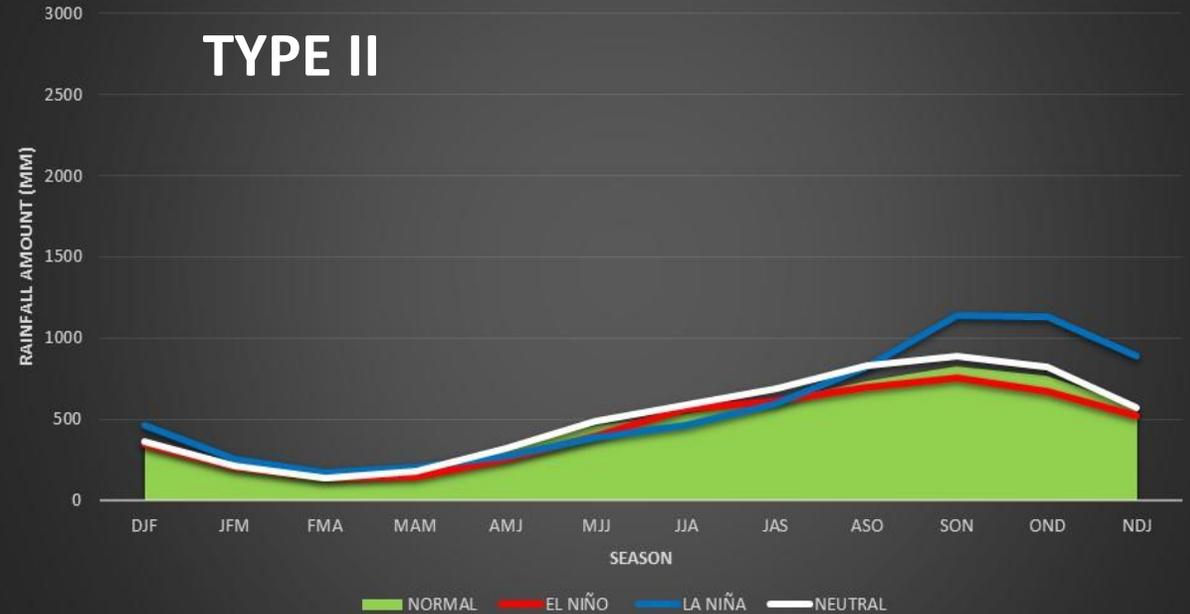
Iba Seasonal Rainfall

TYPE I



Aparri Seasonal Rainfall

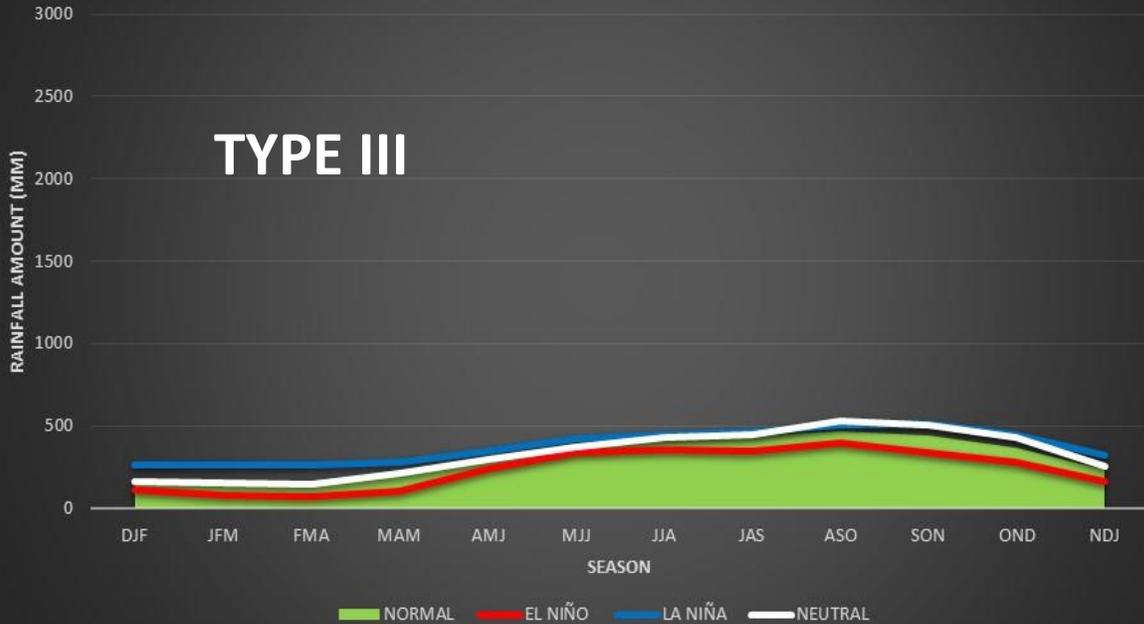
TYPE II



GENERAL IMPACTS OF ENSO RAINFALL ON DIFFERENT CLIMATE TYPES

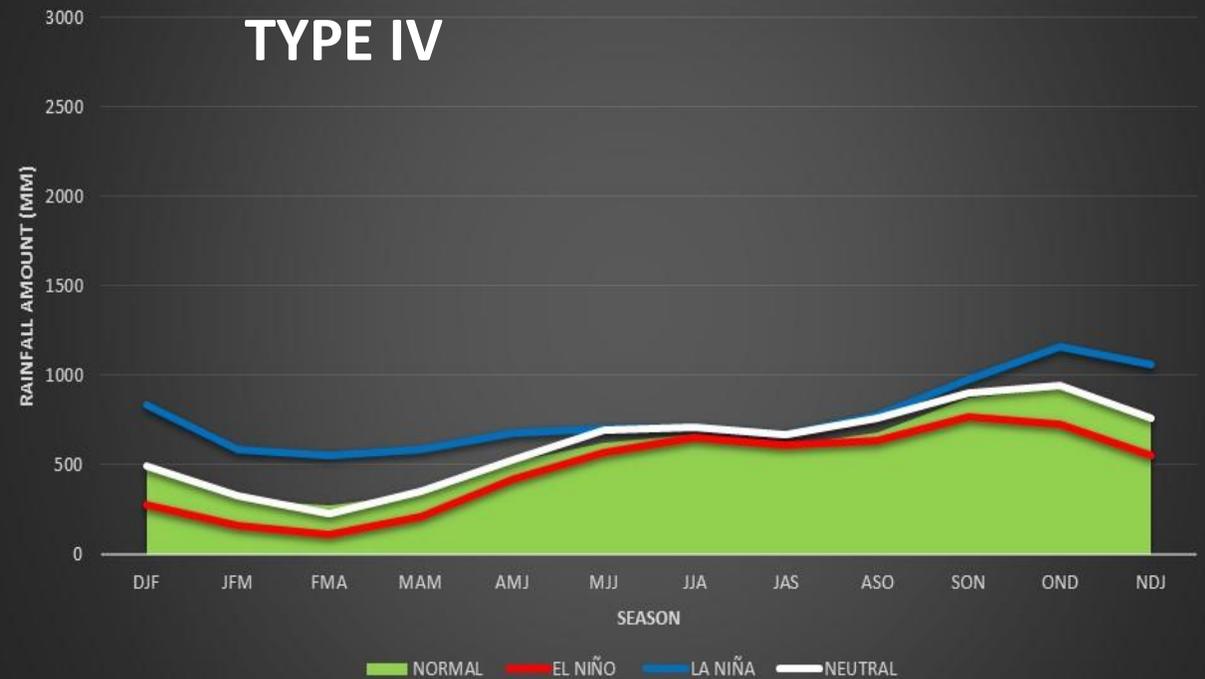
Zamboanga Seasonal Rainfall

TYPE III



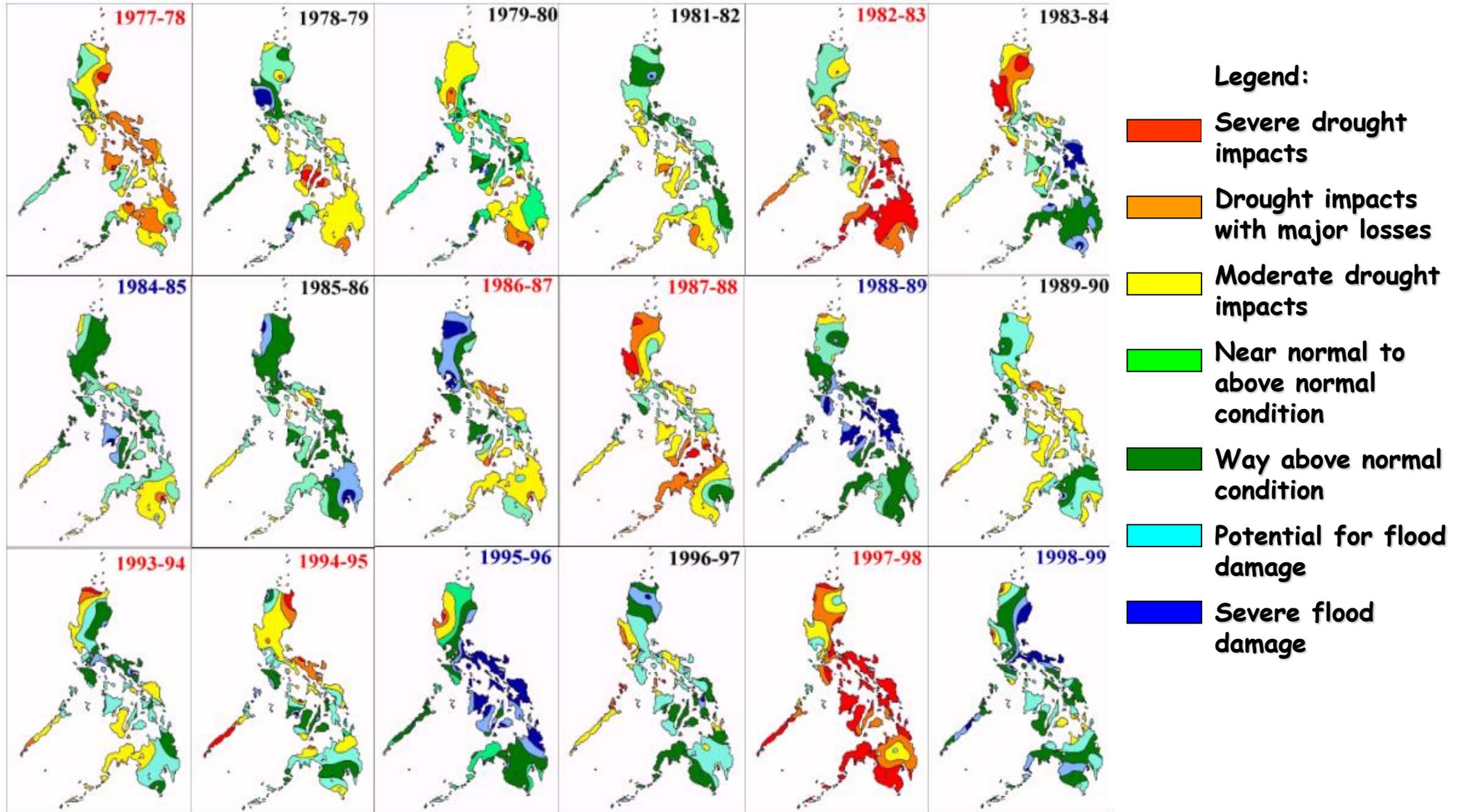
Dipolog Seasonal Rainfall

TYPE IV



GENERAL RAINFALL PATTERN and TC DURING EL NIÑO/LA NIÑA EVENTS

IMPACTS OF ENSO ON PHILIPPINE RAINFALL

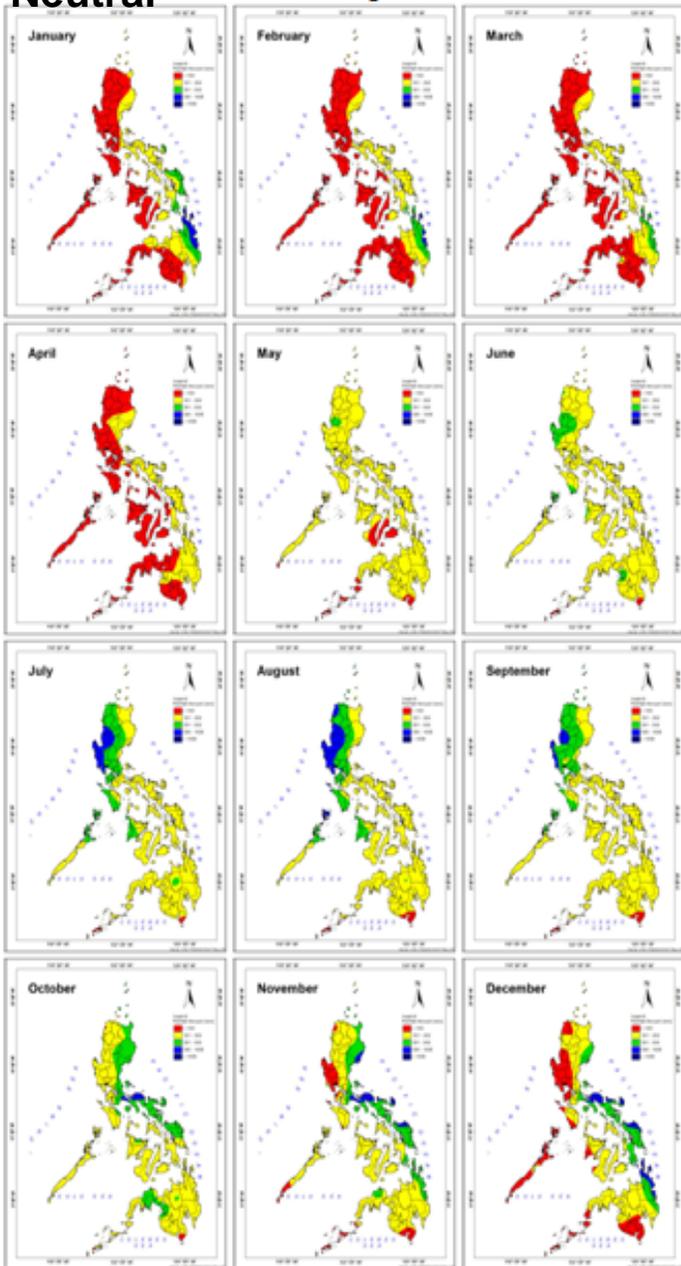


RED colored years are **EL NINO** years, **BLUE** colored years are **LA NINA** years and **BLACK** colored years are **NON ENSO** years

Monthly Mean Rainfall Distribution

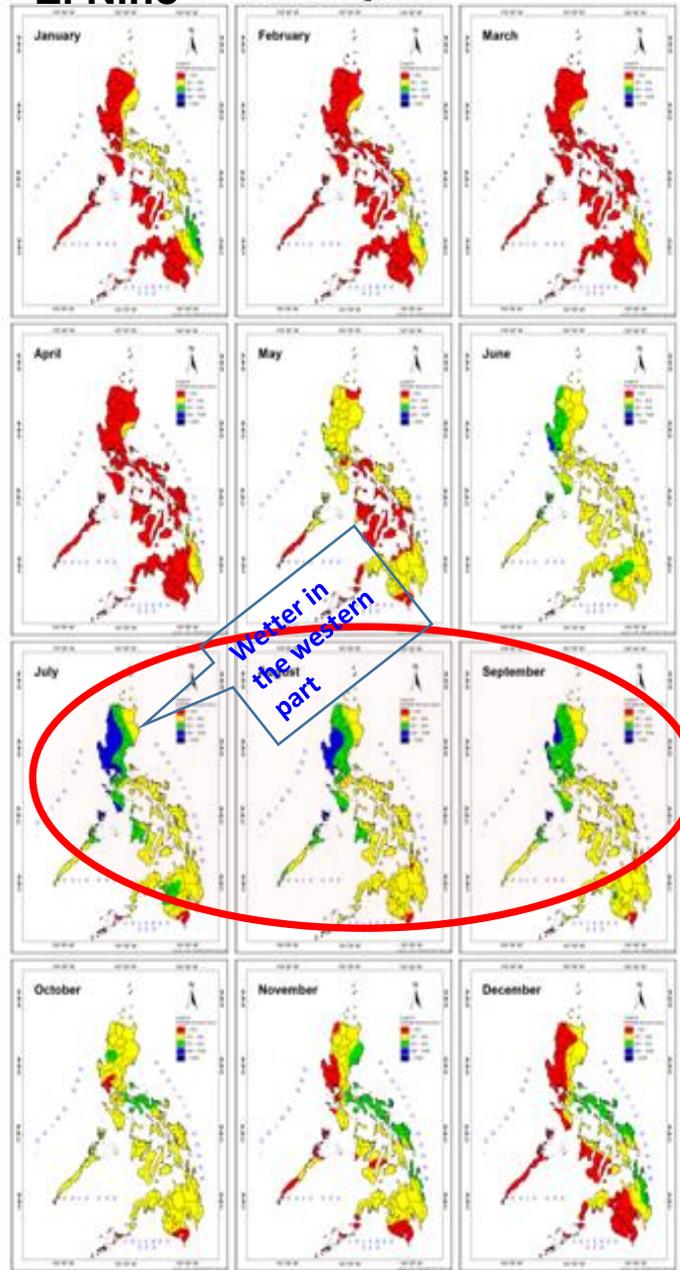
Neutral

Jan-Dec during Neutral



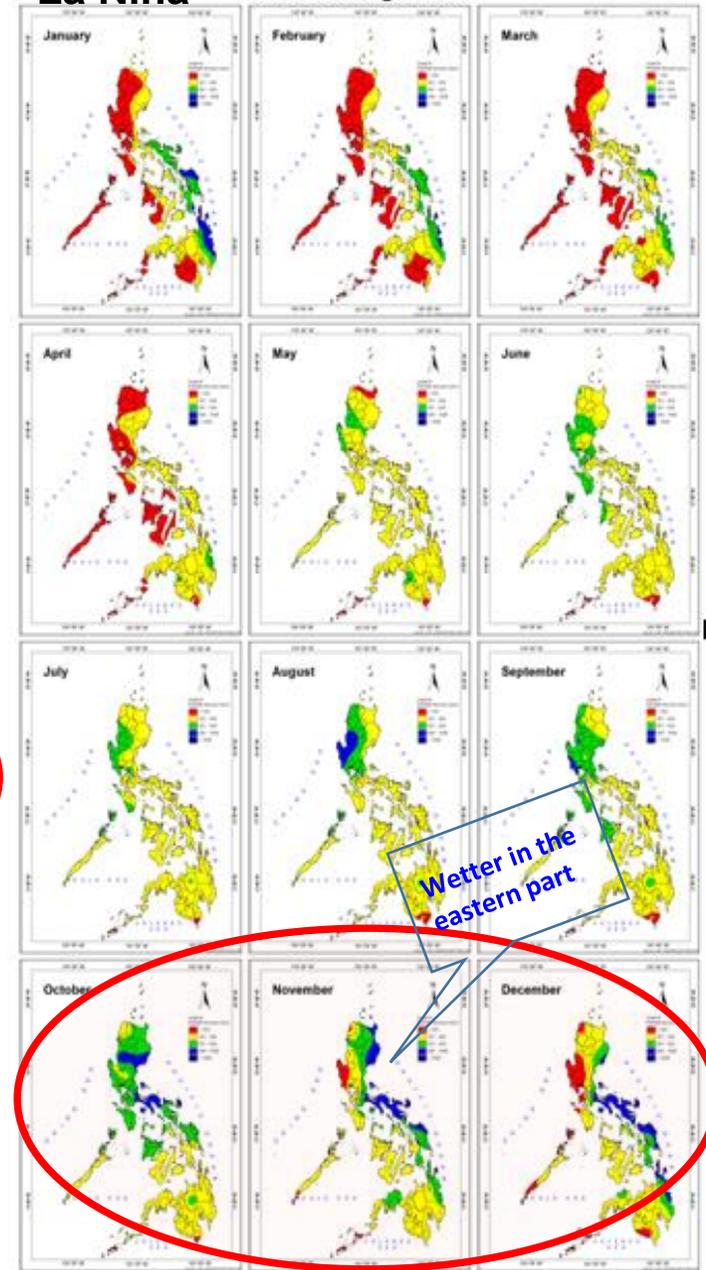
El Niño

Jan-Dec during El Niño

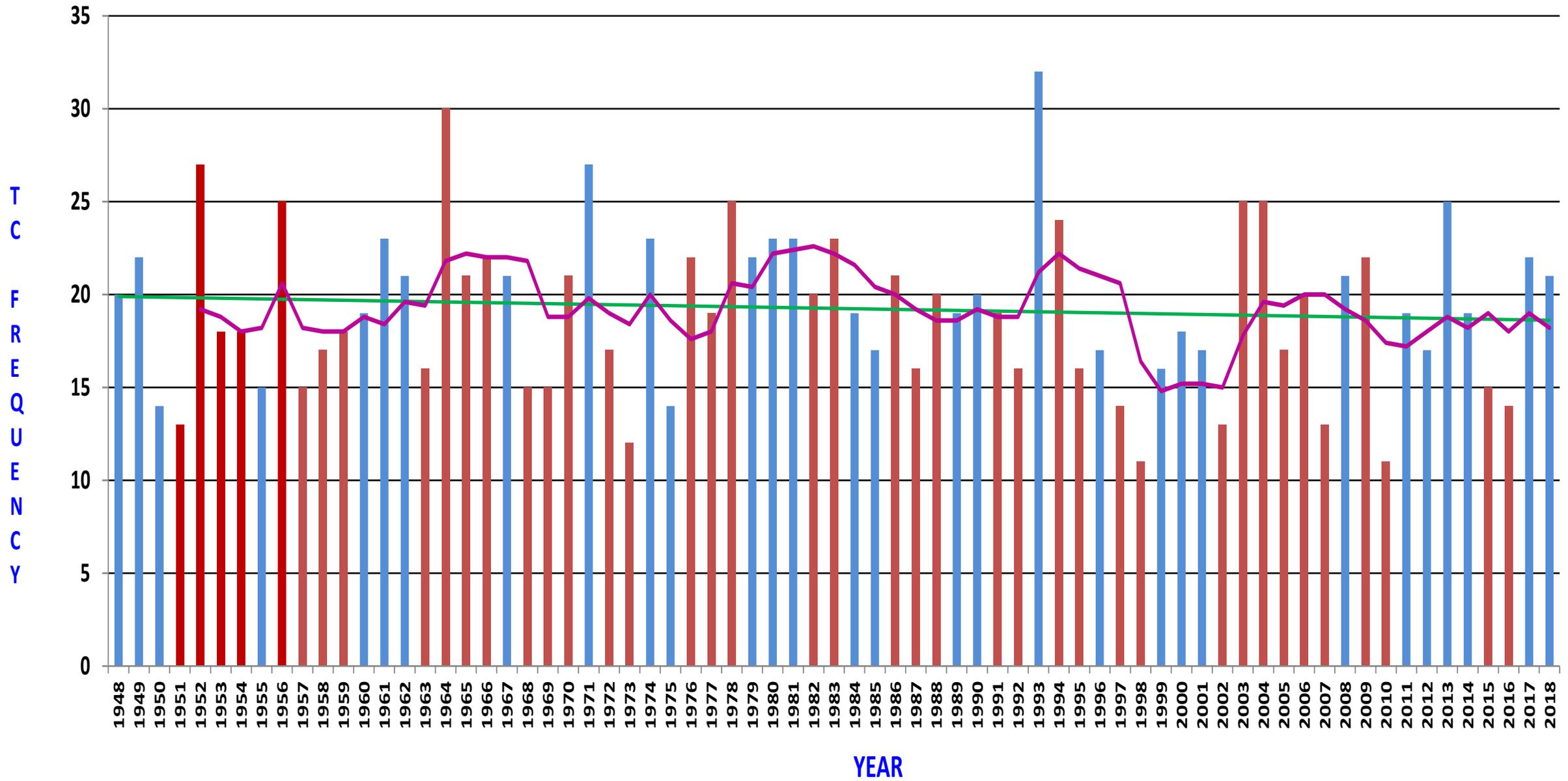


La Niña

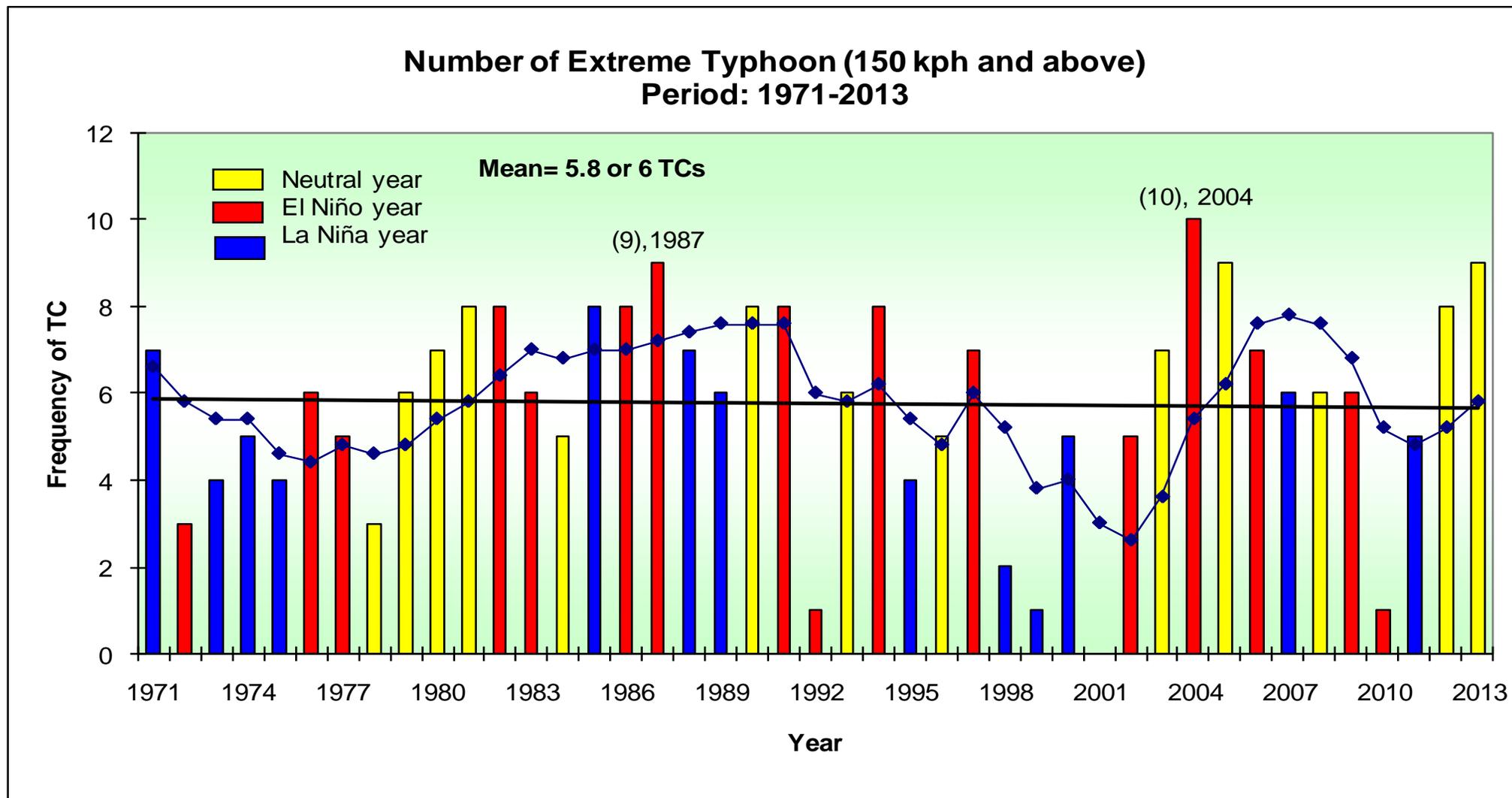
Jan-Dec during La Niña



Annual Frequency of Tropical Cyclone in the PAR (1948-2018)

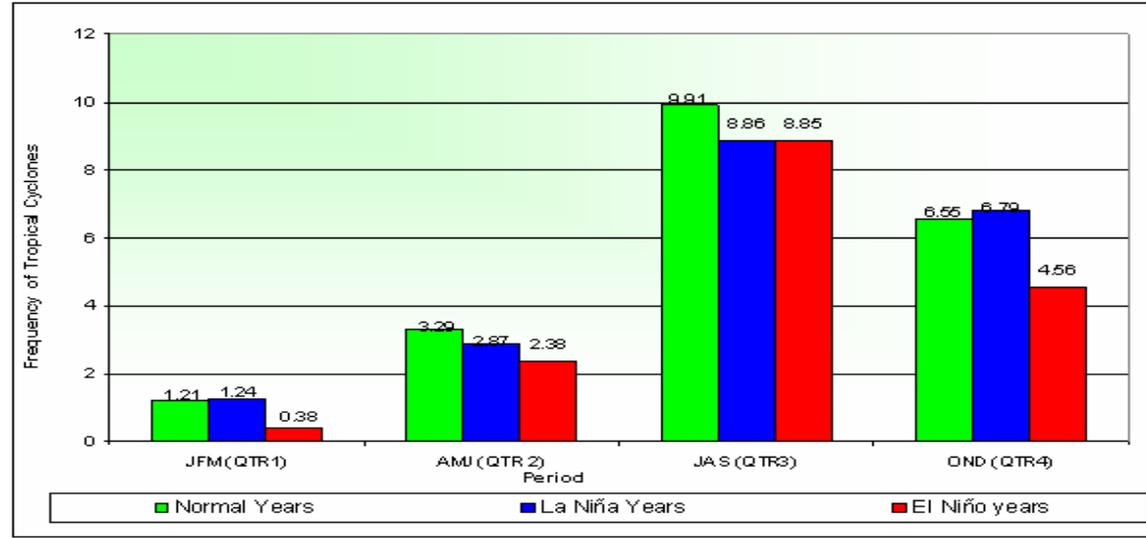


Trends of Extreme Tropical Cyclones(>150Kph)

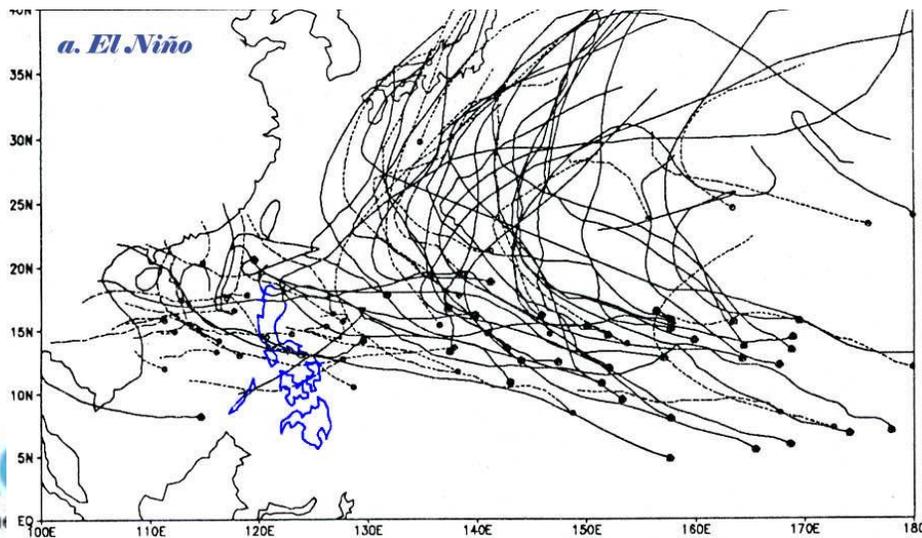


➤ The Frequency of Extreme Tropical Cyclones (having winds of > 150 kph) does not show any significant trend, however, there is a decadal variability. Currently, the trend of occurrence of strong typhoon is on the rise or in its active phase.

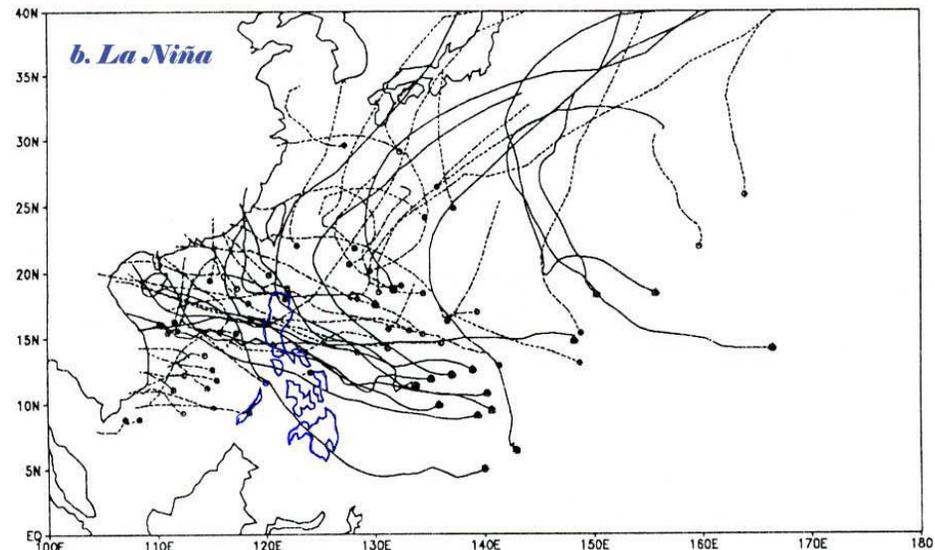
Mean Number of Tropical Cyclones during Normal, El Niño & La Niña Conditions



Sept-November TC tracks during the six strongest warm years



Sept-November TC tracks during the six strongest cold years (La Niña)



Heavier precipitation

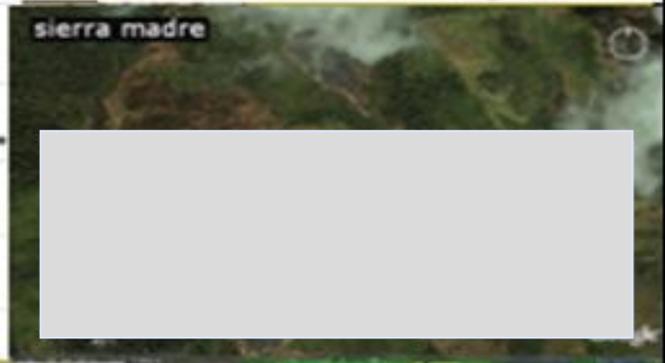
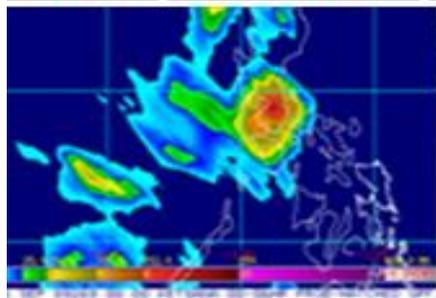
Total Damage = PhP11.1 B ~ (USD234 M)

Typhoon Ondoy (KETSANA)

26 September 2009 in Greater Metro Manila



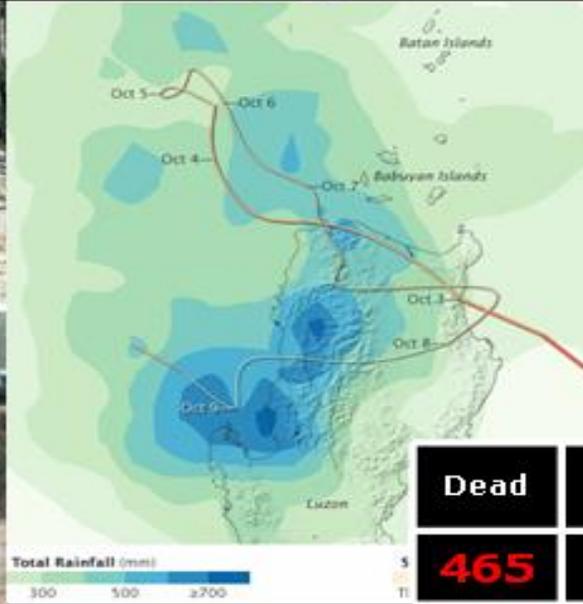
Dead	Affected population	Affected provinces
464	4.9M	26



Espinueva & Nilo, 2009



Typhoon Pepeng (PARMA) 9 October 2009 in CAR & Region I



Dead	Affected population	Affected provinces
465	4.5M	27

El Niño Years	Highest ONI Value	CATEGORY
JJA 1951 – DJF 1951/52	1.2	Moderate
DJF 1952/53 – JFM 1954	0.8	Weak
MAM 1957 – JJA 1958	1.8	Strong
OND 1958 – FMA 1959	0.6	Weak
MJJ 1963 – JFM 1964	1.4	Moderate
AMJ 1965 – MAM 1966	1.9	Strong
JAS 1968 – DJF 1969/70	1.1	Moderate
AMJ 1972 – FMA 1973	2.1	Strong
ASO 1976 - JFM 1977	0.8	Weak
ASO 1977 – JFM 1978	0.8	Weak
AMJ 1982 – MJJ 1983	2.2	Strong
JAS 1986 – JFM 1988	1.6	Strong

AMJ 1991 – MJJ 1992	1.6	Strong
ASO 1994 – FMA 1995	1.2	Moderate
AMJ 1997 – MAM 1998	2.4	Strong
AMJ 2002 – JFM 2003	1.3	Moderate
JJA 2004 – DJF 2004/05	0.7	Weak
ASO 2006 – DJF 2006/07	1	Moderate
JJA 2009 – MAM 2010	1.6	Strong
OND 2015 – AMJ 2016	2.6	Strong
ONI Value	CATEGORY	
0.5 - 0.9	Weak	
1.0-1.4	Moderate	
> or = 1.5	Strong	