

OBSERVED

CLIMATE TRENDS

AND PROJECTED

CLIMATE CHANGE

IN THE PHILIPPINES



Republic of the Philippines
Department of Science and Technology (DOST)
Philippine Atmospheric, Geophysical and Astronomical Services Administration (PAGASA)

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Agham Rd., Diliman, Quezon City, 1100 Philippines
Tel.: +632-434-8130
Fax: +632-434-5882
Web site: www.pagasa.dost.gov.ph

Editors:

Flaviana D. Hilario, Edna L. Juanillo, and Rosalina G. De Guzman

Contributing Authors:

Thelma A. Cinco, Marcelino Q. Villafuerte II, Emma D. Ares, John A. Manalo,
Wilmer A. Agustin, Kimberli Anne M. Aquino, and Ralph Q. Gaspar

Responsible Office at PAGASA:

Climatology and Agrometeorology Division (CAD)

Cover design and layout:

Wilmer A. Agustin

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Observed Climate Trends and Projected Climate Change in the Philippines

Department of Science and Technology

Philippine Atmospheric, Geophysical and
Astronomical Services Administration



Message



The Philippines is an archipelagic country situated in the northwestern region of the Pacific, making it highly exposed to natural hazards such as drought, earthquakes, floods, and tropical cyclones. Consequently, the country ranks third in the 2017 World Risk Index (WRI) of the United Nations University and fifth in the Long-Term Germanwatch Climate Risk Index (CRI) (1996-2015). It is therefore vital that we enhance our coping and adaptive capacities to natural hazards, particularly to climate-related threats that could be worsened by climate variability and change.

It has been seven years since the publication of the *Climate Change in the Philippines* document in February 2011, which has served as an important reference to various users of climate projections. With recent changes and innovations in the global field of climate study, the Philippine Atmospheric, Geophysical and Astronomical Services Administration (PAGASA) has stepped up efforts to update its existing set of local climate information. Using the latest climate models, PAGASA has generated a collection of datasets from simulations of future climate conditions, termed as climate projections.

The ***Observed Climate Trends and Projected Climate Change in the Philippines – Policy Brief*** contains the basic findings of the past and present climate conditions and provides useful information from a range of plausible climate projections that are necessary to guide decision-makers in formulating strategic plans and policies for possible future climate conditions.

On behalf of PAGASA and our partners, I am honored to share the results of an extensive study on the Philippine climate.

VICENTE B. MALANO, Ph. D.
Administrator, PAGASA



Preface

This report summarizes important findings about the state of the Philippine climate based on the most recent observations, as well as climate projections, which were derived from state-of-the-art climate models utilizing information from updated future climate scenarios. This report is very timely especially in the formulation of local climate change action plans and in the mainstreaming activities of the national and local government units. This may serve as a reference for different users needing information in formulating climate change adaptation strategies at the national and local levels.

For interested readers, a comprehensive guide in the proper utilization of the climate projections using PAGASA's newly developed Climate Information Risk Analysis Matrix (CLIRAM) is provided herein. Also included in this report are the summaries of the seasonal climate projection data for each province of the Philippines. We have high hopes that many users will find the information useful for their own applications, and we look forward to everybody's support and cooperation in promoting a climate-resilient country.

PAGASA extends its deepest gratitude to the following individuals, and the agencies they represent, for their expertise, tireless assistance, and motivation in the generation of the projection data from which this report was based upon: Joseph Daron, Richard Jones, Ian Macadam, Florian Gallo, Ron Kahana, Claire Scannell, David Hein, Simon Tucker, Rosanna Amato, and David Corbelli of the UK Met Office Hadley Center; Jack Katzfey and Dewi Kirono of Commonwealth Scientific and Industrial Research Organisation (CSIRO), Australia; Kevin Hodges of the Department of Meteorology, University of Reading, Reading, United Kingdom; and Sharon Taylor of the Philippine Rural Reconstruction Movement (PRRM).





Key Findings



Temperature

Observed temperature in the Philippines is warming at an average rate of 0.1°C/decade. Climate projections suggest continuous warming in the future. It is projected that the country-averaged mean temperature could increase by as much as 0.9°C–1.9°C (assuming the moderate emission scenario, RCP4.5) and 1.2°C–2.3°C (considering the high emission scenario, RCP8.5) in the mid-21st century (2036–2065). Warmer conditions are further expected by the end of the 21st century (2070–2099), which could range from 1.3°C–2.5°C (based on the RCP4.5) to 2.5°C–4.1°C (based on the RCP8.5) increase in mean temperature relative to the baseline climate.



Rainfall

Increasing trends in annual and seasonal rainfall were observed in many parts of the country. Such trends were found to be associated with extreme rainfall events. Multi-model projections suggest a range of increase and decrease in seasonal-mean rainfall exceeding 40% of its historical values. Nevertheless, the multi-model central estimate of projected changes in rainfall could be within the natural rainfall variations, except for the projected rainfall reduction over central sections of Mindanao that are beyond the observed rainfall variations in the past.



Tropical Cyclone

In the past 65 years (1951–2015), a slight decrease in the number of tropical cyclones (TCs) and a minimal increase in the frequency of very strong TCs (exceeding 170kph) were observed over the Philippine area of responsibility (PAR). These trends are projected to continue in the future. It has to be noted, however, that the high year-to-year variations in the frequency of occurrence and intensity of TCs remain to be dominant in the future Philippine climate conditions.



Sea Level Rise

The sea level has risen by nearly double the global average rate of sea level rise over certain parts of the Philippines from 1993 to 2015. Projections reveal that sea level in the country is expected to increase by approximately 20 cm by the end of the 21st century under the RCP8.5 scenario. Such projected increase in sea level might worsen storm surge hazards particularly on coastal communities.



Changes in Temperature

Observed temperature in the Philippines is warming at an average rate of $0.1^{\circ}\text{C}/\text{decade}$. Climate projections suggest continuous warming in the future. It is projected that the country-averaged mean temperature could increase by as much as 0.9°C – 1.9°C (assuming the moderate emission scenario, RCP4.5) and 1.2°C – 2.3°C (considering the high emission scenario, RCP8.5) in the mid-21st century (2036–2065). Warmer conditions are further expected by the end of the 21st century (2070–2099), which could range from 1.3°C – 2.5°C (based on the RCP4.5) to 2.5°C – 4.1°C (based on the RCP8.5) increase in mean temperature relative to the baseline climate.

Observed changes in temperature

Over the past 65 years (1951–2015), the annual mean temperature in the Philippines has risen by 0.68°C , which translates to an average rate of increase by about $0.1^{\circ}\text{C}/\text{decade}$ (Fig. 1a). The country's annual maximum temperature, on the other hand,

has increased at a slower rate of approximately $0.05^{\circ}\text{C}/\text{decade}$ while the annual minimum temperature has increased more rapidly at $0.15^{\circ}\text{C}/\text{decade}$ (Fig. 1b and 1c, respectively).

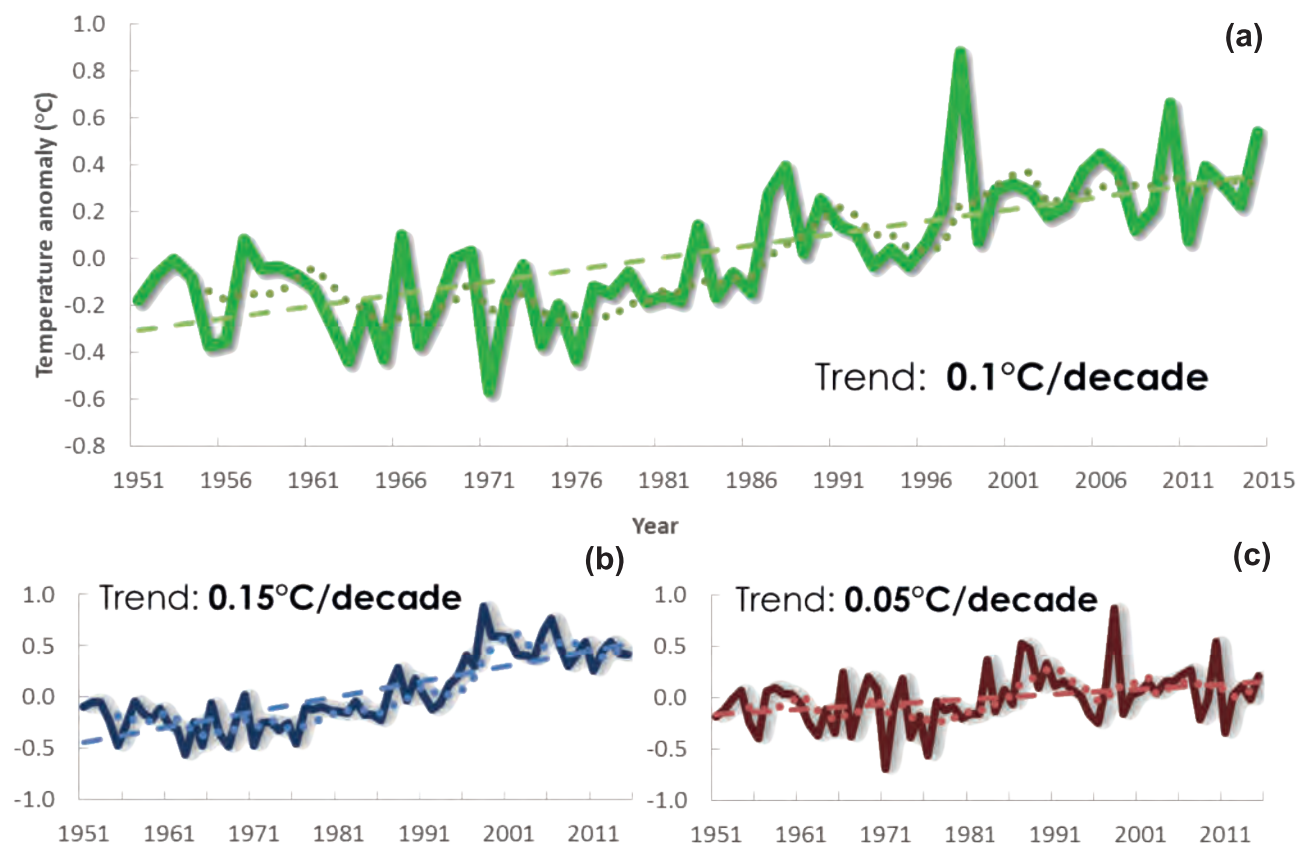


Figure 1. Time series of observed (a) annual-mean, (b) annual-minimum, and (c) annual-maximum temperature anomalies in the Philippines. Anomaly values were taken relative to the 1971–2000 baseline period; thick black lines are the linear fit of the data indicating their long-term trends. All trends are found to be statistically significant at 5% level based on the Mann-Kendall trend test (see, Ref. 1).

Projected changes in temperature

The annual mean surface air temperature in the Philippines is expected to increase from 0.9°C to 1.9°C for the moderate emission scenario (RCP4.5) and from 1.2°C to 2.3°C for the high emission scenario (RCP 8.5) in the mid-21st century (2036–2065), and from 1.3°C to 2.5°C (RCP4.5) to as warm as 2.5°C to 4.1°C (RCP8.5) by the end of 21st century (2070–2099; Fig. 2).

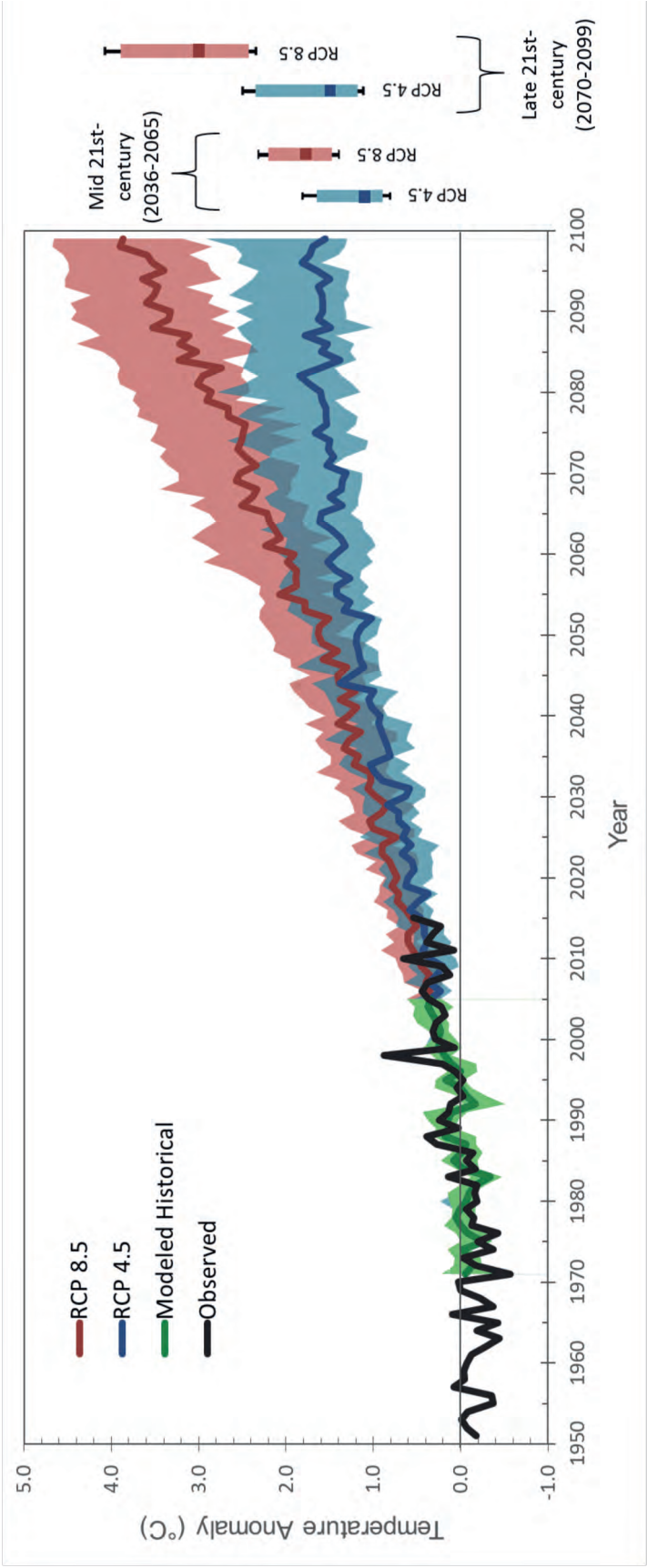


Figure 2. Time series of projected annual-mean temperature anomalies in the Philippines. Anomaly values were taken relative to the 1971–2000 baseline period. Shadings indicate the inter-model range. For comparison, the observed values from 1951 to 2015 are included (thick black line). The bars correspond to the 10th, 50th and 90th percentiles; while the whiskers correspond to the minimum and maximum projected temperature anomaly values by the mid- and end of the 21st century.

Observed Climate Trends and Projected Climate Change in the Philippines

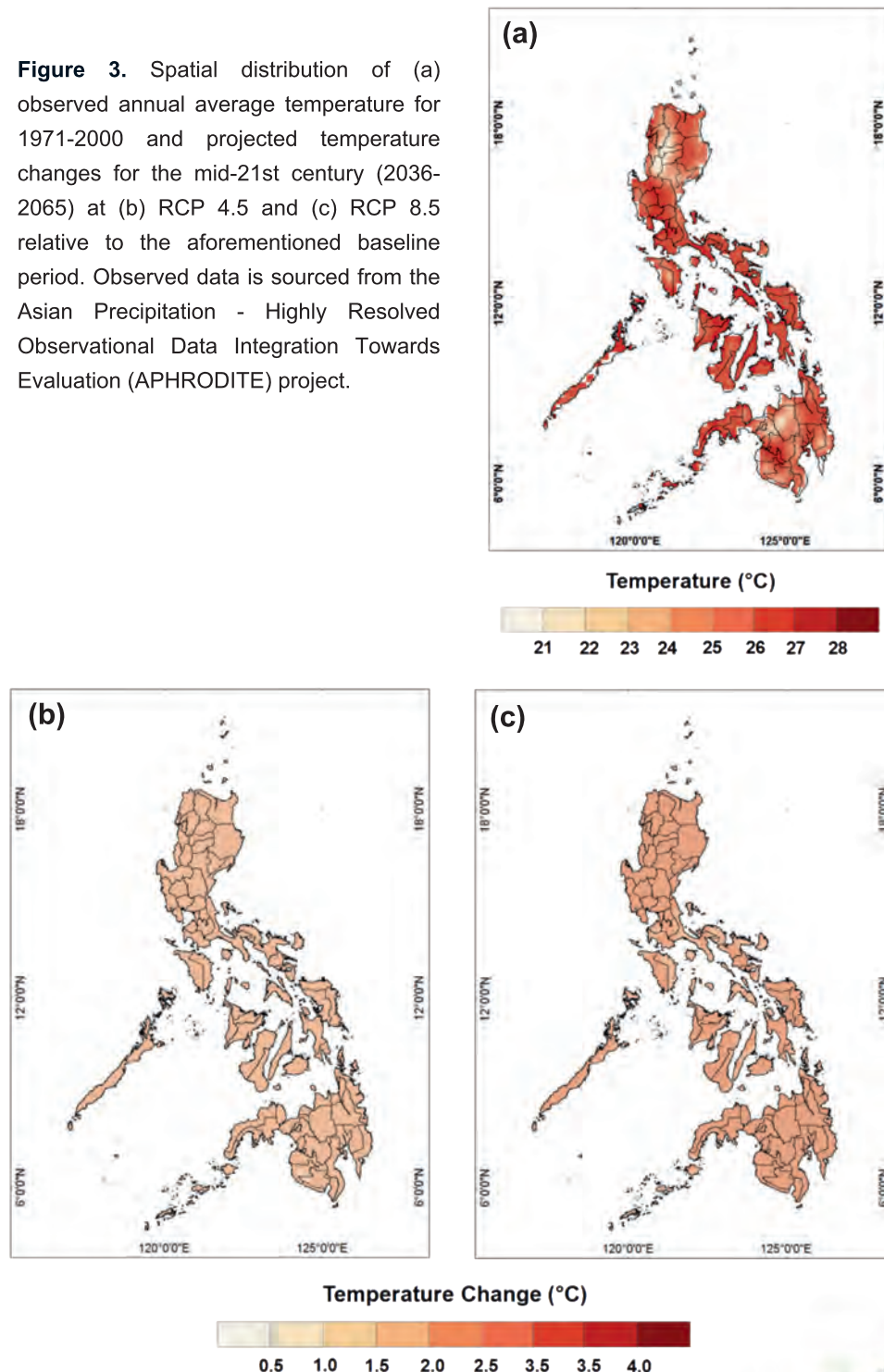


Projected changes in temperature

The spatial distribution of observed annual mean temperature is shown in Fig. 2a; most areas in the country have experienced air temperatures exceeding 26°C, while, as expected, slightly cooler areas are found in

mountainous regions. These temperatures are projected to increase uniformly and minimally across the country in both the mid-21st century and the late 21st century (Fig. 2e-f).

Figure 3. Spatial distribution of (a) observed annual average temperature for 1971-2000 and projected temperature changes for the mid-21st century (2036-2065) at (b) RCP 4.5 and (c) RCP 8.5 relative to the aforementioned baseline period. Observed data is sourced from the Asian Precipitation - Highly Resolved Observational Data Integration Towards Evaluation (APHRODITE) project.





Changes in Rainfall

Increasing trends in annual and seasonal rainfall were observed in many parts of the country. Such trends were found to be associated with extreme rainfall events. Multi-model projections suggest a range of increase and decrease in seasonal-mean rainfall exceeding 40% of its historical values. Nevertheless, the multi-model central estimate of projected changes in rainfall could be within the natural rainfall variations, except for the projected rainfall reduction over central sections of Mindanao that are beyond the observed rainfall variations in the past.

Observed changes in rainfall

Changes in rainfall over the Philippines have been found to vary spatially^{2,3,4} and thus more effective to present in terms of spatial maps (Fig. 4). From 1951 to 2010, the annual total rainfall over northern sections of Luzon, Palawan, western sections of Visayas, and central and western sections of Mindanao have declined while increasing trends have

been observed in other areas, notably, the central parts of Luzon, eastern section of Visayas, and the northeastern and southwestern sections of Mindanao at a rate ranging from 10mm/decade to as much as a rate exceeding 40mm/decade. Such trends in annual total rainfall are associated with extreme rainfall events.

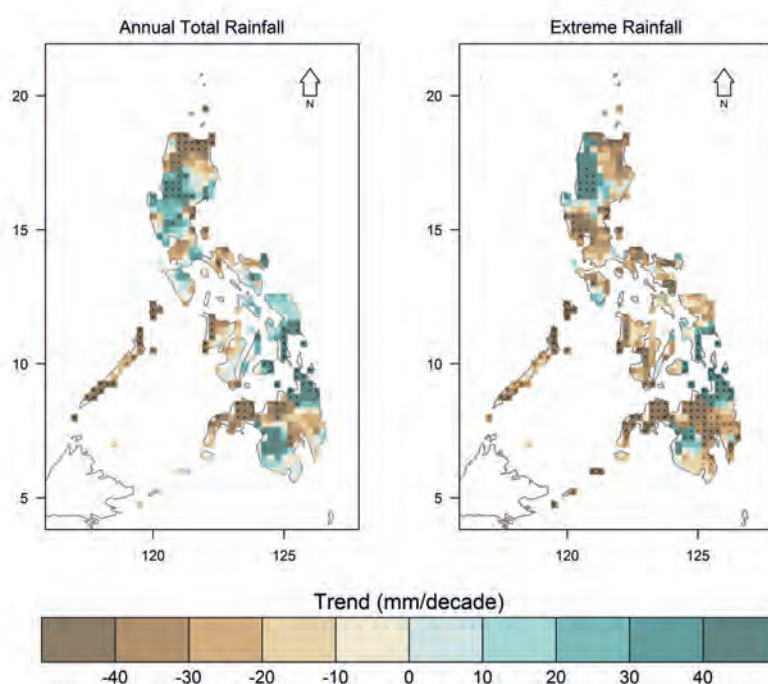


Figure 4. Observed trends in annual total rainfall and extreme rainfall in the Philippines during the period from 1951 to 2010. Extreme rainfall is defined here as the annual total rainfall taken from those days that exceeded the 95th percentile of rainfall on wet days ($RR \geq 1$ mm) in the 1971–2000 baseline period. Areas marked with dots denote statistical significance at 5% level based on the Mann-Kendall test.

Observed Climate Trends and Projected Climate Change in the Philippines



Rainfall in the Philippines is not only spatially variable, but also highly seasonal^{3,4}; hence, it is interesting to know whether different trends can be observed across seasons. Figure 5 shows the trends in seasonal total rainfall. Increasing trend in rainfall is observed pronouncedly over the northeastern section of Mindanao and eastern portions of Visayas in December–January–February coinciding to the northeast monsoon season. Note that the northeast monsoon season coincides also to the wet season over those areas implying for an increased risk of flooding potential on parts of the areas mentioned. Increasing trends in rainfall are also observed over central portions of Luzon and northeastern

sections of Mindanao in March–April–May season. In the following seasons of June–July–August and September–October–November, similar patterns of increasing rainfall trends are observed over the southern parts of Ilocos Region, and northeastern parts of Ilocos Region, and north eastern and southern parts of Mindanao; while decreasing trend is apparent in most parts of the country.

A noticeable drying trend can be observed over the northeastern portion of Luzon, and in central and northwestern sections of Mindanao in almost all seasons.

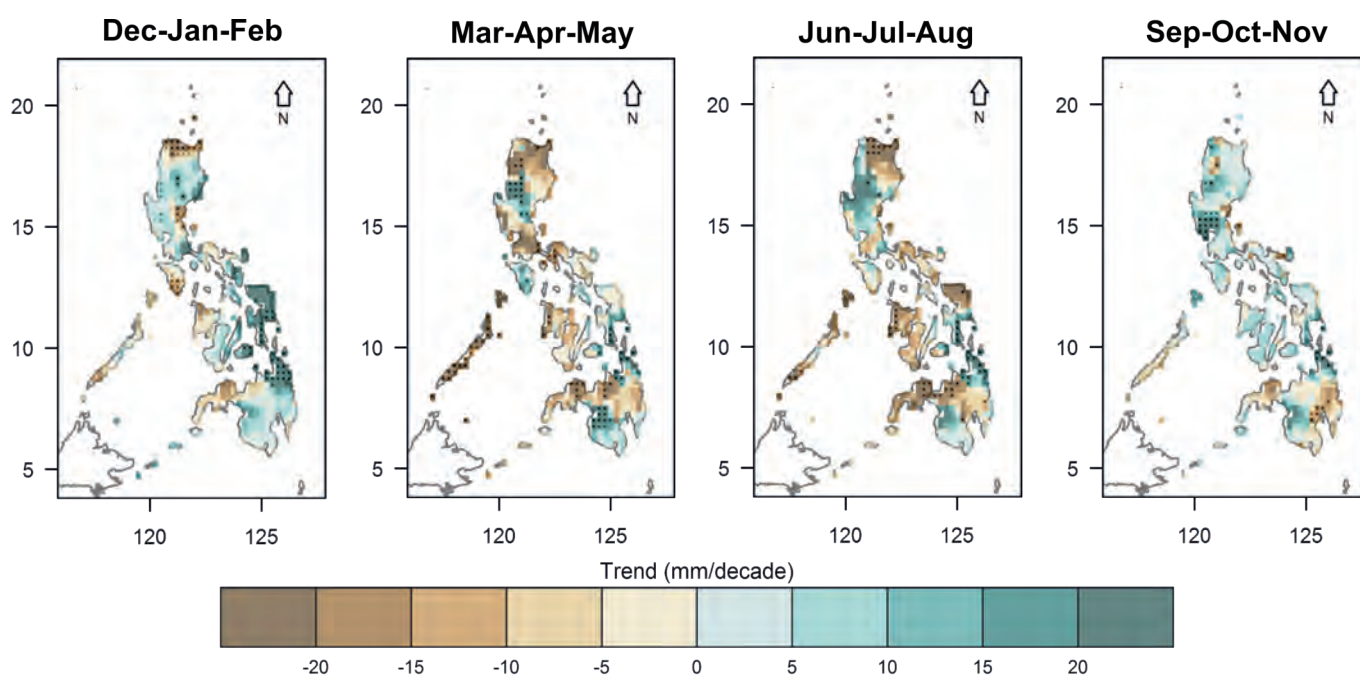


Figure 5. Observed trends in seasonal total rainfall in the Philippines during the period from 1951 to 2010. Areas marked with dots denote statistical significance at 5% level based on the Mann-Kendall test.

Projected changes in rainfall

The models used in this report are suggesting a wide range of future changes in Philippine rainfall (Fig. 6). Considering the models' assumptions underlying RCP8.5 scenario, the driest possible rainfall change (i.e., the 10th percentile of the models' projections) could reach beyond 40% reduction in many areas, particularly over Mindanao by the mid-21st century. The wettest possible change (i.e., the 90th percentile of the models' projections), on the other hand, could exceed a 40% increase in rainfall, particularly over

Luzon, western sections of Visayas, and some parts of Mindanao. The multi-model central estimate (i.e., the 50th percentile or the median) future rainfall conditions will be well within its natural variability (i.e., <1 standard deviation of observed rainfall); except for the drier future over central sections of Mindanao, particularly in September-October-November and the December-January-February seasons, which might require actionable climate change adaptation plans.

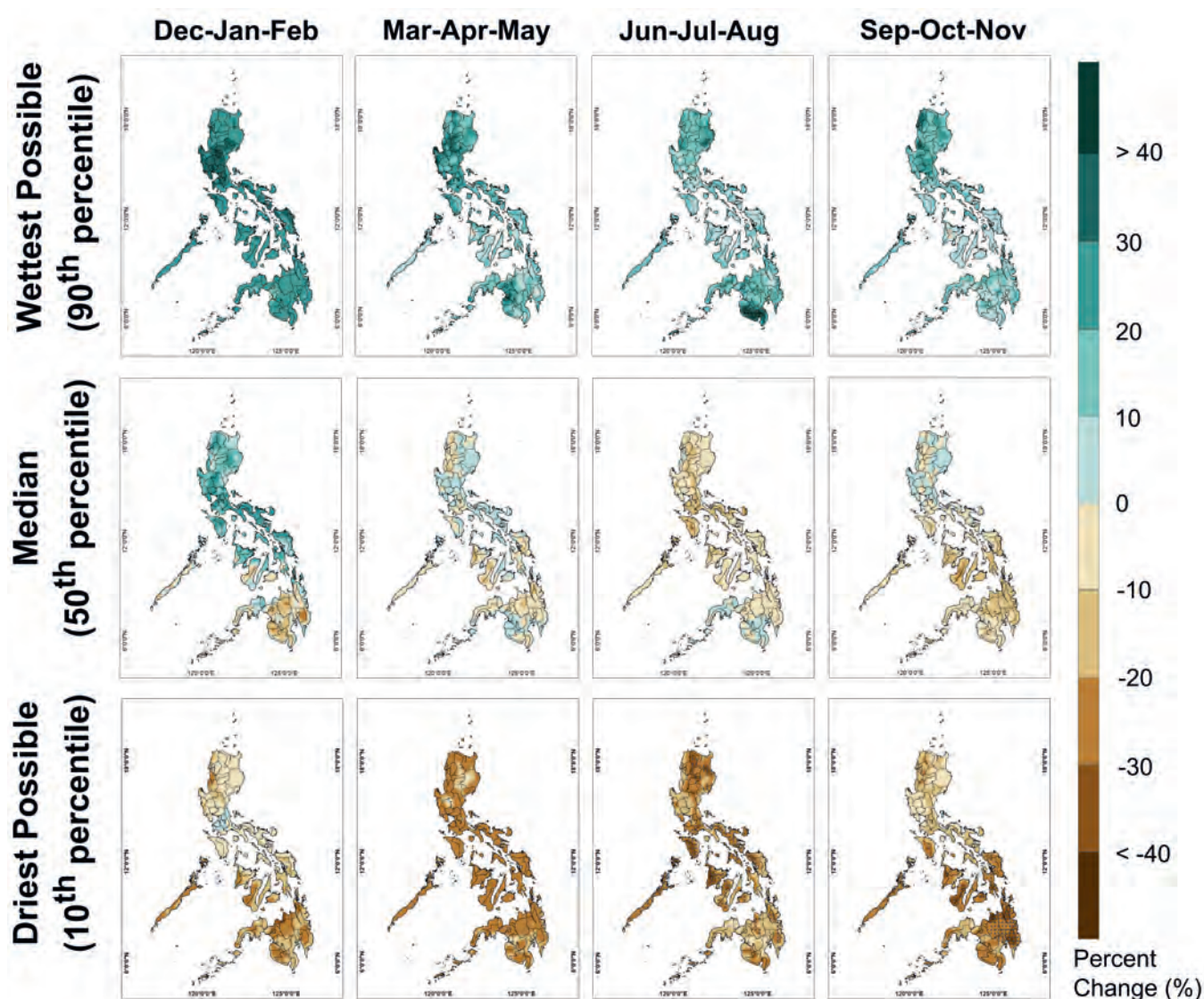


Figure 6. Projected change in seasonal total rainfall in the Philippines for the mid-21st century (2036–2065) relative to the baseline period of 1971–2000. The wettest possible change represents the 90th percentile of the projections, 50th percentile is the median or usual change, and 10th percentile is driest possible change; these were computed from the 12-member high emission scenario (RCP8.5) RCM ensemble. Dotted areas denote that the change beyond natural variability (i.e. ± 1 standard deviation of the baseline period).



Changes in Tropical Cyclone

In the past 65 years (1951–2015), a slight decrease in the number of tropical cyclones (TCs) and a minimal increase in the frequency of very strong TCs (exceeding 170kph) were observed over the Philippine area of responsibility (PAR). These trends are projected to continue in the future. It has to be noted, however, that the high year-to-year variations in the frequency of occurrence and intensity of TCs remain to be dominant in the future Philippine climate conditions.

Observed changes in tropical cyclones

The number of tropical cyclones (TCs) entering the Philippine area of responsibility (PAR), and the number of TCs that made landfall, shows a minimal decreasing trend from 1951 to 2015 (Fig. 7a). Looking at the number of very strong TCs with

maximum sustained wind speeds exceeding 170 kph, a slight increasing trend is observed during the period from 1980 to 2015 (when more reliable and consistent observations were taken), as shown by the red dashed line in Fig. 7b.

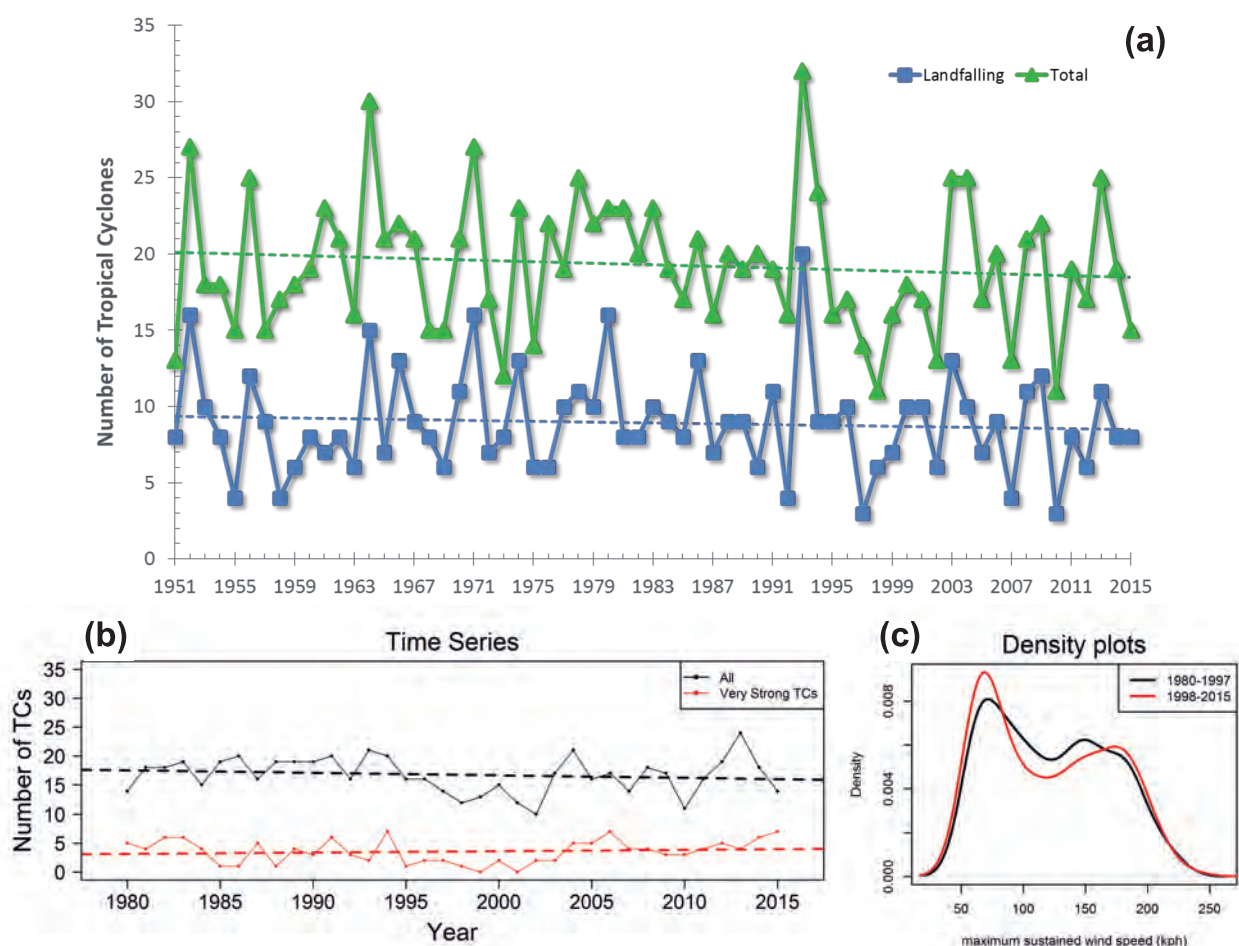


Figure 7. (a) Time series of annual number of TCs over PAR and landfalling TCs from 1951 to 2015, (b) time series of annual count of all (black line) and very intense tropical cyclones (maximum sustained winds >170kph, red line) that entered the PAR from 1980 to 2015, and (c) kernel density plots estimated from maximum sustained wind speeds of all the tropical cyclones that existed in PAR comparing two time periods (1980-1997 and 1998-2015, black and red curves, respectively). Dashed lines in (a) and (b) indicate linear trends. The TC data shown in (a) were taken from PAGASA while (b) and (c) were based from the Japan Meteorological Agency.



Projected changes in tropical cyclones

Scientists from PAGASA and the UK Met Office has worked together to investigate the possible changes in tropical cyclones that could affect the Philippines in the future⁵. Considering the five regional climate model simulations, which cover a domain that includes the PAR and assuming a high emission scenario (RCP8.5), the projected changes in the behaviour of TCs in the mid-21st century (2036-2065) were found consistent with the currently observed trends (Fig. 8). Three of the models suggest that decrease in tropical cyclone frequency is significant, while the two others suggest that no change is expected. In terms of the TC intensity, four of the models agree in a projected increase, two of which are significant. This is consistent with the report of the

IPCC that in the 21st century the average annual number of TCs in the Western North Pacific is expected to decrease, and that an increase in the frequency of strong TCs in the region is "more likely than not"⁶.

A caveat in the projections is that not all possible contributing factors in the development and behaviour of TCs were considered. The model simulations further indicate that the year-to-year variability will remain high in the future⁵. Hence, the lessons we learned in the past in mitigating tropical cyclone impacts are important to consider in the formulation of plans and programs for climate change adaptation.

	Climate Model Simulations				
	1	2	3	4	5
Change in tropical cyclone frequency	↓	↓	—	—	↓
Change in tropical cyclone intensity	—	↑	↑	↑	↑

Figure 8. Projected changes in tropical cyclones affecting the Philippines by the mid-21st century assuming high emission scenario (RCP8.5). Black arrows indicate significant changes, grey arrows indicate insignificant changes, and a dash indicates no change. Taken from [5].



Changes in Sea Level

The sea level has risen by nearly double the global average rate of sea level rise over certain parts of the Philippines from 1993–2015. Projections reveal that sea level in the country is expected to increase by approximately 20 cm by the end of the 21st century under the RCP8.5 scenario. Such projected increase in sea level might worsen storm surge hazards particularly on coastal communities.

Observed changes in sea level

Based on satellite observations (AVISO altimetry data) taken from 1993 to 2015, the sea level has risen by as much as 5.7–7.0 mm/yr over the Philippine Sea (Fig. 9). Such rate is approximately double the highest global average rate of 2.8–3.6 mm/yr, which was observed between 1993 to 2010. This difference could be attributed to the occurrence of natural climate-related phenomena, e.g. El Niño Southern Oscillation (ENSO), which directly affects the tropical Pacific region⁷.

Looking closely at different coastal areas in the country, a rate of sea level rise as high as 4.5–5.0 mm/yr is observed east of the islands of Leyte and Samar, and along the south western coasts of the Central and Western Visayas, and east of Mindanao and south of Zamboanga (Fig. 9).

Noticeable changes were also observed at the local level (Fig. 10). Tide gauge observations from National Mapping and Resource Information Authority (NAMRIA) indicate that a rapid increase in sea level was observed in Manila, particularly from 1955 to 2015. However, this is attributed to long-term land subsidence from excessive groundwater

extraction⁸. Gradual increases in sea level were observed in Legazpi and Davao, while no apparent trend was observed in Cebu and Jolo, Sulu.

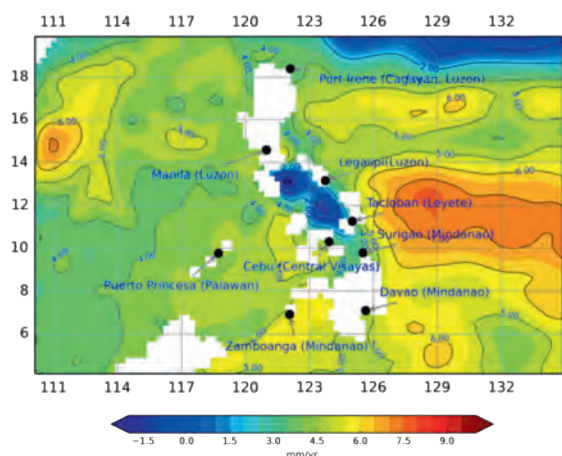


Figure 9. Sea level changes in the Philippines region from 1993-2015. Taken from [9].

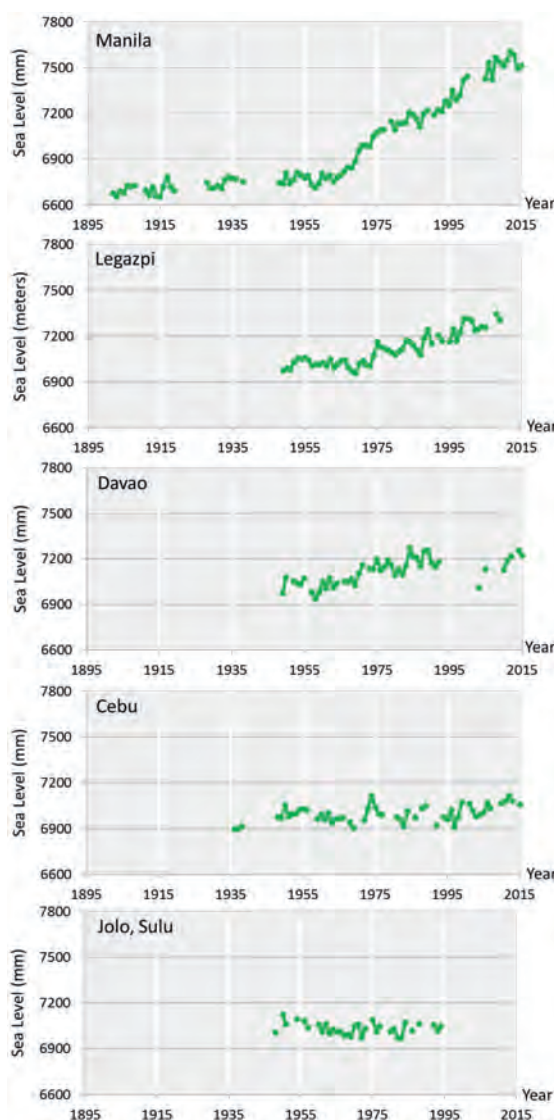


Figure 10. Sea level rise in selected areas (in mm) above the Revised Local Reference (RLR) level (7,000 mm). Data source: National Mapping and Resource Information Authority (NAMRIA)

Projected changes in sea level

As shown in Figure 11, sea level rise in the Philippines will continue to be slightly larger than the global average⁹. In both the moderate (RCP4.5) and high (RCP8.5) emission scenarios, the increase is expected to be almost the same by the mid-21st century. The trend for RCP4.5 will continue to be linear up to the end of the 21st century, while the trend for RCP8.5 will follow a

rather exponential increase - leading to a sea level rise by approximately 20 cm (Fig. 11b and 11c). The projected increase in sea level might worsen storm surge hazards particularly on coastal communities, which requires climate change adaptation action plans.

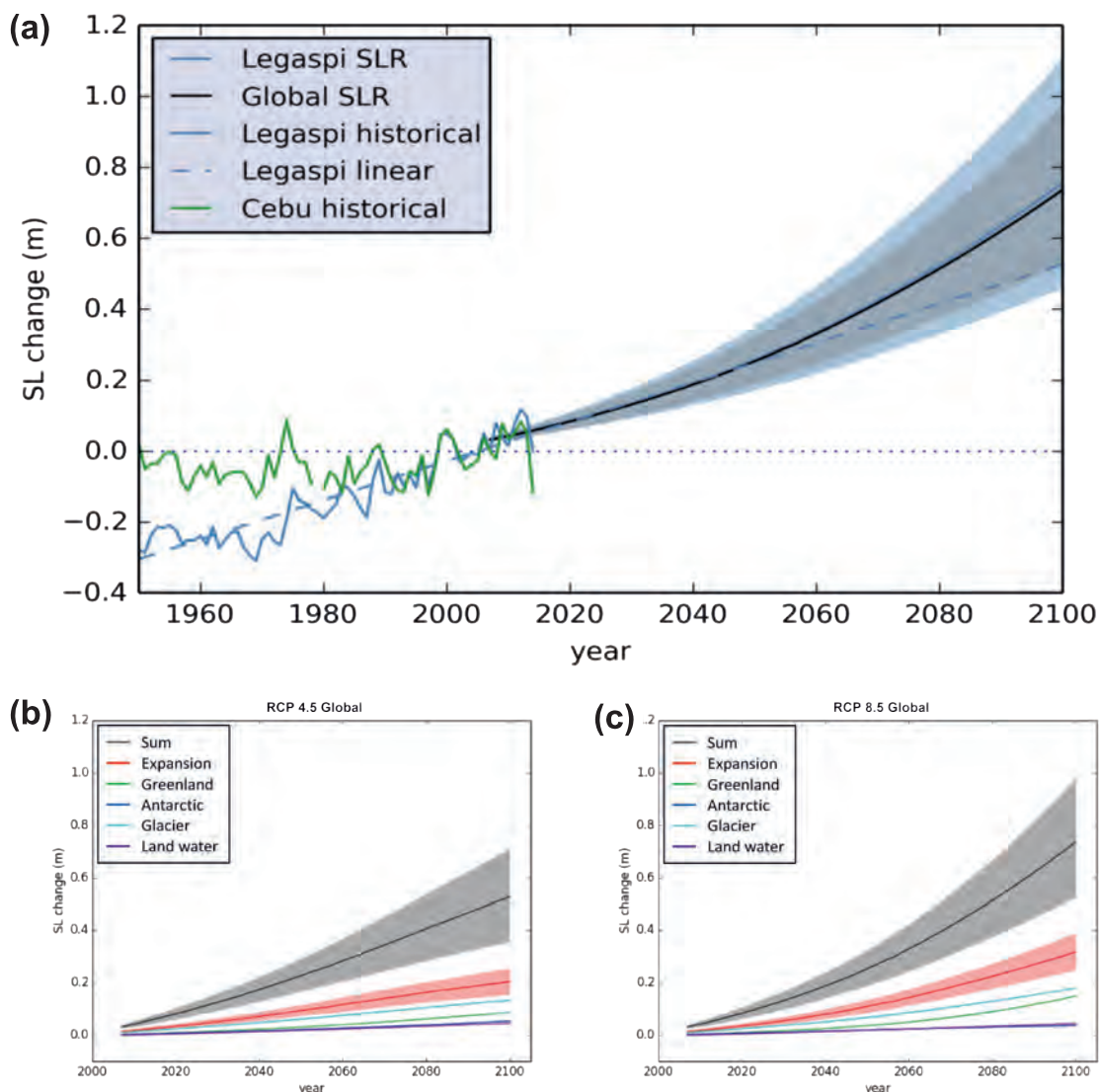


Figure 11. (a) shows the historical sea level change (SLC) from tide gauge observations and future projections; (b) and (c) contain time series plots of the global mean sea level change projections under RCP4.5 and RCP8.5. The plot in (a) shows the sum of SLC components for the global ocean (black line, with uncertainty range in grey) and for the coastal region of Legaspi City, Philippines (blue line, with uncertainty), under the RCP8.5 future scenario. Annual mean tide-gauge measurements from Legaspi (blue line) and Cebu (green line) are also presented and a linear trend is added to the observations from Legaspi. The solid line in (a), (b), and (c) represent the central estimate and the shaded area represent the uncertainty of the likely range. Taken from [9]



Methodology

This section contains a brief discussion on how climate projections for the Philippines were generated — the models utilized, the model settings, the time slices, and the range of possible climate futures. The latest climate scenarios, the Representative Concentration Pathways (RCPs), are also introduced.

The previous climate change information for the Philippines were presented in the Climate Change in the Philippines by PAGASA on 2011¹⁰. These were based on future socio-economic conditions known as the Special Report Emission Scenario (SRES). The SRES covered a wide range of possible future atmospheric GHG concentration, however none were based on policies for climate change mitigation. To resolve this, the IPCC released a new set of scenarios representing the cumulative concentration of GHGs. These new set of scenarios were designated as the

Representative Concentration Pathways (RCPs) and have names based on radiative forcing (energy accumulated by the GHGs in the atmosphere) levels. The main difference between the new RCPs and the previous SRES scenarios is that there are no fixed sets of assumptions related to population growth, economic development, or technology associated with any RCP. Many different socio-economic futures are possible leading to the same level of radiative forcing.

The new set of climate projections for the Philippines were based on two of the most recent scenarios from the IPCC: RCP4.5 (moderate level of GHG emissions) and RCP8.5 (high level of GHG emissions).

Figure 12 illustrates how the climate projections were derived. Initially, the global climate models (GCMs) project the possible future climate conditions given a particular greenhouse gases concentration (i.e., the RCPs). Different physical and dynamical processes of the climate system are represented in the GCMs. The GCM-derived climate projections are then downscaled by the regional climate models (RCMs), namely the Conformal Cubic Atmospheric Model (CCAM)¹¹, the Providing Regional Climates for Impacts Studies (PRECIS) model¹², the RegCM4¹³, and the HadGEM3-RA¹⁴, to provide more realistic and spatially detailed quantities (e.g., rainfall, temperature, pressure, etc.) at local scales (i.e. downscaled)¹⁵. For a technically detailed discussion of all the models used in generating the projections, refer to [16].

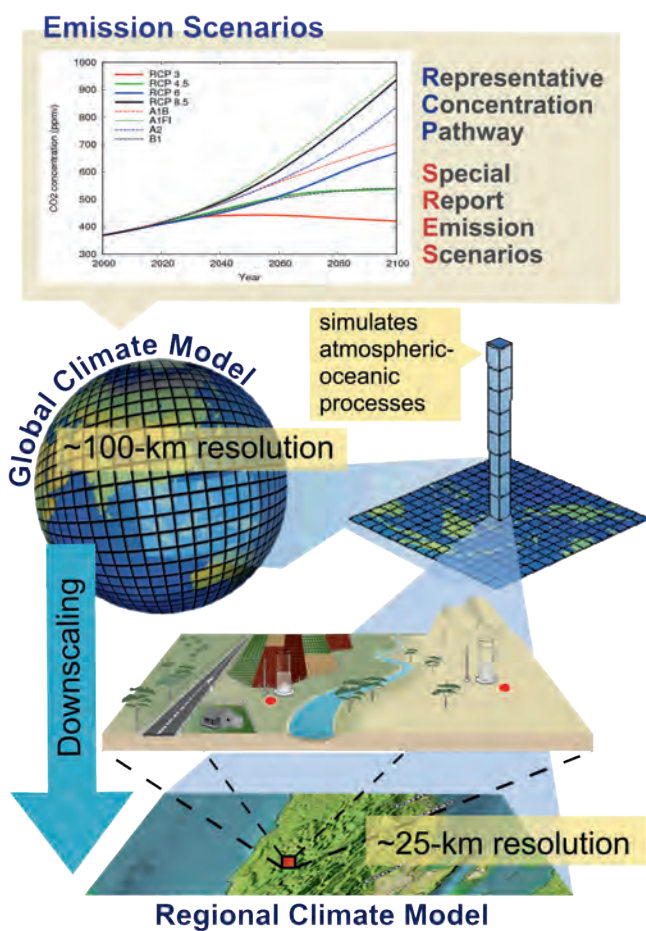


Figure 12. Illustration of the general scheme of the climate modeling processes that produced the currently available climate projections for the Philippines [9].



The CLIRAM Tool

This section introduces the Climate Information Risk Analysis Matrix tool and provides a comprehensive guide on its utilization

Using the collection of RCP-based projections available for the Philippines, PAGASA has derived a range of climate futures to help policy makers, such as LGUs, establish robust decisions on mitigation and adaptation options¹⁷. This new approach in utilizing climate projection data is the underlying concept in the Climate Information Risk Analysis Matrix (CLIRAM) tool.

The CLIRAM provides the projected changes in climate variables (particularly for rainfall, mean temperature, minimum temperature, and maximum temperature) in both the mid-21st century (2036-2065) or the late-21st century (2070-2099) based on the 1971–2000 baseline period. Following the descriptions of the parts of the CLIRAM and an instruction on its utilization which was partly adapted from the procedures found in the Climate and Disaster Risk Assessment (CDRA) process.

Parts of the CLIRAM Tool

The current version of the CLIRAM tool is based on the suggestions and needs of participants in the pilot testings. Originally, there were separate CLIRAMs for each season. The new layout (see Tables 1 and 2) displays data for all seasons, which is helpful for the analysis and interpretation of interseasonal patterns of change. Column 1 in both Tables indicate the season as well as the observed baseline value for the period (i.e. from 1971 to 2000). Projections for each season are divided into two sets based on the the driving scenario of the climate model sources (see Column 2). These projections are further clustered into percentiles, categorized in Column 3 as the lower bound (10th percentile), median (50th

percentile), and upper bound (90th percentile). Column 4 contains the amount of change between the target period and the baseline period in terms of algebraic difference in the temperature CLIRAMs and percent difference in the rainfall CLIRAM (which is provided as actual change amount in Column 5). The projected values for the target period is listed on Column 5 and Column 6 of the temperature (i.e. for the minimum, maximum, and mean) and rainfall CLIRAM, respectively. Instructions on filling up the blank columns are provided as follows.

Utilizing the CLIRAM Tool

In accomplishing the CLIRAM for seasonal total rainfall, determine the projected patterns of change (Column 6 of Table 1) based on the following (refer to Column 4 to 6):

1. The lower bound that indicates the driest possible change;
2. The upper bound that indicates the wettest possible change; and
3. The median which represents the most likely future change.

If the reader is familiar with CDRA, one may notice in Table 1 that unlike Task 1 of Step 1 in the CDRA process, the CLIRAM does not require any computation, but instead already provides the values necessary for Columns 5 and 6. The same goes for the mean temperature CLIRAM (see Table 2).



Observed Climate Trends and Projected Climate Change in the Philippines

Table 1. Sample CLIRAM of projected changes in seasonal total rainfall in the mid-21st century (2036-2065) for Metro Manila; baseline period = 1971-2000.

Season	Scenario	Range*	Projected Change			Projected Seasonal Rainfall Amount (mm)	Information about patterns of change**		Potential Impacts	Adaptation Option
			Percent (%)	Rainfall amount (mm)						
Col 1	Col 2	Col 3	Col 4	Col 5	Col 6	Col 7	Col 8	Col 9		
December-January-February (DJF) Observed baseline = 107.5 mm	Moderate Emission (RCP4.5)	Lower Bound	-0.1	-0.2	107.3	Minimal to no change				
		Median	17.7	19.0	126.5	Rainfall will most likely increase (17 %) during the Northeast (NE) Monsoon or Amihan	Assess the potential impacts using the Steps 2-4 of the CDRA process			
		Upper Bound	55.5	59.6	167.1	The wettest possible rainfall change during the Northeast (NE) Monsoon or Amihan shows an increase of 55%. This increase could be beneficial to some sectors of the community, as this season corresponds to the dry months over the region				
	High Emission (RCP8.5)	Lower Bound	2.7	2.9	110.4	Minimal to no change				
		Median	27.8	29.9	137.4	Rainfall will most likely increase (20%) during the Northeast (NE) Monsoon or Amihan, same with the RCP4.5				
		Upper Bound	53.4	57.4	164.9	The wettest possible rainfall change during the Northeast (NE) Monsoon or Amihan shows an increase of 53%. This increase could be beneficial to some sectors of the community, as this season corresponds to the dry months over the region				
March-April-May (MAM) Observed baseline = 198.5 mm	Moderate Emission (RCP4.5)	Lower Bound	0.7	1.3	199.8	Minimal to no change				
		Median	6.9	13.7	212.2	Minimal to no change				
		Upper Bound	25.7	51.1	249.6	Increase in rainfall during the dry months				
	High Emission (RCP8.5)	Lower Bound	-7.2	-14.3	184.2	A driest possible change in rainfall shows a slight reduction of about 7% during the dry season. This change could have adverse impacts on human health, water resources, and businesses, among others.				
		Median	4.8	9.6	208.1	Minimal to no change				
		Upper Bound	19.8	39.4	237.9	Increase of 20% in rainfall during the dry season,				
June-July-August (JJA) Observed baseline = 1170.2 mm	Moderate Emission (RCP4.5)	Lower Bound	-21.3	-249.4	920.8	The driest possible rainfall change during the Southwest Monsoon (SW) or Habagat shows a 20% reduction. Areas already vulnerable to flooding will continue to be affected, but this might affect the availability of water resources.				
		Median	-10.1	-118.6	1051.6	Minimal to no change				
		Upper Bound	-0.4	-5.0	1165.2	Minimal to no change				
	High Emission (RCP8.5)	Lower Bound	-17.0	-199.3	970.9	The driest possible future rainfall change during the Southwest Monsoon (SW) or Habagat shows a 17% reduction. Areas already vulnerable to flooding will continue to be affected, but this might affect the availability of water resources.				
		Median	-6.1	-71.7	1098.5	Minimal to no change				
		Upper Bound	7.7	90.3	1260.5	Minimal to no change				
September-October-November (SON) Observed baseline = 758.7 mm	Moderate Emission (RCP 4.5)	Lower Bound	-10.8	-82.3	676.4	The driest possible future rainfall change during the transition period from NE to SW monsoon shows a reduction of 10%.				
		Median	-6.0	-45.2	713.5	Minimal to no change				
		Upper Bound	7.7	58.5	817.2	Minimal to no change				
	High Emission (RCP 8.5)	Lower Bound	-8.0	-60.6	698.1	Minimal to no change				
		Median	3.9	29.6	788.3	Minimal to no change				
		Upper Bound	19.9	150.7	909.4	The wettest possible rainfall change is about 19%, during the transition period				

* upper bound: 90th percentile; median: 50th percentile; lower bound: 10th percentile



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For each season, assess first the lower bound that represents the lowest possible rainfall change. Determine whether the reduction is relevant relative to the baseline climate. For example in Table 1, on the March–April–May season, the lower bound change (with red highlight) under the high emission scenario shows a slight rainfall reduction. Considering that this projection is on the dry season of Metro Manila, it could have potential impacts to various sectors.

The same procedure can be used to assess the seasonal mean temperature in Table 2. Identify the lower and upper bound to get the temperature range for each season and input this on Column 6. Based on these, identify the coldest and hottest seasons. The projected temperature shows warming in all seasons, but a greater warming is indicated under the high emission scenario (RCP8.5).

For users to assess the potential impacts (see Column 8 of Table 1 and Column 7 of Table 2) on their respective sectors for each of the projected change, they could refer to steps 2–4 in the CDRA process. In determining the impacts, a particular climate risk must be identified. For example, if one is looking at risk of flooding, then consider the wettest possible change during the wet season.

Possible adaptation options for each potential impact should be identified following Steps 5 & 6 in the CDRA process. Ideally, this part should be carried out by the focal lead from the LGU (either the Planning Officer, Local Disaster Risk Reduction Officer, or Municipal Agriculturist).

Examples of accomplished CLIRAMs of both seasonal rainfall and mean temperature in the mid-21st century are shown in the Appendix. These were filled-out by officials from the Municipality of Salcedo, Eastern Samar during the conduct of a CLIRAM utilization workshop.

A summary of the seasonal climate projections for all Philippine provinces are provided in the Annex. To aid in the analysis, a provincial-level map of the distribution of the projected changes is also available. If interested to acquire the detailed CLIRAM of a particular area/s (e.g. the example provided herein) including the projection maps, the reader may request from PAGASA through any of the contact information provided at the back portion of the cover page of this report.



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Table 2. Sample CLIRAM of projected changes in seasonal mean temperature in the mid-21st century (2036-2065) for Metro Manila; baseline period = 1971-2000.

Season	Scenario	Range*	Projected Change		Information about patterns of change	Potential Impacts	Adaptation Option
			Degrees Celsius	Degrees Celsius			
Col 1	Col 2	Col 3	Col 4	Col 5	Col 6	Col 7	Col 8
December-January-February (DJF) Observed baseline = 26.1°C	Moderate Emission (RCP 4.5)	Lower Bound	1.0	27.1	Coldest season		
		Median	1.2	27.3	27.1 to 27.7		
		Upper Bound	1.6	27.7			
	High Emission (RCP 8.5)	Lower Bound	1.2	27.3		Assess the potential impacts using the Steps 2-4 of the CDRA process	
		Median	1.6	27.7	27.3 to 28.0		
		Upper Bound	1.9	28.0			
March-April-May (MAM) Observed baseline = 28.8°C	Moderate Emission (RCP 4.5)	Lower Bound	0.9	29.7			Assess the potential impacts using the Steps 5-6 of the CDRA process
		Median	1.2	30.0	29.7 to 30.5		
		Upper Bound	1.7	30.5			
	High Emission (RCP 8.5)	Lower Bound	1.3	30.1	Hottest season		
		Median	1.6	30.4	30.1 to 31.0		
		Upper Bound	2.2	31.0			
June-July-August (JJA) Observed baseline = 28.0°C	Moderate Emission (RCP 4.5)	Lower Bound	1.0	29.0			
		Median	1.3	29.3	29.0 to 29.8		
		Upper Bound	1.8	29.8			
	High Emission (RCP 8.5)	Lower Bound	1.3	29.3			
		Median	1.5	29.5	29.3 to 30.3		
		Upper Bound	2.3	30.3			
September-October-November (SON) Observed baseline = 27.4°C	Moderate Emission (RCP 4.5)	Lower Bound	1.0	28.4			
		Median	1.1	28.5	28.4 to 29.2		
		Upper Bound	1.8	29.2			
	High Emission (RCP 8.5)	Lower Bound	1.3	28.7			
		Median	1.5	28.9	28.7 to 29.0		
		Upper Bound	2.2	29.6			

* upper: 90th percentile; median: 50th percentile; lower: 10th percentile



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Appendix A

Provided here are samples of accomplished CLIRAMs of seasonal total rainfall and seasonal mean temperature of the mid-21st century for the Province of Eastern Samar. Accompanying each CLIRAM are spatial maps of the distribution of rainfall and temperature in the province according to the 90th percentile, 50th percentile, and 10th percentile of the range of projection values.

Table A-1. Accomplished CLIRAM of the projected seasonal total rainfall in Eastern Samar for the mid-21st century (2036–2065); baseline period: 1971–2000.

Season	Scenario	Range*	Projected Change		Projected Seasonal Rainfall Amount (mm)	Information about patterns of change	Potential Impacts	Adaptation Option
Col 1	Col 2	Col 3	Percent (%)	Rainfall amount (mm)	Col 6	Col 7	Col 8	Col 9
December-January February (DJF)	Moderate Emission (RCP 4.5)	Lower Bound	-4.2	-41.1	945.9	Minimal to no change		
		Median	1.3	12.5	999.5	Minimal to no change		
	High Emission (RCP 8.5)	Upper Bound	45.0	444.4	1431.4	The highest possible future rainfall change during the Northeast (NE) Monsoon or Amihan shows an increase of 45%. This increase could be detrimental to some sectors of the community, as this season corresponds to the wettest months over the region	<ul style="list-style-type: none"> Farm flooding, crops ruined (e.g. wash out planted cassava 6-8 months growing period) Pest & disease infestation Increased cost of lodging animals & crops Decrease in yield/production 	
		Lower Bound	-7.9	-77.8	909.2	Minimal to no change		
	High Emission (RCP 8.5)	Median	13.7	135.2	1122.2	Minimal to no change		
		Upper Bound	43.6	430.8	1417.8	The highest possible future rainfall change during the Northeast (NE) Monsoon or Amihan shows an increase of 44%. This increase could be detrimental to some sectors of the community, as this season corresponds to the wettest months over the region	<ul style="list-style-type: none"> Farm flooding, crops ruined (e.g. wash out planted cassava 6-8 months growing period) Pest & disease infestation Increased cost of lodging animals & crops Decrease in yield/production 	
	Moderate Emission (RCP 4.5)	Lower Bound	-2.6	-12.1	452.0	Minimal to no change		
		Median	1.8	8.2	472.3	Minimal to no change		
	High Emission (RCP 8.5)	Upper Bound	17.4	80.8	544.9	Minimal to no change		
		Lower Bound	5.8	26.8	490.9	Minimal to no change		
March-April-May (MAM)	Moderate Emission (RCP 4.5)	Upper Bound	1.1	5.3	469.4	Minimal to no change		
		Lower Bound	13.0	60.3	524.4	Minimal to no change		
	High Emission (RCP 8.5)	Median	-6.7	-37.5	522.3	Minimal to no change		
		Upper Bound	-1.1	-6.0	553.8	Minimal to no change		
	Moderate Emission (RCP 4.5)	Lower Bound	8.3	46.4	606.2	Minimal to no change		
		Median	-14.0	-78.3	481.5	Minimal to no change		
	High Emission (RCP 8.5)	Upper Bound	-0.6	-3.2	556.6	Minimal to no change		
		Lower Bound	9.7	54.6	614.4	Minimal to no change		
	Moderate Emission (RCP 4.5)	Lower Bound	-20.1	-174.9	696.5	The driest possible future rainfall change during the transition period from NE to SW monsoon shows a reduction of 20%.		
		Median	-16.6	-144.7	726.7	The most likely future rainfall change during the transition period from NE to SW monsoon shows a reduction of 17%.		
September-October-November (SON)	Moderate Emission (RCP 4.5)	Upper Bound	-3.8	-33.4	838.0	Minimal to no change		
		Lower Bound	-22.0	-191.3	680.1	The driest possible future rainfall change during the transition period from NE to SW monsoon shows a reduction of 22%.		
	High Emission (RCP 8.5)	Median	-9.3	-81.3	790.1	Minimal to no change		
		Upper Bound	4.7	40.7	912.1	Minimal to no change		

* upper: 90th percentile; median: 50th percentile; lower: 10th percentile

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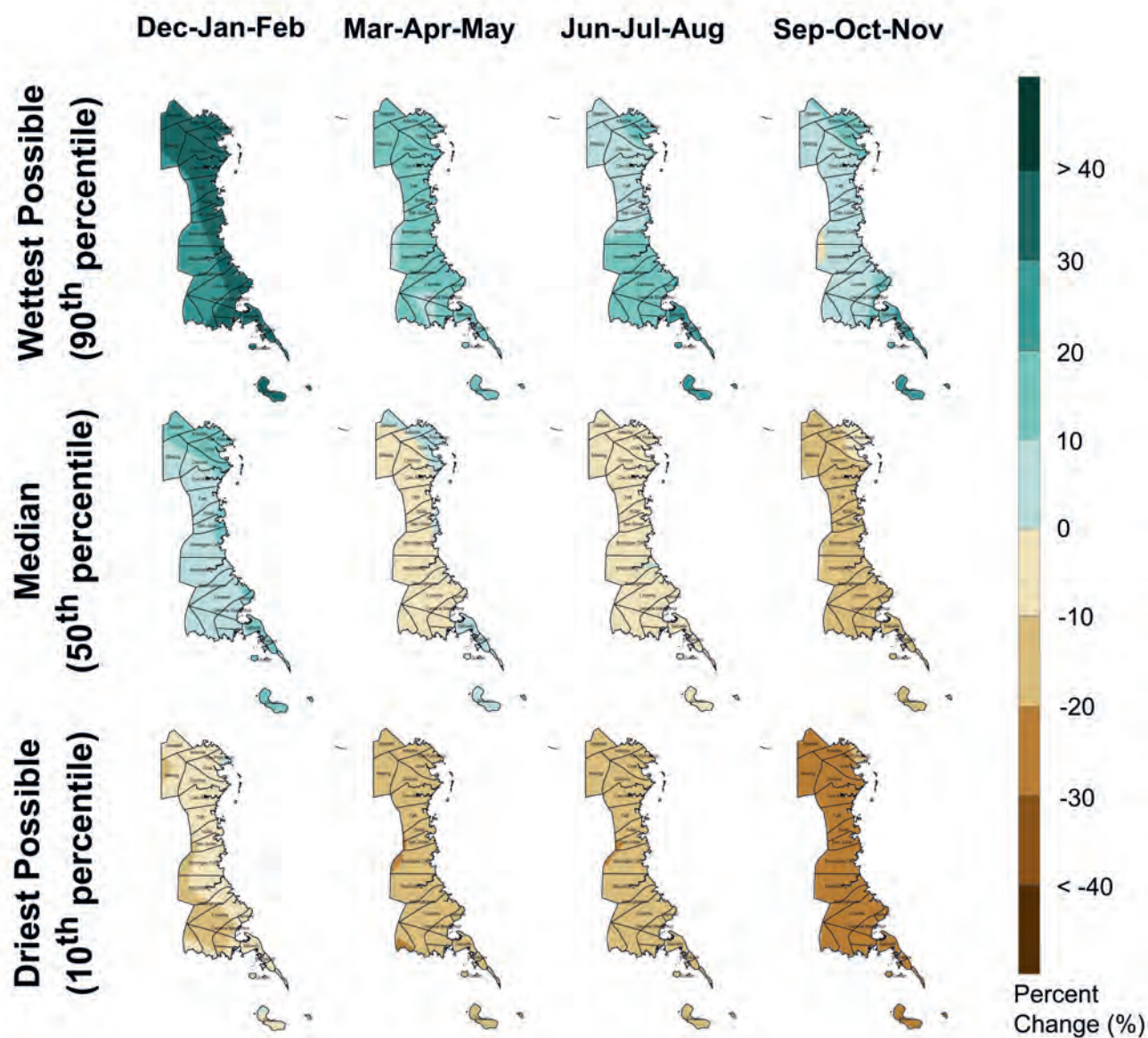


Figure A-1. Projected change in seasonal total rainfall in the Eastern Samar for the mid-21st century (2036–2065) relative to the baseline period of 1971–2000. The wettest possible change represents the 90th percentile of the projections, 50th percentile is the median or usual change, and 10th percentile is driest possible change; these were computed from the 12-member high emission scenario (RCP8.5) RCM ensemble.

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Table A-2. Accomplished CLIRAM of the projected seasonal mean temperature for Eastern Samar in the mid-21st century (2036–2065); baseline period: 19712000.

Season Col 1	Scenario Col 2	Range* Col 3	Projected Change		Information about patterns of change Col 6	Potential Impacts Col 7	Adaptation Option Col 8
			Change in °C Col 4	Projected Seasonal Mean Temperature (°C) Col 5			
December-January- February (DJF) Observed baseline = 26.1°C	Moderate Emission (RCP 4.5)	Lower Bound Median Upper Bound	1.0 1.1 1.6	27.1 27.2 27.7	Coldest season 27.1 to 27.7	<ul style="list-style-type: none"> • Impotent livestock/crops • Livestock disease • Ice-ice effect • Fish kill • Decrease in yield/production 	<ul style="list-style-type: none"> • Conduct Climate Field School to make farmers more resilient to climate adversities • Provide EWS for agriculture • Provide insurance to farmers
	High Emission (RCP 8.5)	Lower Bound Median Upper Bound	1.3 1.5 1.9	27.4 27.6 28.0	27.4 to 28.0		
	Moderate Emission (RCP 4.5)	Lower Bound Median Upper Bound	1.0 1.2 1.7	28.7 28.9 29.4	28.7 to 29.4		
March-April-May (MAM) Observed baseline = 27.7°C	High Emission (RCP 8.5)	Lower Bound Median Upper Bound	1.4 1.6 2.1	29.1 29.3 29.8	29.1 to 29.8		
	Moderate Emission (RCP 4.5)	Lower Bound Median Upper Bound	1.0 1.2 1.8	29.3 29.5 30.1	29.3 to 30.1		
	High Emission (RCP 8.5)	Lower Bound Median Upper Bound	1.4 1.7 2.2	29.7 30.0 30.5	Hottest season 29.7 to 30.5		
June-July-August (JJA) Observed baseline = 28.3°C	Moderate Emission (RCP 4.5)	Lower Bound Median Upper Bound	1.0 1.2 1.8	28.7 28.9 29.5	28.7 to 29.5		
	High Emission (RCP 8.5)	Lower Bound Median Upper Bound	1.4 1.7 2.2	29.1 29.3 29.8	29.1 to 29.8		
	Moderate Emission (RCP 4.5)	Lower Bound Median Upper Bound	1.0 1.2 1.8	28.7 28.9 29.5	28.7 to 29.5		
September-October- November (SON) Observed baseline = 27.7°C	High Emission (RCP 8.5)	Lower Bound Median Upper Bound	1.4 1.5 2.2	29.1 29.2 29.9	29.1 to 29.9		
	Moderate Emission (RCP 4.5)	Lower Bound Median Upper Bound	1.0 1.2 1.8	28.7 28.9 29.5	28.7 to 29.5		
	High Emission (RCP 8.5)	Lower Bound Median Upper Bound	1.4 1.5 2.2	29.1 29.2 29.9	29.1 to 29.9		

* upper: 90th percentile; median: 50th percentile; lower: 10th percentile

Observed Climate Trends and Projected Climate Change in the Philippines

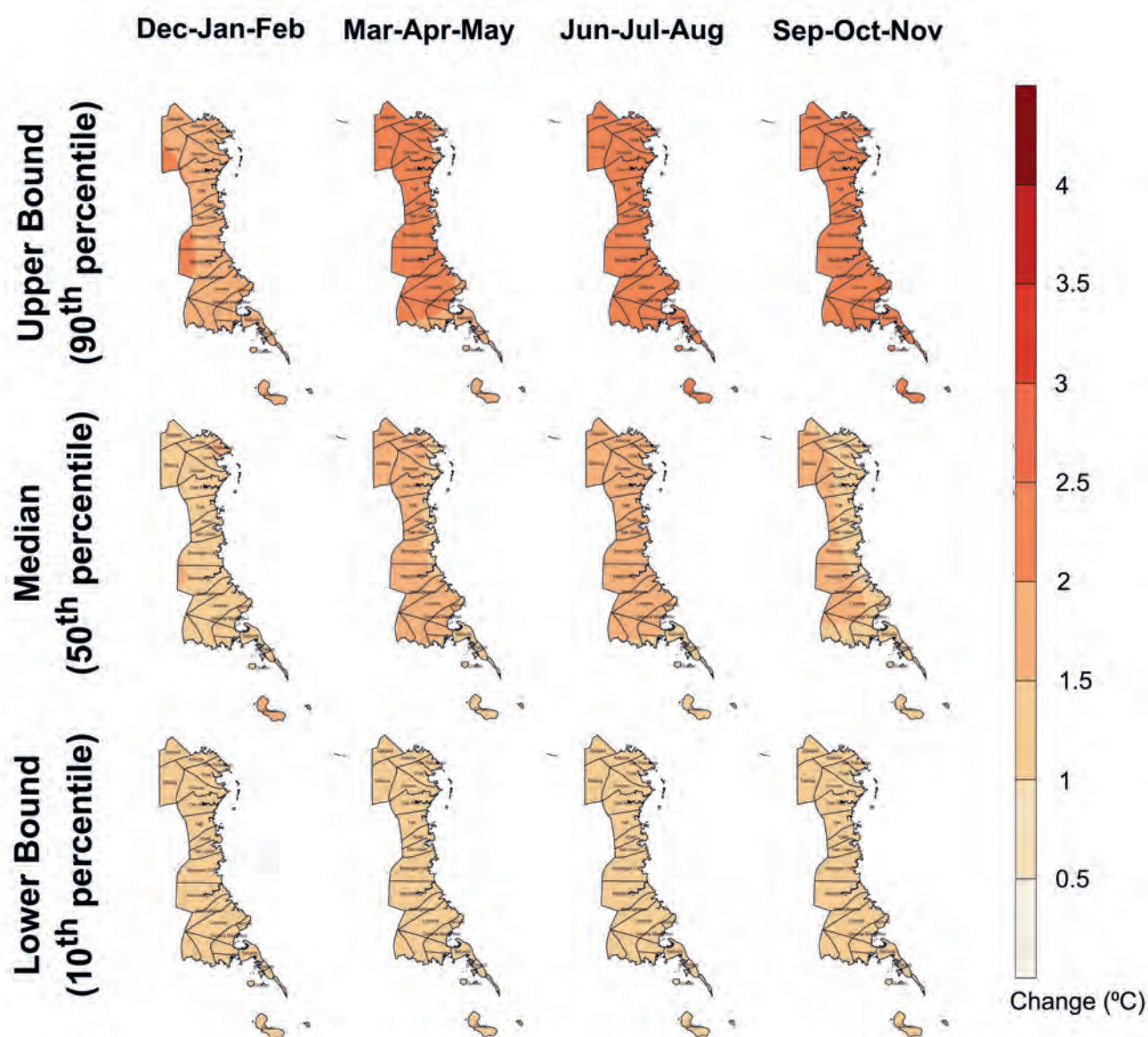


Figure A-2. Projected change in seasonal mean temperature in the Eastern Samar for the mid-21st century (2036–2065) relative to the baseline period of 1971–2000. The upper bound of the range of change represents the 90th percentile of the projections, 50th percentile is the median or usual change, and 10th percentile is lower bound of the range of change; these were computed from the 12-member high emission scenario (RCP8.5) RCM ensemble.

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Appendix B

This section contains the summary of the seasonal values of total rainfall and mean temperature taken from the CLIRAM of each of the provinces in the Philippines. Note that currently there are no available climate projections for provinces of relatively small land areas since the resolution of most of the models are limited to 25 x 25 km.

Table B-1. CLIRAM of the projected seasonal change in total rainfall (in millimeters) in the mid-21st century (2036-2065) for all provinces; baseline period: 1971-2000.

Region	Province	Observed (1971-2000)				Projected (2036-2065)									
		DJF	MAM	JJA	SON	Scenario	Range*	DJF (Dec-Jan-Feb)		MAM (Mar-Apr-May)		JJA (Jun-Jul-Aug)		SON (Sep-Oct-Nov)	
								Percent change	Projected value	Percent change	Projected value	Percent change	Projected value	Percent change	Projected value
Region 1	Ilocos Norte	49.8	185.5	1,106.4	595.4	Moderate Emission (RCP4.5)	Lower Bound	1.5	50.5	-15.6	156.5	-23.9	841.5	-18.9	483.1
							Median	12.8	56.2	-2.7	180.4	-19.9	886.5	0.4	597.7
							Upper Bound	32.2	65.8	22.4	227.1	10.4	1,221.0	29.8	772.7
						High Emission (RCP8.5)	Lower Bound	-2.8	48.4	-25.9	137.5	-15.9	930.9	-14.9	506.6
							Median	9.6	54.6	-8.1	170.5	-10.1	995.1	-2.2	582.5
							Upper Bound	24.5	62.0	17.1	217.2	17.3	1,298.2	29.5	770.9
	Ilocos Sur	17.5	288.8	1,575.4	672.9	Moderate Emission (RCP4.5)	Lower Bound	-11.8	15.4	-10.3	259.2	-14.3	1,350.5	-19.1	544.3
							Median	-2.7	17.0	-4.9	274.6	3.5	1,630.5	-5.2	637.6
							Upper Bound	51.6	26.5	18.6	342.4	7.9	1,699.2	14.8	772.6
						High Emission (RCP8.5)	Lower Bound	-23.6	13.4	-21.7	226.0	-12.5	1,378.6	-11.3	596.9
							Median	-0.2	17.5	-3.2	279.7	1.3	1,596.5	0.0	672.9
							Upper Bound	25.4	21.9	25.6	362.7	19.1	1,876.8	12.7	758.5
	La Union	14.7	395.6	1,852.3	837.8	Moderate Emission (RCP4.5)	Lower Bound	-0.1	14.7	-10.3	354.7	-13.9	1,594.9	-15.7	706.3
							Median	9.1	16.0	-2.6	385.3	5.2	1,949.1	4.7	877.5
							Upper Bound	45.4	21.4	16.4	460.5	9.3	2,025.0	13.3	949.5
						High Emission (RCP8.5)	Lower Bound	-22.6	11.4	-20.4	314.8	-8.8	1,689.2	-17.3	693.2
							Median	14.8	16.9	-2.9	384.2	2.0	1,889.9	3.7	868.4
							Upper Bound	46.3	21.5	24.8	493.6	25.8	2,329.4	24.6	1,043.9
	Pangasinan	19.4	298.0	1,608.9	707.8	Moderate Emission (RCP4.5)	Lower Bound	4.8	20.3	-3.4	287.8	-22.3	1,249.5	-16.3	592.8
							Median	10.8	21.5	-1.3	294.2	-13.3	1,395.0	-0.6	703.3
							Upper Bound	41.6	27.5	17.7	350.7	1.6	1,634.3	13.5	803.5
						High Emission (RCP8.5)	Lower Bound	-8.9	17.7	-9.7	269.2	-16.8	1,338.4	-3.7	681.7
							Median	9.6	21.3	0.6	299.8	-3.3	1,556.4	0.9	713.9
							Upper Bound	55.7	30.2	27.5	379.9	9.9	1,767.8	17.7	832.8
CAR	Abra	43.5	220.6	1,218.9	634.4	Moderate Emission (RCP4.5)	Lower Bound	3.9	45.2	-16.3	184.7	-28.6	870.4	-23.4	485.7
							Median	7.7	46.9	-4.4	210.8	-14.5	1,042.7	-4.3	607.3
							Upper Bound	36.2	59.2	14.8	253.3	3.9	1,266.3	13.3	719.1
						High Emission (RCP8.5)	Lower Bound	2.0	44.4	-23.4	168.9	-23.5	932.7	-14.0	545.9
							Median	10.3	48.0	-8.2	202.6	-9.4	1,104.8	-5.8	597.9
							Upper Bound	19.2	51.9	16.8	257.7	14.7	1,397.7	18.3	750.4
	Apayao	144.6	184.0	822.7	720.1	Moderate Emission (RCP4.5)	Lower Bound	1.7	147.1	-7.2	170.8	-33.1	550.2	-12.3	631.3
							Median	7.6	155.5	1.8	187.3	-21.6	645.4	5.5	759.9
							Upper Bound	38.4	200.1	25.7	231.2	8.7	894.3	15.8	833.9
						High Emission (RCP8.5)	Lower Bound	-2.2	141.4	-14.8	156.7	-31.2	565.8	-11.4	638.2
							Median	9.3	158.1	1.7	187.0	-1.9	807.4	4.3	750.9
							Upper Bound	27.4	184.2	26.8	233.2	15.6	951.0	15.6	832.7
	Benguet	47.7	422.3	1,734.9	931.8	Moderate Emission (RCP4.5)	Lower Bound	6.5	50.8	-11.0	376.0	-24.6	1,308.3	-24.8	700.5
							Median	9.7	52.3	-3.3	408.4	-15.4	1,467.9	-6.1	875.0
							Upper Bound	35.6	64.7	27.0	536.2	5.9	1,836.6	15.6	1,077.1
						High Emission (RCP8.5)	Lower Bound	-10.7	42.6	-14.2	362.5	-24.3	1,312.8	-16.1	782.0
							Median	5.1	50.1	-5.5	399.2	-10.8	1,548.4	-5.2	882.9
							Upper Bound	38.0	65.8	34.5	567.9	18.5	2,055.2	26.3	1,176.5
	Ifugao	102.6	321.0	1,071.1	724.9	Moderate Emission (RCP4.5)	Lower Bound	4.8	107.6	-7.2	297.8	-35.8	687.1	-14.6	619.1
							Median	7.4	110.2	-0.5	319.3	-16.4	895.7	-8.1	666.1
							Upper Bound	29.8	133.1	18.3	379.6	2.4	1,096.5	1.9	738.6
						High Emission (RCP8.5)	Lower Bound	-5.2	97.3	-8.1	294.9	-27.8	773.0	-8.9	660.1
							Median	7.9	110.7	1.3	325.0	-2.0	1,049.2	0.0	724.9
							Upper Bound	33.5	137.0	30.5	419.1	13.6	1,217.2	11.6	809.3
	Kalinga	92.3	228.0	892.3	691.9	Moderate Emission (RCP4.5)	Lower Bound	4.8	96.7	-3.7	219.6	-36.5	567.0	-13.8	596.7
							Median	7.3	99.0	3.3	235.6	-20.6	708.2	-5.0	657.3
							Upper Bound	27.0	117.2	17.8	268.6	3.9	927.5	6.8	738.8
						High Emission (RCP8.5)	Lower Bound	-4.1	88.5	-12.6	199.4	-27.7	645.4	-10.5	619.6
							Median	9.7	101.3	0.2	228.4	-7.9	821.9	-0.4	688.9
							Upper Bound	22.6	113.2	24.0	282.7	9.9	981.1	11.6	772.1
	Mountain Province	74.8	286.8	1,121.1	699.2	Moderate Emission (RCP4.5)	Lower Bound	3.9	77.7	-7.9	264.1	-21.0	885.3	-18.0	573.1
							Median	10.5	82.6	-2.7	278.9	-14.8	955.6	-8.9	636.8
							Upper Bound	28.8	96.3	16.3	333.6	3.8	1,163.9	6.2	742.5
						High Emission (RCP8.5)	Lower Bound	-5.8	70.5	-15.4	242.6	-20.0	896.9	-10.1	628.9
							Median	10.1	82.3	1.9	292.2	-3.0	1,087.9	0.5	702.7
							Upper Bound	21.5	90.9	24.2	356.2	16.9	1,311.0	13.8	795.7

*percentile range of model projections: lower bound = 10th percentile, median = 50th percentile, upper bound = 90th percentile

Observed Climate Trends and Projected Climate Change in the Philippines



Table B-1. CLIRAM of the projected seasonal change in total rainfall (in millimeters) in the mid-21st century (2036-2065) for all provinces; baseline period: 1971-2000 (con't).

Region	Province	Observed (1971-2000)				Projected (2036-2065)									
		DJF	MAM	JJA	SON	Scenario	Range*	DJF (Dec-Jan-Feb)		MAM (Mar-Apr-May)		JJA (Jun-Jul-Aug)		SON (Sep-Oct-Nov)	
								Percent change	Projected value	Percent change	Projected value	Percent change	Projected value	Percent change	Projected value
Region 2	Cagayan	284.4	207.7	538.4	832.1	Moderate Emission (RCP4.5)	Lower Bound	-0.5	282.9	-8.2	190.7	-23.6	411.1	-6.5	778.4
							Median	7.4	305.4	2.3	212.5	-18.2	440.3	3.7	863.2
							Upper Bound	43.1	407.0	16.2	241.3	1.8	548.3	17.9	981.2
						High Emission (RCP8.5)	Lower Bound	-5.8	267.8	-15.2	176.1	-24.2	408.1	-5.8	783.7
							Median	7.9	306.8	3.3	214.6	-2.2	526.7	1.3	842.9
							Upper Bound	26.6	359.9	16.8	242.6	17.4	632.2	17.8	980.1
	Isabela	412.2	325.0	530.8	867.0	Moderate Emission (RCP4.5)	Lower Bound	3.5	426.4	1.1	328.7	-27.7	383.6	-4.4	829.0
							Median	11.5	459.7	10.3	358.5	-17.2	439.7	3.0	892.9
							Upper Bound	48.4	611.7	23.5	401.3	0.3	532.4	11.9	970.1
						High Emission (RCP8.5)	Lower Bound	-1.5	405.9	-6.1	305.3	-24.2	402.5	-2.3	847.1
							Median	12.4	463.5	7.0	347.9	-2.6	516.8	11.0	962.7
							Upper Bound	34.8	555.5	17.3	381.4	25.7	667.1	16.2	1,007.2
Region 3	Nueva Vizcaya	180.9	416.8	1,149.8	880.5	Moderate Emission (RCP4.5)	Lower Bound	6.3	192.2	-0.1	416.2	-27.4	835.2	-14.9	749.5
							Median	9.4	197.9	5.6	440.1	-15.8	967.9	-5.5	832.2
							Upper Bound	40.2	253.6	29.1	538.2	-4.1	1,103.2	6.9	941.2
						High Emission (RCP8.5)	Lower Bound	-2.3	176.7	-6.5	389.5	-22.2	894.7	-8.6	804.5
							Median	8.6	196.5	1.4	422.6	-2.9	1,116.5	1.6	894.2
							Upper Bound	39.9	253.2	30.9	545.4	12.7	1,295.9	17.7	1,036.7
	Quirino	419.0	465.9	776.4	957.9	Moderate Emission (RCP4.5)	Lower Bound	4.4	437.4	0.9	470.0	-27.3	564.8	-13.9	824.9
							Median	11.4	466.6	9.0	507.9	-16.9	645.1	-5.0	909.9
							Upper Bound	57.3	659.0	31.7	613.5	-5.7	732.2	10.4	1,057.5
						High Emission (RCP8.5)	Lower Bound	-3.1	406.2	-8.5	426.1	-21.9	606.6	-10.6	856.4
							Median	9.4	458.3	1.5	473.0	-1.0	769.0	3.2	988.9
							Upper Bound	52.1	637.4	26.5	589.6	17.7	913.9	17.5	1,125.3
	Aurora	615.7	546.4	768.7	1,151.1	Moderate Emission (RCP4.5)	Lower Bound	1.5	624.7	1.6	555.0	-21.7	601.8	-9.7	1,039.6
							Median	8.5	667.9	6.8	583.7	-8.6	702.7	-2.4	1,123.8
							Upper Bound	52.0	936.0	22.5	669.2	-6.8	716.2	5.3	1,211.6
						High Emission (RCP8.5)	Lower Bound	-6.1	578.2	-10.2	490.8	-16.6	641.1	-5.0	1,093.9
							Median	3.0	633.9	4.6	571.6	-3.4	742.6	2.8	1,183.6
							Upper Bound	31.8	811.7	19.0	650.0	10.2	847.1	11.1	1,278.6
	Bataan	71.7	368.7	1,326.2	872.6	Moderate Emission (RCP4.5)	Lower Bound	1.0	72.4	-3.3	356.7	-25.5	988.1	-10.0	785.0
							Median	12.7	80.8	12.2	413.7	-17.7	1,091.1	-1.9	856.0
							Upper Bound	59.2	114.2	18.7	437.8	-1.0	1,313.3	9.3	953.6
						High Emission (RCP8.5)	Lower Bound	-2.1	70.2	-9.7	333.0	-19.0	1,074.7	-6.2	818.6
							Median	20.2	86.2	4.6	385.6	-1.9	1,301.3	3.1	899.3
							Upper Bound	38.2	99.1	25.3	461.9	12.4	1,490.1	18.3	1,032.1
	Bulacan	212.4	288.9	1,041.4	842.1	Moderate Emission (RCP4.5)	Lower Bound	4.4	221.7	0.0	289.0	-23.2	799.4	-8.6	769.6
							Median	18.0	250.6	12.5	325.1	-10.7	929.7	-5.8	793.5
							Upper Bound	61.5	343.1	23.8	357.8	1.4	1,056.4	11.6	939.5
						High Emission (RCP8.5)	Lower Bound	-2.0	208.2	-6.8	269.1	-18.3	850.7	-9.2	764.5
							Median	15.4	245.1	3.3	298.4	-5.0	989.2	1.2	852.4
							Upper Bound	48.1	314.5	22.9	355.1	9.6	1,141.7	18.3	995.9
	Nueva Ecija	155.2	316.5	995.0	745.0	Moderate Emission (RCP4.5)	Lower Bound	4.3	161.9	0.6	318.3	-20.0	795.5	-9.5	674.2
							Median	14.6	177.9	10.9	351.0	-16.4	832.2	-5.8	701.5
							Upper Bound	55.0	240.6	24.1	392.7	0.9	1,004.0	16.6	868.5
						High Emission (RCP8.5)	Lower Bound	-6.5	145.1	-6.9	294.7	-18.6	809.9	-10.8	664.5
							Median	10.7	171.8	3.8	328.6	-7.9	916.5	2.1	760.8
							Upper Bound	45.3	225.5	20.4	381.0	10.7	1,101.7	16.6	868.4
	Pampanga	120.8	320.6	1,030.4	785.2	Moderate Emission (RCP4.5)	Lower Bound	4.9	126.8	4.0	333.5	-22.8	795.0	-8.0	722.5
							Median	18.6	143.3	9.0	349.6	-12.3	903.3	-1.9	769.9
							Upper Bound	75.8	212.4	19.7	383.9	4.8	1,080.2	7.2	841.9
						High Emission (RCP8.5)	Lower Bound	-4.4	115.5	-9.1	291.4	-12.0	907.0	-5.2	744.7
							Median	18.5	143.1	6.5	341.4	-0.8	1,022.4	-1.2	776.0
							Upper Bound	80.7	218.3	18.5	380.1	10.0	1,133.6	23.8	971.9
	Tarlac	43.4	265.4	1,193.5	644.3	Moderate Emission (RCP4.5)	Lower Bound	3.3	44.8	3.2	273.8	-18.3	975.4	-8.3	591.0
							Median	7.9	46.8	8.1	287.0	-8.3	1,094.7	-4.7	613.9
							Upper Bound	49.3	64.8	21.2	321.8	0.8	1,203.5	18.1	761.0
						High Emission (RCP8.5)	Lower Bound	-5.7	40.9	-11.7	234.4	-15.9	1,004.1	-3.3	623.2
							Median	9.9	47.7	5.0	278.6	-5.1	1,133.0	1.8	655.8
							Upper Bound	33.4	57.9	24.8	331.2	8.4	1,293.2	17.6	757.7
	Zambales	40.9	368.0	1,793.9	872.0	Moderate Emission (RCP4.5)	Lower Bound	-1.5	40.3	-0.4	366.5	-22.6	1,389.0	-9.7	787.4
							Median	11.3	45.5	7.4	395.3	-14.4	1,536.1	-2.5	850.3
							Upper Bound	51.9	62.1	18.5	436.2	0.9	1,809.6	14.0	994.1
						High Emission (RCP8.5)	Lower Bound	-5.9	38.5	-16.4	307.8	-16.5	1,497.3	-3.9	838.0
							Median	9.2	44.7	1.6	373.9	-4.7	1,710.1	4.6	911.9
							Upper Bound	32.5	54.2	19.4	439.5	12.7	2,021.2	14.9	1,001.5

*percentile range of model projections: lower bound = 10th percentile, median = 50th percentile, upper bound = 90th percentile

Observed Climate Trends and Projected Climate Change in the Philippines

Table B-1. CLIRAM of the projected seasonal change in total rainfall (in millimeters) in the mid-21st century (2036-2065) for all provinces; baseline period: 1971-2000 (con't).

Region	Province	Observed (1971-2000)				Projected (2036-2065)									
		DJF	MAM	JJA	SON	Scenario	Range*	DJF (Dec-Jan-Feb)		MAM (Mar-Apr-May)		JJA (Jun-Jul-Aug)		SON (Sep-Oct-Nov)	
								Percent change	Projected value	Percent change	Projected value	Percent change	Projected value	Percent change	Projected value
Region 4-A	Batangas	231.0	280.4	856.5	746.4	Moderate Emission (RCP4.5)	Lower Bound	7.5	248.2	-0.1	280.1	-27.7	619.4	-11.4	661.6
							Median	14.9	265.5	1.7	285.1	-15.2	726.1	-3.6	719.7
							Upper Bound	56.1	360.7	15.8	324.8	1.0	865.1	8.2	807.2
						High Emission (RCP8.5)	Lower Bound	1.4	234.2	-11.4	248.3	-23.5	655.6	-9.7	673.7
							Median	8.1	249.8	0.5	281.8	-8.9	779.9	0.4	749.5
							Upper Bound	37.7	318.2	25.1	350.7	10.2	944.0	10.0	821.2
	Cavite	124.9	242.8	985.7	579.0	Moderate Emission (RCP4.5)	Lower Bound	8.6	135.6	0.6	244.3	-26.7	722.4	-7.7	534.3
							Median	12.5	140.5	6.9	259.6	-18.0	808.1	-4.1	555.4
							Upper Bound	55.7	194.5	17.9	286.2	9.4	1,078.6	6.7	618.0
						High Emission (RCP8.5)	Lower Bound	7.8	134.7	-11.0	216.1	-22.8	760.8	-4.3	553.9
							Median	12.8	140.9	3.7	251.8	-10.4	883.2	0.9	584.2
							Upper Bound	35.9	169.7	33.1	323.1	11.7	1,100.6	10.3	638.9
	Laguna	629.2	386.8	845.0	1,066.5	Moderate Emission (RCP4.5)	Lower Bound	4.2	655.9	-2.1	378.5	-22.7	653.4	-9.0	970.3
							Median	10.2	693.2	12.6	435.4	-14.3	724.0	-5.8	1,004.7
							Upper Bound	43.9	905.2	24.8	482.6	-2.1	827.3	5.7	1,127.0
						High Emission (RCP8.5)	Lower Bound	2.3	643.7	-14.4	331.0	-20.9	668.8	-10.8	951.0
							Median	13.8	716.3	-0.1	386.3	-11.0	752.0	1.4	1,081.1
							Upper Bound	32.9	836.4	28.3	496.2	7.5	908.8	10.5	1,178.9
	Quezon	827.7	382.7	670.0	1,229.3	Moderate Emission (RCP4.5)	Lower Bound	4.7	866.2	6.2	406.4	-22.0	522.4	-9.3	1,115.0
							Median	8.4	897.2	9.3	418.4	-17.2	554.9	1.6	1,249.0
							Upper Bound	31.6	1,089.2	18.9	455.1	5.3	705.8	7.6	1,322.5
						High Emission (RCP8.5)	Lower Bound	-0.8	820.8	-4.5	365.6	-16.9	557.0	-7.0	1,143.2
							Median	13.9	942.6	7.3	410.6	-6.3	627.8	2.5	1,260.3
							Upper Bound	32.4	1,095.7	19.6	457.9	5.6	707.8	14.0	1,400.9
	Rizal	262.4	241.5	1,001.3	821.8	Moderate Emission (RCP4.5)	Lower Bound	0.0	262.4	-2.8	234.8	-27.3	728.0	-14.9	699.5
							Median	7.8	282.8	12.9	272.7	-20.0	800.7	-9.5	743.7
							Upper Bound	51.5	397.4	25.6	303.4	-1.7	983.9	12.7	926.5
						High Emission (RCP8.5)	Lower Bound	3.6	271.8	-14.2	207.2	-25.4	747.4	-13.2	713.6
							Median	15.0	301.7	-1.1	238.8	-11.6	885.5	0.9	829.6
							Upper Bound	52.2	399.4	17.1	282.7	11.7	1,118.9	19.6	983.1
Region 4-B	Occidental Mindoro	159.5	265.9	1,091.2	762.6	Moderate Emission (RCP4.5)	Lower Bound	-1.7	156.8	-5.0	252.6	-25.1	817.5	-19.5	613.8
							Median	13.2	180.6	2.6	272.8	-20.6	866.8	-3.0	740.0
							Upper Bound	52.3	242.9	12.7	299.6	3.6	1,130.2	4.2	794.3
						High Emission (RCP8.5)	Lower Bound	-1.4	157.3	-18.3	217.2	-28.1	784.2	-18.1	624.9
							Median	9.5	174.6	-3.3	257.2	-13.0	949.8	-3.6	735.1
							Upper Bound	25.9	200.7	23.3	327.9	11.6	1,217.6	7.9	822.5
	Oriental Mindoro	260.3	269.3	894.3	791.2	Moderate Emission (RCP4.5)	Lower Bound	0.0	260.2	3.6	279.1	-24.9	671.2	-17.3	654.6
							Median	10.8	288.5	5.6	284.3	-18.8	726.2	-7.7	729.9
							Upper Bound	31.9	343.3	12.3	302.5	-0.4	890.8	5.2	832.3
						High Emission (RCP8.5)	Lower Bound	-2.7	253.3	-9.5	243.7	-27.2	650.7	-13.9	681.2
							Median	13.9	296.6	5.7	284.6	-12.9	778.9	-6.8	737.5
							Upper Bound	27.9	332.8	9.2	294.1	9.5	979.6	4.9	829.8
	Palawan	101.8	189.3	781.7	640.6	Moderate Emission (RCP4.5)	Lower Bound	-9.9	91.8	-10.6	169.2	-25.7	581.1	-14.3	548.7
							Median	0.0	101.8	-7.4	175.3	-12.0	688.2	-8.1	588.9
							Upper Bound	26.8	129.1	10.3	208.9	1.0	789.3	10.2	705.7
						High Emission (RCP8.5)	Lower Bound	-17.8	83.6	-16.2	158.6	-25.0	586.2	-22.5	496.5
							Median	4.3	106.2	-3.6	182.4	-5.6	737.8	-6.2	601.0
							Upper Bound	14.2	116.3	9.2	206.7	12.9	882.5	11.1	711.5
	Romblon	357.0	224.0	653.0	778.0	Moderate Emission (RCP4.5)	Lower Bound	1.7	363.2	-5.2	212.3	-26.0	483.2	-13.3	674.8
							Median	10.6	395.0	5.0	235.2	-21.0	515.8	1.5	789.4
							Upper Bound	37.1	489.6	31.7	295.0	4.3	681.2	13.6	883.6
						High Emission (RCP8.5)	Lower Bound	-3.6	344.0	-15.8	188.5	-35.3	422.3	-25.6	578.5
							Median	10.8	395.5	6.4	238.4	-6.6	609.6	-4.6	742.3
							Upper Bound	26.0	449.7	23.7	277.1	15.1	751.5	20.5	937.4
Region 5	NCR	107.5	198.5	1,170.2	758.7	Moderate Emission (RCP4.5)	Lower Bound	-0.1	107.3	0.7	199.8	-21.3	920.8	-10.8	676.4
							Median	17.7	126.5	6.9	212.2	-10.1	1,051.6	-6.0	713.5
							Upper Bound	55.5	167.1	25.7	246.9	-0.4	1,165.2	7.7	817.2
						High Emission (RCP8.5)	Lower Bound	2.7	110.4	-7.2	184.2	-17.0	970.9	-8.0	698.1
							Median	27.8	137.4	4.8	208.1	-6.1	1,098.5	3.9	788.3
							Upper Bound	53.4	164.9	19.8	237.9	7.7	1,260.5	19.9	909.4
	Albay	739.8	386.9	705.8	941.3	Moderate Emission (RCP4.5)	Lower Bound	-3.5	713.9	-2.4	377.6	-25.5	525.6	-12.1	827.2
							Median	13.5	839.4	2.8	397.9	-12.8	615.7	-2.6	916.6
							Upper Bound	38.7	1,026.3	20.1	464.6	-2.5	688.1	8.7	1,023.3
						High Emission (RCP8.5)	Lower Bound	-4.8	704.6	-0.2	386.1	-25.2	527.9	-11.0	837.9
							Median	14.2	844.5	5.5	408.3	-4.7	672.8	1.4	954.9
							Upper Bound	40.3	1,037.7	18.1	456.8	11.9	789.8	8.1	1,017.4

*percentile range of model projections: lower bound = 10th percentile, median = 50th percentile, upper bound = 90th percentile

Observed Climate Trends and Projected Climate Change in the Philippines



Table B-1. CLIRAM of the projected seasonal change in total rainfall (in millimeters) in the mid-21st century (2036-2065) for all provinces; baseline period: 1971-2000 (con't).

Region	Province	Observed (1971-2000)				Projected (2036-2065)									
		DJF	MAM	JJA	SON	Scenario	Range*	DJF (Dec-Jan-Feb)		MAM (Mar-Apr-May)		JJA (Jun-Jul-Aug)		SON (Sep-Oct-Nov)	
								Percent change	Projected value	Percent change	Projected value	Percent change	Projected value	Percent change	Projected value
Region 5	Camarines Norte	1,029.6	398.5	565.6	1,285.7	Moderate Emission (RCP4.5)	Lower Bound	2.2	1,051.9	6.8	425.4	-21.6	443.5	-17.1	1,066.2
							Median	7.9	1,111.0	11.7	445.0	-18.1	463.5	-1.3	1,269.3
							Upper Bound	35.4	1,394.0	14.3	455.4	3.7	586.4	7.5	1,381.5
						High Emission (RCP8.5)	Lower Bound	-1.9	1,009.9	-6.4	373.1	-21.6	443.3	-8.4	1,177.3
							Median	19.9	1,234.0	7.3	427.7	-7.5	523.4	0.4	1,291.0
							Upper Bound	31.0	1,348.5	18.9	473.7	8.6	614.1	14.9	1,477.7
	Camarines Sur	666.8	347.4	639.6	1,029.4	Moderate Emission (RCP4.5)	Lower Bound	-0.7	662.3	2.1	354.6	-25.5	476.6	-14.3	882.7
							Median	13.3	755.3	5.5	366.5	-17.6	527.1	-2.5	1,003.8
							Upper Bound	37.7	918.4	15.6	401.6	1.0	645.8	2.9	1,059.1
						High Emission (RCP8.5)	Lower Bound	-3.0	647.0	-3.1	336.5	-25.1	479.3	-8.3	944.3
							Median	17.1	780.9	6.8	371.1	-8.5	585.1	-0.2	1,027.3
							Upper Bound	27.8	852.0	15.8	402.5	11.3	712.2	6.2	1,092.9
	Catanduanes	1,075.4	512.7	646.3	1,199.5	Moderate Emission (RCP4.5)	Lower Bound	-2.1	1,052.5	-0.9	507.9	-27.9	465.9	-9.8	1,081.4
							Median	13.6	1,221.9	9.7	562.4	-17.6	532.8	-6.6	1,120.8
							Upper Bound	33.5	1,435.1	27.7	654.6	3.9	671.4	0.4	1,204.1
						High Emission (RCP8.5)	Lower Bound	0.5	1,080.8	-1.7	504.2	-30.3	450.3	-17.6	988.9
							Median	15.0	1,237.1	4.5	535.5	-10.2	580.2	0.6	1,206.3
							Upper Bound	28.6	1,383.1	19.9	615.0	7.9	697.2	9.7	1,315.7
	Masbate	510.2	250.7	569.4	739.3	Moderate Emission (RCP4.5)	Lower Bound	3.6	528.6	0.9	253.0	-18.5	463.8	-11.0	658.1
							Median	10.5	563.5	10.6	277.3	-12.2	500.1	-0.4	736.1
							Upper Bound	40.7	718.1	18.7	297.5	2.9	586.0	8.1	798.9
						High Emission (RCP8.5)	Lower Bound	-6.1	479.3	-4.3	240.0	-21.8	445.1	-16.9	614.0
							Median	11.1	566.8	7.1	268.4	-7.3	527.7	-3.8	711.0
							Upper Bound	28.8	656.9	17.1	293.7	6.9	608.6	16.3	859.5
	Sorsogon	958.1	427.9	660.4	973.6	Moderate Emission (RCP4.5)	Lower Bound	1.3	970.8	-0.2	427.2	-20.7	524.0	-5.1	923.6
							Median	10.2	1,055.6	6.9	457.6	-7.9	608.4	-1.8	956.6
							Upper Bound	31.6	1,260.9	18.4	506.8	2.1	674.5	1.1	983.9
						High Emission (RCP8.5)	Lower Bound	-2.2	936.6	4.5	447.1	-23.6	504.7	-14.4	833.0
							Median	13.1	1,083.4	7.3	459.0	-4.0	633.9	-1.2	962.2
							Upper Bound	36.0	1,303.0	18.3	506.3	5.8	699.0	9.4	1,065.4
Region 6	Aklan	431.2	322.7	862.5	883.7	Moderate Emission (RCP4.5)	Lower Bound	-0.3	429.9	-6.8	300.8	-22.0	672.5	-14.0	759.6
							Median	4.6	450.9	0.2	323.5	-10.5	771.9	-0.8	876.9
							Upper Bound	29.7	559.4	7.7	347.7	0.5	866.7	6.3	939.2
						High Emission (RCP8.5)	Lower Bound	-6.2	404.5	-9.7	291.4	-20.3	687.0	-21.5	693.5
							Median	11.0	478.7	-3.4	311.6	-9.4	781.2	-4.8	841.2
							Upper Bound	22.4	527.6	10.7	357.3	4.8	903.6	5.5	932.4
	Antique	297.9	288.0	995.3	841.4	Moderate Emission (RCP4.5)	Lower Bound	-11.9	262.5	-21.6	225.9	-32.2	675.2	-27.4	610.7
							Median	-2.1	291.6	-14.6	245.9	-10.5	890.8	-14.8	717.3
							Upper Bound	34.2	399.8	7.5	309.6	1.9	1,014.3	-0.9	833.5
						High Emission (RCP8.5)	Lower Bound	-20.3	237.3	-31.8	196.3	-38.0	617.3	-30.6	584.1
							Median	6.9	318.5	-13.0	250.7	-8.8	907.9	-8.6	768.9
							Upper Bound	20.3	358.3	4.3	300.4	9.0	1,085.1	2.2	859.6
	Capiz	469.7	342.0	814.2	889.1	Moderate Emission (RCP4.5)	Lower Bound	3.0	483.7	-4.0	328.2	-17.8	669.4	-15.5	751.7
							Median	6.9	502.1	2.0	348.7	-6.9	757.7	-5.3	842.4
							Upper Bound	33.9	628.8	13.5	388.1	8.3	881.8	4.4	928.4
						High Emission (RCP8.5)	Lower Bound	-2.7	457.0	-6.4	320.1	-18.2	665.9	-21.5	697.5
							Median	11.8	525.3	0.6	344.1	-9.6	735.8	-6.8	828.5
							Upper Bound	25.7	590.4	12.9	386.2	8.0	879.4	5.4	937.4
	Guimaras	227.0	233.0	843.0	699.0	Moderate Emission (RCP4.5)	Lower Bound	4.7	237.8	-1.0	231.2	-14.6	720.7	-15.1	594.2
							Median	13.6	257.9	3.4	241.4	-6.6	788.2	-13.0	608.5
							Upper Bound	24.6	282.8	12.9	263.7	11.4	939.6	12.2	785.2
						High Emission (RCP8.5)	Lower Bound	-4.2	217.5	-10.8	208.4	-18.7	686.0	-17.9	574.7
							Median	7.7	244.5	3.2	241.0	-3.9	810.8	-10.1	629.0
							Upper Bound	27.9	290.5	18.0	275.5	14.0	961.5	9.3	764.5
	Iloilo	324.8	290.6	932.8	828.3	Moderate Emission (RCP4.5)	Lower Bound	-4.4	310.4	-9.3	263.4	-22.1	726.9	-20.0	662.6
							Median	6.5	346.0	4.0	302.1	-5.8	878.4	-11.2	735.9
							Upper Bound	26.9	412.1	11.7	324.5	7.1	998.6	7.9	894.1
						High Emission (RCP8.5)	Lower Bound	-9.8	293.0	-15.4	246.0	-28.4	667.9	-22.7	639.9
							Median	8.7	353.2	-2.1	284.6	-4.0	895.0	-11.1	736.4
							Upper Bound	28.3	416.8	9.5	318.2	10.3	1,028.6	3.4	856.2
	Negros Occidental	234.9	283.0	899.6	784.0	Moderate Emission (RCP4.5)	Lower Bound	-12.0	206.7	-12.7	247.1	-20.6	714.0	-21.5	615.3
							Median	1.8	239.1	0.1	283.2	-6.5	841.4	-14.3	671.7
							Upper Bound	25.2	294.1	11.0	314.0	3.1	927.4	1.5	795.5
						High Emission (RCP8.5)	Lower Bound	-17.3	194.3	-18.6	230.4	-21.2	708.9	-27.9	565.4
							Median	6.6	250.3	-7.0	263.3	-5.2	853.1	-13.7	676.6
							Upper Bound	30.0	305.3	2.8	290.9	5.9	952.3	1.2	793.4

*percentile range of model projections: lower bound = 10th percentile, median = 50th percentile, upper bound = 90th percentile

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Table B-1. CLIRAM of the projected seasonal change in total rainfall (in millimeters) in the mid-21st century (2036-2065) for all provinces; baseline period: 1971-2000 (con't).

Region	Province	Observed (1971-2000)				Projected (2036-2065)									
		DJF	MAM	JJA	SON	Scenario	Range*	DJF (Dec-Jan-Feb)		MAM (Mar-Apr-May)		JJA (Jun-Jul-Aug)		SON (Sep-Oct-Nov)	
								Percent change	Projected value	Percent change	Projected value	Percent change	Projected value	Percent change	Projected value
Region 7	Bohol	376.1	209.6	412.9	514.5	Moderate Emission (RCP4.5)	Lower Bound	-13.5	325.3	-2.4	204.5	-16.8	343.5	-21.2	405.7
							Median	3.0	387.5	3.9	217.7	-6.5	386.1	-12.2	451.9
							Upper Bound	29.7	487.8	11.9	234.5	13.8	470.1	4.8	539.1
						High Emission (RCP8.5)	Lower Bound	-17.1	311.9	-6.7	195.5	-22.1	321.7	-27.9	370.8
							Median	1.5	381.8	1.8	213.3	-2.3	403.3	-12.3	451.4
							Upper Bound	21.5	457.1	8.5	227.5	13.4	468.2	6.3	546.8
	Cebu	324.0	228.3	595.1	607.4	Moderate Emission (RCP4.5)	Lower Bound	-7.1	301.1	-3.7	219.8	-12.4	521.3	-17.7	499.9
							Median	3.9	336.6	6.6	243.4	-4.9	565.7	-6.0	570.7
							Upper Bound	31.7	426.9	9.2	249.4	1.0	601.2	1.5	616.4
						High Emission (RCP8.5)	Lower Bound	-15.4	274.1	-3.2	221.1	-15.8	501.1	-21.3	478.0
							Median	6.2	344.1	2.1	233.1	-5.4	562.8	-11.5	537.5
							Upper Bound	22.4	396.7	10.2	251.5	3.6	616.6	2.7	623.5
Region 8	Eastern Samar	987.0	464.1	559.8	871.4	Moderate Emission (RCP4.5)	Lower Bound	-4.2	945.9	-2.6	452.0	-6.7	522.3	-20.1	696.5
							Median	1.3	999.5	1.8	472.3	-1.1	553.8	-16.6	726.7
							Upper Bound	45.0	1,431.4	17.4	544.9	8.3	606.2	-3.8	838.0
						High Emission (RCP8.5)	Lower Bound	-7.9	909.2	5.8	490.9	-14.0	481.5	-22.0	680.1
							Median	13.7	1,122.2	1.1	469.4	-0.6	556.6	-9.3	790.1
							Upper Bound	43.6	1,417.8	13.0	524.4	9.7	614.4	4.7	912.1
	Leyte	689.5	342.0	568.7	725.5	Moderate Emission (RCP4.5)	Lower Bound	-7.5	637.6	-5.4	323.4	-18.5	463.6	-24.3	549.3
							Median	0.4	692.5	10.3	377.3	-1.1	562.3	-15.5	612.9
							Upper Bound	35.2	931.9	12.0	382.9	8.1	614.7	1.0	733.0
						High Emission (RCP8.5)	Lower Bound	-15.2	584.9	-7.0	318.0	-19.8	456.0	-26.4	534.0
							Median	9.2	752.9	-1.2	338.0	-3.5	548.7	-9.8	654.7
							Upper Bound	31.9	909.8	4.4	357.1	6.6	606.2	6.5	772.6
	Northern Samar	1,128.9	462.2	566.8	981.4	Moderate Emission (RCP4.5)	Lower Bound	2.2	1,154.1	-0.7	458.8	-14.9	482.4	-14.4	839.7
							Median	7.2	1,210.4	2.2	472.5	-7.3	525.6	-8.4	898.8
							Upper Bound	45.5	1,642.0	18.3	546.7	3.4	586.1	3.7	1,017.5
						High Emission (RCP8.5)	Lower Bound	-4.8	1,074.2	0.0	462.1	-19.5	456.5	-21.1	774.8
							Median	14.8	1,295.8	3.5	478.5	-4.0	544.3	-3.2	949.7
							Upper Bound	43.0	1,614.8	13.4	524.0	6.3	602.7	7.3	1,052.7
	Samar	889.5	437.0	599.8	879.4	Moderate Emission (RCP4.5)	Lower Bound	-4.8	846.4	-4.7	416.7	-18.9	486.4	-18.8	713.7
							Median	4.1	926.4	5.5	461.0	-8.1	551.0	-10.9	783.4
							Upper Bound	45.8	1,297.0	20.6	526.9	7.5	644.5	1.9	896.2
						High Emission (RCP8.5)	Lower Bound	-10.5	796.3	-3.0	423.9	-23.8	457.3	-21.9	687.2
							Median	8.3	963.2	-0.4	435.2	-3.2	580.3	-5.5	831.0
							Upper Bound	34.4	1,195.6	10.2	481.7	6.6	639.5	2.2	898.9
	Southern Leyte	818.6	362.2	510.6	695.6	Moderate Emission (RCP4.5)	Lower Bound	-10.2	735.4	-3.1	350.9	-16.9	424.1	-20.2	555.1
							Median	-2.7	796.5	4.5	378.6	-3.4	493.5	-10.6	622.1
							Upper Bound	27.2	1,041.4	10.4	399.9	7.8	550.2	3.3	718.8
						High Emission (RCP8.5)	Lower Bound	-12.9	712.8	-3.7	348.7	-10.4	457.3	-25.6	517.4
							Median	13.3	927.4	2.9	372.8	-3.4	493.4	-11.0	619.4
							Upper Bound	35.8	1,111.8	14.2	413.7	12.2	573.1	9.5	761.9
Region 9	Zamboanga del Norte	324.5	279.7	599.1	718.1	Moderate Emission (RCP4.5)	Lower Bound	-14.9	276.1	-19.2	226.0	-10.3	537.3	-21.1	566.3
							Median	-3.7	312.5	-8.5	255.9	-2.0	587.2	-4.4	686.6
							Upper Bound	25.4	407.0	6.2	297.0	14.9	688.1	6.6	765.3
						High Emission (RCP8.5)	Lower Bound	-12.4	284.2	-16.1	234.8	-10.4	537.0	-18.7	583.9
							Median	1.9	330.6	-2.5	272.8	4.9	628.6	-0.5	714.2
							Upper Bound	13.8	369.3	8.1	302.5	12.2	672.0	10.8	795.4
	Zamboanga del Sur	294.5	298.7	593.8	663.2	Moderate Emission (RCP4.5)	Lower Bound	-8.2	270.4	-20.2	238.5	-11.9	523.0	-23.6	506.6
							Median	-4.1	282.4	-7.6	275.9	-2.5	579.2	-6.0	623.4
							Upper Bound	23.1	362.6	6.8	319.0	9.4	649.5	8.8	721.7
						High Emission (RCP8.5)	Lower Bound	-18.1	241.3	-8.2	274.2	-11.8	523.9	-13.3	574.7
							Median	4.4	307.6	-3.3	288.9	2.0	605.5	-0.6	659.0
							Upper Bound	13.8	335.2	16.3	347.4	16.7	693.0	6.2	704.2
	Zamboanga Sibugay	284.1	290.5	597.2	674.1	Moderate Emission (RCP4.5)	Lower Bound	-14.4	243.1	-9.8	262.0	-12.0	525.4	-21.5	528.9
							Median	-6.6	265.4	-2.6	283.1	-3.9	573.7	-5.4	637.9
							Upper Bound	12.3	319.1	7.0	310.9	8.3	646.9	3.3	696.1
						High Emission (RCP8.5)	Lower Bound	-11.6	251.2	-18.5	236.9	-15.4	505.3	-14.8	574.0
							Median	-0.2	283.6	1.0	293.5	2.3	610.8	-6.0	633.6
							Upper Bound	8.4	308.1	7.5	312.2	13.4	677.1	7.0	721.5

*percentile range of model projections: lower bound = 10th percentile, median = 50th percentile, upper bound = 90th percentile

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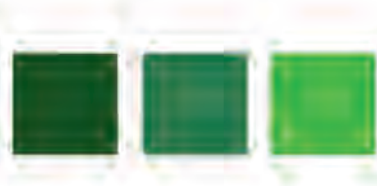


Table B-1. CLIRAM of the projected seasonal change in total rainfall (in millimeters) in the mid-21st century (2036-2065) for all provinces; baseline period: 1971-2000 (con't).

Region	Province	Observed (1971-2000)				Projected (2036-2065)									
		DJF	MAM	JJA	SON	Scenario	Range*	DJF (Dec-Jan-Feb)		MAM (Mar-Apr-May)		JJA (Jun-Jul-Aug)		SON (Sep-Oct-Nov)	
								Percent change	Projected value	Percent change	Projected value	Percent change	Projected value	Percent change	Projected value
Region 10	Bukidnon	329.7	335.6	653.8	559.5	Moderate Emission (RCP4.5)	Lower Bound	-18.9	267.4	-21.0	265.0	-27.3	475.4	-41.1	329.8
							Median	-3.2	319.2	-9.7	303.1	-16.3	547.4	-26.5	411.2
							Upper Bound	17.3	386.8	12.8	378.5	12.6	736.5	-7.7	516.2
						High Emission (RCP8.5)	Lower Bound	-18.4	269.1	-14.5	287.0	-19.6	525.9	-22.4	434.1
							Median	-7.4	305.3	-6.7	313.1	-4.4	625.1	-10.9	498.6
							Upper Bound	25.7	414.4	5.4	353.6	17.0	765.0	10.1	616.0
	Lanao del Norte	337.5	350.3	662.5	621.1	Moderate Emission (RCP4.5)	Lower Bound	-9.5	305.4	-22.9	270.1	-8.5	606.4	-30.5	431.9
							Median	-2.4	329.3	-7.5	324.2	-1.8	650.5	-8.4	569.0
							Upper Bound	21.4	409.6	87.3	656.2	69.4	1,122.0	61.4	1,002.2
						High Emission (RCP8.5)	Lower Bound	-10.0	303.6	-16.0	294.3	-10.0	596.5	-15.4	525.4
							Median	1.3	342.0	1.2	354.4	1.9	675.0	-2.3	606.9
							Upper Bound	13.2	382.0	27.6	447.1	19.7	793.0	9.8	682.2
	Misamis Occidental	392.1	323.4	633.1	728.3	Moderate Emission (RCP4.5)	Lower Bound	-5.5	370.3	-11.0	288.0	-11.8	558.1	-19.8	583.8
							Median	1.1	396.2	-5.6	305.2	3.5	655.2	-1.4	718.2
							Upper Bound	42.3	557.8	10.1	356.1	16.8	739.6	14.7	835.6
						High Emission (RCP8.5)	Lower Bound	-6.6	366.2	-7.2	300.1	-8.1	581.5	-6.4	681.4
							Median	8.2	424.2	3.6	335.0	3.2	653.1	-1.0	720.9
							Upper Bound	27.9	501.4	14.9	371.6	21.1	766.7	9.0	794.0
	Misamis Oriental	442.5	296.0	615.7	581.1	Moderate Emission (RCP4.5)	Lower Bound	-21.4	347.6	-19.1	239.5	-22.2	478.8	-37.3	364.6
							Median	-6.8	412.3	-6.4	277.1	-14.1	529.0	-21.2	457.8
							Upper Bound	37.0	606.4	7.1	317.0	8.5	668.0	-0.7	576.8
						High Emission (RCP8.5)	Lower Bound	-27.2	322.0	-20.0	236.7	-15.9	518.0	-33.2	387.9
							Median	-0.7	439.3	-5.6	279.4	-2.8	598.2	-10.9	517.6
							Upper Bound	28.1	567.0	2.8	304.3	14.6	705.9	16.7	678.4
	Compostella Valley	748.1	559.0	546.7	586.6	Moderate Emission (RCP4.5)	Lower Bound	-21.2	589.4	-17.8	459.8	-32.6	368.7	-37.5	366.6
							Median	-12.2	657.0	-8.6	511.0	-12.8	476.7	-22.7	453.3
							Upper Bound	25.0	935.2	16.4	650.9	6.3	581.1	-4.7	558.8
						High Emission (RCP8.5)	Lower Bound	-23.8	570.1	-13.5	483.4	-22.6	423.1	-33.9	388.0
							Median	-8.5	684.2	-5.1	530.3	-3.8	525.7	-4.2	561.9
							Upper Bound	15.3	862.9	8.4	606.1	16.4	636.1	7.6	631.3
	Davao del Norte	637.0	496.5	535.6	556.2	Moderate Emission (RCP4.5)	Lower Bound	-14.4	545.1	-12.6	434.1	-22.1	417.5	-29.6	391.7
							Median	-3.3	616.1	-4.6	473.4	-9.4	485.1	-20.4	442.8
							Upper Bound	20.3	766.6	8.9	540.8	6.2	568.6	-7.2	516.0
						High Emission (RCP8.5)	Lower Bound	-11.7	562.3	-10.6	443.9	-12.6	467.9	-22.3	432.4
							Median	-2.1	623.6	-2.4	484.5	-2.8	520.4	-11.0	495.2
							Upper Bound	24.2	791.3	11.6	553.9	13.0	605.5	10.5	614.5
	Davao del Sur	288.1	347.1	494.1	442.3	Moderate Emission (RCP4.5)	Lower Bound	-14.2	247.3	-8.8	316.7	-14.0	424.8	-24.1	335.9
							Median	-3.6	277.9	-4.1	332.9	-1.8	485.3	-14.5	378.1
							Upper Bound	16.0	334.3	15.4	400.5	8.4	535.4	-3.7	425.8
						High Emission (RCP8.5)	Lower Bound	-8.4	263.9	-6.4	325.0	-7.1	459.2	-14.4	378.5
							Median	-0.9	285.6	2.1	354.2	4.4	515.6	-10.1	397.8
							Upper Bound	16.0	334.2	15.4	400.4	18.3	584.4	8.2	478.4
	Davao Occidental	827.3	611.8	540.4	599.2	Moderate Emission (RCP4.5)	Lower Bound	-14.1	710.3	-3.1	593.1	-24.8	406.5	-20.5	476.4
							Median	5.3	870.8	4.9	641.6	-1.8	530.4	-7.5	554.5
							Upper Bound	14.7	949.3	8.7	665.1	35.0	729.6	12.2	672.6
						High Emission (RCP8.5)	Lower Bound	-6.2	776.1	-7.6	565.4	-19.3	436.3	-21.2	472.3
							Median	3.6	857.2	2.0	623.8	3.1	557.4	-2.5	584.5
							Upper Bound	17.2	969.5	10.5	676.0	22.7	663.1	9.3	655.1
	Davao Oriental	827.3	611.8	540.4	599.2	Moderate Emission (RCP4.5)	Lower Bound	-13.4	716.5	-8.3	561.2	-21.7	423.0	-27.8	432.5
							Median	-8.7	755.5	-3.3	591.7	-5.4	511.2	-13.7	517.4
							Upper Bound	20.8	999.4	8.1	661.4	3.6	560.1	-3.8	576.2
						High Emission (RCP8.5)	Lower Bound	-17.6	681.4	-10.1	549.9	-12.8	471.2	-23.6	457.9
							Median	-2.8	803.8	-1.9	599.9	-5.1	513.0	-6.0	563.0
							Upper Bound	18.7	982.0	8.1	661.6	13.4	612.7	6.6	638.5
Region 12	North Cotabato	235.4	353.2	572.5	486.0	Moderate Emission (RCP4.5)	Lower Bound	-13.9	202.7	-12.8	308.1	-15.6	483.0	-28.5	347.6
							Median	-1.3	232.4	-8.6	322.8	-5.1	543.1	-15.5	410.4
							Upper Bound	7.7	253.4	16.0	409.6	11.0	635.2	-4.2	465.5
						High Emission (RCP8.5)	Lower Bound	-15.9	197.9	-3.0	342.7	-7.7	528.4	-18.7	395.2
							Median	-0.8	233.4	1.2	357.4	1.4	580.5	-7.5	449.3
	Sarangani	212.3	212.6	333.6	302.5	Moderate Emission (RCP4.5)	Upper Bound	16.9	275.2	19.3	421.3	17.8	674.4	7.5	522.5
							Lower Bound	-24.9	159.5	-13.0	184.9	-22.6	258.2	-31.3	207.7
							Median	-0.3	211.7	-4.5	203.1	1.5	338.7	-10.6	270.4
						High Emission (RCP8.5)	Upper Bound	19.8	254.3	15.1	244.7	29.0	430.2	14.1	345.0
							Lower Bound	-9.4	192.3	-17.5	175.3	-27.3	242.4	-26.8	221.6
							Median	-2.9	206.2	-1.1	210.2	0.9	336.5	-3.0	293.5
							Upper Bound	12.6	239.1	6.7	226.8	29.6	432.4	5.6	319.4

*percentile range of model projections: lower bound = 10th percentile, median = 50th percentile, upper bound = 90th percentile

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Table B-1. CLIRAM of the projected seasonal change in total rainfall (in millimeters) in the mid-21st century (2036-2065) for all provinces; baseline period: 1971-2000 (con't).

Region	Province	Observed (1971-2000)				Projected (2036-2065)									
		DJF	MAM	JJA	SON	Scenario	Range*	DJF (Dec-Jan-Feb)		MAM (Mar-Apr-May)		JJA (Jun-Jul-Aug)		SON (Sep-Oct-Nov)	
								Percent change	Projected value	Percent change	Projected value	Percent change	Projected value	Percent change	Projected value
Region 12	South Cotabato	183.3	234.1	402.8	351.7	Moderate Emission (RCP4.5)	Lower Bound	-27.3	133.2	-12.9	204.0	-21.6	315.9	-41.4	206.2
							Median	-8.0	168.7	-7.8	215.8	3.3	416.2	-9.3	318.9
							Upper Bound	14.6	210.0	26.1	295.2	40.0	564.0	4.7	368.3
						High Emission (RCP8.5)	Lower Bound	-20.7	145.3	-9.7	211.3	-16.1	337.9	-23.2	270.1
							Median	-2.7	178.3	0.1	234.3	1.2	407.6	-3.8	338.4
							Upper Bound	13.9	208.8	6.5	249.4	44.2	580.7	7.6	378.5
	Sultan Kudarat	189.3	311.0	513.1	448.7	Moderate Emission (RCP4.5)	Lower Bound	-24.0	143.8	-19.2	251.2	-15.7	432.5	-33.8	297.2
							Median	-10.2	170.0	2.7	319.5	1.1	518.7	-8.6	410.0
							Upper Bound	10.7	209.6	19.5	371.6	21.6	624.0	3.3	463.5
						High Emission (RCP8.5)	Lower Bound	-22.3	147.1	-8.2	285.5	-17.6	422.9	-21.7	351.3
							Median	-5.2	179.5	2.6	319.0	1.9	522.6	-3.6	432.6
							Upper Bound	12.7	213.3	13.8	353.8	36.1	698.5	5.8	474.9
CARAGA	Agusan del Norte	875.7	441.9	460.0	628.9	Moderate Emission (RCP4.5)	Lower Bound	-20.3	698.0	-25.3	330.2	-28.6	328.4	-30.4	437.8
							Median	-9.8	790.2	-14.2	379.4	-11.4	407.3	-21.2	495.5
							Upper Bound	31.4	1,150.8	8.3	478.6	1.9	468.7	-1.3	620.6
						High Emission (RCP8.5)	Lower Bound	-27.0	639.3	-27.5	320.2	-15.8	387.5	-30.7	435.5
							Median	0.5	880.2	-9.8	398.7	-10.3	412.8	-10.9	560.5
							Upper Bound	20.9	1,058.4	-2.3	431.7	17.6	540.8	8.1	679.6
	Agusan del Sur	963.3	586.4	593.4	694.8	Moderate Emission (RCP4.5)	Lower Bound	-17.7	793.0	-15.3	496.7	-22.2	461.7	-29.7	488.3
							Median	-13.2	835.7	-3.9	563.8	-12.5	518.9	-18.0	569.5
							Upper Bound	21.4	1,169.0	4.6	613.5	7.1	635.7	-3.2	672.5
						High Emission (RCP8.5)	Lower Bound	-18.8	782.6	-12.2	514.9	-15.2	503.4	-24.6	524.1
							Median	-2.6	937.9	-6.2	550.2	-3.6	572.0	-10.8	619.8
							Upper Bound	26.3	1,216.8	8.7	637.2	8.4	643.0	9.9	763.5
	Surigao del Norte	1,412.0	639.6	448.0	837.3	Moderate Emission (RCP4.5)	Lower Bound	-12.2	1,239.6	-6.2	600.2	-11.3	397.6	-19.0	678.6
							Median	0.6	1,420.3	3.6	662.7	-4.5	427.6	-14.1	719.6
							Upper Bound	34.9	1,904.3	9.3	699.4	7.1	479.7	8.1	905.4
						High Emission (RCP8.5)	Lower Bound	-19.7	1,134.4	-6.2	599.7	-15.5	378.4	-22.6	648.4
							Median	11.1	1,569.2	-2.8	621.7	0.7	451.0	-11.2	743.6
							Upper Bound	38.9	1,960.6	10.8	709.0	13.1	506.8	15.1	963.5
	Surigao del Sur	1,394.0	746.9	534.6	842.5	Moderate Emission (RCP4.5)	Lower Bound	-10.6	1,246.9	-12.9	650.4	-18.5	435.7	-23.2	647.4
							Median	-6.7	1,300.8	-1.7	734.4	-10.6	477.8	-16.9	700.1
							Upper Bound	27.8	1,781.9	5.6	789.1	-0.2	533.4	-1.0	833.9
						High Emission (RCP8.5)	Lower Bound	-15.8	1,173.2	-8.2	685.3	-16.3	447.6	-27.8	608.5
							Median	4.7	1,460.2	-1.8	733.4	-6.4	500.1	-12.0	741.4
							Upper Bound	27.5	1,776.9	9.8	820.1	9.6	585.7	8.7	915.9
ARMM	Lanao del Sur	293.8	369.4	661.5	562.2	Moderate Emission (RCP4.5)	Lower Bound	-22.0	229.2	-26.1	272.9	-15.0	562.4	-38.8	344.1
							Median	-3.1	284.6	-11.2	327.9	-8.9	602.5	-19.0	455.2
							Upper Bound	12.3	329.8	13.2	418.2	8.7	719.0	-4.5	537.0
						High Emission (RCP8.5)	Lower Bound	-15.1	249.4	-6.3	346.1	-12.5	579.0	-20.3	447.8
							Median	-5.7	277.1	-0.4	368.0	-0.6	657.8	-9.0	511.8
							Upper Bound	12.5	330.6	25.4	463.4	17.3	775.8	7.4	603.8
	Maguindanao	225.3	399.1	635.3	553.6	Moderate Emission (RCP4.5)	Lower Bound	-19.6	181.2	-13.1	346.7	-12.0	558.9	-22.3	430.2
							Median	-3.1	218.4	-4.4	381.4	-1.7	624.8	-10.6	494.7
							Upper Bound	6.9	240.8	22.5	488.8	14.3	726.1	3.9	575.1
						High Emission (RCP8.5)	Lower Bound	-19.8	180.6	-0.3	398.1	-12.5	555.9	-15.9	465.3
							Median	-4.1	216.1	5.7	421.9	3.1	654.8	-1.4	545.6
							Upper Bound	13.9	256.6	29.6	517.3	8.4	688.9	5.9	586.2

*percentile range of model projections: lower bound = 10th percentile, median = 50th percentile, upper bound = 90th percentile

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Table B-2. CLIRAM of the projected seasonal change in mean temperature (in degree Celsius) in the mid-21st century (2036-2065) for all provinces; baseline period: 1971-2000.

Region	Province	Observed (1971-2000)				Projected (2036-2065)									
		DJF	MAM	JJA	SON	Scenario	Range*	DJF (Dec-Jan-Feb)		MAM (Mar-Apr-May)		JJA (Jun-Jul-Aug)		SON (Sep-Oct-Nov)	
								Change	Projected value	Change	Projected value	Change	Projected value	Change	Projected value
Region 1	Ilocos Norte	25.3	28.1	28.3	27.4	Moderate Emission (RCP4.5)	Lower Bound	0.9	26.2	0.9	29.0	1.0	29.3	1.0	28.4
							Median	1.2	26.5	1.2	29.3	1.3	29.6	1.1	28.5
							Upper Bound	1.6	26.9	1.7	29.8	1.8	30.1	1.8	29.2
						High Emission (RCP8.5)	Lower Bound	1.1	26.4	1.3	29.4	1.3	29.6	1.3	28.7
							Median	1.6	26.9	1.6	29.7	1.6	29.9	1.5	28.9
							Upper Bound	1.9	27.2	2.2	30.3	2.4	30.7	2.2	29.6
	Ilocos Sur	23.1	25.7	25.4	24.8	Moderate Emission (RCP4.5)	Lower Bound	1.1	24.2	1.0	26.7	1.0	26.4	1.0	25.8
							Median	1.3	24.4	1.3	27.0	1.3	26.7	1.1	25.9
							Upper Bound	1.9	25.0	1.8	27.5	1.8	27.2	1.9	26.7
						High Emission (RCP8.5)	Lower Bound	1.2	24.3	1.4	27.1	1.3	26.7	1.4	26.2
							Median	1.7	24.8	1.6	27.3	1.6	27.0	1.6	26.4
							Upper Bound	2.1	25.2	2.2	27.9	2.3	27.7	2.4	27.2
CAR	La Union	20.5	22.9	22.8	22.2	Moderate Emission (RCP4.5)	Lower Bound	1.1	21.6	1.0	23.9	0.9	23.7	1.0	23.2
							Median	1.3	21.8	1.2	24.1	1.2	24.0	1.0	23.2
							Upper Bound	1.8	22.3	1.7	24.6	1.8	24.6	1.8	24.0
						High Emission (RCP8.5)	Lower Bound	1.2	21.7	1.3	24.2	1.3	24.1	1.3	23.5
							Median	1.6	22.1	1.6	24.5	1.5	24.3	1.6	23.8
							Upper Bound	2.1	22.6	2.3	25.2	2.3	25.1	2.3	24.5
	Pangasinan	25.0	27.4	26.9	26.4	Moderate Emission (RCP4.5)	Lower Bound	1.1	26.1	1.0	28.4	1.0	27.9	1.0	27.4
							Median	1.3	26.3	1.2	28.6	1.3	28.2	1.1	27.5
							Upper Bound	1.8	26.8	1.8	29.2	1.9	28.8	1.9	28.3
						High Emission (RCP8.5)	Lower Bound	1.3	26.3	1.4	28.8	1.3	28.2	1.4	27.8
							Median	1.6	26.6	1.7	29.1	1.6	28.5	1.6	28.0
							Upper Bound	2.1	27.1	2.4	29.8	2.4	29.3	2.3	28.7
	Abra	24.5	27.4	27.2	26.4	Moderate Emission (RCP4.5)	Lower Bound	1.0	25.5	1.0	28.4	1.0	28.2	1.0	27.4
							Median	1.2	25.7	1.2	28.6	1.3	28.5	1.2	27.6
							Upper Bound	1.7	26.2	1.8	29.2	1.8	29.0	1.8	28.2
						High Emission (RCP8.5)	Lower Bound	1.2	25.7	1.4	28.8	1.4	28.6	1.4	27.8
							Median	1.7	26.2	1.7	29.1	1.6	28.8	1.7	28.1
							Upper Bound	2.0	26.5	2.3	29.7	2.4	29.6	2.3	28.7
	Apayao	24.8	28.0	28.4	27.1	Moderate Emission (RCP4.5)	Lower Bound	0.9	25.7	0.8	28.8	1.0	29.4	0.9	28.0
							Median	1.2	26.0	1.2	29.2	1.2	29.6	1.1	28.2
							Upper Bound	1.4	26.2	1.6	29.6	1.8	30.2	1.8	28.9
						High Emission (RCP8.5)	Lower Bound	1.0	25.8	1.2	29.2	1.4	29.8	1.3	28.4
							Median	1.5	26.3	1.7	29.7	1.6	30.0	1.5	28.6
							Upper Bound	1.7	26.5	2.3	30.3	2.4	30.8	2.1	29.2
	Benguet	19.4	21.9	22.0	21.2	Moderate Emission (RCP4.5)	Lower Bound	1.1	20.5	1.1	23.0	1.1	23.1	1.1	22.3
							Median	1.3	20.7	1.3	23.2	1.4	23.4	1.3	22.5
							Upper Bound	1.8	21.2	1.9	23.8	1.9	23.9	1.9	23.1
						High Emission (RCP8.5)	Lower Bound	1.3	20.7	1.5	23.4	1.4	23.4	1.4	22.6
							Median	1.8	21.2	1.8	23.7	1.7	23.7	1.7	22.9
							Upper Bound	2.1	21.5	2.4	24.3	2.5	24.5	2.3	23.5
	Ifugao	22.2	25.6	25.8	24.5	Moderate Emission (RCP4.5)	Lower Bound	1.0	23.2	0.9	26.5	1.0	26.8	1.0	25.5
							Median	1.2	23.4	1.2	26.8	1.3	27.1	1.1	25.6
							Upper Bound	1.5	23.7	1.7	27.3	1.9	27.7	1.9	26.4
						High Emission (RCP8.5)	Lower Bound	1.1	23.3	1.3	26.9	1.4	27.2	1.3	25.8
							Median	1.6	23.8	1.7	27.3	1.6	27.4	1.6	26.1
							Upper Bound	1.8	24.0	2.3	27.9	2.5	28.3	2.3	26.8
	Kalinga	23.8	27.5	27.7	26.1	Moderate Emission (RCP4.5)	Lower Bound	1.0	24.8	0.9	28.4	1.0	28.7	1.0	27.1
							Median	1.2	25.0	1.2	28.7	1.3	29.0	1.1	27.2
							Upper Bound	1.5	25.3	1.7	29.2	1.9	29.6	1.8	27.9
						High Emission (RCP8.5)	Lower Bound	1.1	24.9	1.2	28.7	1.4	29.1	1.3	27.4
							Median	1.6	25.4	1.7	29.2	1.6	29.3	1.6	27.7
							Upper Bound	1.7	25.5	2.3	29.8	2.4	30.1	2.2	28.3
	Mountain Province	22.7	26.0	26.1	24.9	Moderate Emission (RCP4.5)	Lower Bound	1.0	23.7	1.0	27.0	1.0	27.1	1.0	25.9
							Median	1.2	23.9	1.2	27.2	1.3	27.4	1.2	26.1
							Upper Bound	1.6	24.3	1.8	27.8	2.0	28.1	1.9	26.8
						High Emission (RCP8.5)	Lower Bound	1.2	23.9	1.3	27.3	1.3	27.4	1.4	26.3
							Median	1.7	24.4	1.7	27.7	1.6	27.7	1.6	26.5
							Upper Bound	1.9	24.6	2.3	28.3	2.5	28.6	2.3	27.2

*percentile range of model projections: lower bound = 10th percentile, median = 50th percentile, upper bound = 90th percentile

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Table B-2. CLIRAM of the projected seasonal change in mean temperature (in degree Celsius) in the mid-21st century (2036-2065) for all provinces; baseline period: 1971-2000 (cont).

Region	Province	Observed (1971-2000)				Projected (2036-2065)									
		DJF	MAM	JJA	SON	Scenario	Range*	DJF (Dec-Jan-Feb)		MAM (Mar-Apr-May)		JJA (Jun-Jul-Aug)		SON (Sep-Oct-Nov)	
								Change	Projected value	Change	Projected value	Change	Projected value	Change	Projected value
Region 2	Cagayan	24.5	28.1	28.9	27.1	Moderate Emission (RCP4.5)	Lower Bound	0.9	25.4	0.9	29.0	1.0	29.9	0.9	28.0
							Median	1.2	25.7	1.2	29.3	1.3	30.2	1.1	28.2
							Upper Bound	1.4	25.9	1.7	29.8	1.9	30.8	1.8	28.9
						High Emission (RCP8.5)	Lower Bound	1.0	25.5	1.2	29.3	1.3	30.2	1.3	28.4
							Median	1.5	26.0	1.6	29.7	1.6	30.5	1.5	28.6
							Upper Bound	1.7	26.2	2.2	30.3	2.4	31.3	2.2	29.3
	Isabela	24.1	27.9	28.7	26.8	Moderate Emission (RCP4.5)	Lower Bound	1.0	25.1	0.9	28.8	1.0	29.7	1.0	27.8
							Median	1.2	25.3	1.2	29.1	1.3	30.0	1.1	27.9
							Upper Bound	1.5	25.6	1.7	29.6	2.0	30.7	1.9	28.7
						High Emission (RCP8.5)	Lower Bound	1.1	25.2	1.2	29.1	1.3	30.0	1.3	28.1
							Median	1.6	25.7	1.7	29.6	1.6	30.3	1.6	28.4
							Upper Bound	1.8	25.9	2.3	30.2	2.5	31.2	2.3	29.1
	Nueva Vizcaya	22.3	25.1	25.4	24.4	Moderate Emission (RCP4.5)	Lower Bound	1.0	23.3	1.0	26.1	1.0	26.4	1.0	25.4
							Median	1.2	23.5	1.3	26.4	1.3	26.7	1.1	25.5
							Upper Bound	1.6	23.9	1.8	26.9	1.9	27.3	1.9	26.3
						High Emission (RCP8.5)	Lower Bound	1.1	23.4	1.3	26.4	1.4	26.8	1.4	25.8
							Median	1.6	23.9	1.7	26.8	1.6	27.0	1.6	26.0
							Upper Bound	1.9	24.2	2.3	27.4	2.5	27.9	2.3	26.7
	Quirino	23.7	26.8	27.6	26.2	Moderate Emission (RCP4.5)	Lower Bound	1.0	24.7	1.0	27.8	1.0	28.6	1.0	27.2
							Median	1.2	24.9	1.3	28.1	1.3	28.9	1.1	27.3
							Upper Bound	1.6	25.3	1.8	28.6	2.0	29.6	1.9	28.1
						High Emission (RCP8.5)	Lower Bound	1.1	24.8	1.3	28.1	1.4	29.0	1.3	27.5
							Median	1.5	25.2	1.7	28.5	1.6	29.2	1.6	27.8
							Upper Bound	1.9	25.6	2.3	29.1	2.5	30.1	2.3	28.5
Region 3	Aurora	24.5	27.1	27.9	26.7	Moderate Emission (RCP4.5)	Lower Bound	1.0	25.5	0.9	28.0	1.0	28.9	1.0	27.7
							Median	1.2	25.7	1.2	28.3	1.2	29.1	1.1	27.8
							Upper Bound	1.6	26.1	1.7	28.8	1.9	29.8	1.9	28.6
						High Emission (RCP8.5)	Lower Bound	1.1	25.6	1.3	28.4	1.4	29.3	1.3	28.0
							Median	1.6	26.1	1.6	28.7	1.6	29.5	1.5	28.2
							Upper Bound	1.9	26.4	2.1	29.2	2.4	30.3	2.2	28.9
	Bataan	26.4	28.7	27.6	27.3	Moderate Emission (RCP4.5)	Lower Bound	1.0	27.4	0.9	29.6	1.0	28.6	1.0	28.3
							Median	1.2	27.6	1.2	29.9	1.2	28.8	1.0	28.3
							Upper Bound	1.7	28.1	1.8	30.5	1.7	29.3	1.8	29.1
						High Emission (RCP8.5)	Lower Bound	1.2	27.6	1.3	30.0	1.3	28.9	1.4	28.7
							Median	1.6	28.0	1.7	30.4	1.5	29.1	1.5	28.8
							Upper Bound	2.0	28.4	2.3	31.0	2.2	29.8	2.2	29.5
	Bulacan	25.6	27.9	27.1	26.7	Moderate Emission (RCP4.5)	Lower Bound	1.0	26.6	1.0	28.9	1.0	28.1	1.0	27.7
							Median	1.2	26.8	1.2	29.1	1.3	28.4	1.1	27.8
							Upper Bound	1.6	27.2	1.7	29.6	1.8	28.9	1.9	28.6
						High Emission (RCP8.5)	Lower Bound	1.2	26.8	1.3	29.2	1.3	28.4	1.4	28.1
							Median	1.6	27.2	1.7	29.6	1.6	28.7	1.6	28.3
							Upper Bound	1.9	27.5	2.3	30.2	2.3	29.4	2.3	29.0
	Nueva Ecija	25.3	27.7	27.5	26.8	Moderate Emission (RCP4.5)	Lower Bound	1.0	26.3	1.0	28.7	1.0	28.5	1.0	27.8
							Median	1.2	26.5	1.2	28.9	1.3	28.8	1.1	27.9
							Upper Bound	1.7	27.0	1.8	29.5	1.9	29.4	1.9	28.7
						High Emission (RCP8.5)	Lower Bound	1.2	26.5	1.4	29.1	1.3	28.8	1.4	28.2
							Median	1.6	26.9	1.7	29.4	1.6	29.1	1.6	28.4
							Upper Bound	2.0	27.3	2.3	30.0	2.4	29.9	2.3	29.1
	Pampanga	26.0	28.3	27.5	27.1	Moderate Emission (RCP4.5)	Lower Bound	1.0	27.0	1.0	29.3	1.0	28.5	1.0	28.1
							Median	1.3	27.3	1.3	29.6	1.3	28.8	1.1	28.2
							Upper Bound	1.7	27.7	1.8	30.1	1.9	29.4	1.9	29.0
						High Emission (RCP8.5)	Lower Bound	1.2	27.2	1.3	29.6	1.4	28.9	1.4	28.5
							Median	1.6	27.6	1.7	30.0	1.6	29.1	1.6	28.7
							Upper Bound	2.1	28.1	2.4	30.7	2.4	29.9	2.3	29.4
	Tarlac	26.1	28.3	27.8	27.3	Moderate Emission (RCP4.5)	Lower Bound	1.0	27.1	1.0	29.3	1.0	28.8	1.0	28.3
							Median	1.3	27.4	1.2	29.5	1.2	29.0	1.1	28.4
							Upper Bound	1.7	27.8	1.8	30.1	1.9	29.7	1.9	29.2
						High Emission (RCP8.5)	Lower Bound	1.2	27.3	1.4	29.7	1.4	29.2	1.4	28.7
							Median	1.6	27.7	1.7	30.0	1.6	29.4	1.6	28.9
							Upper Bound	2.1	28.2	2.3	30.6	2.5	30.3	2.3	29.6
	Zambales	26.3	28.3	27.4	27.2	Moderate Emission (RCP4.5)	Lower Bound	1.0	27.3	1.0	29.3	1.0	28.4	1.0	28.2
							Median	1.3	27.6	1.2	29.5	1.2	28.6	1.1	28.3
							Upper Bound	1.7	28.0	1.8	30.1	1.8	29.2	1.8	29.0
						High Emission (RCP8.5)	Lower Bound	1.2	27.5	1.3	29.6	1.4	28.8	1.4	28.6
							Median	1.6	27.9	1.7	30.0	1.5	28.9	1.6	28.8
							Upper Bound	2.1	28.4	2.3	30.6	2.2	29.6	2.2	29.4

*percentile range of model projections: lower bound = 10th percentile, median = 50th percentile, upper bound = 90th percentile

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Table B-2. CLIRAM of the projected seasonal change in mean temperature (in degree Celsius) in the mid-21st century (2036-2065) for all provinces; baseline period: 1971-2000 (con't).

Region	Province	Observed (1971-2000)				Projected (2036-2065)									
		DJF	MAM	JJA	SON	Scenario	Range*	DJF (Dec-Jan-Feb)		MAM (Mar-Apr-May)		JJA (Jun-Jul-Aug)		SON (Sep-Oct-Nov)	
								Change	Projected value	Change	Projected value	Change	Projected value	Change	Projected value
Region 4-A	Batangas	24.2	26.5	25.9	25.6	Moderate Emission (RCP4.5)	Lower Bound	1.0	25.2	1.0	27.5	1.0	26.9	1.0	26.6
							Median	1.2	25.4	1.2	27.7	1.2	27.1	1.0	26.6
							Upper Bound	1.6	25.8	1.7	28.2	1.7	27.6	1.8	27.4
						High Emission (RCP8.5)	Lower Bound	1.2	25.4	1.3	27.8	1.3	27.2	1.4	27.0
							Median	1.6	25.8	1.6	28.1	1.5	27.4	1.5	27.1
							Upper Bound	1.9	26.1	2.2	28.7	2.3	28.2	2.2	27.8
	Cavite	25.7	28.2	27.3	26.9	Moderate Emission (RCP4.5)	Lower Bound	1.0	26.7	1.0	29.2	1.0	28.3	1.0	27.9
							Median	1.3	27.0	1.2	29.4	1.2	28.5	1.1	28.0
							Upper Bound	1.7	27.4	1.7	29.9	1.8	29.1	1.8	28.7
						High Emission (RCP8.5)	Lower Bound	1.2	26.9	1.3	29.5	1.3	28.6	1.4	28.3
							Median	1.6	27.3	1.6	29.8	1.5	28.8	1.5	28.4
							Upper Bound	2.0	27.7	2.3	30.5	2.2	29.5	2.2	29.1
	Laguna	25.0	27.5	27.5	26.7	Moderate Emission (RCP4.5)	Lower Bound	1.0	26.0	1.0	28.5	1.0	28.5	1.0	27.7
							Median	1.2	26.2	1.2	28.7	1.3	28.8	1.1	27.8
							Upper Bound	1.6	26.6	1.7	29.2	1.8	29.3	1.9	28.6
						High Emission (RCP8.5)	Lower Bound	1.1	26.1	1.3	28.8	1.3	28.8	1.4	28.1
							Median	1.6	26.6	1.6	29.1	1.5	29.0	1.5	28.2
							Upper Bound	1.9	26.9	2.2	29.7	2.4	29.9	2.3	29.0
	Quezon	25.1	27.2	27.6	26.7	Moderate Emission (RCP4.5)	Lower Bound	1.0	26.1	0.9	28.1	1.0	28.6	1.0	27.7
							Median	1.2	26.3	1.2	28.4	1.2	28.8	1.1	27.8
							Upper Bound	1.6	26.7	1.6	28.8	1.8	29.4	1.8	28.5
						High Emission (RCP8.5)	Lower Bound	1.1	26.2	1.3	28.5	1.3	28.9	1.3	28.0
							Median	1.6	26.7	1.6	28.8	1.5	29.1	1.4	28.1
							Upper Bound	1.8	26.9	2.0	29.2	2.3	29.9	2.2	28.9
	Rizal	25.4	27.9	27.6	26.8	Moderate Emission (RCP4.5)	Lower Bound	1.0	26.4	1.0	28.9	1.0	28.6	1.0	27.8
							Median	1.2	26.6	1.2	29.1	1.3	28.9	1.1	27.9
							Upper Bound	1.6	27.0	1.7	29.6	1.8	29.4	1.8	28.6
						High Emission (RCP8.5)	Lower Bound	1.2	26.6	1.3	29.2	1.3	28.9	1.4	28.2
							Median	1.6	27.0	1.6	29.5	1.5	29.1	1.5	28.3
							Upper Bound	1.9	27.3	2.2	30.1	2.3	29.9	2.2	29.0
Region 4-B	Occidental Mindoro	26.5	28.3	27.3	27.1	Moderate Emission (RCP4.5)	Lower Bound	1.0	27.5	1.0	29.3	0.9	28.2	1.0	28.1
							Median	1.3	27.8	1.3	29.6	1.2	28.5	1.1	28.2
							Upper Bound	1.7	28.2	1.8	30.1	1.7	29.0	1.8	28.9
						High Emission (RCP8.5)	Lower Bound	1.3	27.8	1.4	29.7	1.4	28.7	1.4	28.5
							Median	1.6	28.1	1.7	30.0	1.5	28.8	1.5	28.6
							Upper Bound	2.0	28.5	2.3	30.6	2.2	29.5	2.2	29.3
	Oriental Mindoro	26.4	28.3	27.6	27.3	Moderate Emission (RCP4.5)	Lower Bound	1.0	27.4	1.0	29.3	0.9	28.5	1.0	28.3
							Median	1.2	27.6	1.2	29.5	1.2	28.8	1.1	28.4
							Upper Bound	1.6	28.0	1.7	30.0	1.8	29.4	1.8	29.1
						High Emission (RCP8.5)	Lower Bound	1.2	27.6	1.3	29.6	1.3	28.9	1.3	28.6
							Median	1.6	28.0	1.6	29.9	1.5	29.1	1.5	28.8
							Upper Bound	1.9	28.3	2.2	30.5	2.3	29.9	2.2	29.5
	Palawan	26.9	28.1	27.3	27.4	Moderate Emission (RCP4.5)	Lower Bound	1.0	27.9	1.0	29.1	0.9	28.2	1.0	28.4
							Median	1.3	28.2	1.2	29.3	1.2	28.5	1.1	28.5
							Upper Bound	1.6	28.5	1.6	29.7	1.6	28.9	1.7	29.1
						High Emission (RCP8.5)	Lower Bound	1.2	28.1	1.3	29.4	1.3	28.6	1.3	28.7
							Median	1.6	28.5	1.7	29.8	1.5	28.8	1.5	28.9
							Upper Bound	1.9	28.8	2.1	30.2	2.0	29.3	2.1	29.5
	Romblon	26.3	28.5	28.1	27.7	Moderate Emission (RCP4.5)	Lower Bound	0.9	27.2	1.0	29.5	0.9	29.0	1.0	28.7
							Median	1.2	27.5	1.2	29.7	1.2	29.3	1.1	28.8
							Upper Bound	1.5	27.8	1.5	30.0	1.7	29.8	1.7	29.4
						High Emission (RCP8.5)	Lower Bound	1.1	27.4	1.3	29.8	1.3	29.4	1.3	29.0
							Median	1.5	27.8	1.6	30.1	1.4	29.5	1.4	29.1
							Upper Bound	1.7	28.0	1.8	30.3	2.1	30.2	2.1	29.8
Region 5	Metro Manila	26.1	28.8	28.0	27.4	Moderate Emission (RCP4.5)	Lower Bound	1.0	27.1	0.9	29.7	1.0	29.0	1.0	28.4
							Median	1.2	27.3	1.2	30.0	1.3	29.3	1.1	28.5
							Upper Bound	1.6	27.7	1.7	30.5	1.8	29.8	1.8	29.2
						High Emission (RCP8.5)	Lower Bound	1.2	27.3	1.3	30.1	1.3	29.3	1.3	28.7
							Median	1.6	27.7	1.6	30.4	1.5	29.5	1.5	28.9
							Upper Bound	1.9	28.0	2.2	31.0	2.3	30.3	2.2	29.6
	Albay	25.6	27.2	27.8	27.1	Moderate Emission (RCP4.5)	Lower Bound	1.0	26.6	1.0	28.2	1.0	28.8	1.0	28.1
							Median	1.2	26.8	1.2	28.4	1.2	29.0	1.1	28.2
							Upper Bound	1.7	27.3	1.8	29.0	1.8	29.6	1.8	28.9
						High Emission (RCP8.5)	Lower Bound	1.2	26.8	1.4	28.6	1.4	29.2	1.4	28.5
							Median	1.6	27.2	1.7	28.9	1.6	29.4	1.5	28.6
							Upper Bound	2.1	27.7	2.3	29.5	2.2	30.0	2.2	29.3

*percentile range of model projections: lower bound = 10th percentile, median = 50th percentile, upper bound = 90th percentile

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Table B-2. CLIRAM of the projected seasonal change in mean temperature (in degree Celsius) in the mid-21st century (2036-2065) for all provinces; baseline period: 1971-2000 (con't).

Region	Province	Observed (1971-2000)				Projected (2036-2065)									
		DJF	MAM	JJA	SON	Scenario	Range*	DJF (Dec-Jan-Feb)		MAM (Mar-Apr-May)		JJA (Jun-Jul-Aug)		SON (Sep-Oct-Nov)	
								Change	Projected value	Change	Projected value	Change	Projected value	Change	Projected value
Region 5	Camarines Norte	25.7	27.6	28.3	27.3	Moderate Emission (RCP4.5)	Lower Bound	1.0	26.7	1.0	28.6	1.0	29.3	1.0	28.3
							Median	1.2	26.9	1.2	28.8	1.2	29.5	1.0	28.3
							Upper Bound	1.6	27.3	1.7	29.3	1.8	30.1	1.8	29.1
						High Emission (RCP8.5)	Lower Bound	1.2	26.9	1.3	28.9	1.3	29.6	1.3	28.6
							Median	1.6	27.3	1.6	29.2	1.6	29.9	1.4	28.7
							Upper Bound	1.9	27.6	2.2	29.8	2.3	30.6	2.2	29.5
	Camarines Sur	25.6	27.5	28.1	27.1	Moderate Emission (RCP4.5)	Lower Bound	1.0	26.6	1.0	28.5	1.0	29.1	1.0	28.1
							Median	1.2	26.8	1.2	28.7	1.2	29.3	1.1	28.2
							Upper Bound	1.6	27.2	1.7	29.2	1.8	29.9	1.8	28.9
						High Emission (RCP8.5)	Lower Bound	1.2	26.8	1.3	28.8	1.4	29.5	1.4	28.5
							Median	1.6	27.2	1.6	29.1	1.5	29.6	1.5	28.6
							Upper Bound	1.9	27.5	2.2	29.7	2.2	30.3	2.2	29.3
	Catanduanes	24.7	26.3	27.2	26.4	Moderate Emission (RCP4.5)	Lower Bound	1.0	25.7	1.0	27.3	1.0	28.2	1.0	27.4
							Median	1.1	25.8	1.2	27.5	1.2	28.4	1.1	27.5
							Upper Bound	1.5	26.2	1.6	27.9	1.7	28.9	1.7	28.1
						High Emission (RCP8.5)	Lower Bound	1.2	25.9	1.3	27.6	1.3	28.5	1.3	27.7
							Median	1.5	26.2	1.6	27.9	1.6	28.8	1.4	27.8
							Upper Bound	1.7	26.4	1.9	28.2	2.1	29.3	2.0	28.4
	Masbate	26.6	28.4	28.6	28.0	Moderate Emission (RCP4.5)	Lower Bound	1.0	27.6	1.0	29.4	1.0	29.6	1.0	29.0
							Median	1.2	27.8	1.2	29.6	1.2	29.8	1.1	29.1
							Upper Bound	1.6	28.2	1.6	30.0	1.7	30.3	1.7	29.7
						High Emission (RCP8.5)	Lower Bound	1.2	27.8	1.3	29.7	1.3	29.9	1.3	29.3
							Median	1.6	28.2	1.6	30.0	1.5	30.1	1.4	29.4
							Upper Bound	1.8	28.4	1.9	30.3	2.1	30.7	2.1	30.1
	Sorsogon	25.9	27.4	27.9	27.3	Moderate Emission (RCP4.5)	Lower Bound	1.0	26.9	1.0	28.4	1.0	28.9	1.0	28.3
							Median	1.2	27.1	1.2	28.6	1.2	29.1	1.1	28.4
							Upper Bound	1.6	27.5	1.6	29.0	1.7	29.6	1.8	29.1
						High Emission (RCP8.5)	Lower Bound	1.2	27.1	1.4	28.8	1.4	29.3	1.3	28.6
							Median	1.5	27.4	1.6	29.0	1.6	29.5	1.5	28.8
							Upper Bound	1.9	27.8	2.0	29.4	2.2	30.1	2.2	29.5
Region 6	Aklan	26.1	27.9	27.8	27.4	Moderate Emission (RCP4.5)	Lower Bound	1.0	27.1	1.0	28.9	0.9	28.7	1.0	28.4
							Median	1.2	27.3	1.2	29.1	1.1	28.9	1.1	28.5
							Upper Bound	1.6	27.7	1.6	29.5	1.8	29.6	1.8	29.2
						High Emission (RCP8.5)	Lower Bound	1.2	27.3	1.3	29.2	1.3	29.1	1.3	28.7
							Median	1.5	27.6	1.6	29.5	1.5	29.3	1.4	28.8
							Upper Bound	1.8	27.9	2.1	30.0	2.2	30.0	2.2	29.6
	Antique	26.6	28.4	27.9	27.7	Moderate Emission (RCP4.5)	Lower Bound	1.0	27.6	1.0	29.4	0.9	28.8	1.0	28.7
							Median	1.3	27.9	1.3	29.7	1.2	29.1	1.1	28.8
							Upper Bound	1.7	28.3	1.8	30.2	1.8	29.7	1.8	29.5
						High Emission (RCP8.5)	Lower Bound	1.2	27.8	1.4	29.8	1.4	29.3	1.4	29.1
							Median	1.6	28.2	1.8	30.2	1.5	29.4	1.5	29.2
							Upper Bound	2.0	28.6	2.3	30.7	2.3	30.2	2.2	29.9
	Capiz	25.9	27.7	27.8	27.3	Moderate Emission (RCP4.5)	Lower Bound	1.0	26.9	1.0	28.7	1.0	28.8	1.0	28.3
							Median	1.2	27.1	1.2	28.9	1.2	29.0	1.1	28.4
							Upper Bound	1.6	27.5	1.7	29.4	1.9	29.7	1.8	29.1
						High Emission (RCP8.5)	Lower Bound	1.2	27.1	1.4	29.1	1.4	29.2	1.3	28.6
							Median	1.5	27.4	1.6	29.3	1.6	29.4	1.5	28.8
							Upper Bound	1.9	27.8	2.2	29.9	2.3	30.1	2.2	29.5
	Guimaras	26.5	28.3	27.7	27.5	Moderate Emission (RCP4.5)	Lower Bound	1.0	27.5	1.0	29.3	0.9	28.6	1.0	28.4
							Median	1.2	27.7	1.2	29.5	1.1	28.8	1.1	28.5
							Upper Bound	1.5	28.0	1.5	29.8	1.5	29.2	1.6	29.1
						High Emission (RCP8.5)	Lower Bound	1.2	27.8	1.3	29.6	1.3	29.0	1.3	28.8
							Median	1.5	28.1	1.6	29.9	1.4	29.1	1.4	28.9
							Upper Bound	1.8	28.4	2.1	30.4	1.9	29.6	2.0	29.5
	Iloilo	26.4	28.2	27.9	27.6	Moderate Emission (RCP4.5)	Lower Bound	1.0	27.4	1.0	29.2	0.9	28.8	1.0	28.6
							Median	1.2	27.6	1.2	29.4	1.2	29.1	1.1	28.7
							Upper Bound	1.6	28.0	1.7	29.9	1.8	29.7	1.8	29.4
						High Emission (RCP8.5)	Lower Bound	1.2	27.6	1.3	29.5	1.4	29.3	1.3	28.9
							Median	1.6	28.0	1.7	29.9	1.5	29.4	1.5	29.1
							Upper Bound	1.9	28.3	2.2	30.4	2.2	30.1	2.2	29.8
	Negros Occidental	26.7	28.4	27.8	27.6	Moderate Emission (RCP4.5)	Lower Bound	1.0	27.7	1.0	29.4	1.0	28.8	1.0	28.6
							Median	1.2	27.9	1.3	29.7	1.2	29.0	1.1	28.7
							Upper Bound	1.7	28.4	1.8	30.2	1.8	29.6	1.8	29.4
						High Emission (RCP8.5)	Lower Bound	1.3	28.0	1.3	29.7	1.4	29.2	1.4	29.0
							Median	1.6	28.3	1.7	30.1	1.6	29.4	1.5	29.1
							Upper Bound	2.1	28.8	2.3	30.7	2.3	30.1	2.2	29.8

*percentile range of model projections: lower bound = 10th percentile, median = 50th percentile, upper bound = 90th percentile

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Table B-2. CLIRAM of the projected seasonal change in mean temperature (in degree Celsius) in the mid-21st century (2036-2065) for all provinces; baseline period: 1971-2000 (con't).

Region	Province	Observed (1971-2000)				Projected (2036-2065)									
		DJF	MAM	JJA	SON	Scenario	Range*	DJF (Dec-Jan-Feb)		MAM (Mar-Apr-May)		JJA (Jun-Jul-Aug)		SON (Sep-Oct-Nov)	
								Change	Projected value	Change	Projected value	Change	Projected value	Change	Projected value
Region 7	Bohol	26.6	28.0	28.2	27.8	Moderate Emission (RCP4.5)	Lower Bound	1.0	27.6	1.0	29.0	1.0	29.2	1.0	28.8
							Median	1.2	27.8	1.2	29.2	1.2	29.4	1.2	29.0
							Upper Bound	1.7	28.3	1.7	29.7	1.7	29.9	1.8	29.6
						High Emission (RCP8.5)	Lower Bound	1.3	27.9	1.4	29.4	1.4	29.6	1.4	29.2
							Median	1.6	28.2	1.7	29.7	1.6	29.8	1.5	29.3
							Upper Bound	2.0	28.6	2.2	30.2	2.2	30.4	2.2	30.0
	Cebu	26.8	28.4	28.2	27.9	Moderate Emission (RCP4.5)	Lower Bound	1.0	27.8	1.0	29.4	0.9	29.1	1.0	28.9
							Median	1.2	28.0	1.2	29.6	1.2	29.4	1.1	29.0
							Upper Bound	1.7	28.5	1.7	30.1	1.7	29.9	1.8	29.7
						High Emission (RCP8.5)	Lower Bound	1.3	28.1	1.3	29.7	1.4	29.6	1.3	29.2
							Median	1.6	28.4	1.6	30.0	1.6	29.8	1.5	29.4
							Upper Bound	2.0	28.8	2.2	30.6	2.2	30.4	2.2	30.1
Region 8	Eastern Samar	26.1	27.7	28.3	27.7	Moderate Emission (RCP4.5)	Lower Bound	1.0	27.1	1.0	28.7	1.0	29.3	1.0	28.7
							Median	1.1	27.2	1.2	28.9	1.2	29.5	1.2	28.9
							Upper Bound	1.6	27.7	1.7	29.4	1.8	30.1	1.8	29.5
						High Emission (RCP8.5)	Lower Bound	1.3	27.4	1.4	29.1	1.4	29.7	1.4	29.1
							Median	1.5	27.6	1.6	29.3	1.7	30.0	1.5	29.2
							Upper Bound	1.9	28.0	2.1	29.8	2.2	30.5	2.2	29.9
	Leyte	26.4	27.8	28.0	27.7	Moderate Emission (RCP4.5)	Lower Bound	1.0	27.4	1.0	28.8	0.9	28.9	1.0	28.7
							Median	1.2	27.6	1.2	29.0	1.2	29.2	1.1	28.8
							Upper Bound	1.7	28.1	1.8	29.6	1.8	29.8	1.8	29.5
						High Emission (RCP8.5)	Lower Bound	1.3	27.7	1.4	29.2	1.4	29.4	1.4	29.1
							Median	1.5	27.9	1.7	29.5	1.6	29.6	1.5	29.2
							Upper Bound	2.1	28.5	2.3	30.1	2.2	30.2	2.3	30.0
	Northern Samar	26.0	27.5	28.3	27.5	Moderate Emission (RCP4.5)	Lower Bound	1.0	27.0	1.0	28.5	1.0	29.3	1.0	28.5
							Median	1.2	27.2	1.2	28.7	1.2	29.5	1.1	28.6
							Upper Bound	1.6	27.6	1.7	29.2	1.8	30.1	1.8	29.3
						High Emission (RCP8.5)	Lower Bound	1.3	27.3	1.4	28.9	1.4	29.7	1.4	28.9
							Median	1.5	27.5	1.6	29.1	1.6	29.9	1.5	29.0
							Upper Bound	1.9	27.9	2.2	29.7	2.3	30.6	2.2	29.7
	Samar	26.3	27.9	28.4	27.8	Moderate Emission (RCP4.5)	Lower Bound	1.0	27.3	1.0	28.9	1.0	29.4	1.0	28.8
							Median	1.2	27.5	1.2	29.1	1.2	29.6	1.2	29.0
							Upper Bound	1.7	28.0	1.8	29.7	1.8	30.2	1.8	29.6
						High Emission (RCP8.5)	Lower Bound	1.3	27.6	1.4	29.3	1.4	29.8	1.4	29.2
							Median	1.5	27.8	1.7	29.6	1.6	30.0	1.6	29.4
							Upper Bound	2.1	28.4	2.3	30.2	2.3	30.7	2.3	30.1
	Southern Leyte	26.4	27.7	27.8	27.5	Moderate Emission (RCP4.5)	Lower Bound	1.0	27.4	1.0	28.7	0.9	28.7	1.0	28.5
							Median	1.2	27.6	1.2	28.9	1.2	29.0	1.1	28.6
							Upper Bound	1.7	28.1	1.7	29.4	1.7	29.5	1.8	29.3
						High Emission (RCP8.5)	Lower Bound	1.3	27.7	1.3	29.0	1.3	29.1	1.3	28.8
							Median	1.5	27.9	1.6	29.3	1.6	29.4	1.5	29.0
							Upper Bound	2.0	28.4	2.1	29.8	2.1	29.9	2.2	29.7
Region 9	Zamboanga del Norte	27.0	27.9	27.6	27.5	Moderate Emission (RCP4.5)	Lower Bound	0.9	27.9	1.0	28.9	0.9	28.5	1.0	28.5
							Median	1.2	28.2	1.3	29.2	1.2	28.8	1.2	28.7
							Upper Bound	1.7	28.7	1.7	29.6	1.8	29.4	1.8	29.3
						High Emission (RCP8.5)	Lower Bound	1.4	28.4	1.4	29.3	1.3	28.9	1.3	28.8
							Median	1.6	28.6	1.7	29.6	1.5	29.1	1.5	29.0
							Upper Bound	2.1	29.1	2.2	30.1	2.3	29.9	2.2	29.7
	Zamboanga del Sur	26.8	27.6	27.3	27.2	Moderate Emission (RCP4.5)	Lower Bound	1.0	27.8	1.1	28.7	1.0	28.3	1.0	28.2
							Median	1.2	28.0	1.3	28.9	1.2	28.5	1.2	28.4
							Upper Bound	1.7	28.5	1.8	29.4	1.8	29.1	1.8	29.0
						High Emission (RCP8.5)	Lower Bound	1.4	28.2	1.4	29.0	1.4	28.7	1.3	28.5
							Median	1.7	28.5	1.8	29.4	1.5	28.8	1.6	28.8
							Upper Bound	2.2	29.0	2.3	29.9	2.3	29.6	2.3	29.5
	Zamboanga Sibugay	27.1	27.9	27.5	27.5	Moderate Emission (RCP4.5)	Lower Bound	0.9	28.0	1.1	29.0	0.9	28.4	1.0	28.5
							Median	1.2	28.3	1.3	29.2	1.1	28.6	1.2	28.7
							Upper Bound	1.8	28.9	1.7	29.6	1.6	29.1	1.7	29.2
						High Emission (RCP8.5)	Lower Bound	1.4	28.5	1.4	29.3	1.3	28.8	1.4	28.9
							Median	1.6	28.7	1.7	29.6	1.4	28.9	1.5	29.0
							Upper Bound	2.2	29.3	2.2	30.1	2.0	29.5	2.2	29.7

*percentile range of model projections: lower bound = 10th percentile, median = 50th percentile, upper bound = 90th percentile

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Table B-2. CLIRAM of the projected seasonal change in mean temperature (in degree Celsius) in the mid-21st century (2036-2065) for all provinces; baseline period: 1971-2000 (cont).

Region	Province	Observed (1971-2000)				Projected (2036-2065)									
		DJF	MAM	JJA	SON	Scenario	Range*	DJF (Dec-Jan-Feb)		MAM (Mar-Apr-May)		JJA (Jun-Jul-Aug)		SON (Sep-Oct-Nov)	
								Change	Projected value	Change	Projected value	Change	Projected value	Change	Projected value
Region 10	Bukidnon	25.1	26.5	25.8	25.7	Moderate Emission (RCP4.5)	Lower Bound	1.1	26.2	1.1	27.6	1.0	26.8	1.1	26.8
							Median	1.3	26.4	1.3	27.8	1.2	27.0	1.2	26.9
							Upper Bound	1.7	26.8	1.8	28.3	1.9	27.7	1.8	27.5
						High Emission (RCP8.5)	Lower Bound	1.4	26.5	1.5	28.0	1.4	27.2	1.4	27.1
							Median	1.7	26.8	1.8	28.3	1.6	27.4	1.6	27.3
							Upper Bound	2.2	27.3	2.4	28.9	2.4	28.2	2.3	28.0
	Lanao del Norte	24.4	25.5	25.4	25.2	Moderate Emission (RCP4.5)	Lower Bound	1.0	25.4	1.1	26.6	1.0	26.4	1.0	26.2
							Median	1.3	25.7	1.3	26.8	1.2	26.6	1.2	26.4
							Upper Bound	1.8	26.2	1.8	27.3	1.8	27.2	1.8	27.0
						High Emission (RCP8.5)	Lower Bound	1.5	25.9	1.4	26.9	1.3	26.7	1.3	26.5
							Median	1.7	26.1	1.8	27.3	1.5	26.9	1.6	26.8
							Upper Bound	2.2	26.6	2.3	27.8	2.3	27.7	2.3	27.5
	Misamis Occidental	25.6	26.7	26.6	26.4	Moderate Emission (RCP4.5)	Lower Bound	1.0	26.6	1.0	27.7	0.9	27.5	1.0	27.4
							Median	1.3	26.9	1.2	27.9	1.2	27.8	1.2	27.6
							Upper Bound	1.6	27.2	1.7	28.4	1.8	28.4	1.8	28.2
						High Emission (RCP8.5)	Lower Bound	1.4	27.0	1.4	28.1	1.3	27.9	1.3	27.7
							Median	1.6	27.2	1.7	28.4	1.6	28.2	1.6	28.0
							Upper Bound	1.9	27.5	2.1	28.8	2.3	28.9	2.3	28.7
	Misamis Oriental	25.4	26.8	26.9	26.5	Moderate Emission (RCP4.5)	Lower Bound	1.0	26.4	1.0	27.8	1.0	27.9	1.0	27.5
							Median	1.3	26.7	1.2	28.0	1.2	28.1	1.1	27.6
							Upper Bound	1.7	27.1	1.7	28.5	1.8	28.7	1.8	28.3
						High Emission (RCP8.5)	Lower Bound	1.4	26.8	1.4	28.2	1.3	28.2	1.3	27.8
							Median	1.6	27.0	1.7	28.5	1.6	28.5	1.5	28.0
							Upper Bound	2.1	27.5	2.3	29.1	2.2	29.1	2.2	28.7
	Compostela Valley	26.7	27.8	27.6	27.6	Moderate Emission (RCP4.5)	Lower Bound	1.0	27.7	1.1	28.9	1.0	28.6	1.0	28.6
							Median	1.2	27.9	1.3	29.1	1.2	28.8	1.2	28.8
							Upper Bound	1.7	28.4	1.8	29.6	1.8	29.4	1.8	29.4
						High Emission (RCP8.5)	Lower Bound	1.4	28.1	1.5	29.3	1.3	28.9	1.3	28.9
							Median	1.6	28.3	1.7	29.5	1.7	29.3	1.6	29.2
							Upper Bound	2.2	28.9	2.3	30.1	2.3	29.9	2.2	29.8
	Davao del Norte	26.7	27.8	27.4	27.4	Moderate Emission (RCP4.5)	Lower Bound	1.0	27.7	1.0	28.8	1.0	28.4	1.0	28.4
							Median	1.2	27.9	1.2	29.0	1.2	28.6	1.2	28.6
							Upper Bound	1.8	28.5	1.8	29.6	1.8	29.2	1.8	29.2
						High Emission (RCP8.5)	Lower Bound	1.4	28.1	1.5	29.3	1.3	28.7	1.3	28.7
							Median	1.6	28.3	1.7	29.5	1.6	29.0	1.6	29.0
							Upper Bound	2.2	28.9	2.3	30.1	2.3	29.7	2.2	29.6
Region 11	Davao del Sur	26.9	27.8	26.9	27.1	Moderate Emission (RCP4.5)	Lower Bound	1.0	27.9	1.0	28.8	1.0	27.9	1.0	28.1
							Median	1.2	28.1	1.2	29.0	1.2	28.1	1.2	28.3
							Upper Bound	1.7	28.6	1.7	29.5	1.8	28.7	1.8	28.9
						High Emission (RCP8.5)	Lower Bound	1.3	28.2	1.4	29.2	1.3	28.2	1.3	28.4
							Median	1.6	28.5	1.7	29.5	1.6	28.5	1.6	28.7
							Upper Bound	2.2	29.1	2.3	30.1	2.3	29.2	2.2	29.3
	Davao Occidental	26.8	27.8	27.5	27.6	Moderate Emission (RCP4.5)	Lower Bound	1.0	27.8	1.0	28.8	1.0	28.5	1.0	28.6
							Median	1.2	28.0	1.2	29.0	1.2	28.7	1.3	28.9
							Upper Bound	1.6	28.4	1.7	29.5	1.8	29.3	1.8	29.4
						High Emission (RCP8.5)	Lower Bound	1.3	28.1	1.3	29.1	1.3	28.8	1.3	28.9
							Median	1.6	28.4	1.6	29.4	1.5	29.0	1.5	29.1
							Upper Bound	2.0	28.8	2.1	29.9	2.2	29.7	2.2	29.8
	Davao Oriental	26.8	27.8	27.5	27.6	Moderate Emission (RCP4.5)	Lower Bound	1.0	27.8	1.0	28.8	1.0	28.5	1.0	28.6
							Median	1.2	28.0	1.2	29.0	1.1	28.6	1.2	28.8
							Upper Bound	1.7	28.5	1.7	29.5	1.7	29.2	1.8	29.4
						High Emission (RCP8.5)	Lower Bound	1.3	28.1	1.4	29.2	1.3	28.8	1.3	28.9
							Median	1.6	28.4	1.6	29.4	1.6	29.1	1.5	29.1
							Upper Bound	2.1	28.9	2.3	30.1	2.1	29.6	2.2	29.8
Region 12	North Cotabato	26.8	27.9	27.0	27.1	Moderate Emission (RCP4.5)	Lower Bound	1.0	27.8	1.0	28.9	1.0	28.0	1.0	28.1
							Median	1.3	28.1	1.2	29.1	1.2	28.2	1.2	28.3
							Upper Bound	1.8	28.6	1.7	29.6	1.8	28.8	1.8	28.9
						High Emission (RCP8.5)	Lower Bound	1.4	28.2	1.4	29.3	1.3	28.3	1.4	28.5
							Median	1.8	28.6	1.8	29.7	1.6	28.6	1.6	28.7
							Upper Bound	2.3	29.1	2.3	30.2	2.3	29.3	2.3	29.4
	Sarangani	27.7	28.4	27.3	27.6	Moderate Emission (RCP4.5)	Lower Bound	1.0	28.7	1.1	29.5	1.0	28.3	1.0	28.6
							Median	1.2	28.9	1.3	29.7	1.2	28.5	1.3	28.9
							Upper Bound	1.7	29.4	1.7	30.1	1.8	29.1	1.8	29.4
						High Emission (RCP8.5)	Lower Bound	1.4	29.1	1.4	29.8	1.4	28.7	1.3	28.9
							Median	1.6	29.3	1.7	30.1	1.6	28.9	1.6	29.2
							Upper Bound	2.1	29.8	2.3	30.7	2.2	29.5	2.2	29.8

*percentile range of model projections: lower bound = 10th percentile, median = 50th percentile, upper bound = 90th percentile

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Table B-2. CLIRAM of the projected seasonal change in mean temperature (in degree Celsius) in the mid-21st century (2036-2065) for all provinces; baseline period: 1971-2000 (cont').

Region	Province	Observed (1971-2000)				Projected (2036-2065)									
		DJF	MAM	JJA	SON	Scenario	Range*	DJF (Dec-Jan-Feb)		MAM (Mar-Apr-May)		JJA (Jun-Jul-Aug)		SON (Sep-Oct-Nov)	
								Change	Projected value	Change	Projected value	Change	Projected value	Change	Projected value
Region 12	South Cotabato	27.7	28.5	27.4	27.7	Moderate Emission (RCP4.5)	Lower Bound	1.0	28.7	1.1	29.6	1.1	28.5	1.0	28.7
							Median	1.3	29.0	1.3	29.8	1.2	28.6	1.3	29.0
							Upper Bound	1.8	29.5	1.8	30.3	1.9	29.3	1.9	29.6
						High Emission (RCP8.5)	Lower Bound	1.4	29.1	1.5	30.0	1.4	28.8	1.4	29.1
							Median	1.7	29.4	1.8	30.3	1.6	29.0	1.6	29.3
							Upper Bound	2.3	30.0	2.4	30.9	2.4	29.8	2.3	30.0
	Sultan Kudarat	27.8	28.6	27.6	27.8	Moderate Emission (RCP4.5)	Lower Bound	1.0	28.8	1.0	29.6	1.0	28.6	1.0	28.8
							Median	1.2	29.0	1.2	29.8	1.1	28.7	1.2	29.0
							Upper Bound	1.8	29.6	1.8	30.4	1.8	29.4	1.8	29.6
						High Emission (RCP8.5)	Lower Bound	1.3	29.1	1.4	30.0	1.3	28.9	1.3	29.1
							Median	1.7	29.5	1.8	30.4	1.6	29.2	1.6	29.4
							Upper Bound	2.3	30.1	2.3	30.9	2.3	29.9	2.2	30.0
CARAGA	Agusan del Norte	26.2	27.6	27.8	27.4	Moderate Emission (RCP4.5)	Lower Bound	1.0	27.2	1.1	28.7	0.9	28.7	1.0	28.4
							Median	1.2	27.4	1.3	28.9	1.2	29.0	1.2	28.6
							Upper Bound	1.7	27.9	1.8	29.4	1.8	29.6	1.8	29.2
						High Emission (RCP8.5)	Lower Bound	1.4	27.6	1.5	29.1	1.3	29.1	1.3	28.7
							Median	1.6	27.8	1.7	29.3	1.7	29.5	1.6	29.0
							Upper Bound	2.1	28.3	2.3	29.9	2.2	30.0	2.3	29.7
	Agusan del Sur	25.9	27.1	27.2	26.9	Moderate Emission (RCP4.5)	Lower Bound	1.0	26.9	1.1	28.2	1.0	28.2	1.0	27.9
							Median	1.2	27.1	1.2	28.3	1.1	28.3	1.2	28.1
							Upper Bound	1.7	27.6	1.8	28.9	1.8	29.0	1.8	28.7
						High Emission (RCP8.5)	Lower Bound	1.3	27.2	1.4	28.5	1.4	28.6	1.4	28.3
							Median	1.6	27.5	1.7	28.8	1.7	28.9	1.6	28.5
							Upper Bound	2.2	28.1	2.3	29.4	2.3	29.5	2.2	29.1
	Surigao del Norte	26.3	27.6	28.2	27.7	Moderate Emission (RCP4.5)	Lower Bound	1.0	27.3	1.0	28.6	0.9	29.1	1.0	28.7
							Median	1.2	27.5	1.2	28.8	1.2	29.4	1.1	28.8
							Upper Bound	1.7	28.0	1.6	29.2	1.7	29.9	1.8	29.5
						High Emission (RCP8.5)	Lower Bound	1.3	27.6	1.4	29.0	1.2	29.4	1.3	29.0
							Median	1.5	27.8	1.6	29.2	1.6	29.8	1.5	29.2
							Upper Bound	2.0	28.3	2.1	29.7	2.1	30.3	2.2	29.9
	Surigao del Sur	26.4	27.4	27.9	27.4	Moderate Emission (RCP4.5)	Lower Bound	1.0	27.4	1.0	28.4	1.0	28.9	1.0	28.4
							Median	1.2	27.6	1.2	28.6	1.2	29.1	1.2	28.6
							Upper Bound	1.7	28.1	1.7	29.1	1.8	29.7	1.8	29.2
						High Emission (RCP8.5)	Lower Bound	1.3	27.7	1.4	28.8	1.4	29.3	1.4	28.8
							Median	1.5	27.9	1.5	28.9	1.7	29.6	1.5	28.9
							Upper Bound	2.0	28.4	2.1	29.5	2.2	30.1	2.2	29.6
ARMED	Lanao del Sur	24.3	25.4	25.0	24.9	Moderate Emission (RCP4.5)	Lower Bound	1.1	25.4	1.1	26.5	1.0	26.0	1.0	25.9
							Median	1.3	25.6	1.3	26.7	1.2	26.2	1.2	26.1
							Upper Bound	1.8	26.1	1.8	27.2	1.8	26.8	1.8	26.7
						High Emission (RCP8.5)	Lower Bound	1.5	25.8	1.4	26.8	1.4	26.4	1.4	26.3
							Median	1.7	26.0	1.8	27.2	1.6	26.6	1.6	26.5
							Upper Bound	2.3	26.6	2.3	27.7	2.3	27.3	2.2	27.1
	Maguindanao	27.6	28.3	27.5	27.6	Moderate Emission (RCP4.5)	Lower Bound	1.0	28.6	1.0	29.3	1.0	28.5	1.0	28.6
							Median	1.2	28.8	1.2	29.5	1.1	28.6	1.2	28.8
							Upper Bound	1.8	29.4	1.8	30.1	1.8	29.3	1.8	29.4
						High Emission (RCP8.5)	Lower Bound	1.4	29.0	1.3	29.6	1.3	28.8	1.3	28.9
							Median	1.8	29.4	1.8	30.1	1.6	29.1	1.6	29.2
							Upper Bound	2.3	29.9	2.3	30.6	2.3	29.8	2.3	29.9

*percentile range of model projections: lower bound = 10th percentile, median = 50th percentile, upper bound = 90th percentile

Republic of the Philippines
Department of Science and Technology
Philippine Atmospheric, Geophysical and Astronomical Services Administration
Science Garden Complex, Agham Road, Diliman, Quezon City

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