



Republic of the Philippines  
Department of Science and Technology



Philippine Atmospheric, Geophysical and Astronomical Services Administration (PAGASA)

# PAMPANGA RIVER BASIN FLOOD FORECASTING AND WARNING CENTER (PRFFWC)

DMGC DOST Region 3, Compound, Brgy. Maimpis, City of San Fernando, Pampanga 2000



## Annual Hydrological Data Summary of the Pampanga River Basin Flood Forecasting & Warning Center

Yearbook 2021

November 2023



Front / Back Cover:

Upstream view of Pampanga River as seen from San Agustin Bridge in Arayat,  
Pampanga, Philippines. August 17, 2021

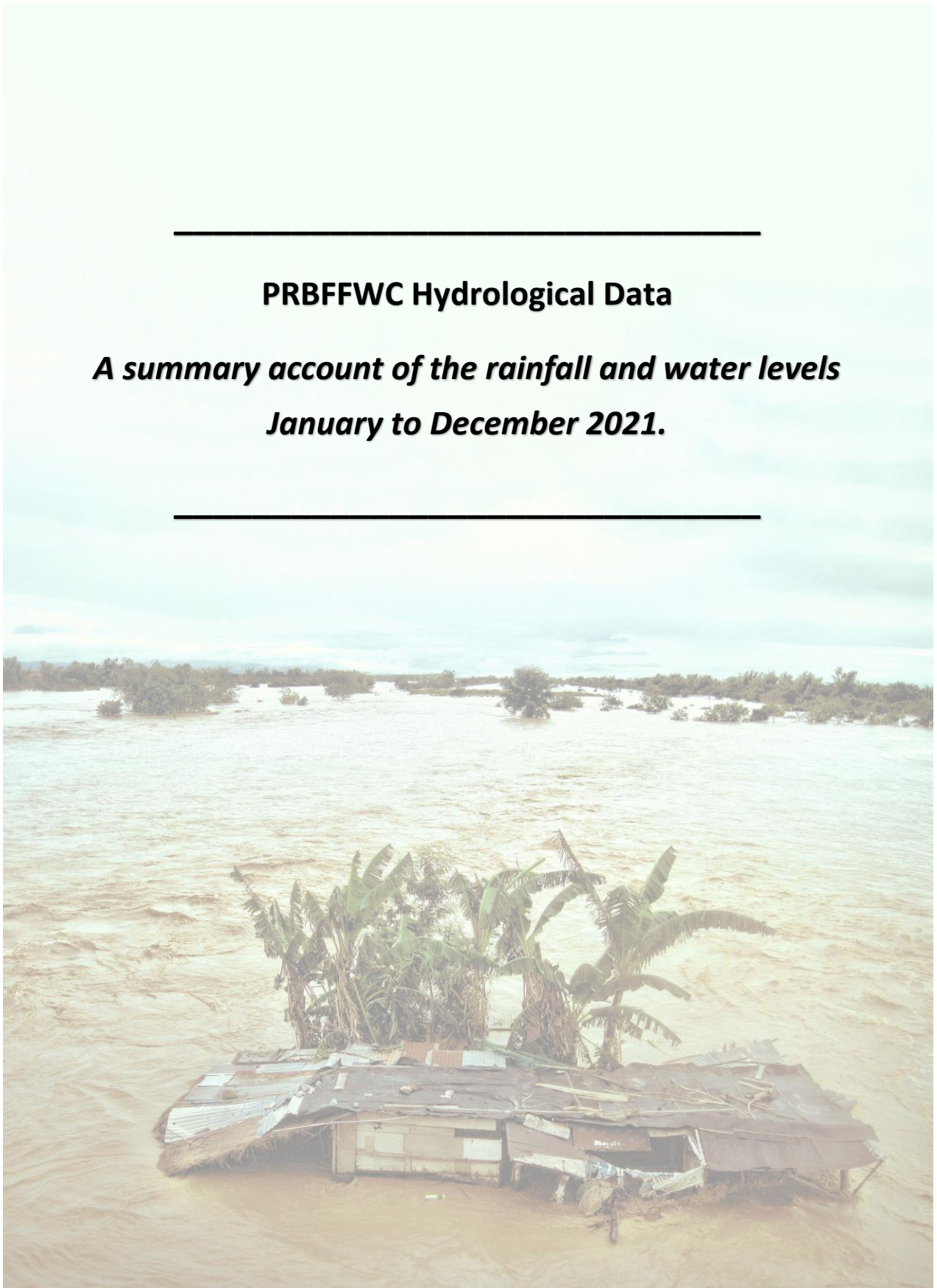
Photo by H. Hernando; Edited by M. Joson

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## **PRBFFWC Hydrological Data**

***A summary account of the rainfall and water levels  
January to December 2021.***

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## Acronyms & Abbreviations:

- CSFP – City of San Fernando, Pampanga
- D/S - downstream
- D/T - downtime
- FFWS – Flood Forecasting & Warning System
- FM – Flood Marker
- HMD – Hydro-Meteorology Division
- HMDAS – Hydro-Met Data Applications Section
- HMTS – Hydro-Met Telemetry Section
- LB – Left Bank
- LST – local standard time
- Met – meteorology; meteorological
- NIA-UPRIIS – National Irrigation Administration – Upper Pampanga River Integrated Irrigation System
- NCR-PRSD – National Capital Region – PAGASA Regional Services Division
- PAGASA – Philippine Atmospheric, Geophysical and Astronomical Services Administration
- PRB – Pampanga River Basin
- PRFFWC / PRBFFWC – Pampanga River Basin Flood Forecasting & Warning Center
- Q - discharge
- Racc – accumulated rainfall
- RB – Right Bank
- RBFFWC – River Basin Flood Forecasting & Warning Center
- RR – Rainfall
- SG or S.G. – Staff Gauge
- TBM – Temporary benchmark
- U/S - upstream
- WL – Water Level
- X-sect – cross-section

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*The PRBFFWC Telemetry Tower located in the City of San Fernando, Pampanga*





## Yearbook Notes

- 
- This report presents a summary of the rainfall and water level data observed and recorded by the telemetry system of the PRBFFWC in the year 2021.
  - The supervisory terminal of the PRBFFWC system is the main data series considered for database buildup.
  - The main source for complementing breaks / gaps in the supervisory terminal data series are the telemetry stations' data loggers.
  - Data validation particularly WL readings were done by field surveys whenever possible and taking pictures of river WL gauges during the field trips and make this as basis for adjustments.
  - No attempts were made to fill-in gaps and breaks in the data series when there are no data available in the loggers except only those with relatively short gap periods.
  - Filling-in data gaps / breaks particularly WL are usually done using eye-fit method; for RR, short gaps only, are mainly deduced from the accumulated RR total in the supervisory; otherwise, the gaps are left as it is.
  - Obvious and suspected data errors were directly deleted from the data series. However, these were done after doing some data consistency checks, field surveys, and / or field station instrument problem validation.
  - Red colored values of RR / WL in the summary tables indicate that the dataset in which it was based on is incomplete.
  - For further information and clarification on the general buildup of the PRBFFWC data series, please message us thru the following emails: [prffwcffb2009@gmail.com](mailto:prffwcffb2009@gmail.com) or [prffwc@gmail.com](mailto:prffwc@gmail.com)
  - Validation is the act of checking or proving the accuracy of something; Verifying is to make sure or demonstrate that (something) is true, accurate, or justified.

One of the major functions of River Basin Centers of PAGASA is to maintain a continuing robust yet sound hydrological database for hydrometeorological applications, particularly for flood forecasting and warning purposes and for other River Basin Center related activities.

## Station Profile

**Table 1.0** Table of Rainfall and Water Level Stations of the PRBFFWC

Station	Station Number	Station Type RR (rainfall) WL (Water Level)	Location	Coordinates (estimated)
	(DEC) 6301 XX			
Muñoz	61	Telemetered RR	Within the compound of the Philippine Carabao Center in the Science City of Muñoz, N.E.	15°44'17"N, 120°57'38"E
Sapang Buho	62	Telemetered RR & WL	@ LB of Pampanga River in Bgy. Sapang Buho, Palayan City, Nueva Ecija	15°35'39"N, 121°07'09"E
Gabalton	63	Telemetered RR	Around 450 meters above the natural ground elevation of Bgy. Malinao, Gabaldon, N.E.	15°29'55"N, 121°21'20"E
Zaragoza	64	Telemetered RR & WL	Along the Zaragoza – La Paz road (RB-D/S of the Rio Chico Bridge)	15°26'36"N, 120°45'03"E
Mayapyap	65	Telemetered RR & WL (defunct since 2015)	@ RB-D/S of Gen. Luna Bridge, (Bgys. Mayapyap & Valdefuente) Cabanatuan City, Nueva Ecija	15°30'52"N, 120°57'20"E
Mayapyap (NIA-UPRIIS)		Telemetered RR (transferred Oct. 2019)	On top of the NIA-UPRIIS Operations Center Bldg., NIA-UPRIIS Compound, Cabanatuan City	15°28'33"N, 120°57'30"E
Peñaranda	66	Telemetered RR & WL	@ LB-D/S side of the bridge, around 550 meters D/S of Peñaranda River Irrigation Dam at Bgy. Uno, Poblacion, Peñaranda, N.E.	15°21'14"N, 121°00'20"E
Calaanan	67	Telemetered RR	Inside the Pesa Elementary School compound, Purok 2, Bgy. Pesa, Bongabon, N.E.	15°38'53"N, 121°11'09"E
Palali	68	Telemetered RR	Within Nueva Ecija Provincial Stock Farm in Bgy. Nazareth, Gen. Tinio, N.E.	15°22'50"N, 121°9'41"E
San Isidro	71	Telemetered RR & WL	@ the RB-D/S side of the San Isidro-Jaen Bridge, San Isidro, N.E.	15°18'49"N, 120°54'09"E
Arayat	72	Telemetered RR & WL	@ RB-D/S side of San Agustin Bridge, Arayat, Pampanga	15°10'06"N, 120°46'56"E
Candaba	73	Telemetered RR & WL	Along Candaba-San Miguel road (Dukma) at Bgy. Paralaya, Candaba, Pampanga	15°06'56"N, 120°51'01"E
Sibul Spring	74	Telemetered RR	Bgy. Sibul, San Miguel, Bulacan	15°10'05"N, 121°03'33"E
Sasmuan	75	Telemetered RR & WL	Bgy. Sta. Lucia (Poblacion), Sasmuan, Pampanga	14°56'11"N, 120°37'23"E
Sulipan	76	Telemetered RR & WL	@ RB of Pampanga River at Bgy. Sulipan, Apalit, Pampanga	14°56'21"N, 120°45'39"E
Mexico	77	Telemetered RR & WL	LB-D/S of Mexico Bridge No. 2, Bgy. Sto. Rosario, Mexico, Pampanga	15°04'05"N, 120°43'51"E
Porac	78	Telemetered RR	Within the municipal compound property, Bgy. Cangatba, Porac, Pampanga	15°04'48"N, 120°32'43"E
San Rafael	90	Telemetered RR (Repeater)	NIA compound, Bgy. Sabang, Baliwag, Bulacan	14°58'05"N, 120°54'52"E
Cabanatuan	89	Repeater station	Within the NIA-UPRIIS Compound, Cabanatuan City	15°28'33"N, 120°57'30"E
PRFFWC (CSFP)		Digital tipping-bucket / manually recorded	PRBFFWC area compound adjacent to DOST-3 bldg., DMGC, Bgy. Maimpis, CSFP	15°04'04"N, 120°39'22"E

## Scope and Limitations

1. This Data Yearbook contains the hydrological data summary of the 18 rainfall stations and 9 water level stations (Mayapyap WL is non-functional) of the PRBFFWC for the year 2021. The year 2021 was a pandemic year (covid-19) and telemetry maintenance and emergency field trips were quite limited. This situation mainly affected the telemetry data quality and quantity for the year.
2. The rainfall and water level dataset in this report covers the period starting from the past 1-hour observation ending at 0900H of January 01, 2021, and ends at 0800H of 01 January 2022.
3. Accordingly, this follows a 24-hour daily total for rainfall (or average for WL) which starts at (almost) 0801H of the present day and ends at 0800H of the following day (meteorological day); Water level summary values for maximum data are reported as per instantaneous observed value from the dataset but the average value is taken using the same reporting time period as in total rainfall for a meteorological day.
4. The basic time period considered for reporting / observation is 1 hour.
5. Units used for the hydrological elements:
  - a. Rainfall (RR) – millimeters (mm)
  - b. Water Level or River Stage (WL) – meters (m)
  - c. Cross-sectional area – square meter (m<sup>2</sup>)
  - d. River Discharge – cubic meters per second or cumecs (m<sup>3</sup>/sec)
  - e. Rainfall days – rain-days
6. A zero WL reading does not mean that there is no flow in the river but just a limitation of the pressure gauge WL sensors for its measurement capability such that flows lower than the sensors can no longer be monitored.
7. The minimum rainfall amount for telemetry stations is 1 mm; and for the rainfall observed in the PRBFFWC in CSFP, the minimum is 0.25 mm;
8. Rain-day is considered as a day with at least 1 mm of rainfall for telemetry stations; and at least 0.25 mm for PRBFFWC station; similar to the daily rainfall total, rain-day follows the met day;
9. The hydrological data summary presented in this yearbook are the daily rainfall observations (met day total), monthly rainfall and average, maximum rainfall total of various periods, and total rain-days per month; the daily water level averages (met day), maximum stage per month and other regular information that were extracted from the built-up data series of each station.
10. In the daily rainfall presentation table, yellow shaded cells indicate rainfall values between 1 to 60 mm for telemetry stations (0.25 to 60.0 for PRBFFWC station); pink shaded cells are from 61 to 180 mm (60.25 to 180.0 for PRBFFWC station); light-red shaded cells are for values greater than 180 mm. Likewise, for water level summary, cell shades are in a graded color scale from a white shade to a regular semi-orange shade that is relative to an increase in water level values. Thus, a “0.00” value (minimum) is white and maximum value within the table will be orange shaded. In the summary below the daily value table, (the daily rainfall and in the average daily water level tables) a green shaded cell indicates the maximum value in their respective rows.

*Disclaimer: The data summary presented herein have been processed and validated through several steps using the best possible means available to the PRBFFWC at the time of processing. Still, it is possible that outputs may contain inadvertent errors such as typo in nature, errors resulting from possible misuse of excel formulae, and other factors. The summary information in this yearbook report may be revised as new analyses emerges.*

*Users noting any errors that they may have encountered in this report are requested to inform the PRBFFWC (prffwcffb2009@gmail.com / prffwc@gmail.com). Furthermore, users may use the information contained herein at their own risk.*

## Data Series Issues for 2021

- January
  - Sapang Buho WL became erroneous starting after Ty. Ulysses passage (at end part of Nov 2020); it was restored 1700H of 21 Jan but observation cannot read below 0.26m due to silt / sediments in the sensor tube; prolonged data readings at 0.25-0.26 in the dataset have been deleted for the month
  - Candaba WL – erroneous since last part of Dec 2020; restored 1300H, 22 Jan; however, readings cannot go below 1.60m (lack of sensor tube); valid data are only those WL that are above 1.60m
  - Zaragoza WL – partly adjusted some observations by -0.3m
  - Arayat WL – sudden WL readings are possible effects of the Cong Dadong Dam which is about 2.5 kms upstream of San Agustin Bridge where the telemetry station is located
- February
  - Sapang Buho WL – erroneous readings and deleted the whole month of observations
  - San Isidro RR – zero for the whole month
  - Candaba RR – zero for the whole month; WL – unreliable, deleted the whole month
- March
  - Candaba WL – restored lower readings (below 1.60m) on 1300H, 24 Mar
  - Sapang Buho WL – error observations; deleted the whole month of observations
  - Zaragoza WL – adjusted as per ocular WL validation on 1500H, 13 Mar
  - San Isidro WL – installed a new radar sensor between March 22-27 but still needs adjustments; no readings yet for the month
- April
  - Sapang Buho WL – doubtful data; deleted the whole month of observations
  - San Isidro WL – no adjustments made yet; no readings for the whole month
  - Mexico WL – erroneous data, e.g., “shoot-ups”; all readings deleted for the whole month



**Pic 1** Candaba WL validation estimated at 1.30m (1500H, 15 Apr 2021)



**Pic 2** Validation of Candaba WL telemetry reading at 4.11m (1048H, 28 Jul 2021)

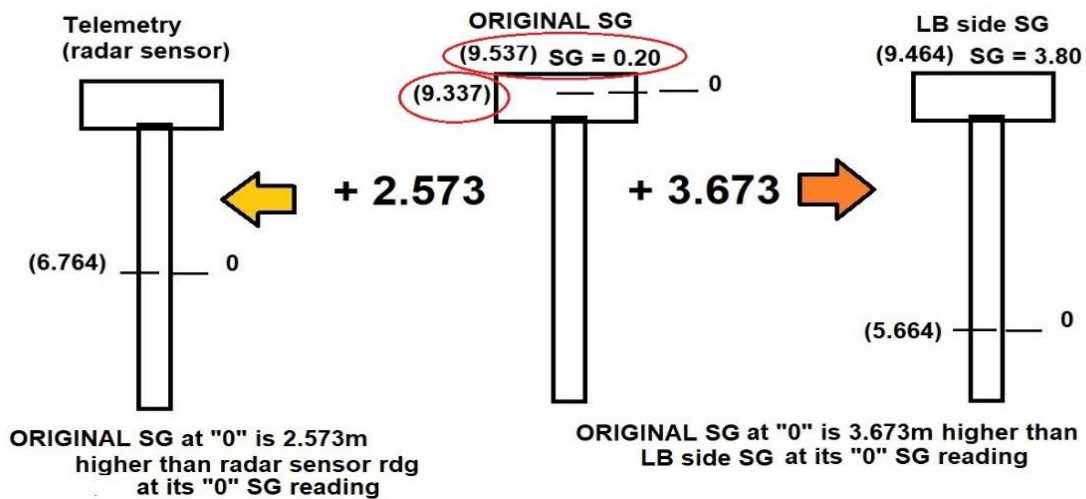


**Pic 3** Validation of Zaragoza WL estimated at around 0.11m (1244H, 14 Apr 2021)

- May
  - San Isidro WL – no river WL to telemetry setting tie-up carried-out so far for sensor reading adjustments; no observations made for the whole month
  - Sapang Buho WL – doubtful data; deleted the whole month of observations

- Zaragoza WL – zero for the whole month
  - Peñaranda WL – zero for the whole month
  - Mexico WL – erroneous data (“shoot-ups”); all readings deleted for the whole month
- June
- San Isidro WL – river to SG still for validation; no observations for the whole month
  - Mexico WL – erroneous data (“shoot-ups”); all readings deleted for the whole month
  - Peñaranda WL – zero for the whole month

**Radars sensor installed March 2021 but adjustments were made / calibrated between May to June 2021; Start of valid observation is suggested to start at the first time / day of record of July 2021**



**Fig. 1.0** Above figure shows the estimated relationships of the original SG reading based on MSL (middle) with the installed radar sensor (left side) and the SG painted at the bridge’s pier on the LB side (right side) in San Isidro stream gaging station. Below are the pictures representing the relationship of the figures above in San Isidro;

**Pic 4** (below from L to R) the radar sensor installed March 2021 but operationally started July 2021; (below Middle) location of the original SG in the said stream gaging point; (below R) a SG placed on the bridge’s pier on the LB side of the river channel.



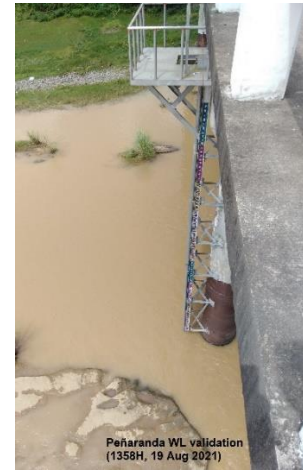
- July
- Sapang Buho WL – erroneous portions were deleted in more than half of the month
  - Mexico WL – sensor problems; no observations made for the whole month
  - Porac RR – observations validated by logger data for the period 1100H-1200H, 24 Jul
  - Peñaranda WL – unreliable data; deleted the observations on the last part of the month
  - Sasmuan WL – telemetry reading doesn’t match actual river WL but within tolerable limits of +/- 0.20; therefore, no adjustments were made



**Pic 5** WL validation check at Mexico SG (18 Aug 2021)



**Pic 6** Validation of WL at Mexico staff gage estimated at 0.50m on 1630H, 08 Sept 2021



**Pic 7** Peñaranda WL validation carried out on 1358H, 19 Aug 2021

▪ August

- Sapang Buho – deleted the identified erroneous data in almost half of the month
- Peñaranda WL – deleted portions that are deemed erroneous; from start of the month to 1400H, 19 Aug WL readings were adjusted by -0.75m as per validation
- Arayat WL – river WL validated on 1200H, 17 Aug
- Sasmuan WL – river WL validated on 1500H, 17 Aug



**Pic 8** Arayat WL estimated at 3.48m (1730H, 17 Oct 2021)



**Pic 9** Candaba WL estimated at 3.50m (1704H, 08 Sept 2021)



**Pic 10** Sapang Buho WL validation carried-out on 16 Jul 2021

▪ September

- Candaba WL – deleted error observations from 0000H-1700H, 08 Sept
- Mexico WL – WL validation by ocular survey carried-out on 1700H, 08 Sept

▪ October

- Candaba WL – adjustments carried-out from 0000H, 14 Oct to 1500H, 15 Oct
- WL offsets / adjustments were carried-out for Sapang Buho, Candaba and Sasmuan stations on Oct 15-17

▪ November

- No WL validation, adjustments / offsets carried-out during the month

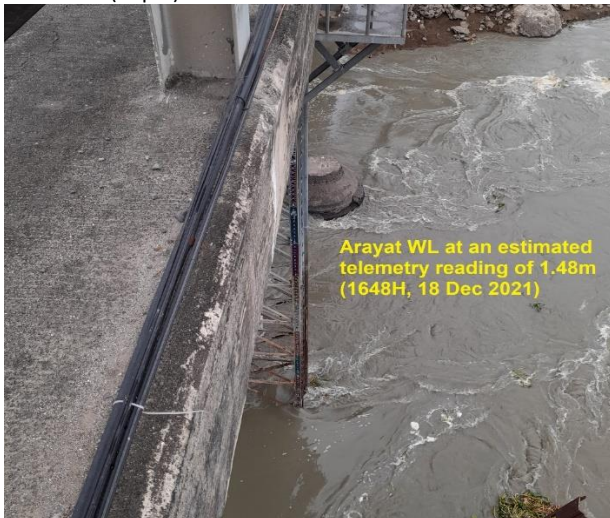
▪ December

- Candaba WL – no observations after 0900H, 20 Dec

- Sulipan WL - from 1800H, 12 Dec and onwards towards the end of the month was deemed erroneous; therefore, data was deleted



Pampanga River at Sapang Buho station where SG to WL validation were carried-out as follows: **Pic 11** (Top L) on 17 Oct 2021 and **Pic 12** (Top R) same station on 18 Dec 2021.



**Pic 13** Pampanga River WL validation at Arayat station dated 18 Dec 2021

**Pic 14** Checking and validating the River WL at Sasmuan stream gaging station on 17 Dec 2021.

## A. RAINFALL Data Summary Presentation





**Daily Point Rainfall in millimeters (meteorological day)**

**2021** Station: **Muñoz**

Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	0	0	0	0	0	0	4	48	54	0	0	0
2	0	0	5	0	0	8	0	5	10	38	0	0
3	0	0	0	0	0	4	16	0	18	0	0	0
4	0	0	0	0	0	6	1	1	7	3	0	0
5	0	0	0	0	0	0	0	13	5	27	0	0
6	0	0	0	0	0	0	6	8	0	0	0	0
7	0	0	0	0	0	0	1	3	12	0	0	0
8	0	0	0	0	0	0	0	86	57	2	1	0
9	0	0	0	0	0	3	0	4	0	0	0	0
10	0	1	0	0	0	8	0	16	7	1	0	0
11	0	0	0	0	0	22	0	30	16	55	0	0
12	0	0	0	0	0	0	0	0	5	2	0	0
13	0	0	0	1	0	0	0	31	0	2	0	0
14	0	0	0	0	0	9	4	12	0	40	0	0
15	0	0	0	1	0	0	0	1	37	13	1	0
16	0	0	0	0	0	0	0	0	12	0	0	0
17	0	0	0	0	2	0	37	0	0	0	0	9
18	0	0	2	0	0	0	3	0	0	0	0	0
19	0	0	0	0	0	10	34	34	0	0	0	4
20	21	0	0	0	0	6	11	0	0	0	0	0
21	3	0	0	0	0	24	11	57	1	16	0	0
22	4	0	0	0	0	1	8	5	0	0	24	2
23	10	0	0	0	0	1	30	1	0	3	0	0
24	0	0	0	0	0	4	2	3	0	1	0	0
25	0	0	0	0	1	0	5	0	0	0	0	0
26	4	0	0	0	0	0	0	2	4	0	0	0
27	0	0	0	0	0	0	0	3	15	0	0	0
28	0	0	0	0	0	6	50	7	0	0	0	0
29	0		0	0	0	0	6	3	0	0	0	0
30	0		0	0	0	0	2	10	0	0	0	0
31	0		0		0		6	0		0		0

Monthly Total	42	1	7	2	3	112	237	383	260	203	26	15
Average	1.35	0.04	0.23	0.07	0.10	3.73	7.65	12.35	8.67	6.55	0.87	0.48
Max daily rain	21	1	5	1	2	24	50	86	57	55	24	9
Day of Max Daily	20	10	2	13	17	21	28	8	8	11	22	17
No. of Rain days	5	1	2	2	2	14	19	23	15	13	3	3
Max 1-hr rain	7	1	4	1	1	15	28	52	44	37	24	3
Day of max 1-hr	21	10	2	13	18	21	17	21	1	2	22	18

<b>Total rain for the year</b>	<b>1291</b>
<b>Total rain days for the year</b>	<b>102</b>

## Daily Point Rainfall in millimeters (meteorological day)

2021

Station:

Sapang Buho

Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	0	0	0	0	0	1	0	18	2	7	0	0
2	0	0	2	0	0	3	20	20	18	0	0	0
3	0	0	0	0	0	0	11	12	24	0	0	0
4	0	0	0	0	0	0	1	5	5	1	0	0
5	0	0	0	0	0	0	1	17	13	23	0	0
6	0	0	0	0	0	0	13	57	3	0	0	0
7	0	0	0	0	0	0	0	13	10	0	4	0
8	0	0	0	0	0	9	0	21	59	0	3	0
9	0	0	0	0	0	30	0	6	0	11	0	0
10	0	0	0	0	0	12	0	3	17	0	0	0
11	0	0	0	0	0	17	1	0	25	34	0	0
12	0	0	0	0	0	0	0	0	22	0	0	0
13	0	0	0	0	0	3	0	0	0	0	12	0
14	0	0	0	0	0	25	6	1	0	16	0	0
15	0	0	0	0	0	0	1	0	0	14	9	0
16	0	0	6	0	0	0	0	0	2	0	0	0
17	0	0	20	0	6	0	2	0	0	0	3	22
18	0	0	0	0	0	0	2	68	1	0	0	3
19	0	0	0	0	0	0	19	27	14	0	0	9
20	39	0	0	0	0	0	0	2	2	0	0	0
21	1	0	1	0	0	25	2	3	0	0	0	0
22	28	0	0	0	0	69	9	0	0	0	0	0
23	1	1	0	0	0	2	25	1	0	4	0	0
24	0	0	0	0	0	2	3	1	0	10	0	0
25	3	0	0	0	0	0	1	0	0	0	0	0
26	0	0	0	0	0	0	2	5	0	0	0	0
27	0	0	0	0	0	0	10	9	9	0	0	0
28	0	0	0	0	0	0	15	8	18	0	0	0
29	0		0	0	6	0	6	0	0	0	0	0
30	0		0	0	0	0	7	0	0	0	0	0
31	0		0		0		12	2		0		0

Monthly Total	72	1	29	0	12	198	169	299	244	120	31	34
Average	2.32	0.04	0.94	0.00	0.39	6.60	5.45	9.65	8.13	3.87	1.03	1.10
Max daily rain	39	1	20	0	6	69	25	68	59	34	12	22
Day of Max Daily	20	23	17	1	17	22	23	18	8	11	13	17
No. of Rain days	5	1	4	0	2	12	22	21	17	9	5	3
Max 1-hr rain	14	1	18		4	60	12	48	17	11	11	7
Day of max 1-hr	21	23	17		29	22	6	18	3	6	13	18

Total rain for the year

1209

Total rain days for the year

101

## Daily Point Rainfall in millimeters (meteorological day)

2021	Station: Gabaldon											
Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	0	0	0	0	0	5	9	16	4	0	2	0
2	0	0	1	0	0	35	0	30	13	4	0	0
3	4	0	1	0	0	5	19	14	14	13	0	0
4	1	0	0	0	0	0	57	4	7	18	0	0
5	0	0	0	0	0	0	14	37	2	48	26	0
6	0	3	0	0	0	0	29	9	23	0	0	0
7	0	1	0	0	0	0	7	1	34	1	5	0
8	0	1	0	0	0	3	1	13	207	0	8	0
9	0	9	0	0	0	7	6	0	0	8	0	0
10	0	1	0	0	0	0	2	7	3	3	0	0
11	0	1	0	0	0	0	9	0	37	41	0	0
12	0	0	3	0	0	1	0	0	12	6	0	0
13	0	0	1	0	0	4	5	0	0	14	0	0
14	0	0	0	0	0	10	8	15	0	9	0	0
15	0	0	0	0	1	0	0	1	0	47	5	0
16	0	0	0	0	0	0	7	0	7	0	2	0
17	0	0	0	0	45	0	4	0	9	1	1	127
18	0	0	0	0	2	13	6	22	0	0	0	15
19	1	0	4	0	0	5	23	11	5	0	0	24
20	110	0	1	0	0	0	3	14	4	0	0	1
21	15	0	3	2	0	1	2	0	1	3	0	0
22	2	3	1	0	0	0	6	0	4	0	0	10
23	3	8	2	0	0	6	17	8	1	15	0	5
24	0	1	0	0	0	3	16	0	0	35	1	0
25	16	0	0	0	0	1	2	4	0	0	2	0
26	6	0	0	0	0	1	24	16	2	1	1	2
27	1	0	0	0	0	1	3	7	3	0	2	0
28	1	0	0	0	0	0	10	24	1	0	4	0
29	0		0	3	0	0	5	1	25	0	3	0
30	0		0	0	10	4	20	1	0	0	0	0
31	0		0		0		3	2		1		0

Monthly Total	160	28	17	5	58	105	317	257	418	268	62	184
Average	5.16	1.00	0.55	0.17	1.87	3.50	10.23	8.29	13.93	8.65	2.07	5.94
Max daily rain	110	9	4	3	45	35	57	37	207	48	26	127
Day of Max Daily	20	9	19	29	17	2	4	5	8	5	5	17
No. of Rain days	11	9	9	2	4	17	28	22	22	18	13	7
Max 1-hr rain	40	2	2	2	25	13	20	16	65	20	14	31
Day of max 1-hr	21	9	19	30	18	2	4	5	8	6	6	18

Total rain for the year	1879
Total rain days for the year	162

## Daily Point Rainfall in millimeters (meteorological day)

2021	Station: Zaragoza											
Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	0	0	0	0	0	16	8	39	5	0	0	0
2	0	0	0	0	0	6	35	10	1	6	0	0
3	0	0	0	0	0	17	6	0	0	14	0	0
4	0	0	0	0	0	1	0	8	17	1	0	0
5	0	0	0	0	0	0	0	12	2	21	0	0
6	0	0	0	0	0	0	17	0	12	0	0	0
7	0	0	0	0	0	1	0	9	13	0	1	0
8	0	0	0	4	1	6	0	19	38	5	0	0
9	0	0	0	0	0	37	0	2	0	3	0	0
10	0	0	0	0	0	0	0	14	15	0	0	0
11	0	1	0	0	0	0	0	0	66	29	0	0
12	0	0	0	0	0	0	0	0	7	6	0	0
13	0	0	0	0	0	17	7	0	0	2	0	0
14	0	0	0	0	0	29	1	0	4	10	0	0
15	0	0	0	6	0	0	14	0	0	4	1	0
16	0	0	0	0	0	0	2	0	4	0	0	0
17	0	0	0	0	0	43	17	5	0	0	0	10
18	0	0	1	0	0	0	1	22	0	0	0	1
19	0	0	0	0	0	39	33	57	0	0	0	2
20	10	0	0	0	0	26	4	7	0	0	0	0
21	9	0	0	0	0	0	5	1	0	0	0	0
22	1	0	0	0	0	31	41	4	0	0	48	0
23	11	0	0	0	9	25	53	1	0	1	0	0
24	1	0	0	0	0	27	18	0	0	1	0	0
25	0	0	0	0	0	7	4	0	0	0	0	0
26	0	0	0	0	0	0	4	8	1	0	0	0
27	0	0	0	0	10	0	0	1	22	0	0	0
28	0	0	0	0	0	4	35	7	25	0	0	0
29	0		0	0	2	0	8	6	0	0	0	0
30	0		0	0	0	5	1	9	0	0	0	0
31	0		0		11		0	1		0		0

Monthly Total	32	1	1	10	33	337	314	242	232	103	50	13
Average	1.03	0.04	0.03	0.33	1.06	11.23	10.13	7.81	7.73	3.32	1.67	0.42
Max daily rain	11	1	1	6	11	43	53	57	66	29	48	10
Day of Max Daily	23	11	18	15	31	17	23	19	11	11	22	17
No. of Rain days	5	1	1	2	5	18	21	21	15	13	3	3
Max 1-hr rain	8	1	1	5	10	42	26	46	32	14	38	5
Day of max 1-hr	23	11	18	16	27	17	2	19	11	3	22	18

Total rain for the year	1368
Total rain days for the year	108

## Daily Point Rainfall in millimeters (meteorological day)

2021

Station:

Mayapayap

Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	0	0	0	0	0	3	243	57	3	0	0	0
2	0	0	20	0	0	7	14	11	2	17	0	0
3	0	0	3	0	0	0	3	7	0	0	0	0
4	0	0	0	0	0	0	2	6	8	1	0	0
5	0	0	0	0	0	0	0	48	17	22	0	0
6	0	0	0	0	0	0	34	46	18	0	0	0
7	0	0	0	0	0	8	2	7	16	0	3	0
8	0	0	0	0	0	7	0	20	50	0	0	0
9	0	0	0	0	0	2	0	74	0	4	0	0
10	0	1	0	0	0	6	1	40	8	3	0	0
11	0	0	0	0	0	1	0	0	38	33	0	0
12	0	0	0	0	0	0	1	0	15	21	0	0
13	0	0	0	0	0	1	22	0	0	3	0	0
14	0	0	0	0	0	14	0	14	0	19	0	0
15	0	0	0	0	0	0	6	0	0	27	4	0
16	0	0	0	0	0	0	35	0	1	0	0	0
17	0	0	0	0	6	43	0	0	0	1	0	27
18	0	0	0	0	0	1	0	122	0	0	0	1
19	0	0	0	0	0	27	8	17	1	0	0	8
20	13	0	0	0	0	0	2	3	1	0	0	0
21	1	0	0	0	0	7	1	11	0	8	0	0
22	12	0	0	0	0	5	27	7	0	0	0	44
23	12	0	0	0	0	22	52	11	1	2	0	0
24	0	0	0	0	0	0	14	0	0	2	0	0
25	0	0	0	0	0	6	2	0	0	0	0	0
26	0	0	0	0	0	0	1	8	0	0	0	0
27	3	0	0	0	0	0	0	2	8	0	0	0
28	0	6	0	0	0	0	47	13	57	0	0	0
29	0		0	0	20	0	9	2	0	0	0	0
30	0		0	0	6	7	2	0	0	0	0	0
31	0		0		1		16	26		0		0

Monthly Total	41	7	23	0	33	167	544	552	244	163	7	80
Average	1.32	0.25	0.74	0.00	1.06	5.57	17.55	17.81	8.13	5.26	0.23	2.58
Max daily rain	13	6	20	0	20	43	243	122	57	33	4	44
Day of Max Daily	20	28	2	1	29	17	1	18	28	11	15	22
No. of Rain days	5	2	2	0	4	17	23	22	16	14	2	4
Max 1-hr rain	12	6	15		15	21	101	67	29	16	3	36
Day of max 1-hr	23	28	2		29	19	1	18	28	2	15	22

Total rain for the year

1861

Total rain days for the year

111

## Daily Point Rainfall in millimeters (meteorological day)

2021	Station: Peñaranda											
Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	0	0	0	0	0	6	39	12	1	0	0	0
2	0	0	1	0	0	11	11	10	1	0	0	0
3	0	0	0	0	0	0	9	0	0	0	0	0
4	0	0	0	0	0	10	0	6	13	4	0	0
5	0	0	0	0	0	0	14	10	1	23	0	0
6	0	0	0	0	0	0	9	0	4	0	0	0
7	0	0	0	0	0	21	3	0	20	0	4	0
8	0	0	0	0	0	17	0	6	34	0	0	0
9	0	0	0	0	0	4	0	16	0	7	0	0
10	0	1	0	0	0	5	0	47	12	1	0	0
11	0	0	0	0	0	0	2	0	25	18	0	0
12	0	0	0	0	0	0	0	0	13	2	0	0
13	0	0	0	0	0	3	0	0	0	11	0	0
14	0	0	0	0	0	49	23	3	0	14	0	0
15	0	0	0	0	0	1	3	0	0	17	5	0
16	0	0	0	0	0	0	17	0	4	0	0	0
17	0	0	2	0	5	0	8	2	16	4	0	39
18	0	0	0	0	0	36	1	7	0	0	0	6
19	0	0	2	0	0	34	2	1	3	0	0	14
20	23	0	0	8	0	16	4	10	0	0	0	1
21	0	0	1	0	0	5	4	0	2	9	0	0
22	9	0	1	0	0	6	26	1	0	0	0	7
23	4	0	0	0	0	14	45	10	0	9	0	0
24	0	0	0	0	0	0	9	2	0	12	0	0
25	3	0	0	0	0	4	10	0	0	0	0	0
26	0	0	0	0	0	0	2	21	0	0	1	0
27	0	0	0	0	0	0	7	1	1	0	0	0
28	0	0	0	0	0	13	20	2	26	0	0	0
29	0		0	0	1	0	8	0	4	0	0	0
30	0		0	0	0	0	19	3	0	0	0	0
31	0		0		9		0	8		0		1

Monthly Total	39	1	7	8	15	255	295	178	180	131	10	68
Average	1.26	0.04	0.23	0.27	0.48	8.50	9.52	5.74	6.00	4.23	0.33	2.19
Max daily rain	23	1	2	8	9	49	45	47	34	23	5	39
Day of Max Daily	20	10	17	20	31	14	23	10	8	5	15	17
No. of Rain days	4	1	5	1	3	18	24	20	17	13	3	6
Max 1-hr rain	10	1	2	4	9	35	23	14	15	11	4	12
Day of max 1-hr	21	10	19	20	31	18	14	11	28	13	15	18

Total rain for the year	1187
Total rain days for the year	115

## Daily Point Rainfall in millimeters (meteorological day)

2021	Station: Calaanan											
Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	0	0	0	0	0	0	1	15	4	0	0	0
2	0	0	0	0	0	3	2	10	55	0	0	0
3	0	0	0	0	0	1	42	20	1	1	0	0
4	0	0	0	0	0	0	2	7	1	4	0	0
5	0	0	0	0	0	0	22	22	23	37	3	0
6	0	0	0	0	0	0	12	49	15	0	0	0
7	0	0	0	0	0	0	12	21	9	0	3	0
8	0	0	0	0	0	15	2	47	119	1	4	0
9	0	2	0	0	0	1	0	0	2	9	0	0
10	0	0	0	0	0	0	0	29	14	0	0	0
11	0	0	0	0	0	31	2	5	39	39	0	0
12	0	0	0	0	0	0	0	0	27	0	0	0
13	0	0	0	0	0	4	0	21	0	3	0	0
14	0	0	0	0	0	23	0	2	0	18	0	0
15	0	0	6	0	0	0	46	2	0	32	13	0
16	0	0	0	0	0	0	0	0	2	0	0	0
17	0	0	0	0	15	0	3	0	5	0	2	23
18	0	0	0	0	1	0	6	17	0	0	0	5
19	0	0	1	0	0	5	21	0	0	0	0	9
20	45	0	0	0	0	0	3	2	2	0	0	0
21	0	0	0	0	0	7	5	2	0	0	0	0
22	10	0	0	0	0	31	5	0	0	3	0	0
23	2	0	0	0	0	2	22	0	0	3	0	0
24	0	0	0	0	0	1	3	2	0	11	0	0
25	6	0	0	0	0	0	2	0	0	0	0	0
26	2	0	0	0	2	0	6	5	0	0	0	0
27	0	0	0	0	0	0	42	10	12	0	0	0
28	0	0	0	0	0	0	17	21	38	0	0	0
29	0		0	0	0	0	3	1	26	0	0	0
30	0		0	0	0	0	39	4	0	0	0	0
31	0		0		0		24	3		0		1

Monthly Total	65	2	7	0	18	124	344	317	394	161	25	38
Average	2.10	0.07	0.23	0.00	0.58	4.13	11.10	10.23	13.13	5.19	0.83	1.23
Max daily rain	45	2	6	0	15	31	46	49	119	39	13	23
Day of Max Daily	20	9	15	1	17	11	15	6	8	11	15	17
No. of Rain days	5	1	2	0	3	12	25	23	18	12	5	4
Max 1-hr rain	13	1	6		9	26	39	22	45	24	8	6
Day of max 1-hr	21	9	16		18	22	15	11	2	6	15	19

Total rain for the year	1495
Total rain days for the year	110

## Daily Point Rainfall in millimeters (meteorological day)

2021	Station: Palali											
Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	0	0	0	0	0	2	0	8	1	0	0	0
2	0	0	0	0	0	15	6	4	24	1	0	0
3	3	0	0	0	0	0	19	2	10	0	0	0
4	0	0	0	0	0	6	6	10	25	4	2	0
5	0	0	0	0	0	0	2	23	0	58	10	0
6	0	0	0	0	0	0	13	1	4	0	0	0
7	0	0	0	0	0	23	8	0	33	0	3	0
8	0	0	0	0	0	1	1	84	53	0	0	0
9	0	0	0	0	0	4	1	10	2	0	0	0
10	0	1	0	0	0	6	4	30	7	2	0	0
11	0	0	0	0	0	21	3	0	36	55	0	0
12	0	0	1	0	0	0	0	0	16	1	0	0
13	0	0	0	0	0	11	0	1	0	20	0	0
14	0	0	0	0	0	21	1	6	0	5	0	0
15	0	0	1	0	0	0	12	0	0	20	0	0
16	0	0	2	0	0	1	18	0	3	1	2	0
17	0	0	6	0	19	0	17	2	16	0	0	49
18	0	0	0	0	0	13	7	48	1	0	0	11
19	0	0	4	0	0	26	38	18	11	0	0	15
20	26	0	0	3	0	22	1	1	3	0	0	1
21	3	0	0	0	0	19	2	2	2	6	0	1
22	7	1	0	0	0	16	24	0	2	0	1	1
23	2	0	0	0	0	16	33	17	0	15	0	3
24	0	0	0	0	0	0	16	5	0	12	0	0
25	9	0	0	0	0	1	7	2	0	0	1	0
26	2	0	0	0	0	0	8	6	0	0	0	4
27	0	0	0	0	0	1	29	6	40	0	2	0
28	0	0	0	0	0	13	13	21	44	0	0	0
29	0		0	0	37	0	12	0	16	0	0	0
30	0		0	0	0	3	20	30	0	0	0	0
31	0		0		0		0	1		0		0

Monthly Total	52	2	14	3	56	241	321	338	349	200	21	85
Average	1.68	0.07	0.45	0.10	1.81	8.03	10.35	10.90	11.63	6.45	0.70	2.74
Max daily rain	26	1	6	3	37	26	38	84	53	58	10	49
Day of Max Daily	20	10	17	20	29	19	19	8	8	5	5	17
No. of Rain days	7	2	5	1	2	21	27	24	21	13	7	8
Max 1-hr rain	7	1	4	3	32	21	18	66	35	24	4	16
Day of max 1-hr	21	10	19	20	29	7	27	8	27	5	5	18

Total rain for the year	1682
Total rain days for the year	138



## Daily Point Rainfall in millimeters (meteorological day)

2021	Station: San Isidro											
Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	0	0	0	0	0	0	36	14	2	0	0	0
2	0	0	6	0	0	0	1	6	5	0	0	0
3	0	0	0	0	0	0	5	0	12	0	0	0
4	0	0	0	0	0	0	2	0	6	5	0	0
5	0	0	0	0	0	0	0	16	1	13	0	0
6	0	0	0	0	0	13	17	0	3	0	0	0
7	0	0	0	0	0	21	1	1	23	0	4	0
8	0	0	0	0	0	17	0	0	38	0	0	0
9	0	0	0	0	0	10	0	3	0	0	0	0
10	0	0	0	0	0	0	1	16	16	0	0	0
11	0	0	0	0	0	0	5	0	33	15	0	0
12	0	0	0	0	0	0	0	0	10	37	0	0
13	0	0	0	0	0	4	0	0	0	11	0	0
14	0	0	0	0	0	39	6	0	0	7	0	0
15	0	0	0	0	0	5	12	1	0	10	14	0
16	0	0	0	0	0	0	30	0	5	0	0	0
17	0	0	0	0	0	0	4	4	3	0	0	29
18	0	0	0	0	0	8	2	1	1	0	0	7
19	0	0	0	0	0	12	2	0	2	0	0	8
20	13	0	0	7	3	17	7	0	2	0	0	0
21	0	0	0	0	0	6	3	0	1	45	0	1
22	8	0	1	0	0	19	32	0	0	0	0	3
23	3	0	0	0	0	2	57	0	0	2	0	0
24	0	0	0	0	0	0	8	0	0	9	0	0
25	0	0	0	0	0	6	17	1	0	0	0	0
26	0	0	0	2	0	0	4	15	0	0	0	0
27	0	0	0	0	0	0	5	1	5	0	1	0
28	0	0	0	0	0	0	27	7	20	0	0	0
29	0		0	0	0	0	7	0	8	0	0	0
30	0		0	0	0	0	11	0	0	0	0	0
31	0		0		0		0	1		0		0

Monthly Total	24	0	7	9	3	179	302	87	196	154	19	48
Average	0.77	0.00	0.23	0.30	0.10	5.97	9.74	2.81	6.53	4.97	0.63	1.55
Max daily rain	13	0	6	7	3	39	57	16	38	45	14	29
Day of Max Daily	20	1	2	20	20	14	23	5	8	21	15	17
No. of Rain days	3	0	2	2	1	14	25	14	20	10	3	5
Max 1-hr rain	7		5	7	3	24	31	8	19	43	8	14
Day of max 1-hr	21		2	20	21	14	1	5	28	21	15	18

Total rain for the year	1028
Total rain days for the year	99

## Daily Point Rainfall in millimeters (meteorological day)

2021	Station: Arayat											
Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	0	0	0	0	0	5	23	14	0	18	0	0
2	0	0	3	0	0	18	9	9	15	14	0	0
3	0	0	0	0	0	0	1	3	0	1	0	0
4	0	0	0	0	0	0	0	3	2	3	0	0
5	0	0	0	0	0	0	0	15	0	9	0	0
6	0	0	0	0	0	0	6	0	3	1	4	0
7	0	0	0	0	0	2	2	0	24	0	8	0
8	0	0	0	0	0	3	0	0	41	0	0	0
9	0	0	0	0	0	38	0	3	0	0	0	0
10	0	1	0	0	0	7	0	41	20	0	0	0
11	0	0	0	0	0	2	1	0	41	18	0	0
12	0	0	0	0	0	0	3	0	13	28	0	0
13	0	2	0	0	0	4	0	0	0	3	0	0
14	0	0	0	0	0	0	0	0	0	3	0	0
15	0	0	0	0	0	0	2	0	0	0	0	0
16	0	0	0	0	0	0	6	0	28	0	0	0
17	0	0	0	0	0	0	3	0	0	0	0	26
18	0	0	0	0	0	1	4	40	1	0	0	11
19	0	0	0	1	0	3	3	43	6	0	0	1
20	8	0	0	0	0	7	18	18	1	0	0	2
21	1	0	0	3	0	3	16	3	1	2	0	0
22	48	0	0	0	0	4	42	0	0	0	0	0
23	12	0	0	0	0	35	56	7	0	3	0	0
24	0	0	0	0	0	0	28	0	0	4	0	0
25	0	0	0	0	0	23	15	0	0	0	0	0
26	1	0	0	0	52	0	0	2	0	0	0	0
27	0	0	0	0	0	0	1	1	2	0	0	0
28	0	0	0	0	2	0	48	6	1	0	1	0
29	0		0	0	0	0	13	3	0	0	5	0
30	0		0	0	0	0	15	0	3	0	0	0
31	0		0		1		0	10		0		0

Monthly Total	70	3	3	4	55	155	315	221	202	107	18	40
Average	2.26	0.11	0.10	0.13	1.77	5.17	10.16	7.13	6.73	3.45	0.60	1.29
Max daily rain	48	2	3	3	52	38	56	43	41	28	8	26
Day of Max Daily	22	13	2	21	26	9	23	19	8	12	7	17
No. of Rain days	5	2	1	2	3	15	22	17	16	13	4	4
Max 1-hr rain	33	2	2	3	46	33	18	38	16	17	4	9
Day of max 1-hr	23	13	2	21	27	23	1	19	16	1	6	18

Total rain for the year	1193
Total rain days for the year	104

**Daily Point Rainfall in millimeters (meteorological day)**

**2021** Station: **Candaba**

Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	0	0	0	0	0	4	3	22	0	0	0	0
2	0	0	4	0	0	28	20	4	1	5	0	0
3	1	0	0	0	0	0	4	2	0	3	0	0
4	0	0	0	0	0	0	0	11	1	3	0	0
5	0	0	0	0	0	0	1	3	0	11	0	0
6	0	0	0	0	0	0	8	8	0	1	0	0
7	0	0	0	0	0	28	0	0	0	0	9	0
8	0	0	0	0	0	2	1	5	4	0	0	0
9	0	0	0	0	0	28	0	0	0	0	0	0
10	0	0	0	0	0	1	1	39	38	4	0	0
11	0	0	0	0	0	1	0	0	34	14	0	0
12	0	0	0	0	0	0	1	0	16	26	0	0
13	0	0	0	0	0	36	1	0	0	2	0	0
14	0	0	1	0	0	0	0	0	0	2	0	0
15	0	0	0	0	0	0	52	0	0	6	0	0
16	0	0	0	0	0	0	32	0	33	0	0	0
17	0	0	0	0	0	0	6	0	0	1	0	13
18	0	0	3	0	0	0	2	9	3	0	0	18
19	0	0	0	0	0	9	14	42	7	0	0	1
20	19	0	0	0	9	2	12	31	4	7	0	1
21	0	0	1	0	0	0	16	2	0	1	0	0
22	23	0	0	0	0	0	30	1	0	0	0	3
23	5	0	0	0	7	20	41	10	0	14	0	1
24	0	0	0	0	2	0	12	0	0	8	0	0
25	0	0	0	0	0	0	14	0	0	0	0	0
26	2	0	0	0	51	0	1	1	0	0	0	0
27	1	0	0	0	0	0	1	1	5	0	0	0
28	0	0	0	0	95	1	83	7	1	0	3	0
29	0		0	0	0	0	9	8	0	0	0	0
30	0		0	0	0	0	8	0	13	0	0	0
31	0		0		0		1	2		0		0

Monthly Total	51	0	9	0	164	160	374	208	160	108	12	37
Average	1.65	0.00	0.29	0.00	5.29	5.33	12.06	6.71	5.33	3.48	0.40	1.19
Max daily rain	23	0	4	0	95	36	83	42	38	26	9	18
Day of Max Daily	22	1	2	1	28	13	28	19	10	12	7	18
No. of Rain days	6	0	4	0	5	12	26	19	13	16	2	6
Max 1-hr rain	18		4		45	22	35	41	18	15	4	6
Day of max 1-hr	23		2		27	13	15	19	16	12	8	18

<b>Total rain for the year</b>	<b>1283</b>
<b>Total rain days for the year</b>	<b>109</b>

## Daily Point Rainfall in millimeters (meteorological day)

2021	Station: Sibul Springs											
Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	0	0	0	0	0	7	1	18	0	0	0	0
2	0	0	0	0	0	19	65	11	5	6	0	0
3	3	0	0	0	0	0	4	2	1	7	0	0
4	0	0	0	0	0	0	6	12	11	1	0	0
5	0	0	0	0	0	0	0	13	0	19	0	0
6	0	0	0	0	0	0	12	2	3	2	0	0
7	0	0	0	0	0	17	23	0	41	0	2	0
8	0	0	0	0	0	62	5	13	31	0	1	0
9	0	1	0	0	0	11	1	3	3	0	0	0
10	0	0	0	0	0	0	3	39	29	1	0	0
11	0	0	0	0	0	0	6	0	33	26	0	0
12	0	0	0	0	0	0	0	0	14	1	0	0
13	0	0	0	0	0	9	0	5	0	3	0	0
14	0	0	0	0	0	3	2	3	0	4	0	0
15	0	0	0	0	1	0	1	0	0	12	3	0
16	0	0	0	0	0	0	47	0	6	0	1	0
17	0	0	0	0	5	0	0	0	11	1	0	21
18	0	0	0	0	0	2	13	34	2	0	0	21
19	0	0	3	0	0	0	25	0	6	0	0	23
20	26	0	3	6	0	2	3	0	12	5	0	1
21	0	0	4	0	0	30	6	6	1	9	0	0
22	18	0	0	0	1	22	38	2	1	0	0	0
23	0	2	0	0	0	19	47	28	0	8	0	0
24	1	3	0	0	13	0	19	4	0	7	0	0
25	2	0	0	0	0	20	8	0	0	5	2	0
26	1	0	0	0	0	0	2	11	0	0	0	4
27	5	0	0	0	0	5	6	1	10	0	2	0
28	0	0	0	0	1	10	48	5	1	0	2	0
29	0		0	0	0	0	9	2	12	0	1	0
30	0		0	0	0	0	7	0	3	0	0	0
31	0		0		1		7	9		0		0

Monthly Total	56	6	10	6	22	238	414	223	236	117	14	70
Average	1.81	0.21	0.32	0.20	0.71	7.93	13.35	7.19	7.87	3.77	0.47	2.26
Max daily rain	26	3	4	6	13	62	65	39	41	26	3	23
Day of Max Daily	20	24	21	20	24	8	2	10	7	11	15	19
No. of Rain days	7	3	3	1	6	15	27	21	21	17	8	5
Max 1-hr rain	14	3	6	4	13	39	34	35	15	11	2	9
Day of max 1-hr	23	24	19	20	24	8	2	10	8	12	15	17

Total rain for the year	1412
Total rain days for the year	134

## Daily Point Rainfall in millimeters (meteorological day)

2021	Station: Sasmuan											
Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	0	0	0	0	0	2	0	107	0	0	0	0
2	0	0	8	0	0	27	24	42	13	7	0	0
3	2	0	0	0	0	0	2	6	0	3	0	0
4	0	0	0	0	0	0	2	9	0	12	0	0
5	0	0	0	0	0	0	2	8	8	13	1	0
6	0	0	0	0	0	0	38	2	12	0	0	0
7	0	0	0	0	0	6	4	0	25	0	11	0
8	0	0	0	0	0	10	0	1	47	0	0	0
9	0	0	0	0	0	0	0	0	0	9	0	0
10	0	17	0	0	0	0	0	20	36	2	0	0
11	0	0	0	0	0	0	0	0	61	20	0	0
12	0	0	0	0	0	0	0	0	20	29	0	0
13	0	5	0	0	0	2	5	0	0	9	0	0
14	0	0	0	0	0	0	0	0	3	1	0	0
15	0	0	0	0	0	0	0	0	0	19	0	0
16	0	0	0	0	0	0	0	2	12	0	0	0
17	0	0	0	7	0	0	1	0	0	0	0	0
18	0	0	0	0	3	0	10	2	8	0	0	33
19	0	0	0	0	0	0	19	1	3	0	0	0
20	14	0	1	0	3	0	41	1	0	0	0	0
21	25	0	0	0	1	0	34	5	0	2	0	0
22	5	0	0	6	0	0	41	8	0	0	0	0
23	4	8	0	9	0	2	87	3	0	11	0	0
24	0	0	0	0	0	4	77	0	0	2	0	0
25	0	0	0	0	9	0	22	0	0	3	0	0
26	0	0	0	0	33	0	7	5	0	0	0	0
27	0	0	0	0	0	0	6	0	0	0	0	0
28	0	0	0	4	12	1	140	6	0	0	0	0
29	0		0	0	0	0	41	3	0	0	0	0
30	0		0	0	0	0	5	25	0	0	0	0
31	0		0		0		7	2		0		0

Monthly Total	50	30	9	26	61	54	615	258	248	142	12	33
Average	1.61	1.07	0.29	0.87	1.97	1.80	19.84	8.32	8.27	4.58	0.40	1.06
Max daily rain	25	17	8	9	33	27	140	107	61	29	11	33
Day of Max Daily	21	10	2	23	26	2	28	1	11	12	7	18
No. of Rain days	5	3	2	4	6	8	22	20	12	15	2	1
Max 1-hr rain	15	12	4	7	23	9	26	31	11	18	11	10
Day of max 1-hr	21	10	2	17	26	3	25	1	6	15	8	19

Total rain for the year	1538
Total rain days for the year	100

## Daily Point Rainfall in millimeters (meteorological day)

2021	Station: Sulipan											
Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	0	0	0	0	0	2	0	43	10	0	0	0
2	0	0	0	0	0	27	5	11	6	24	0	0
3	6	0	0	0	0	0	4	4	0	11	0	0
4	1	0	0	0	0	2	3	8	0	5	0	0
5	0	0	0	0	0	0	12	6	0	7	0	0
6	0	0	0	0	0	0	4	1	3	0	0	0
7	0	0	0	0	0	20	1	0	31	0	4	0
8	0	0	0	0	0	34	0	0	52	0	0	0
9	0	0	0	0	0	6	0	0	0	0	0	0
10	0	2	0	0	0	1	0	49	42	2	0	0
11	0	0	0	0	0	1	0	1	39	19	0	0
12	0	1	0	0	0	0	0	0	13	54	0	0
13	0	0	0	0	0	6	0	0	0	8	1	0
14	0	0	0	0	0	0	8	0	10	4	0	0
15	0	0	0	0	0	0	1	1	2	6	0	0
16	0	0	0	0	0	0	0	0	13	12	1	0
17	0	0	0	12	0	0	23	0	0	0	0	6
18	0	0	0	0	18	0	7	35	6	0	0	34
19	0	0	0	0	0	0	9	0	7	0	0	2
20	27	0	9	0	2	0	28	4	0	6	0	0
21	1	0	1	0	0	0	14	18	0	0	0	0
22	22	0	0	11	0	0	29	11	0	0	0	0
23	2	0	0	0	0	5	89	10	0	9	0	0
24	0	4	0	0	0	0	39	0	0	3	0	0
25	2	0	0	0	0	0	15	1	0	8	0	0
26	2	0	0	0	11	0	3	1	0	0	0	0
27	0	0	0	0	0	0	9	2	0	0	0	0
28	0	0	0	0	29	2	134	5	0	0	0	0
29	0		0	0	1	0	22	14	0	0	0	0
30	0		0	0	0	0	4	2	0	0	0	0
31	0		0		0		1	26		0		0

Monthly Total	63	7	10	23	61	106	464	253	234	178	6	42
Average	2.03	0.25	0.32	0.77	1.97	3.53	14.97	8.16	7.80	5.74	0.20	1.35
Max daily rain	27	4	9	12	29	34	134	49	52	54	4	34
Day of Max Daily	20	24	20	17	28	8	28	10	8	12	7	18
No. of Rain days	8	3	2	2	5	11	23	21	13	15	3	3
Max 1-hr rain	16	3	9	11	18	16	48	33	12	21	2	13
Day of max 1-hr	23	24	20	17	18	9	29	18	8	12	8	19

Total rain for the year	1447
Total rain days for the year	109

## Daily Point Rainfall in millimeters (meteorological day)

2021	Station: Mexico											
Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	0	0	0	0	0	3	0	43	31	0	0	0
2	0	0	0	0	0	30	19	7	77	1	0	0
3	0	0	0	0	0	1	2	10	0	0	0	0
4	0	0	0	0	0	0	1	8	0	3	0	0
5	0	0	0	0	0	0	1	14	0	12	0	0
6	0	0	0	0	0	0	4	1	0	0	0	0
7	0	0	0	0	0	7	0	0	37	0	1	0
8	0	0	0	0	0	15	0	6	27	0	0	0
9	0	0	0	0	0	69	0	0	0	0	0	0
10	0	4	0	0	0	8	1	22	44	18	0	0
11	0	0	0	0	9	0	0	0	52	15	0	0
12	0	1	0	0	0	0	0	0	19	32	0	0
13	0	0	0	0	0	4	0	0	0	2	0	0
14	0	0	0	0	0	0	0	0	0	1	0	0
15	0	0	0	0	0	0	42	0	0	2	0	0
16	0	0	7	0	0	0	16	0	25	0	0	0
17	0	0	0	0	0	0	5	0	0	0	0	7
18	0	0	0	0	0	0	4	1	5	0	0	20
19	0	0	0	0	0	0	6	2	11	0	0	1
20	29	0	0	0	27	0	20	1	1	9	0	18
21	0	1	1	0	0	0	25	11	0	0	0	0
22	24	0	0	0	0	0	36	0	0	0	4	1
23	5	0	0	0	0	62	68	6	0	6	0	0
24	0	0	0	0	0	0	36	0	0	3	0	0
25	2	0	0	0	0	1	23	0	0	1	0	0
26	0	0	0	0	7	0	1	0	0	0	0	0
27	0	0	0	0	0	0	0	1	0	0	0	0
28	0	0	0	0	13	3	91	2	0	0	0	0
29	0		0	0	0	0	23	11	0	0	0	0
30	0		0	0	0	0	8	1	0	0	0	0
31	0		0		0		6	1		0		0

Monthly Total	60	6	8	0	56	203	438	148	329	105	5	47
Average	1.94	0.21	0.26	0.00	1.81	6.77	14.13	4.77	10.97	3.39	0.17	1.52
Max daily rain	29	4	7	0	27	69	91	43	77	32	4	20
Day of Max Daily	20	10	16	1	20	9	28	1	2	12	22	18
No. of Rain days	4	3	2	0	4	11	22	18	11	13	2	5
Max 1-hr rain	12	2	6		13	36	37	16	62	18	4	11
Day of max 1-hr	23	10	17		21	9	16	1	2	10	22	20

Total rain for the year	1405
Total rain days for the year	95

## Daily Point Rainfall in millimeters (meteorological day)

2021	Station: Porac											
Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	0	0	0	0	0	4	13	31	15	20	0	0
2	0	0	0	0	0	19	38	9	9	6	0	0
3	0	0	0	0	0	0	2	25	11	0	0	0
4	0	0	0	0	0	3	0	21	2	3	0	0
5	0	0	0	0	0	0	3	42	0	10	0	0
6	0	0	0	0	0	0	5	4	1	0	0	0
7	0	0	0	0	0	0	0	1	30	2	2	0
8	0	0	0	0	0	7	0	8	48	0	0	0
9	0	0	0	0	0	0	0	18	0	0	0	0
10	0	25	0	0	0	15	0	9	48	23	0	0
11	0	0	0	0	0	10	0	0	43	23	0	0
12	0	0	0	0	0	0	0	0	26	21	0	0
13	0	1	0	0	0	5	0	0	0	15	0	0
14	0	0	0	0	0	0	18	0	0	7	0	0
15	0	0	0	0	0	0	30	0	0	0	11	0
16	0	0	0	0	0	0	0	0	5	0	0	0
17	0	0	0	0	0	0	0	0	0	0	0	9
18	0	0	0	0	0	0	4	4	0	0	0	18
19	0	0	5	4	0	18	24	74	3	0	0	0
20	21	0	0	2	0	0	38	1	0	0	0	0
21	51	0	0	6	0	0	37	1	0	52	0	0
22	3	0	0	0	0	2	89	0	11	0	10	36
23	13	0	0	0	0	4	89	2	0	1	0	0
24	0	0	0	0	0	4	39	0	0	1	0	0
25	0	0	0	0	0	0	17	0	0	0	0	0
26	0	0	0	0	23	0	1	1	0	0	0	0
27	0	0	0	0	0	0	5	1	17	0	0	0
28	0	0	0	0	0	0	84	3	0	0	0	0
29	0		0	0	9	0	43	3	3	0	0	0
30	0		0	0	14	0	17	1	4	0	0	0
31	0		0		0		0	0		0		0

Monthly Total	88	26	5	12	46	91	596	259	276	184	23	63
Average	2.84	0.93	0.16	0.40	1.48	3.03	19.23	8.35	9.20	5.94	0.77	2.03
Max daily rain	51	25	5	6	23	19	89	74	48	52	11	36
Day of Max Daily	21	10	19	21	26	2	22	19	8	21	15	22
No. of Rain days	4	2	1	3	3	11	20	20	16	13	3	3
Max 1-hr rain	26	9	5	4	20	17	27	57	28	33	10	26
Day of max 1-hr	21	10	19	19	27	19	15	19	11	21	15	22

Total rain for the year	1669
Total rain days for the year	99



## Daily Point Rainfall in millimeters (meteorological day)

2021	Station: San Rafael											
Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	0	0	0	0	0	7	0	26	0	0	0	0
2	0	0	0	0	0	33	3	6	2	17	0	0
3	8	0	0	0	0	1	9	2	2	9	0	0
4	1	0	0	0	0	0	15	6	1	8	0	0
5	0	0	0	0	0	0	2	8	0	8	0	0
6	0	0	0	0	0	0	13	1	2	1	2	0
7	0	0	0	0	0	5	0	0	36	0	7	0
8	0	0	0	0	0	6	1	0	69	0	0	0
9	0	2	0	0	0	31	0	1	0	0	0	0
10	0	0	0	0	0	4	1	53	70	7	0	0
11	0	0	0	0	0	1	0	0	48	7	0	0
12	0	0	1	0	0	0	0	0	24	2	0	0
13	0	0	0	0	0	35	0	0	0	7	0	0
14	0	0	0	0	0	0	0	9	23	5	0	0
15	0	0	0	0	0	0	8	0	29	12	0	0
16	0	0	0	0	0	0	25	0	7	0	2	0
17	0	0	0	0	0	0	25	1	0	1	0	15
18	0	0	0	0	0	0	11	44	6	0	0	25
19	0	0	0	0	0	0	27	0	9	0	0	3
20	24	0	0	0	1	0	20	4	0	17	0	1
21	1	2	5	0	3	6	21	6	0	5	2	0
22	19	1	0	0	1	5	29	1	0	0	4	0
23	0	0	0	0	7	3	57	30	0	11	0	0
24	0	0	0	0	0	0	37	4	0	10	0	0
25	0	0	0	0	0	14	19	0	0	2	1	0
26	2	0	0	0	24	0	5	1	0	0	0	5
27	1	0	0	0	0	0	8	0	8	0	1	0
28	0	0	0	0	0	1	55	3	15	0	3	0
29	0		0	0	26	0	13	7	0	0	0	0
30	0		0	0	0	0	3	0	0	0	0	0
31	0		0		1		3	2		0		0

Monthly Total	56	5	6	0	63	152	410	215	351	129	22	49
Average	1.81	0.18	0.19	0.00	2.03	5.07	13.23	6.94	11.70	4.16	0.73	1.58
Max daily rain	24	2	5	0	26	35	57	53	70	17	7	25
Day of Max Daily	20	9	21	1	29	13	23	10	10	2	7	18
No. of Rain days	7	3	2	0	7	14	24	20	16	17	8	5
Max 1-hr rain	10	1	3		25	14	19	29	23	14	5	12
Day of max 1-hr	23	9	22		29	9	18	23	17	20	8	18

Total rain for the year	1458
Total rain days for the year	123

## Daily Point Rainfall in millimeters (meteorological day)

2021	Station: PRFFWC (CSFP)											
Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	0.0	0.0	0.0	0.0	0.0	6.6	0.3	34.0	19.3	4.8	0.0	0.0
2	0.0	0.0	0.0	0.0	0.0	29.0	47.8	6.9	61.7	1.3	0.0	0.0
3	0.5	0.0	0.0	0.0	0.0	0.0	4.8	7.1	5.1	0.5	0.0	0.0
4	0.0	0.0	0.0	0.0	0.0	1.0	6.6	11.4	11.4	2.3	0.0	0.0
5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	17.5	0.0	7.9	0.0	0.0
6	0.0	0.3	0.0	0.0	0.0	0.0	12.4	1.0	1.5	0.3	0.0	0.0
7	0.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0	31.2	0.3	0.0	0.0
8	0.0	0.0	0.0	0.0	0.0	38.1	0.0	2.8	44.7	0.0	0.0	0.0
9	0.0	0.3	0.0	0.0	0.0	18.0	0.0	17.5	0.0	0.0	0.0	0.0
10	0.0	5.1	0.0	0.0	0.0	8.9	0.3	25.4	34.8	11.7	0.0	0.0
11	0.0	0.3	0.0	0.0	0.0	0.5	0.0	0.0	56.6	22.1	0.0	0.0
12	0.0	0.0	0.0	0.0	0.0	4.1	0.0	0.0	13.7	27.9	0.0	0.0
13	0.0	1.0	0.0	0.0	0.0	0.0	1.3	0.0	0.0	4.6	0.0	0.0
14	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.1	0.0	0.0
15	0.0	0.0	0.0	0.0	0.0	0.0	13.0	0.0	0.0	1.3	0.0	0.0
16	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	8.9	0.0	0.0	0.0
17	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.6
18	0.0	0.0	0.0	0.0	2.8	0.3	2.0	3.0	3.0	0.0	0.0	13.5
19	0.0	0.0	0.0	0.0	0.0	0.3	8.9	24.4	6.4	0.0	0.0	1.0
20	27.9	1.5	0.0	0.0	2.3	0.0	24.9	0.8	2.0	3.3	0.0	2.0
21	21.8	0.3	0.3	0.0	0.0	0.0	25.1	2.3	0.0	12.7	0.5	0.0
22	7.9	0.0	0.0	0.5	0.0	2.3	30.7	3.0	0.0	0.0	0.0	3.0
23	23.6	0.3	0.0	0.0	0.0	0.3	57.2	3.6	0.0	2.0	0.0	0.0
24	0.0	0.0	0.0	0.0	0.0	0.0	47.2	0.0	0.0	3.3	0.0	0.0
25	0.0	0.0	0.0	0.0	0.0	25.4	17.8	0.0	0.0	0.0	0.0	0.0
26	2.5	0.0	0.0	0.0	7.1	0.0	1.5	0.0	0.0	0.0	0.0	0.0
27	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13.2	0.0	0.0	0.0
28	0.0	0.0	0.0	6.1	0.0	1.0	97.8	1.8	0.0	0.0	0.0	0.0
29	0.0		0.0	0.0	0.0	0.3	26.2	4.1	0.0	0.0	0.0	0.0
30	0.0		0.0	0.0	0.3	0.0	18.3	3.6	8.6	0.0	0.0	0.0
31	0.0		0.0		0.0		3.6	0.5		0.0		0.0

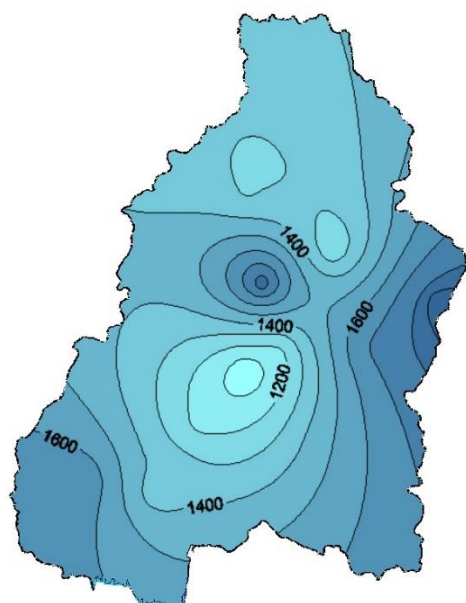
Monthly Total	84.3	8.9	0.3	6.6	12.4	137.9	447.8	170.7	322.3	111.3	0.5	28.2
Average	2.72	0.32	0.01	0.22	0.40	4.60	14.45	5.51	10.74	3.59	0.02	0.91
Max daily rain	27.9	5.1	0.3	6.1	7.1	38.1	97.8	34.0	61.7	27.9	0.5	13.5
Day of Max Daily	20	10		28	26	8	28	1	2	12	21	18
No. of Rain days	6	8	1	2	4	16	22	19	16	17	1	5
Max 1-hr rain	20.8	3.6	0.3	3.3	4.3	23.1	43.4	17.5	53.3	11.4	0.5	5.8
Day of max 1-hr	23	10	22	28	27	9	2	9	2	12	21	18

Total rain for the year	1331.2
Total rain days for the year	117

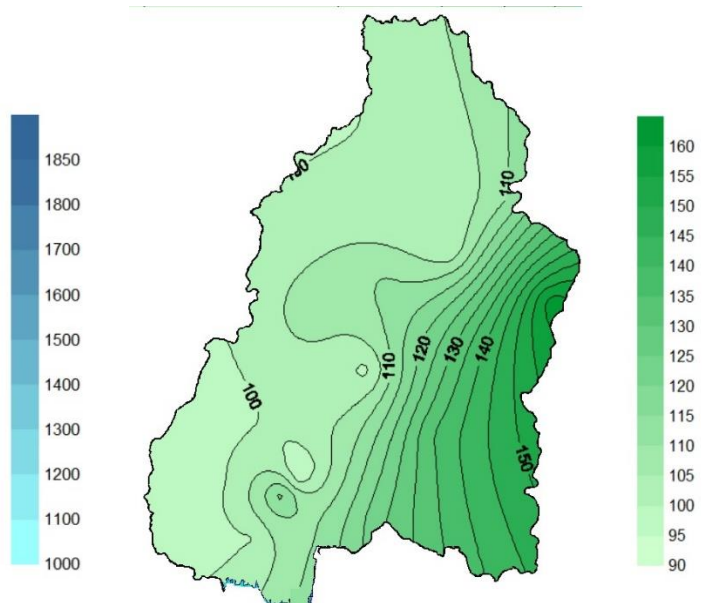
**Table 2.0**

Monthly Rainfall Summary for 2021															
PRB Station	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total for the year	Number of RR days	Max 24-hr RR (Met day)
Muñoz	42	1	7	2	3	112	237	383	260	203	26	15	1291	102	86
Sapang Buho	72	1	29	0	12	198	169	299	244	120	31	34	1209	101	69
Gabalton	160	28	17	5	58	105	317	257	418	268	62	184	1879	162	207
Zaragoza	32	1	1	10	33	337	314	242	232	103	50	13	1368	108	66
Mayapyap	41	7	23	0	33	167	544	552	244	163	7	80	1861	111	243
Peñaranda	39	1	7	8	15	255	295	178	180	131	10	68	1187	115	49
Calaanan	65	2	7	0	18	124	344	317	394	161	25	38	1495	110	119
Palali	52	2	14	3	56	241	321	338	349	200	21	85	1682	138	84
San Isidro	24	0	7	9	3	179	302	87	196	154	19	48	1028	99	57
Arayat	70	3	3	4	55	155	315	221	202	107	18	40	1193	104	56
Candaba	51	0	9	0	164	160	374	208	160	108	12	37	1283	109	95
Sibul Spring	56	6	10	6	22	238	414	223	236	117	14	70	1412	134	65
Sasmuan	50	30	9	26	61	54	615	258	248	142	12	33	1538	100	140
Sulipan	63	7	10	23	61	106	464	253	234	178	6	42	1447	109	134
Mexico	60	6	8	0	56	203	438	148	329	105	5	47	1405	95	91
Porac	88	26	5	12	46	91	596	259	276	184	23	63	1669	99	89
San Rafael	56	5	6	0	63	152	410	215	351	129	22	49	1458	123	70
PRFFWC	84.3	8.9	0.3	6.6	12.4	137.9	447.8	170.7	322.3	111.3	0.5	28.2	1331.2	117	97.8

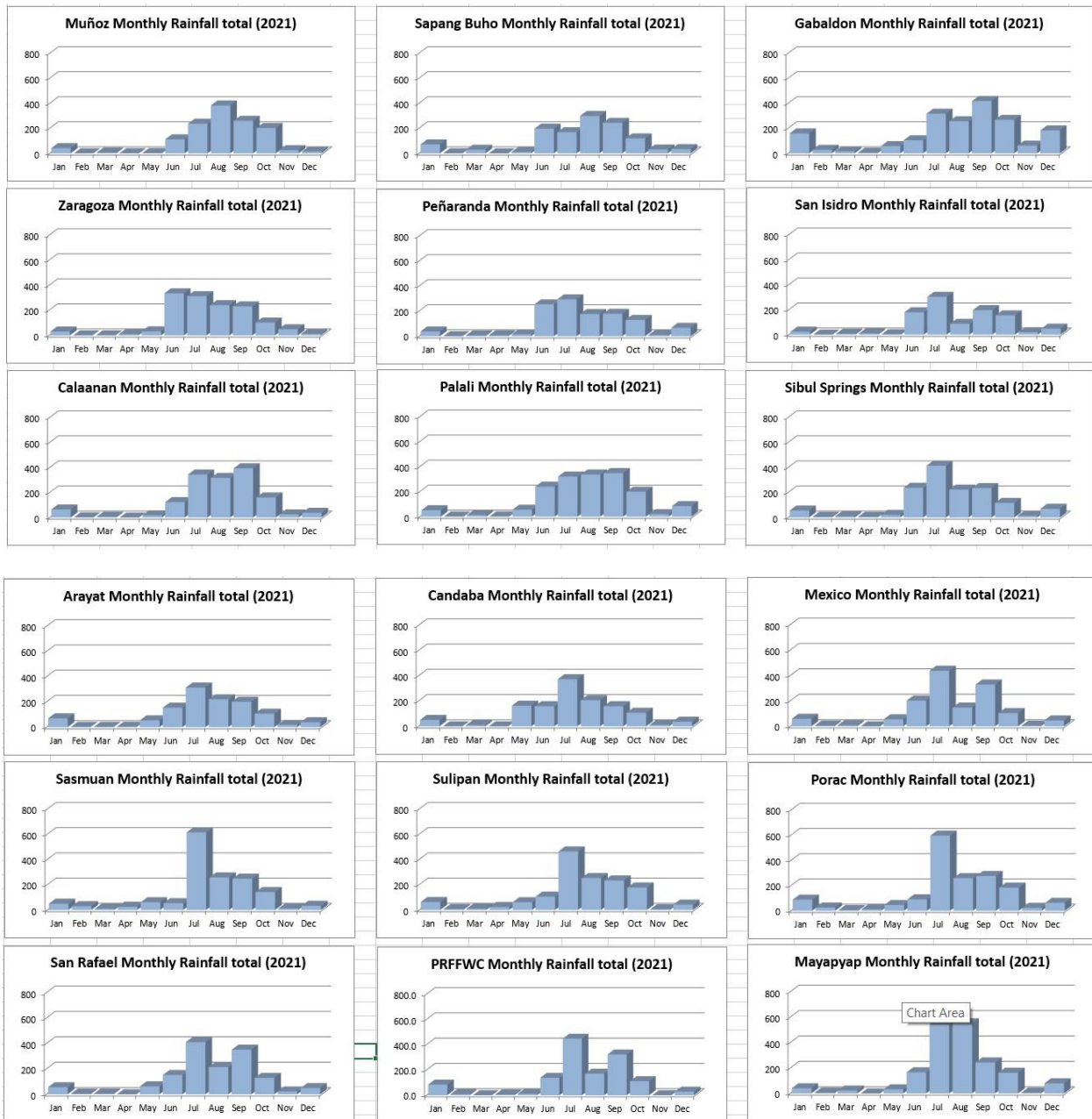
Note: Red values indicate incomplete data for the said station



**Figure 2.0** The estimated annual rainfall distribution (Isohyets) for year 2021 in the PRB



**Figure 2.1** Estimated rainfall days distribution in the PRB for the year 2021



**Figure 3.0** Monthly Rainfall distribution (hyetograph) of each monitoring station of the PRBFFWC within the Pampanga River Basin for the year 2021

## B. WATER LEVEL Data Summary Presentation



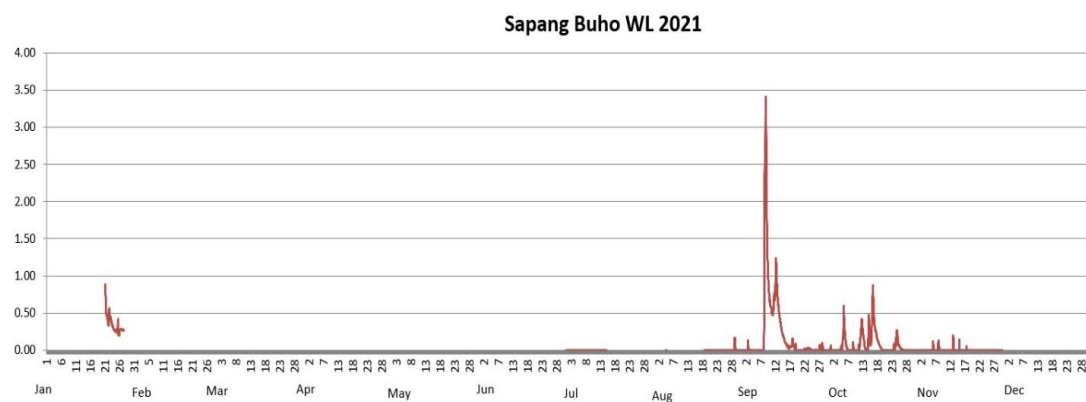
## Water Level in meters (Daily Average)

2021

Station: Sapang\_Buho

Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1							0.00		0.00	0.01	0.00	0.00
2							0.00		0.02	0.00	0.00	0.00
3							0.00		0.00	0.00	0.00	0.00
4							0.00		0.00	0.00	0.00	0.00
5							0.00	0.00	0.00	0.06	0.00	0.00
6							0.00		0.00	0.23	0.02	0.00
7							0.00		0.00	0.01	0.01	0.00
8							0.00		1.77	0.00	0.03	0.00
9							0.00		1.40	0.01	0.00	0.00
10							0.00		0.60	0.00	0.00	0.00
11							0.00		0.60	0.07	0.00	0.00
12							0.00		0.93	0.30	0.00	0.00
13							0.00		0.51	0.05	0.02	0.00
14							0.00		0.26	0.13	0.00	0.00
15							0.00		0.12	0.20	0.01	0.00
16									0.05	0.54	0.00	0.00
17									0.04	0.20	0.00	0.05
18								0.00	0.07	0.07	0.00	0.52
19								0.00	0.01	0.01	0.00	0.54
20								0.00	0.00	0.00	0.00	0.39
21	0.66							0.00	0.00	0.00	0.00	0.13
22	0.43							0.00	0.01	0.00	0.00	0.03
23	0.40						0.00	0.00	0.02	0.02	0.00	0.00
24	0.28							0.00	0.01	0.17	0.00	0.00
25	0.28							0.00	0.00	0.05	0.00	0.00
26	0.25							0.00	0.00	0.00	0.00	0.00
27	0.27							0.00	0.03	0.00	0.00	0.00
28								0.00	0.04	0.00	0.00	0.00
29								0.03	0.00	0.00	0.00	0.00
30								0.00	0.00	0.00	0.00	0.00
31								0.00		0.00		0.00

Max WL observed	0.88						0.00	0.92	3.41	0.87	0.20	1.06
Day of Max WL	21							5	9	16	13	18



Water Level in meters (Daily Average)

2021	Station: Zaragoza											
Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	1.46	0.11	0.19	0.18	0.00	0.00	0.68	3.38	2.41	1.40	0.46	0.12
2	1.21	0.12	0.43	0.11	0.00	0.00	0.74	3.49	2.78	1.27	0.40	0.12
3	0.94	0.12	0.59	0.15	0.00	0.00	1.51	3.52	2.94	1.70	0.36	0.12
4	0.74	0.17	0.55	0.44	0.00	0.00	2.15	3.47	2.95	1.50	0.32	0.12
5	0.65	0.25	0.49	0.45	0.00	0.00	2.04	3.43	2.97	1.39	0.30	0.12
6	0.50	0.54	0.26	0.20	0.00	0.00	1.63	3.33	3.06	1.55	0.16	0.12
7	0.49	0.63	0.23	0.12	0.00	0.00	1.88	3.21	3.12	1.47	0.11	0.12
8	0.49	0.61	0.20	0.11	0.00	0.00	1.60	3.10	3.34	1.22	0.10	0.12
9	0.45	0.21	0.13	0.24	0.00	0.00	1.43	3.35	3.75	1.05	0.11	0.12
10	0.39	0.14	0.11	0.39	0.00	0.29	1.21	3.48	3.91	0.96	0.10	0.12
11	0.28	0.15	0.10	0.30	0.00	0.73	0.96	3.62	4.06	1.53	0.10	0.12
12	0.26	0.18	0.11	0.17	0.00	0.77	0.77	3.73	4.17	3.06	0.10	0.12
13	0.26	0.18	0.08	0.11	0.00	0.55	0.62	3.69	4.11	3.55	0.12	0.12
14	0.23	0.30	0.18	0.02	0.00	0.39	0.63	3.60	3.97	3.67	0.12	0.12
15	0.20	0.45	0.16	0.00	0.00	0.38	1.04	3.48	3.78	3.83	0.11	0.12
16	0.25	0.52	0.16	0.09	0.00	0.21	1.18	3.28	3.60	3.96	0.12	0.12
17	0.29	0.41	0.15	0.02	0.00	0.20	1.10	2.99	3.42	3.83	0.12	0.11
18	0.30	0.30	0.22	0.00	0.00	0.24	1.59	2.66	3.22	3.63	0.12	0.11
19	0.29	0.21	0.38	0.00	0.00	0.33	1.94	2.67	2.99	3.37	0.12	0.01
20	0.27	0.15	0.66	0.00	0.00	0.57	2.71	2.73	2.71	3.02	0.12	0.00
21	0.69	0.12	0.63	0.00	0.00	0.66	2.76	2.80	2.34	2.65	0.10	0.01
22	1.36	0.11	0.55	0.00	0.00	0.91	2.75	3.10	1.88	2.43	0.11	0.00
23	1.75	0.15	0.28	0.00	0.00	1.10	2.92	3.23	1.49	2.13	0.12	0.01
24	2.08	0.20	0.18	0.00	0.00	1.14	3.29	3.22	1.18	1.88	0.12	0.01
25	1.76	0.15	0.14	0.00	0.00	1.31	3.43	3.12	0.93	1.61	0.11	0.01
26	1.54	0.14	0.11	0.00	0.00	1.38	3.44	2.96	0.77	1.39	0.11	0.01
27	1.19	0.14	0.11	0.00	0.00	1.26	3.36	2.72	0.86	1.16	0.11	0.00
28	0.87	0.14	0.12	0.00	0.00	1.17	3.32	2.43	1.78	0.97	0.11	0.00
29	0.62		0.20	0.00	0.00	1.11	3.57	2.22	1.82	0.80	0.12	0.01
30	0.31		0.26	0.00	0.00	0.93	3.58	2.09	1.65	0.65	0.11	0.01
31	0.16		0.25		0.00		3.48	2.28		0.54		0.01
Max WL observed	2.32	0.97	0.69	0.53	0.01	1.44	3.62	3.75	4.19	4.00	0.49	0.17

Day of Max WL	24	7	20	5	1	26	30	13	12	16	1	6
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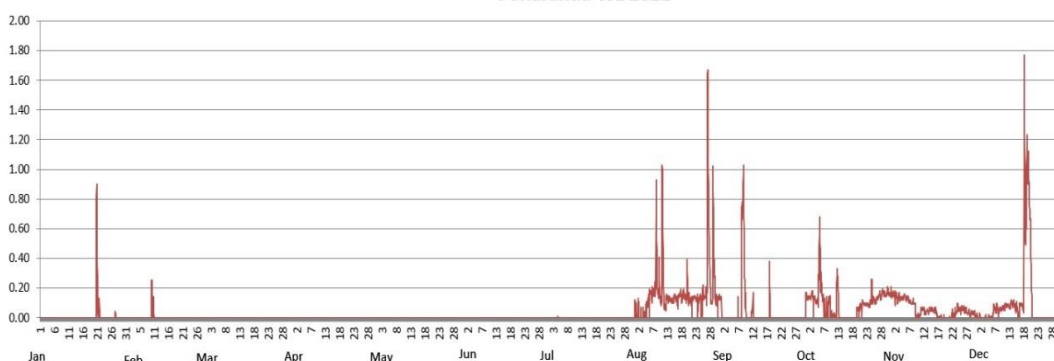
Water Level in meters (Daily Average)

2021	Station: Penaranda											
Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.14	0.16	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.14	0.14	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.00	0.14	0.14	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.00	0.12	0.13	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.19	0.13	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.16	0.01	0.29	0.13	0.01
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.16	0.00	0.09	0.10	0.06
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.36	0.72	0.02	0.10	0.06
9	0.00	0.08	0.00	0.00	0.00	0.00	0.00	0.20	0.17	0.09	0.01	0.06
10	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.36	0.00	0.02	0.01	0.06
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.18	0.02	0.01	0.05	0.08
12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.04	0.18	0.04	0.08
13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.00	0.00	0.04	0.09
14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.00	0.00	0.05	0.08
15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14	0.00	0.00	0.05	0.05
16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.00	0.00	0.04	0.07
17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.15	0.00	0.00	0.00	0.24
18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.15	0.08	0.00	0.00	0.87
19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.17	0.00	0.05	0.00	0.93
20	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.00	0.08	0.00	0.32
21	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.00	0.09	0.00	0.00
22	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.14	0.00	0.09	0.02	0.00
23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.11	0.00	0.08	0.03	0.00
24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.00	0.14	0.06	0.00
25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.00	0.11	0.06	0.00
26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.20	0.00	0.13	0.06	0.00
27	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.77	0.00	0.15	0.04	0.00
28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.23	0.00	0.17	0.03	0.00
29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.33	0.00	0.16	0.03	0.00
30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.00	0.17	0.02	0.00
31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.00	0.16	0.00	0.00



Max WL observed	0.90	0.25	0.00	0.00	0.00	0.00	0.01	1.78	1.03	0.68	0.18	1.77
Day of Max WL	21	10					4	11	9	6	1	18

Peñaranda WL 2021



Water Level in meters (Daily Average)

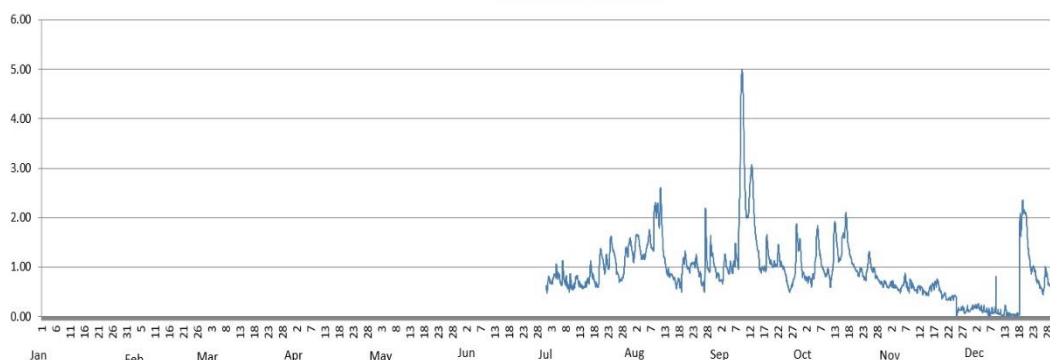
2021

Station: San Isidro

Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1							0.63	1.23	0.75	0.84	0.64	0.18
2							0.71	1.60	0.84	0.77	0.65	
3							0.76	1.48	1.12	0.77	0.61	
4							0.90	1.21	0.91	0.73	0.55	
5							0.86	1.21	0.95	0.86	0.56	
6							0.75	1.49	1.08	1.67	0.71	
7							0.79	1.55	1.20	1.20	0.64	
8							0.67	1.59	2.48	0.95	0.64	
9							0.68	2.17	4.66	0.84	0.63	
10							0.59	2.09	2.61	0.87	0.54	
11							0.70	2.03	2.09	0.78	0.57	
12							0.73	1.18	2.85	1.64	0.58	
13							0.63	0.92	2.36	1.45	0.52	
14							0.59	0.84	1.53	1.16	0.46	
15							0.67	0.80	1.13	1.55	0.51	
16							0.80	0.68	0.94	1.87	0.63	
17							0.90	0.70	0.96	1.48	0.65	
18							0.69	0.71	1.42	1.17	0.68	
19							0.63	1.16	1.12	1.02	0.53	
20							1.20	1.08	1.04	0.92	0.41	
21							1.10	0.96	1.04	0.88	0.40	
22							1.07	1.07	1.26	0.90	0.36	
23							1.07	1.11	1.05	0.78	0.38	
24							1.52	1.00	0.95	1.06	0.39	
25							1.27	0.78	0.71	1.11	0.17	
26							0.94	0.62	0.55	0.95	0.13	
27							0.74	1.50	0.67	0.82	0.16	
28							0.79	0.95	1.09	0.72	0.09	
29							1.24	1.36	1.52	0.67	0.13	
30							1.35	1.02	1.24	0.68	0.14	
31							1.47	0.83		0.62		0.57

Max WL observed							1.62	2.61	4.99	2.11	0.87	2.36
Day of Max WL							24	11	9	17	7	19

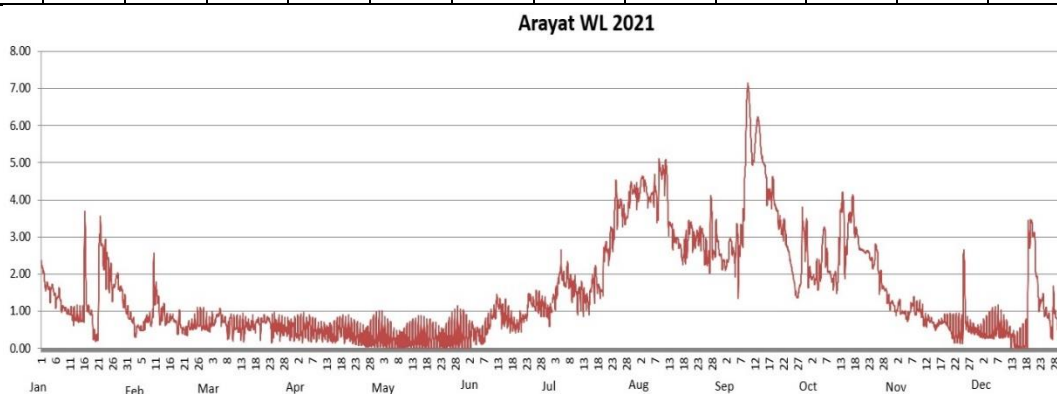
San Isidro WL 2021



Water Level in meters (Daily Average)

2021	Station: Arayat											
Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	2.12	0.84	0.56	0.45	0.37	0.35	1.02	4.10	2.24	1.98	0.99	0.42
2	1.69	0.74	0.74	0.44	0.37	0.30	1.33	4.42	2.41	1.91	1.22	0.44
3	1.66	0.40	0.68	0.49	0.33	0.50	1.45	4.50	2.87	1.85	0.96	0.45
4	1.53	0.58	0.87	0.59	0.30	0.29	1.97	4.26	2.58	1.90	0.95	0.47
5	1.51	0.54	0.91	0.57	0.30	0.36	1.99	4.13	2.72	1.99	0.89	0.49
6	1.30	0.56	0.75	0.61	0.23	0.27	1.73	4.15	2.38	3.07	1.03	0.54
7	1.41	0.77	0.71	0.46	0.20	0.30	2.04	4.28	3.04	2.67	1.21	0.64
8	1.08	0.78	0.45	0.46	0.19	0.53	1.73	3.85	4.40	2.07	1.01	0.52
9	1.06	0.91	0.76	0.43	0.20	0.66	1.56	4.79	6.83	1.88	1.08	0.48
10	0.96	1.67	0.50	0.51	0.21	0.87	1.54	4.73	6.09	1.93	0.97	0.46
11	0.96	1.34	0.61	0.46	0.24	0.94	1.47	4.75	5.04	1.86	0.72	0.41
12	0.83	0.79	0.55	0.43	0.25	1.24	1.51	3.45	5.80	3.23	0.73	0.25
13	0.85	1.04	0.61	0.45	0.27	1.05	1.34	3.17	6.07	3.84	0.75	0.23
14	0.83	0.73	0.61	0.31	0.29	0.86	1.27	3.02	5.27	2.40	0.70	0.12
15	0.83	0.75	0.61	0.33	0.30	0.89	1.44	2.92	4.93	3.37	0.56	0.15
16	2.13	0.83	0.61	0.51	0.31	0.76	1.75	2.74	4.31	3.69	0.66	0.19
17	1.06	0.73	0.61	0.52	0.31	0.71	1.97	2.47	4.17	3.41	0.70	0.24
18	0.95	0.53	0.67	0.51	0.29	0.59	1.62	2.63	4.32	3.11	0.75	1.97
19	0.53	0.72	0.68	0.44	0.31	0.59	1.52	3.11	3.81	2.68	0.71	3.27
20	0.27	0.49	0.67	0.48	0.30	0.74	2.42	3.22	3.45	2.64	0.62	3.00
21	1.93	0.42	0.76	0.43	0.30	0.81	2.67	2.94	3.26	2.59	0.50	1.92
22	2.87	0.60	0.78	0.38	0.27	0.84	2.80	3.04	3.27	2.59	0.43	1.22
23	2.49	0.60	0.65	0.34	0.24	1.28	2.95	2.95	2.79	2.40	0.42	1.34
24	2.29	0.64	0.53	0.31	0.21	1.26	4.11	3.10	2.46	2.29	0.40	0.96
25	1.97	0.71	0.58	0.29	0.24	1.19	3.77	2.57	2.05	2.67	1.64	0.86
26	1.54	0.73	0.60	0.25	0.29	1.26	3.81	2.35	1.60	1.86	0.71	0.51
27	1.82	0.67	0.54	0.24	0.32	1.18	3.55	3.30	1.45	1.75	0.55	0.98
28	1.77	0.63	0.56	0.28	0.36	1.14	3.54	2.54	2.02	1.58	0.51	0.84
29	1.59		0.51	0.31	0.41	1.10	4.07	3.02	3.24	1.38	0.47	0.49
30	1.25		0.51	0.36	0.39	0.91	4.28	2.61	3.00	1.18	0.46	0.52

31	0.99		0.58		0.38		4.24	2.32		1.17		0.68
Max WL observed	3.69	2.55	1.08	0.99	1.15	1.57	4.54	5.11	7.14	4.20	2.66	3.46
Day of Max WL	16	10	5	30	29	26	24	9	10	13	25	19



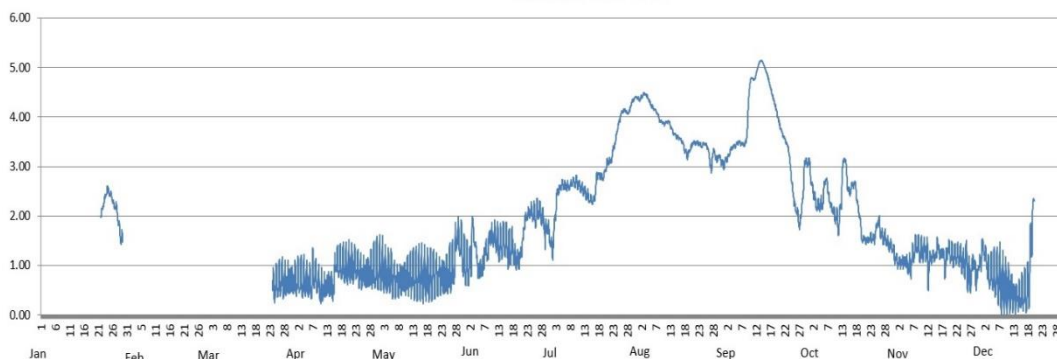
**Water Level in meters (Daily Average)**

2021	Station: Candaba											
Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1				0.64	0.92	0.96	1.37	4.36	3.15	2.81	1.06	1.34
2				0.69	0.90	1.00	1.82	4.41	3.24	2.48	1.06	1.20
3				0.65	0.85	1.72	2.43	4.47	3.38	2.22	1.06	0.90
4				0.69	0.82	1.34	2.58	4.41	3.42	2.21	1.07	0.83
5				0.67	0.82	1.12	2.60	4.35	3.45	2.23	1.04	0.81
6				0.65	0.72	0.92	2.60	4.19	3.48	2.65	1.10	0.77
7				0.78	0.70	1.21	2.60	4.12	3.44	2.59	1.32	0.71
8				0.74	0.70	1.25	2.64	3.99	3.53	2.25	1.38	0.59
9			0.89	0.67	0.72	1.53	2.68	3.90	4.34	2.11	1.27	0.55
10				0.49	0.71	1.58	2.67	3.87	4.76	1.99	1.26	0.50
11				0.53	0.73	1.53	2.59	3.90	4.77	1.88	1.32	0.47
12				0.55	0.73	1.40	2.53	3.85	4.96	2.49	0.93	0.39
13				0.60	0.75	1.41	2.46	3.70	5.12	3.12	1.14	0.33
14				0.51	0.75	1.47	2.39	3.63	5.09	2.73	1.18	0.33
15				0.93	0.77	1.43	2.32	3.59	4.95	2.50	1.39	0.37
16				0.97	0.76	1.26	2.34	3.53	4.76	2.64	1.24	0.42
17				0.99	0.77	1.44	2.76	3.38	4.53	2.54	1.25	0.49
18				0.95	0.75	1.14	2.81	3.25	4.31	2.13	1.04	1.06
19				0.95	0.77	1.11	2.78	3.33	4.09	1.67	1.34	1.99
20				0.99	0.80	1.26	2.92	3.46	3.84	1.54	1.22	2.30
21				0.97	0.82	1.68	3.09	3.47	3.66	1.51	1.18	
22	2.10			1.02	0.80	1.98	3.13	3.47	3.53	1.56	1.21	
23	2.32			0.91	0.76	2.06	3.37	3.43	3.35	1.54	1.16	
24	2.52		0.60	0.83	0.73	2.06	3.64	3.46	2.85	1.64	1.05	
25	2.44		0.62	0.85	0.77	1.99	3.92	3.42	2.36	1.87	1.10	
26	2.29		0.63	0.79	0.83	2.11	4.10	3.18	2.09	1.65	0.81	
27	2.18		0.74	0.79	0.95	2.02	4.14	3.13	1.88	1.55	0.75	
28	1.87		0.63	0.83	1.48	1.90	4.08	3.25	2.27	1.48	1.04	
29	1.54		0.68	0.87	1.51	1.70	4.22	3.18	3.05	1.40	0.75	

30			0.67	0.90	1.28	1.65	4.34	3.14	3.08	1.35	1.03	
31			0.65		1.01		4.40	3.05		1.18		

Max WL observed	2.61		1.18	1.59	1.98	2.35	4.42	4.50	5.14	3.17	1.62	2.36
Day of Max WL	24		28	30	29	26	31	3	14	1	8	20

Candaba WL 2021



Water Level in meters (Daily Average)

2021

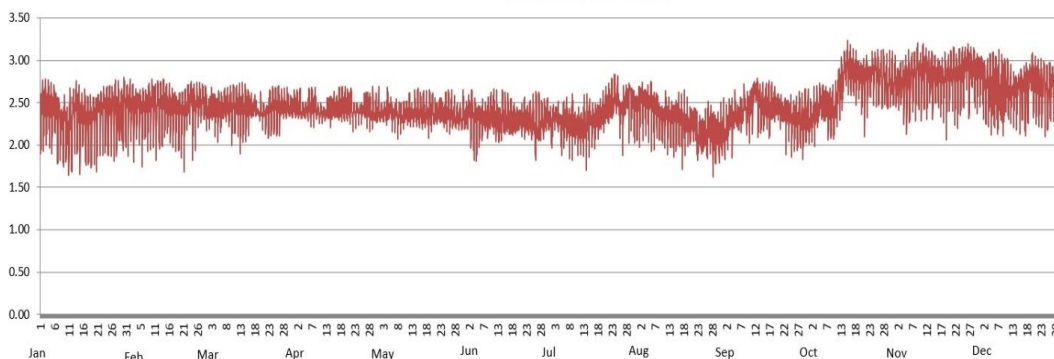
Station: Sasmuan

Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	2.46	2.45	2.41	2.45	2.38	2.32	2.22	2.47	2.12	2.28	2.73	2.83
2	2.42	2.43	2.46	2.45	2.38	2.42	2.32	2.53	2.27	2.30	2.75	2.74
3	2.47	2.37	2.46	2.43	2.39	2.33	2.37	2.46	2.30	2.40	2.77	2.69
4	2.41	2.41	2.42	2.41	2.44	2.25	2.30	2.47	2.31	2.41	2.78	2.68
5	2.40	2.42	2.41	2.41	2.44	2.26	2.26	2.45	2.32	2.46	2.77	2.67
6	2.36	2.38	2.41	2.45	2.35	2.27	2.31	2.46	2.35	2.47	2.77	2.66
7	2.28	2.42	2.46	2.45	2.39	2.30	2.22	2.39	2.32	2.48	2.79	2.66
8	2.20	2.44	2.46	2.48	2.33	2.32	2.23	2.35	2.49	2.43	2.83	2.61
9	2.26	2.46	2.47	2.40	2.33	2.31	2.24	2.32	2.40	2.43	2.77	2.59
10	2.10	2.45	2.41	2.38	2.34	2.35	2.21	2.27	2.42	2.40	2.84	2.72
11	2.28	2.40	2.46	2.37	2.38	2.37	2.17	2.36	2.58	2.60	2.81	2.66
12	2.32	2.42	2.46	2.38	2.40	2.30	2.18	2.26	2.65	2.73	2.81	2.62
13	2.42	2.45	2.42	2.43	2.35	2.28	2.24	2.26	2.47	2.84	2.80	2.63
14	2.34	2.43	2.41	2.40	2.39	2.36	2.26	2.29	2.42	2.95	2.74	2.63
15	2.34	2.43	2.42	2.43	2.38	2.34	2.32	2.31	2.45	2.93	2.74	2.70
16	2.35	2.39	2.42	2.43	2.36	2.33	2.27	2.26	2.47	2.87	2.76	2.70
17	2.25	2.38	2.42	2.47	2.38	2.32	2.30	2.21	2.41	2.84	2.74	2.64
18	2.26	2.37	2.42	2.46	2.38	2.30	2.34	2.24	2.43	2.85	2.77	2.71
19	2.28	2.35	2.38	2.45	2.37	2.33	2.37	2.23	2.45	2.80	2.71	2.83
20	2.32	2.38	2.39	2.44	2.41	2.29	2.41	2.28	2.45	2.77	2.83	2.75
21	2.30	2.35	2.39	2.45	2.39	2.31	2.44	2.28	2.40	2.81	2.85	2.70
22	2.39	2.48	2.38	2.40	2.37	2.27	2.48	2.11	2.38	2.77	2.78	2.69
23	2.45	2.52	2.44	2.41	2.41	2.27	2.53	2.14	2.35	2.81	2.77	2.71
24	2.40	2.41	2.43	2.40	2.35	2.26	2.58	2.13	2.33	2.86	2.79	2.68
25	2.41	2.44	2.45	2.39	2.37	2.27	2.54	2.13	2.29	2.89	2.83	2.64
26	2.40	2.47	2.46	2.48	2.37	2.25	2.38	2.18	2.27	2.82	2.96	2.72
27	2.43	2.49	2.46	2.44	2.39	2.27	2.41	2.20	2.28	2.80	2.86	2.68
28	2.40	2.49	2.47	2.39	2.32	2.29	2.59	2.07	2.26	2.79	2.93	2.60

29	2.39		2.45	2.38	2.33	2.32	2.60	2.13	2.30	2.73	2.80	2.58
30	2.42		2.43	2.41	2.32	2.33	2.48	2.14	2.30	2.77	2.81	2.64
31	2.43		2.44		2.37		2.39	2.18		2.75		2.61

Max WL observed	2.80	2.78	2.74	2.69	2.69	2.66	2.84	2.75	2.79	3.23	3.20	3.13
Day of Max WL	31	2	14	18	1	11	24	6	13	15	9	8

Sasmuan WL 2021



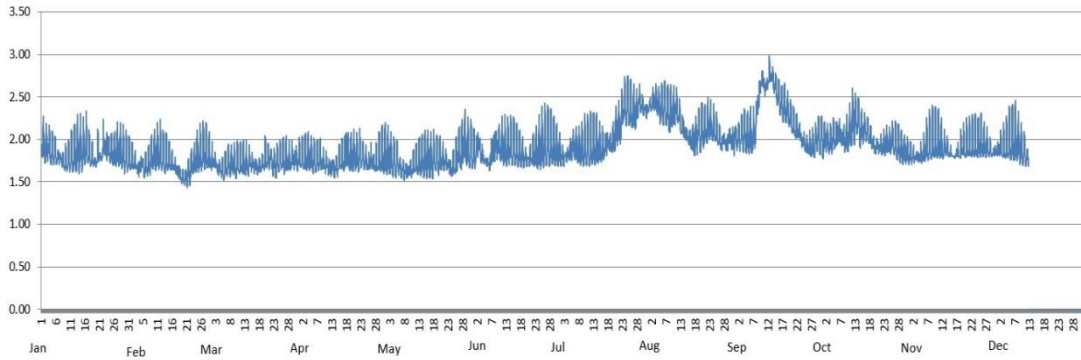
Water Level in meters (Daily Average)

2021	Station: Sulipan											
Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	1.98	1.74	1.74	1.78	1.81	1.85	1.84	2.38	2.01	1.96	1.80	1.85
2	1.90	1.72	1.72	1.77	1.81	1.93	1.79	2.41	2.03	2.00	1.80	1.90
3	1.93	1.67	1.66	1.78	1.78	1.86	1.80	2.45	2.04	1.97	1.80	1.89
4	1.85	1.66	1.65	1.80	1.76	1.79	1.83	2.43	2.03	1.99	1.82	1.91
5	1.84	1.67	1.63	1.79	1.75	1.76	1.87	2.39	2.02	2.00	1.83	1.94
6	1.79	1.67	1.67	1.76	1.67	1.71	1.89	2.37	2.02	2.06	1.91	1.98
7	1.78	1.71	1.73	1.75	1.64	1.81	1.88	2.35	2.08	2.07	1.95	1.98
8	1.74	1.77	1.72	1.77	1.62	1.90	1.86	2.27	2.37	2.03	1.96	1.95
9	1.73	1.82	1.73	1.72	1.63	1.91	1.87	2.32	2.61	2.02	1.97	1.91
10	1.76	1.84	1.71	1.70	1.64	1.90	1.91	2.37	2.69	2.06	1.96	1.84
11	1.80	1.85	1.72	1.67	1.69	1.90	1.90	2.35	2.62	2.16	1.94	1.78
12	1.82	1.80	1.73	1.66	1.70	1.90	1.92	2.21	2.72	2.21	1.88	1.75
13	1.86	1.77	1.71	1.65	1.73	1.92	1.91	2.13	2.74	2.22	1.89	
14	1.88	1.74	1.71	1.66	1.74	1.90	1.93	2.06	2.65	2.10	1.83	
15	1.87	1.71	1.71	1.74	1.76	1.90	1.90	2.01	2.53	2.10	1.83	
16	1.92	1.68	1.71	1.74	1.77	1.87	1.90	1.99	2.43	2.10	1.80	
17	1.85	1.64	1.66	1.81	1.76	1.84	1.95	1.97	2.38	2.05	1.84	
18	1.78	1.59	1.67	1.80	1.78	1.81	1.95	2.07	2.35	1.98	1.87	
19	1.73	1.55	1.71	1.79	1.78	1.78	1.95	2.06	2.28	1.91	1.92	
20	1.84	1.54	1.76	1.81	1.76	1.76	2.01	2.09	2.20	1.92	1.92	
21	1.80	1.61	1.76	1.81	1.76	1.79	2.11	2.11	2.15	1.92	1.93	
22	1.86	1.67	1.75	1.82	1.74	1.81	2.15	2.18	2.13	1.93	1.93	
23	1.89	1.73	1.71	1.78	1.69	1.83	2.34	2.15	2.06	1.96	1.94	
24	1.89	1.79	1.73	1.75	1.64	1.87	2.37	2.13	1.99	1.96	1.94	
25	1.85	1.82	1.75	1.71	1.68	1.91	2.38	2.06	1.92	2.00	1.97	
26	1.83	1.84	1.76	1.72	1.80	1.95	2.34	1.99	1.92	1.97	1.93	
27	1.87	1.83	1.76	1.69	1.81	1.95	2.30	1.99	1.91	1.94	1.90	

28	1.87	1.79	1.75	1.73	1.92	1.95	2.39	1.96	1.93	1.89	1.88
29	1.84		1.76	1.77	1.92	1.91	2.44	2.01	2.02	1.85	1.83
30	1.80		1.75	1.80	1.87	1.88	2.39	1.98	2.01	1.84	1.84
31	1.76		1.74		1.86		2.34	2.00		1.81	

Max WL observed	2.33	2.23	2.04	2.17	2.35	2.43	2.75	2.69	2.98	2.60	2.40	2.46
Day of Max WL	17	12	20	30	29	26	25	7	13	12	9	8

Sulipan WL 2021



Water Level in meters (Daily Average)

2021

Station:

Mexico

Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	0.00	0.00	0.00			0.00						
2	0.00	0.00	0.00									
3	0.00	0.00	0.01			0.00						
4	0.00	0.00	0.00			0.00						
5	0.00	0.00	0.00			0.00						
6	0.00	0.00	0.00			0.00						
7	0.00	0.00	0.00									
8	0.00	0.00	0.00						0.50			
9	0.00	0.00	0.00									
10	0.00	0.04	0.00									
11	0.00	0.01	0.00									
12	0.00	0.00	0.00									
13	0.00	0.11	0.00									
14	0.00	0.01	0.00									
15	0.00	0.00	0.00									
16	0.00	0.00	0.00					0.03				
17	0.00	0.00	0.00									
18	0.00	0.00	0.00									
19	0.00	0.00	0.00									
20	0.00	0.00	0.00									
21	0.02	0.00	0.00									
22	0.02	0.00	0.00				0.04					
23	0.15	0.00	0.00			0.00	0.01					
24	0.00	0.00	0.00				0.00					
25	0.00	0.01	0.00				0.00					
26	0.00	0.01	0.00				0.00					

27	0.00	0.00	0.00				0.00				
28	0.00	0.00	0.00				0.00				
29	0.00		0.00				0.00				
30	0.00		0.00				0.00				
31	0.00		0.00				0.00				

Max WL observed	0.50	0.53	0.14				0.26	0.03	0.50		
Day of Max WL	23	14	3				22	16	8		

Mexico WL 2021

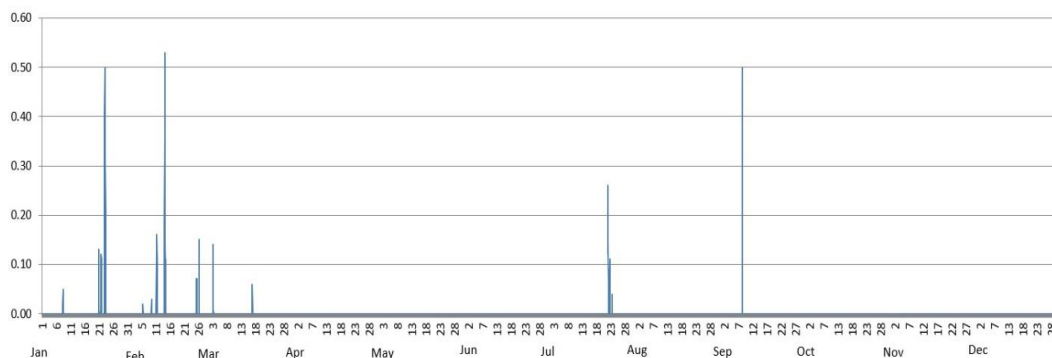


Table 3.0

Maximum WL recorded per station for the year 2021

Station	January	February	March	April	May	June	July	August	September	October	November	December
Sapang Buho	0.88						0.00	0.92	3.41	0.87	0.20	1.06
Zaragoza	2.32	0.97	0.69	0.53	0.01	1.44	3.62	3.75	4.19	4.00	0.49	0.17
Mayapyap												
Penaranda	0.90	0.25	0.00	0.00	0.00	0.00	0.01	1.78	1.03	0.68	0.18	1.77
San Isidro							1.62	2.61	4.99	2.11	0.87	2.36
Arayat	3.69	2.55	1.08	0.99	1.15	1.57	4.54	5.11	7.14	4.20	2.66	3.46
Candaba	2.61		1.18	1.59	1.98	2.35	4.42	4.50	5.14	3.17	1.62	2.36
Sasmuan	2.80	2.78	2.74	2.69	2.69	2.66	2.84	2.75	2.79	3.23	3.20	3.13
Sulipan	2.33	2.23	2.04	2.17	2.35	2.43	2.75	2.69	2.98	2.60	2.40	2.46
Mexico	0.50	0.53	0.14				0.26	0.03	0.50			



## C. ANNEX



**Table A-1.**

Maximum Rainfall for a given sliding time period during the year 2021		Rainfall Stations															
Sliding time period (minimum time period of 1 hour)	Munoz	Sapang Buho	Gabaldon	Mayapyap	Zaragoza	Peñaranda	Calaanan	Palali	San Isidro	Arayat	Candaba	Sibul Spring	Sasmuan	Sulipan	Mexico	Porac	San Rafael
1 hr	52	60	65	101	46	35	45	66	43	46	45	39	31	48	62	57	29
2 hrs	55	65	77	201	56	39	63	75	44	50	72	59	57	52	75	71	43
3 hrs	57	68	80	239	56	48	73	83	44	52	81	59	72	73	76	72	44
4 hrs	57	68	85	242	56	49	74	84	44	52	84	60	79	82	76	73	57
5 hrs	57	68	106	243	56	49	76	84	44	52	94	60	89	88	77	73	62
6 hrs	67	68	118	243	56	49	78	84	44	52	95	61	99	91	77	73	64
7 hrs	69	68	121	243	56	49	79	84	44	52	95	65	100	95	77	73	67
8 hrs	70	68	124	243	57	49	82	84	47	52	95	65	100	98	77	73	70
9 hrs	71	68	142	243	57	49	87	84	49	52	95	65	100	102	77	73	70
10 hrs	76	68	162	243	57	49	106	84	49	52	95	65	106	105	77	73	70
11 hrs	86	68	168	243	57	49	116	84	49	53	95	65	106	109	77	74	71
12 hrs	86	68	173	243	57	50	117	84	49	54	95	65	106	112	77	75	73
18 hrs	86	69	210	243	72	53	128	85	59	62	95	68	119	122	77	110	98
24 hrs	86	69	235	246	78	69	128	85	61	65	95	77	140	140	102	120	105
48 hrs (2 days)	90	95	241	262	96	86	130	107	91	101	146	97	181	163	115	179	142
72 hrs (3 days)	106	97	266	266	114	88	145	124	107	138	146	109	217	168	156	238	153
96 hrs (4 days)	136	116	266	267	129	96	195	124	115	148	146	133	258	178	175	262	211
120 hrs (5 days)	139	131	293	286	139	111	210	147	123	170	148	150	300	209	200	299	246
144 hrs (6 days)	167	140	315	300	164	123	225	150	127	178	158	154	362	304	222	333	248
240 hrs (10 days)	203	195	351	316	208	164	304	210	177	247	231	208	508	386	325	457	306
480 hrs (20 days)	322	280	419	486	301	253	386	334	254	307	371	339	712	498	477	620	401
Meteorological day (8 am to 8 am)	86	69	207	243	66	49	119	84	57	56	95	65	140	134	91	89	70
Max monthly total	383	299	418	552	337	295	394	349	302	316	374	414	615	464	438	596	410

The maximum monthly total values for some stations may present a smaller value than their respective 480 hours (20 days) of unrestricted sliding time total. This means that the 20-day total have transcended 2 adjacent months. Likewise, the 24-hour unrestricted sliding time period will normally be much higher than the maximum meteorological day (fixed 8am to 8am) total.

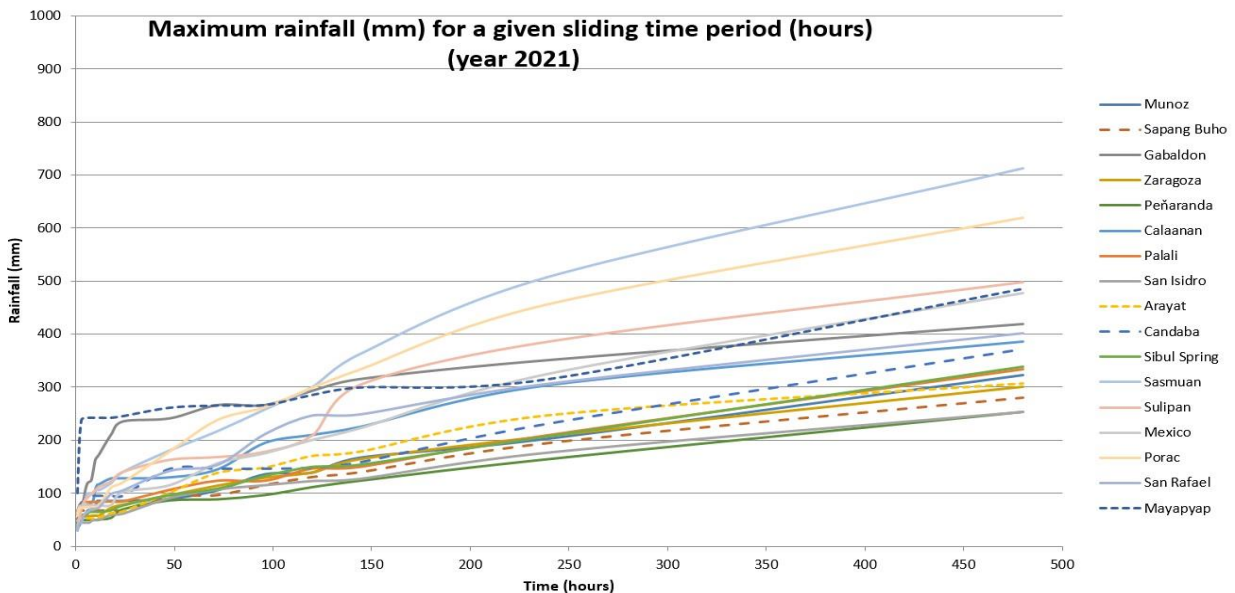


Figure AA-1 The sliding time period per station graph (2021).

Table A-2. PRBFFWC Existing Flood Warning Assessment Levels (SG in meters) as of 2021

Color code	YELLOW	ORANGE	RED
<b>STATION</b>	<b>ALERT</b>	<b>ALARM</b>	<b>CRITICAL</b>
<b>Sapang Buho</b>	<b>3.70</b>	<b>4.50</b>	<b>6.50</b>
<b>Mayapyap +</b>			
<b>Zaragoza</b>	<b>2.50</b>	<b>4.00</b>	<b>5.00</b>
<b>Peñaranda +</b>	<b>2.50</b>	<b>3.50</b>	<b>4.50</b>
<b>San Isidro</b>	<b>5.00</b>	<b>6.00</b>	<b>8.00</b>
<b>Arayat</b>	<b>5.00</b>	<b>6.00</b>	<b>8.50</b>
<b>Candaba</b>	<b>3.50</b>	<b>4.50</b>	<b>5.00</b>
<b>Mexico +</b>	<b>2.00</b>	<b>2.50</b>	<b>3.00</b>
<b>Sasmuan +</b>			<b>3.50 *</b>
<b>Sulipan</b>	<b>2.60</b>	<b>3.20</b>	<b>3.80</b>

+ for updating of assessment levels

(Red text) Sasmuan Critical WL assessment value is still for validation

(Blue text) Peñaranda & Mexico WL initial assessment levels (for updating)

**Table A-3.** Water Level Station notes

Water Level Station	Elevation of "0" of Staff Gauge (m) (as of Aug. 2009)	Rating Curve (RC) Equation as of April 2009	RC range of applicability
Sapang Buho	50.212	$Q = 4.015 (H - (-2.94))^2$	$0 < H \leq 3.4$
Zaragoza	10.213	$Q = 12.111 (H - 0.0)^2$	(for validation)
Peñaranda	22.498**	$Q = 2.30 (H - (-1.20))^2$	$0 < H \leq 4.0$
San Isidro	9.585	$Q = 15.2 (H - (-1.70))^2$	$0 < H \leq 8.0$
Arayat	0.077	$Q = 9.106 (H - (-0.39))^2$	$0 < H \leq 9.0$
Candaba	-0.157	$Q = 1.80 (H - (-1.30))^2$	$0 < H \leq 2.0$
Sasmuan	-1.147	$Q = 1.50 (H - (-2.0))^2$	$0 < H \leq 2.0$
Sulipan	-0.062	$Q = 9.50 (H - (-0.4))^2$	$0 < H \leq 3.0$
Mexico	5.933**	$Q = 11.0 (H - (-0.50))^2$	$0 < H \leq 3.0$

Notes: RC equations by JICA Consultants

\* - based on x-section of March 2000 (by PRFFWC)

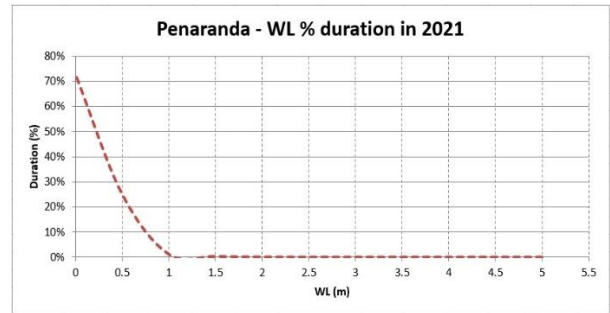
\*\* - based on temporary markers (TBM)

Above table are still the latest information for PRBFFWC streamgaging sites. Rating curve equations remains the latest available for now. The RCs should be updated on a regular basis.

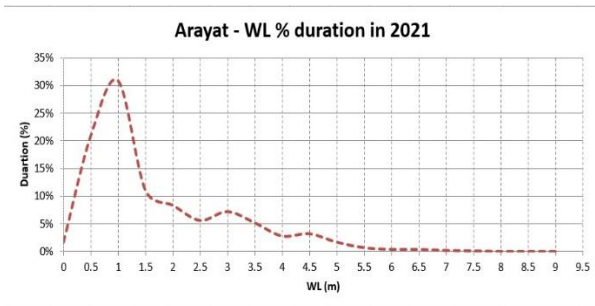
**Water Level Percent Duration Curves of some stations**



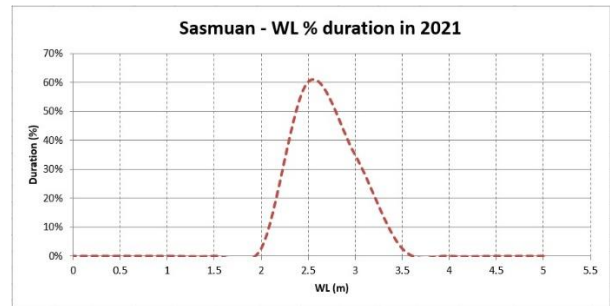
**Figure AA-2.** Zaragoza WL percent duration curve (2021)



**Figure AA-3.** Peñaranda WL percent duration curve (2021)

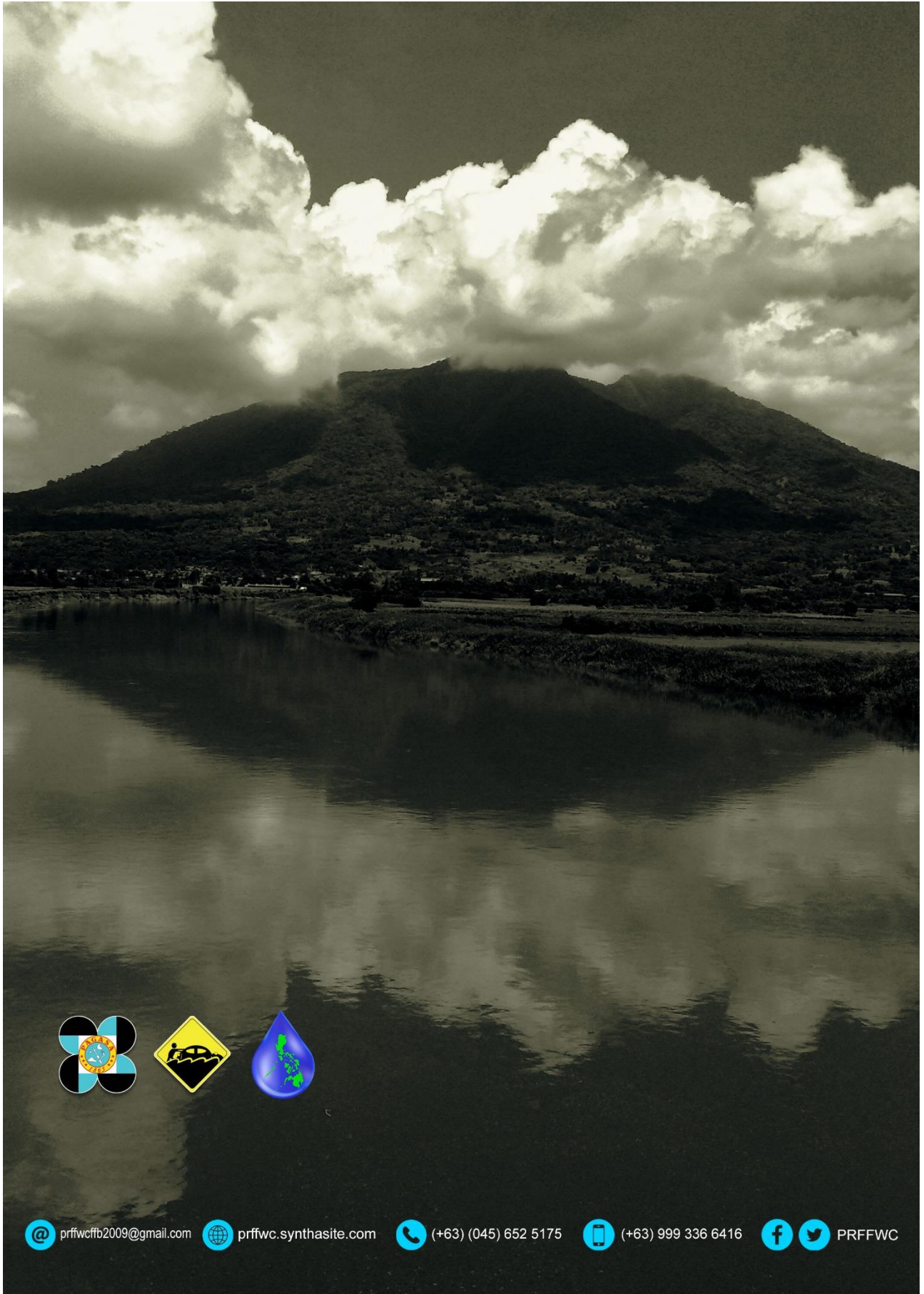


**Figure AA-4.** Arayat WL percent duration curve (2021)



**Figure AA-5.** Sasmuan WL percent duration curve (2021)

*Note: WL percent duration curves for the rest of the streamgaging stations for the year 2021 were not included due to considerable data breaks and gaps in their datasets.*



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