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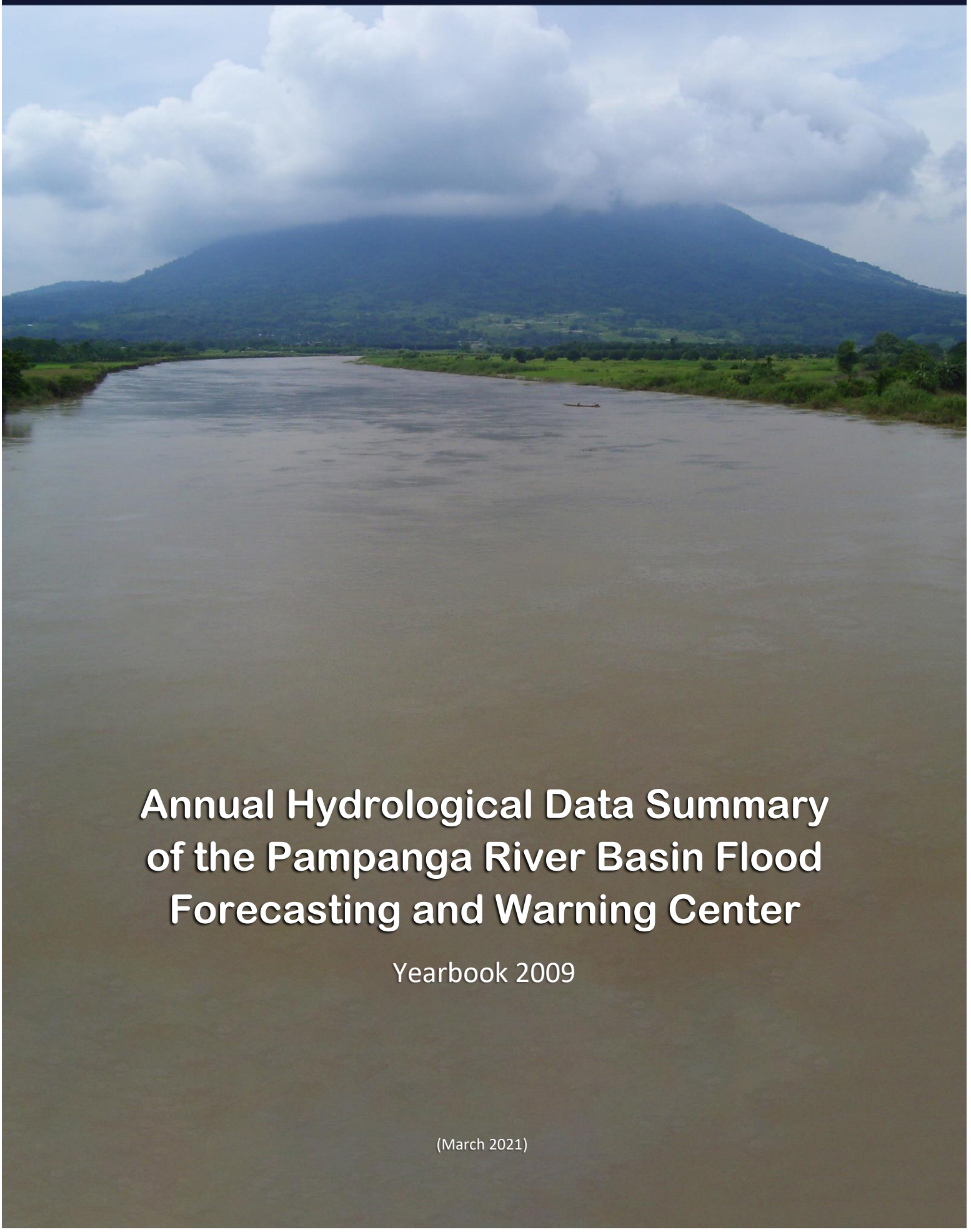

Annual Hydrological Data Summary of the Pampanga River Basin Flood Forecasting and Warning Center

Yearbook 2009

(March 2021)

Front Cover:

Upstream view of Pampanga River as seen from San Agustin Bridge in Arayat, Pampanga, Philippines. 17 September 2009

Photo by: H. Hernando Edited by: M. Joson

PRFFWC Hydrological Data

A summary account of the rainfall and water levels March to December 2009.

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
- HMTS – Hydro-Met Telemetry Section
- LB – Left Bank
- LST – local standard time
- 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 – Pampanga River Basin Flood Forecasting & Warning Center
- Q - discharge
- Racc – accumulated rainfall
- RB – Right Bank
- 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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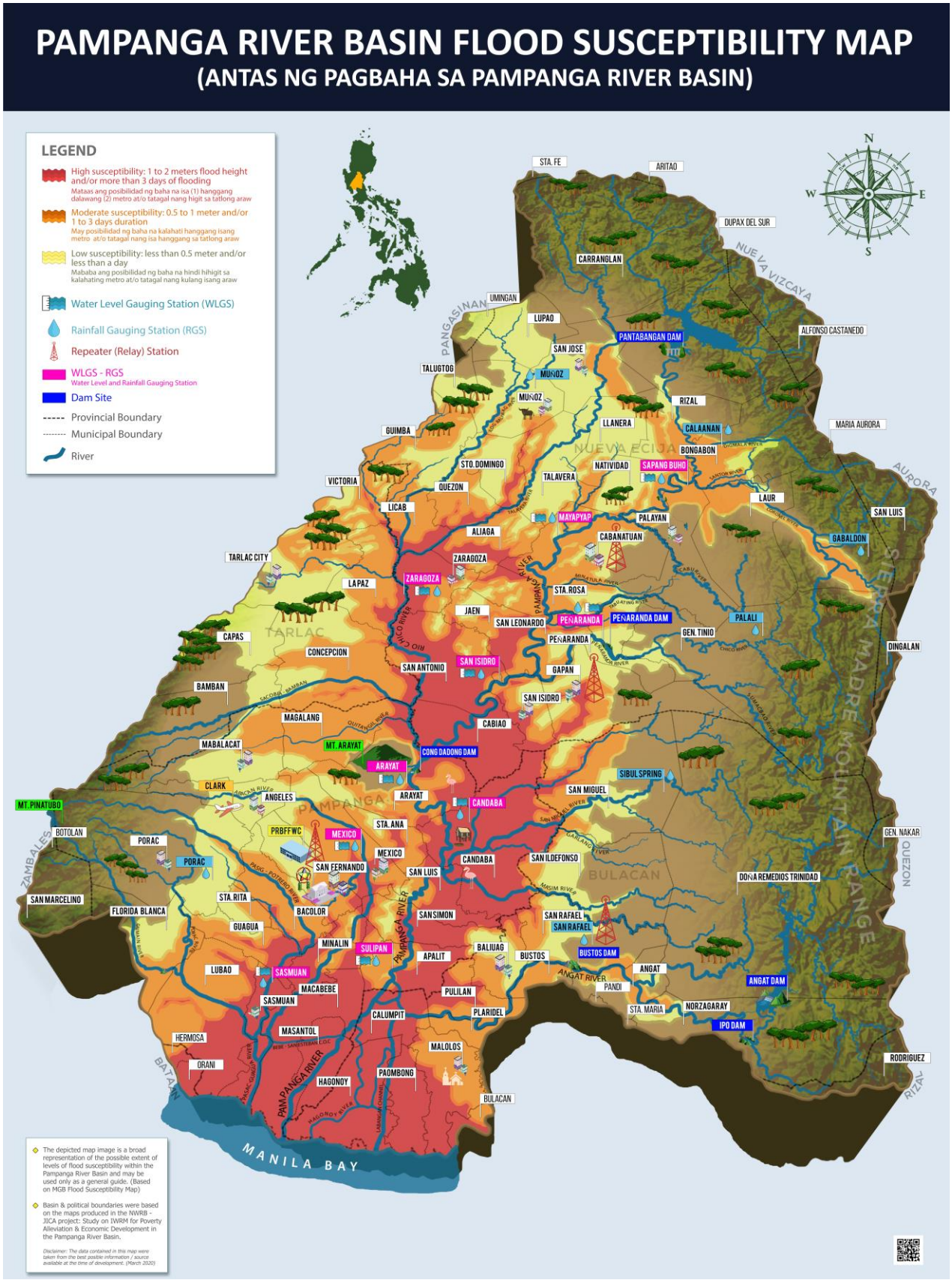
The PRFFWC Telemetry Tower within the PRFFWC compound located in DMGC, Bgy. Maimpis, CSFP.



A geopictorial map of the generalized area flood susceptibility in the Pampanga River Basin with location of the PRFFWC telemetry stations (as of Feb 2020).

Yearbook Notes

- In March 2009, the PRFFWC transferred its hydrological monitoring operations in the CSFP after having its system rehabilitated through the project "Improvement of Flood Forecasting & Warning Systems for Pampanga & Agno River Basins (Phase I)". For this simple reason, the development of annual hydrological data summary yearbooks for PRFFWC will start initially at year 2009. Yearbooks of prior years (1973 to 2008) will be looked into after completion of yearbooks 2009 to 2020.
- This yearbook presents a summary of the rainfall and water level data observed and recorded by the telemetry system of the PRFFWC from March to December of the year 2009. The months of January & February for the year were test & transfer period and hence no validated hydrological observations were available.
- The supervisory terminal of the PRFFWC system is the main data series considered for database buildup.
- The main source for complementing breaks / gaps in the supervisory terminal data series were taken from the telemetry stations' data loggers that is if data is available and said data is not erroneous. For most part of 2009, data loggers were not yet available in most of the stations.
- No attempts were made to fill-in gaps and breaks in the data series when there are no available data in the logger except only those with relatively short gap periods and somewhat validated.
- Obvious and suspected data errors were directly deleted from the data series. However, these were done after doing some data consistency check, reference to field survey reports, and / or field station instrument validation.
- For further information and clarification on the general buildup of the PRFFWC data series please send message to e-mail address: *prffwc@gmail.com*

Station Profile

Table of Rainfall and Water Level Stations of the PRFFWC

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
Gabaldon	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	@ RB-D/S of Gen. Luna Bridge, (Bgys. Mayapyap & Valdefuente) Cabanatuan City, Nueva Ecija	15°30'52"N, 120°57'20"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 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 (no hydrological data reporting)	Within the NIA-UPRIIS Compound, Cabanatuan City	15°28'33"N, 120°57'30"E
PRFFWC (CSFP)		Digital tipping-bucket / manually recorded	PRFFWC area compound besides DOST-3, DMGC, Bgy. Maimpis, CSFP	15°04'04"N, 120°39'22"E

The PRFFWC Hydrological Data

The supervisory terminal of the PRFFWC system is the main dataset series considered for database build-up. This is the immediate real-time data referenced by duty flood forecaster / hydrologist and hydro technicians of the PRFFWC. It is updated on an hourly basis. This is also the basis for formulating daily hydrological forecasts and more importantly the main reference during imminent flood events in the PRB as basis for issuing flood advisories and bulletins. Hence, this will be the primary dataset focused for build-up and completion.

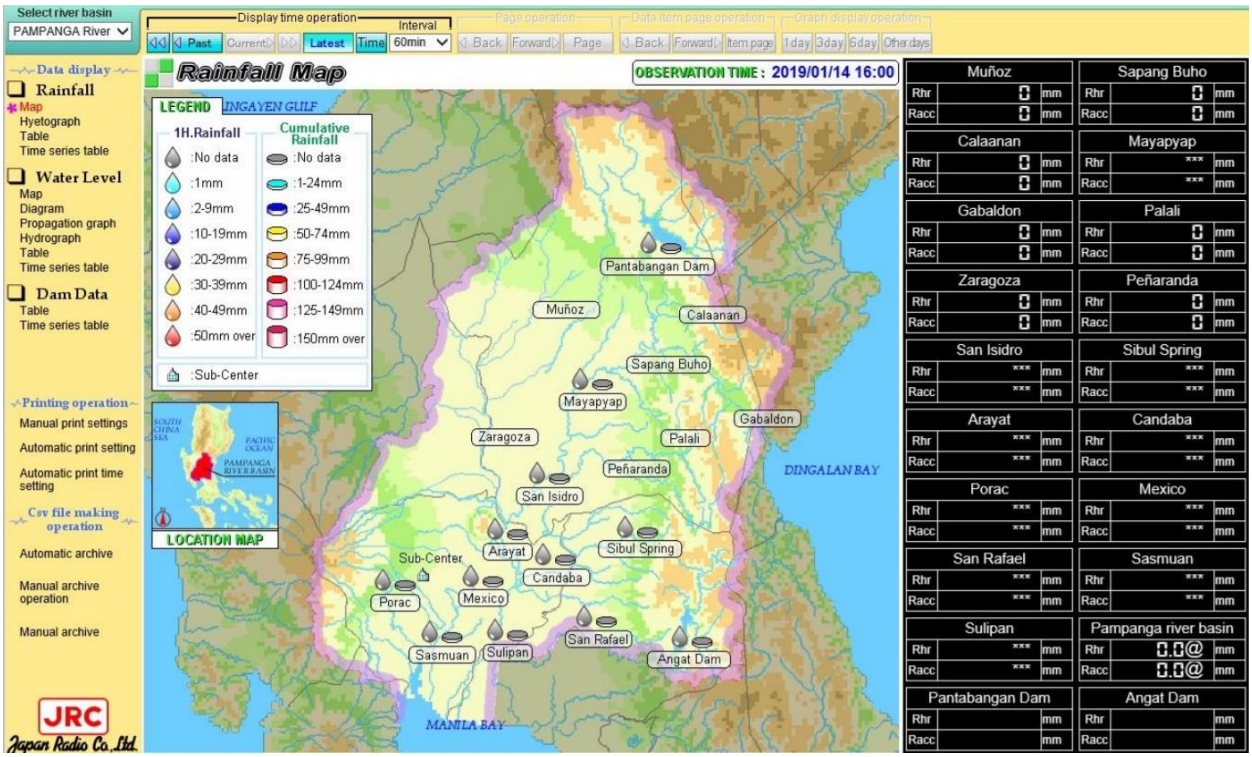


Figure 1a. Screenshot of the PRFFWC supervisory terminal data for the rainfall telemetry stations.

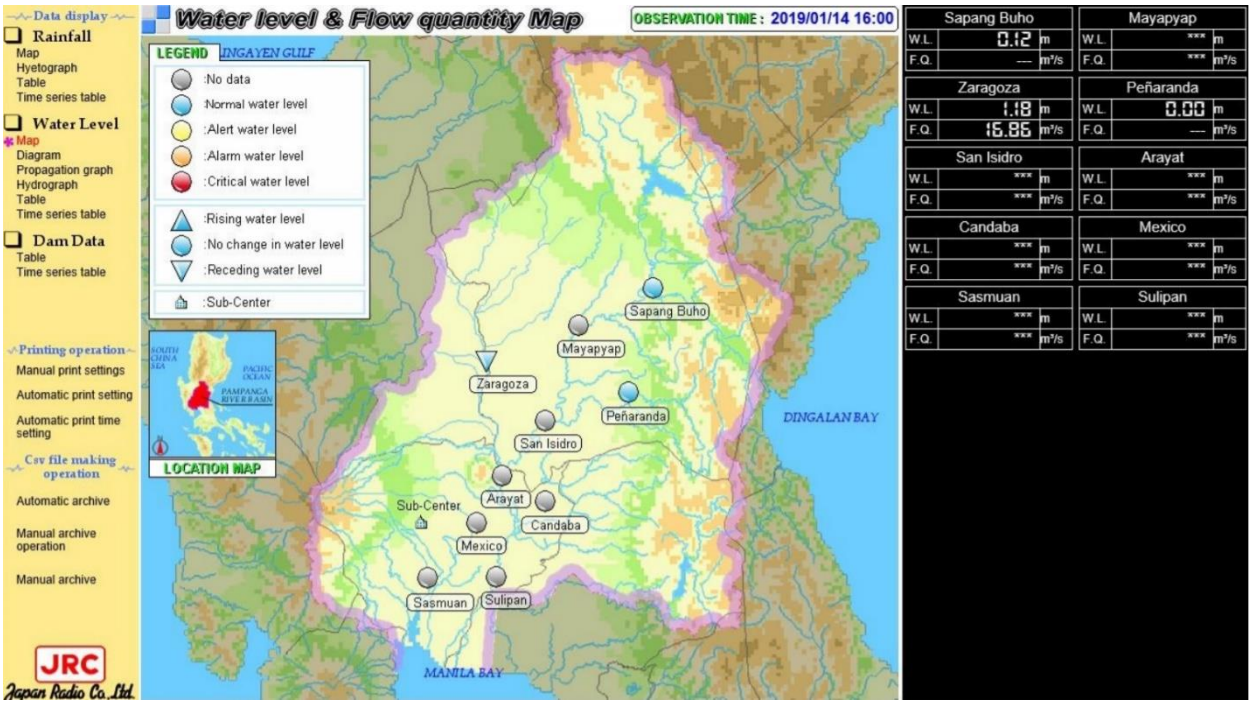


Figure 1b. Screenshot of the PRFFWC supervisory terminal data for the water level telemetry stations.

The Data Buildup Issue

It is difficult or nearly impossible to have a 100 percent complete dataset especially when covering quite a long period of time, for example a year of continuous hourly record of observations (8,760 data-hours per station per hydrological element monitored for a common year). This is practically true especially when dealing with an automatic remote monitoring systems such as a telemetry system. Data transmission downtimes, errors in reported values due to sensor malfunctions and delays in time of transmission add-up to the instability of the continuity in the data series.

The hydrological elements received at the PRFFWC are the rainfall and water level data from its telemetry stations within the PRB system. Continuity of the data series is affected by numerous breaks and gaps; data transmission problems such as interferences that at times results to gaps and / or produces erroneous values; instrument related errors from rain gauges and the water level sensors; and a lot of other small factors that normally add-up affecting the sanctity of the hydrological information received at the center.

Rain stations are equipped with tipping bucket rain gauges. Usual problems encountered may be the inability of the instrument to maintain its bucket tips during intense rain periods; other errors such as when rain ceases and a leftover rain in the bucket is less than the required amount to make a bucket tip; other issues such as accumulated debris in its receiving funnel, etc. For WL stations problems can be associated with siltation and sedimentation that normally clogs-up pipes or cause sensors to get stuck; the usual "out-of-range" errors especially at low flow regimes (normal for Mayapyap, San Isidro, Peñaranda and Mexico stations); and setting issues between telemetry and SG especially after replacement of WL sensors; etc.

Unfortunately, there are no solid means to regard a data whether it is an erroneous one or not. All received data are normally taken as correct unless intuitions or common sense dictates that the data may be erroneous. Familiarity with station reactions can be a basis for this (e.g. Candaba WL will not react to a gradual to rapid rise / fall in a short period when it is above the 3.0 meter WL as per area (swamp) characteristics), or values exceeding established station extremes that may be subjected to on-site sensors and station validation coupled with ocular surveys and possible interviews with locals at the site.

The PRFFWC telemetry stations have been equipped with data loggers starting only in 2009. For the summary yearbooks, the data loggers at telemetry stations were used as the primary data source for filling-in gaps and breaks in the supervisory terminal data series. The telemetry stations' data loggers are used to fill-in the rainfall data gaps in the supervisory terminal particularly in the hourly rainfall distribution when the latter has no report (or is at downtime) during such period. Adjustments is necessary inasmuch as recording time for both data series do not coincide exactly, a certain (?) +/- 5 minutes' lag or lead in data reporting difference due to data queuing that exist between the two datasets. Therefore, rainfall distribution in the data logger does not totally follow the rainfall distribution per unit time period in supervisory terminal especially during intense rain periods. Nonetheless, with hundreds of rainfall distribution already worked on and matched between the two datasets, the total rainfall episodes for both series have always been nearly a 100 percent the same or equal. Another immediate basis for filling-in short gaps, particularly for rainfall total data (from 1 to 6 hours only), is readily done using the supervisory terminal data summary file which is the Racc or the accumulated rainfall.

Knowledge of some hydrological aspects coupled with some data validation skills are necessary in many instances when building the data series particularly when dealing with doubtful observations, e.g., intense rainfall values occurring in short periods and abrupt water level increases, etc. Obvious errors such as a WL data "shoot-ups" or sudden increases of more than a meter in an hour may need to be thoroughly

investigated before being considered as valid or erroneous data. The dilemma, however, comes in when such instances happen during flood episodes. Immediate site validation sometimes takes several hours. Such situations require hydrologists' knowledge and familiarity of the station's river flow regime. Another issue is the discrepancy in the timing of data reporting between the supervisory terminal from the data logger's record. Short gaps or breaks in water level are usually filled-in with simple eye-fit method which generally works well in many occasions. Long breaks are left as it is until probably such time when relational curves and other techniques have been worked-out between stations in the basin for possible data fill-ins.

One method for validating WL data is by random on-site ocular surveys of staff gauges at stations and compare readings with telemetry data. This has been a very effective method of adjusting telemetry data. However, this should be carried-out more often as telemetry system gets older with more problems being experienced with the sensors. Above (pictures) are some WL validating activities carried-out during the year 2009.

WMO Guide to Hydrological Practices, Volume I (WMO-No. 168, 2008), states that *"the true values of hydrological elements cannot be determined by measurements because errors of measurements cannot be eliminated completely". "… applying statistics to hydrological data arises from the assumption that observations are independent random variables from a fixed statistical distribution. This condition is seldom met in hydrological measurements. River flow is, by nature, not purely random. It depends on previous values. It is generally accepted that some aspects of the departure of hydrological data from the theoretical concept of errors is not serious. However, it should be stressed that no statistical analysis can replace correct observations, in particular because spurious and systematic errors cannot be eliminated by such analysis. Only random errors can be characterized by statistical means."*

Other issues or errors to the data series can be “insensitivity error” or when the instrument cannot sense the given change in the measured element; “drift error” is due to the property of the instrument in which its measurement properties change with time under defined conditions of use, for example, mechanical clockworks drift with time or temperature; “instability error” results from the inability of an instrument to maintain certain specified meteorological properties constant; “out-of-range error” is due to the use of an instrument beyond its effective measuring range, lower than the minimum or higher than the maximum value of the quantity, for which the instrument / installation has been constructed, adjusted, or set (for ex., unexpected high water level); and a lot more …. (1.2-1.6 of WMO Guide to Hydrological Practices, Volume I (WMO-No. 168, 2008).

Data accuracy level should be given main focus and taken seriously in any data series. Put simply, data is used to provide insight. If data accuracy levels are low at the start of this process, the insight will be lacking and the decisions it influences are likely to be poor as a result. Again, “***no statistical analysis can replace actual observations”*** unless there are known inconsistencies in the means of measurements, in the measuring instrument / equipment itself, instrument errors and many other relatable issues. In such cases, a full check and analyses should be carried-out, or at times just an immediate but thorough site survey is necessary. ***Data validation is not an option*** but should be a regular normal procedure that should always be carried-out whenever given a set of information.

Scope and Limitations of this yearbook

1. This Data Yearbook presents the available hydrological data summary of the 18 rainfall stations and 10 water level stations of the PRFFWC for the year 2009 (March to December).
2. Year 2009 was the start of the new telemetry system for the PRFFWC being the year of its transfer to the CSFP.
3. The rainfall and water level dataset in this report covers the period starting from the month of March 2009 only, the month when the new system was inaugurated, and until 0800H, Jan 01, 2010.
4. Accordingly, it follows a 24-hour daily total (or average for WL) which starts at 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 observed value from the dataset but the average value is taken using the same reporting time period as in total rainfall for a met day.
5. The shortest time period considered in this summary report is 1 hour.
6. Units for some of the hydrological elements:
    a. Rainfall – millimeters (mm)
    b. Water Level (River Stage) – meters (m)
    c. Cross-sectional area – square meter (m^2)
    d. River Discharge – cubic meters per second or cumecs (m^3/sec)
    e. Rainfall day – rain days
7. The minimum rainfall amount for telemetry stations is 1 mm; and for the rainfall observations in PRFFWC 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 PRFFWC in CSFP station;
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 for each month and other regular information that were extracted from the available data series of each station.
10. For the daily rainfall presentation table, yellow shaded cell indicates rainfall values between 1 to 60 mm for telemetry stations (0.25 to 60.0 for PRFFWC-CSFP station); pink shade cells from 61 to 180 mm (60.25 to 180.0 for PRFFWC-CSFP station); light-red shade cells 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 tables (the daily rainfall and in the average daily water level tables) a green shaded cell indicates the maximum value in their respective rows.

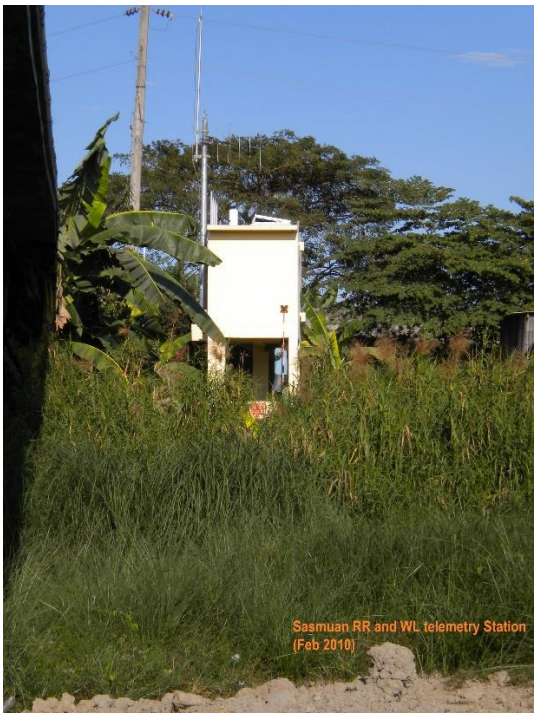
Disclaimer: The dataset summary presented herein have been processed and validated through several steps using the best possible means available to the PRFFWC at the time of processing. However, still it is possible that results may contain inadvertent errors such as typographical in nature, errors resulting from possible misuse of excel formulae, and other similar factors. The summary information in this yearbook report may be revised as new analyses emerge.

Users noting any errors that they may have encountered in this report are requested to inform the PRFFWC. Furthermore, users may use the information contained herein at their own risk.

Data Series Issues of 2009

1. March: Initial start of the newly rehabilitated system and was still under testing period; Sasmuan WL was adjusted by +1.0 m, while Sulipan WL was adjusted irregularly by a range of -0.5 to -0.6 m; Arayat, Sasmuan and Sulipan WL gaps were filled-in through eye-fit; the following start of supposed valid observations for various WL stations were as follows: Sapang Buho WL at 1900H, Mar 11, Candaba WL at 1800H, Mar 09, Sulipan WL at 0800H, Mar 18, Zaragoza WL at 0000H, Mar 20, Mayapyap WL at 0500H, Mar 26; The start of valid observations for RR: Muñoz to Palali RR stations at 0800H, Mar 02, Candaba RR at 1600H, Mar 07. Mexico RR has zero value for the whole month.
2. April: PRFFWC RR started only on this month; Sasmuan WL data was only from 0900H, Apr 01 to 0900H, Apr 02, while the rest of observations for the month were deleted (stuck at 2.28m); Zaragoza WL break from 2000H, Apr 06 to 1100H, Apr 16; Sapang Buho WL reading of 0.01m for a considerable reporting period of time in the dataset may seem to be erroneous and was partly deleted in several portions of the dataset.
3. May: Zaragoza WL reading of 0.09m for a considerable reporting period of time (0600H, 22 to 0400H, 27; and various portions within the month) were deleted from the dataset; again, Sapang Buho WL of 0.01m for a considerable reporting period of time were deleted from the dataset; Sasmuan WL was restored back on 1000H, May 26; Mayapyap WL had no data reported for the whole month.
4. June: Again, Sapang Buho WL of 0.01m reading were noted for the data series but were not deleted from the dataset; Mayapyap WL readings of 8.97m is an error data and were deleted from the dataset; Arayat WL of 1.13m was an error data and was deleted from the data series (starting 1000H, Jun 05 until end of the month).
5. July: Mayapyap WL of 0.04m (stuck and erroneous) deleted from 1600H, Jul 02 to 1600H, Jul 23; No fill-in of record was carried-out for Arayat WL from 1600H, Jul 12 to 0900H, Jul 23; San Isidro WL has data break from 1600H, Jul 12 to 0900H, Jul 23.
6. August: Generally, the dataset looks acceptable for the whole month. Note: TC Kiko affected the PRB on Aug 05-06
7. September: Largely, the dataset looks acceptable for the whole month. Note: TC Ondoy affected PRB on Sept 26; Mayapyap WL gauge is about 1 meter below telemetry reading – meaning at SG equal zero telemetry is at 1.0 meter (as per WL validation trip picture above)
8. October: No RR data for the following RR stations from 2400H, Oct 18 to 0800H, Oct 26: Munoz, Sapang Buho, Gabaldon, Zaragoza, Mayapyap, Peñaranda, Calaanan, and Palali; short data gaps were filled-in by eye for the following WL stations for the same period (2400H, Oct 18 to 0800H, Oct 26) – Sapang Buho, Zaragoza, Peñaranda, and Mayapyap.
9. November: WL breaks from 0400H, 27 to 1700H, 27 were eye-fitted for the following WL stations: San Isidro, Arayat, Candaba, Sasmuan, Sulipan, and Mexico; Likewise, for RR breaks for the same period and for the same stations including Porac, Sibul Spring, and San Rafael were all filled-in by zero as per Racc report in the supervisory.
10. December: Distinctive observations – WL for Mayapyap and San Isidro were all zero for the whole month; RR breaks from 2000H, Dec 14 to 0900H, Dec 15 for Gabaldon and Mayapyap were filled-in by zero (as per Racc report).

A. RAINFALL Data Summary Presentation



Daily Point Rainfall in millimeters (meteorological day)

2009 Station: **Muñoz**

Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1			0	0	0	1	14	17	0	0	0	0
2			0	0	0	16	29	11	0	16	0	0
3			0	0	11	37	2	0	19	56	0	0
4			0	0	1	1	2	5	0	0	7	0
5			0	0	11	29	31	56	58	0	0	0
6			0	0	16	3	14	44	3	9	0	0
7			0	0	61	0	16	5	14	65	0	0
8			0	0	1	0	0	0	24	190	0	0
9			0	0	0	11	31	0	6	0	0	0
10			0	0	24	0	9	0	2	0	0	3
11			0	0	0	4	10	0	13	0	0	0
12			0	0	46	20	0	5	25	0	0	0
13			0	0	0	0	5	3	12	24	0	0
14			1	0	0	15	20	0	0	30	0	0
15			0	41	0	64	0	0	0	4	0	0
16			0	0	0	41	24	0	40	0	0	0
17			0	6	0	18	31	8	0	15	0	0
18			0	3	0	21	35	2	10	0	0	0
19			0	6	0	0	1	0	14	3	0	0
20			0	5	0	28	15	64	12	0	0	0
21			0	15	0	1	7	93	2	0	0	0
22			0	45	0	0	23	20	6	0	0	0
23			0	0	0	4	0	0	11	0	0	0
24			0	0	0	6	22	17	16	0	0	0
25			31	15	0	5	6	5	34	0	0	0
26			0	4	0	0	5	85	9	0	0	0
27			1	23	0	0	2	0	2	0	0	0
28			5	0	5	0	1	0	14	0	0	0
29			0	0	1	16	4	1	0	0	0	0
30			0	0	26	10	3	0	67	12	0	0
31			0		2		24	32		3		0

Monthly Total			38	163	205	351	386	473	413	427	7	3
Average			1.23	5.43	6.61	11.70	12.45	15.26	13.77	13.77	0.23	0.10
Max daily rain			31	45	61	64	35	93	67	190	7	3
Day of Max Daily			25	22	7	15	18	21	30	8	4	10
No. of Rain days			4	10	12	21	27	18	23	12	1	1
Max 1-hr rain			19	41	32	38	28	79	38	23	2	3
Day of max 1-hr			25	15	12	15	2	26	31	13	4	10

Total rain for the year	**2466**
Total rain days for the year	**129**

Daily Point Rainfall in millimeters (meteorological day)

2009 Station: **Sapang_Buho**

Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1			0	1	0	8	0	19	3	0	0	0
2			0	1	0	22	2	14	6	30	9	0
3			0	0	0	11	0	13	61	63	1	0
4			0	0	37	3	0	20	2	0	21	0
5			0	0	12	32	10	16	25	0	0	0
6			0	0	11	1	6	103	13	7	0	0
7			0	0	53	0	18	16	18	53	0	0
8			0	0	1	1	1	1	42	129	0	0
9			0	0	0	0	12	0	5	0	0	0
10			0	0	0	4	26	0	0	0	0	2
11			0	0	0	15	4	0	17	0	0	0
12			0	0	0	16	16	5	21	0	0	0
13			0	0	0	0	1	5	1	0	0	0
14			0	11	0	15	8	0	0	34	0	0
15			0	3	1	6	0	0	0	6	0	0
16			0	0	0	0	19	0	53	4	0	0
17			0	6	0	9	37	25	13	2	0	0
18			0	3	0	33	18	0	4	0	0	0
19			0	7	0	42	1	0	5	15	0	0
20			0	7	1	0	5	0	49	31	0	0
21			0	14	0	2	0	81	0	0	0	0
22			0	43	2	0	30	11	0	0	0	0
23			0	0	0	10	9	0	7	0	0	0
24			0	12	0	3	0	0	31	0	0	0
25			37	33	0	3	20	6	55	0	0	0
26			0	30	0	0	1	1	12	0	0	0
27			0	80	1	0	1	0	18	0	0	0
28			0	0	0	0	49	0	10	0	0	0
29			0	0	1	0	0	22	0	0	0	0
30			0	0	3	0	0	0	13	21	0	0
31			0		2		18	0		6		0

Monthly Total			37	251	125	236	312	358	484	401	31	2
Average			1.19	8.37	4.03	7.87	10.06	11.55	16.13	12.94	1.03	0.06
Max daily rain			37	80	53	42	49	103	61	129	21	2
Day of Max Daily			25	27	7	19	28	6	3	8	4	10
No. of Rain days			1	14	12	19	23	16	24	13	3	1
Max 1-hr rain			14	56	21	18	23	28	43	17	8	2
Day of max 1-hr			26	27	4	19	26	22	16	20	2	10

Total rain for the year	**2237**
Total rain days for the year	**126**

Daily Point Rainfall in millimeters (meteorological day)

2009 Station: **Gabaldon**

Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1			0	2	0	1	2	37	5	0	0	0
2			7	3	0	23	0	1	3	84	12	0
3			6	0	0	33	1	3	41	89	17	0
4			0	1	0	16	13	29	0	1	34	0
5			0	0	0	27	9	23	29	0	0	0
6			0	0	15	2	3	82	26	8	2	0
7			0	0	76	0	0	8	28	99	2	0
8			0	1	5	8	0	1	63	91	0	0
9			0	0	15	7	24	0	21	0	1	0
10			0	0	0	0	13	0	1	0	0	0
11			0	0	0	1	39	0	27	0	0	0
12			0	0	0	13	6	9	20	0	0	0
13			0	0	0	0	13	2	6	0	1	0
14			2	14	4	30	10	0	0	48	1	0
15			1	11	2	23	5	0	0	6	0	0
16			0	11	0	8	39	0	4	1	0	0
17			4	4	0	17	34	11	0	2	0	0
18			0	12	0	52	9	1	0	0	0	0
19			0	3	18	8	9	0	1	51	7	0
20			0	4	20	1	3	20	1	3	0	0
21			0	2	31	0	0	3	0	0	2	0
22			0	14	25	0	2	3	4	2	0	2
23			0	3	0	13	3	0	10	9	0	1
24			0	11	0	53	0	7	9	0	0	0
25			26	8	0	2	16	0	85	0	0	0
26			1	66	0	0	1	24	94	0	0	0
27			4	25	46	0	0	54	19	0	1	0
28			0	0	1	0	1	5	3	0	0	0
29			0	0	1	0	7	2	0	0	0	0
30			0	0	0	0	6	0	10	100	0	0
31			0		9		25	0		65		0

Monthly Total			51	195	268	338	293	325	510	659	80	3
Average			1.65	6.50	8.65	11.27	9.45	10.48	17.00	21.26	2.67	0.10
Max daily rain			26	66	76	53	39	82	94	100	34	2
Day of Max Daily			25	26	7	24	11	6	26	30	4	22
No. of Rain days			8	18	14	20	25	20	23	16	11	2
Max 1-hr rain			7	30	34	14	22	39	24	35	8	1
Day of max 1-hr			26	26	27	3	11	27	4	19	4	23

Total rain for the year	**2722**
Total rain days for the year	**157**

Daily Point Rainfall in millimeters (meteorological day)

2009 Station: **Zaragoza**

Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1			0	3	0	0	5	9	0	1	0	0
2			0	0	0	22	0	1	0	36	0	0
3			0	0	7	22	3	6	8	63	2	0
4			0	0	1	28	11	6	3	0	16	0
5			0	0	8	24	5	28	10	0	0	0
6			0	0	27	4	3	45	36	1	0	0
7			0	0	82	0	23	2	53	37	0	0
8			0	0	0	1	0	1	47	76	0	0
9			0	0	17	2	33	0	30	1	0	0
10			0	0	0	0	42	2	5	0	0	0
11			0	0	0	0	1	1	8	0	0	0
12			0	0	0	49	11	7	20	0	0	0
13			0	0	0	5	12	2	6	14	0	0
14			0	0	5	15	0	0	0	12	0	0
15			1	0	0	37	1	0	0	5	0	0
16			0	0	0	0	28	0	1	0	0	0
17			0	8	0	12	53	5	11	0	37	0
18			0	6	0	40	33	16	45	5	0	0
19			0	0	0	3	13	0	1	1	0	0
20			0	21	3	1	7	8	26	0	0	0
21			0	21	1	3	2	0	0	0	0	0
22			0	9	0	18	3	17	0	0	0	0
23			0	1	0	6	4	0	2	0	0	0
24			0	0	0	10	1	4	5	0	0	0
25			0	10	0	5	19	32	34	0	0	0
26			0	20	1	0	52	39	23	0	0	0
27			3	68	2	0	12	7	3	0	0	0
28			0	3	8	0	0	1	9	0	0	0
29			0	0	0	5	5	8	0	0	0	0
30			0	0	21	37	0	12	0	10	0	0
31			0		21		7	12		2		0

Monthly Total			4	170	204	349	389	271	386	264	55	0
Average			0.13	5.67	6.58	11.63	12.55	8.74	12.87	8.52	1.83	0.00
Max daily rain			3	68	82	49	53	45	53	76	37	0
Day of Max Daily			27	27	7	12	17	6	7	8	17	
No. of Rain days			2	11	14	22	26	24	22	14	3	0
Max 1-hr rain			3	31	19	45	35	33	26	15	33	0
Day of max 1-hr			27	27	7	12	26	26	18	3	17	

Total rain for the year	**2092**
Total rain days for the year	**138**

Daily Point Rainfall in millimeters (meteorological day)

2009 Station: **Mayapyap**

Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1			0	1	0	18	52	18	0	16	0	0
2			0	0	0	26	0	10	0	19	3	0
3			0	0	0	19	1	10	7	78	0	0
4			0	0	0	5	0	12	0	0	18	0
5			0	0	9	33	5	31	41	1	0	0
6			0	0	21	3	1	94	3	1	0	0
7			0	0	71	0	5	8	23	56	0	0
8			0	0	0	1	15	1	45	103	0	0
9			0	0	0	0	8	0	14	1	0	0
10			0	0	35	0	54	0	0	0	0	2
11			0	0	0	2	0	0	8	0	0	0
12			0	0	0	24	4	7	15	0	0	1
13			0	0	0	2	0	3	0	0	0	0
14			0	0	0	17	12	0	1	20	0	0
15			0	0	7	6	0	0	0	8	0	0
16			0	0	0	0	23	17	26	1	0	0
17			0	0	0	5	40	47	8	4	0	0
18			0	0	0	35	23	2	20	0	0	0
19			0	0	0	14	1	12	41	0	0	0
20			0	25	2	3	10	6	109	4	0	0
21			0	8	0	0	13	0	0	0	0	0
22			0	32	1	0	8	6	0	0	0	0
23			0	1	0	14	18	0	2	0	0	0
24			0	0	0	3	0	10	4	0	0	0
25			19	45	0	3	7	1	35	0	0	0
26			0	11	8	0	0	6	7	0	0	0
27			0	38	1	0	45	0	1	0	0	0
28			0	0	0	0	15	5	5	0	0	0
29			15	0	0	0	0	3	0	0	0	0
30			0	0	1	4	6	0	2	14	0	0
31			0		5		27	0		5		0

Monthly Total			34	161	161	237	393	309	417	331	21	3
Average			1.10	5.37	5.19	7.90	12.68	9.97	13.90	10.68	0.70	0.10
Max daily rain			19	45	71	35	54	94	109	103	18	2
Day of Max Daily			25	25	7	18	10	6	20	8	4	10
No. of Rain days			2	8	11	20	23	21	21	15	2	2
Max 1-hr rain			14	20	29	20	47	45	53	24	3	3
Day of max 1-hr			29	20	10	12	1	17	20	3	2	10

Total rain for the year	**2067**
Total rain days for the year	**125**

Daily Point Rainfall in millimeters (meteorological day)

2009 Station: **Peñaranda**

Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1			0	5	1	11	21	11	2	33	0	0
2			0	1	0	34	3	5	0	26	12	0
3			0	0	2	21	0	1	0	58	2	0
4			0	0	0	11	0	43	1	0	18	0
5			0	0	3	14	2	23	2	0	0	0
6			0	0	15	2	0	40	21	0	0	0
7			0	0	66	0	58	10	52	52	0	0
8			0	0	0	7	15	1	56	66	0	0
9			0	0	1	0	49	0	49	0	0	0
10			0	0	2	2	11	0	1	0	0	4
11			0	0	0	0	10	0	28	0	0	0
12			0	0	0	59	32	9	21	0	0	0
13			0	0	0	0	2	1	12	0	0	0
14			1	0	0	15	15	0	0	34	0	0
15			0	3	1	61	0	0	0	16	0	0
16			0	0	0	1	31	0	20	0	0	0
17			0	24	0	17	60	13	2	0	0	0
18			0	2	0	25	16	0	45	3	0	0
19			0	7	0	29	6	48	0	28	0	0
20			0	7	17	1	9	0	11	28	0	0
21			0	33	2	0	7	0	2	0	0	0
22			0	52	1	0	5	0	0	0	0	5
23			0	6	0	26	15	0	67	0	0	0
24			0	1	0	3	21	37	1	0	0	0
25			9	5	0	7	12	0	57	0	0	0
26			0	15	1	0	0	3	20	0	0	0
27			3	63	0	0	7	1	1	0	0	0
28			0	2	4	0	0	0	5	0	0	0
29			0	0	1	0	1	0	0	0	0	0
30			0	0	12	0	25	1	0	14	0	0
31			0		5		91	0		2		0

Monthly Total			13	226	134	346	524	247	476	360	32	9
Average			0.42	7.53	4.32	11.53	16.90	7.97	15.87	11.61	1.07	0.29
Max daily rain			9	63	66	61	91	48	67	66	18	5
Day of Max Daily			25	27	7	15	31	19	23	8	4	22
No. of Rain days			3	15	16	19	25	16	22	12	3	2
Max 1-hr rain			9	40	16	39	44	34	52	23	10	4
Day of max 1-hr			25	22	7	12	7	20	23	1	2	10

Total rain for the year	**2367**
Total rain days for the year	**133**

Daily Point Rainfall in millimeters (meteorological day)

2009 Station: **Calaanan**

Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1			3	0	0	2	22	36	1	0	0	0
2			3	1	0	22	4	14	2	30	0	0
3			0	0	0	25	0	18	73	107	1	0
4			0	0	2	2	14	13	1	1	13	0
5			0	0	11	37	1	26	38	0	2	0
6			0	0	8	2	0	69	7	12	0	0
7			0	0	61	0	6	20	25	79	0	0
8			0	0	0	55	45	2	32	172	0	0
9			0	0	0	4	39	0	1	0	0	0
10			0	0	0	1	8	0	0	0	0	3
11			0	0	0	9	55	0	17	0	0	0
12			0	0	0	34	6	6	28	0	0	0
13			0	0	0	0	9	4	1	0	0	0
14			0	3	0	14	8	0	0	54	0	0
15			0	2	0	49	0	0	0	4	0	0
16			0	0	0	0	29	0	1	0	0	0
17			0	38	0	16	41	4	13	4	0	0
18			0	25	0	48	17	0	23	0	0	0
19			0	2	0	54	8	0	11	4	1	0
20			0	8	1	9	6	0	53	13	0	0
21			0	6	1	0	2	43	2	0	0	0
22			0	10	4	0	9	2	63	0	0	0
23			0	0	0	7	0	9	8	3	0	0
24			43	6	0	17	0	0	25	0	0	0
25			0	94	0	8	17	0	64	0	0	0
26			0	16	0	0	20	0	24	0	0	0
27			0	37	0	0	6	4	16	0	0	0
28			0	0	7	0	36	2	20	0	0	0
29			0	0	0	0	3	22	1	0	0	0
30			0	0	1	0	1	0	35	31	0	0
31			0		3		29	0		12		0

Monthly Total			49	248	99	415	441	294	585	526	17	3
Average			1.58	8.27	3.19	13.83	14.23	9.48	19.50	16.97	0.57	0.10
Max daily rain			43	94	61	55	55	69	73	172	13	3
Day of Max Daily			24	25	7	8	11	6	3	8	4	10
No. of Rain days			3	13	10	20	26	17	27	14	4	1
Max 1-hr rain			13	38	13	40	39	23	35	34	3	3
Day of max 1-hr			25	17	7	15	11	22	3	3	4	10

Total rain for the year	**2677**
Total rain days for the year	**135**

Daily Point Rainfall in millimeters (meteorological day)

2009 Station: **Palali**

Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1			0	7	0	0	1	30	15	13	0	0
2			2	6	0	23	3	3	0	46	5	0
3			3	0	5	20	0	3	35	77	4	0
4			0	0	0	19	1	66	0	0	19	0
5			0	0	7	15	16	30	3	0	0	0
6			0	0	14	2	4	36	46	0	0	0
7			0	0	75	0	1	9	35	78	1	0
8			0	0	1	4	5	0	59	68	0	0
9			0	0	0	0	20	0	20	0	0	0
10			0	0	2	0	6	0	0	0	0	6
11			0	0	0	1	3	0	42	0	0	0
12			0	0	0	1	12	11	22	0	0	0
13			0	0	0	0	2	1	2	0	0	0
14			0	0	0	12	23	0	0	36	0	0
15			0	11	0	60	0	0	1	33	0	0
16			0	0	0	2	44	0	2	4	0	0
17			0	1	0	14	48	16	14	0	0	0
18			0	24	0	85	11	0	38	0	0	0
19			0	7	13	18	1	33	21	24	1	0
20			0	21	37	0	7	1	45	22	0	0
21			0	10	9	0	4	1	2	0	0	0
22			0	39	5	0	0	2	0	0	0	2
23			0	4	1	21	38	2	2	1	0	0
24			0	15	0	6	4	0	10	0	0	0
25			26	29	0	13	7	0	78	0	0	0
26			0	4	0	0	3	12	16	0	0	0
27			0	75	0	0	0	1	14	0	0	0
28			0	2	1	0	4	5	4	0	0	0
29			0	0	1	0	0	1	0	0	0	0
30			0	0	0	0	11	0	5	34	0	0
31			0		4		90	32		5		0

Monthly Total			31	255	175	316	369	295	531	441	30	8
Average			1.00	8.50	5.65	10.53	11.90	9.52	17.70	14.23	1.00	0.26
Max daily rain			26	75	75	85	90	66	78	78	19	6
Day of Max Daily			25	27	7	18	31	4	25	7	4	10
No. of Rain days			3	15	14	17	26	20	24	13	5	2
Max 1-hr rain			11	43	22	27	42	31	39	24	5	6
Day of max 1-hr			25	27	21	15	31	20	20	15	4	10

Total rain for the year	**2451**
Total rain days for the year	**139**

Daily Point Rainfall in millimeters (meteorological day)

2009 Station: **San Isidro**

Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1			0	4	0	0	1	6	27	17	0	0
2			0	0	0	32	2	4	0	40	1	0
3			1	0	17	19	0	0	3	51	4	0
4			0	0	0	6	0	21	1	0	19	0
5			0	0	7	21	2	22	9	0	0	0
6			0	0	19	4	0	47	7	0	0	0
7			0	0	78	0	67	12	63	41	0	0
8			0	0	0	55	3	0	71	62	0	0
9			0	0	3	0	29	0	40	0	0	4
10			0	0	0	1	30	0	2	0	0	0
11			0	0	0	1	3	0	14	0	0	0
12			0	0	0	3	33	4	19	0	0	0
13			0	0	0	0	0	2	2	0	0	0
14			0	0	0	2	6	0	0	27	0	0
15			0	3	0	37	0	0	0	6	0	0
16			0	0	0	0	40	0	6	0	0	0
17			0	15	0	23	50	13	0	1	0	0
18			0	0	0	24	9	0	4	0	0	0
19			0	0	0	18	7	0	0	39	0	0
20			0	7	2	0	2	0	3	40	0	0
21			0	11	1	0	4	0	25	0	0	0
22			0	24	1	0	0	0	0	0	0	2
23			0	24	0	43	7	0	10	0	0	0
24			0	1	0	6	0	14	0	0	1	0
25			4	16	0	4	9	0	41	0	0	0
26			0	19	1	0	0	1	67	0	0	0
27			2	116	0	0	17	0	1	0	0	0
28			0	0	6	0	1	0	8	0	0	0
29			0	0	19	0	2	4	0	0	0	0
30			0	0	1	5	3	36	0	17	0	0
31			0		8		19	0		1		0

Monthly Total			7	240	163	304	346	186	423	342	25	6
Average			0.23	8.00	5.26	10.13	11.16	6.00	14.10	11.03	0.83	0.19
Max daily rain			4	116	78	55	67	47	71	62	19	4
Day of Max Daily			25	27	7	8	7	6	8	8	4	9
No. of Rain days			3	11	13	18	23	13	21	12	4	2
Max 1-hr rain			2	71	17	43	33	29	37	28	4	4
Day of max 1-hr			25	27	29	8	7	30	26	20	4	10

Total rain for the year	**2042**
Total rain days for the year	**120**

Daily Point Rainfall in millimeters (meteorological day)

2009 Station: **Arayat**

Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1			0	1	0	0	1	9	1	62	0	0
2			0	0	0	31	0	0	0	19	5	0
3			0	0	1	18	12	3	0	65	4	0
4			0	0	1	10	0	10	2	0	17	0
5			0	0	6	38	2	11	7	1	0	0
6			0	0	27	8	3	75	14	0	0	0
7			0	0	108	0	15	6	109	21	0	0
8			0	0	0	5	0	4	98	39	0	0
9			0	0	19	0	7	0	24	0	0	0
10			0	0	0	0	4	0	2	0	0	0
11			0	0	0	0	1	0	14	0	0	0
12			0	0	0	2	5	2	31	0	0	0
13			0	0	0	13	3	1	8	1	0	0
14			0	0	4	53	1	0	0	28	0	0
15			0	1	1	16	0	9	0	1	0	0
16			0	0	0	1	28	0	0	0	0	3
17			0	0	0	15	64	5	0	17	0	0
18			0	0	0	19	11	0	0	10	0	0
19			0	0	0	12	0	0	46	24	0	0
20			0	40	0	0	1	43	3	94	0	0
21			0	44	7	0	3	4	0	1	0	0
22			0	5	3	0	4	1	0	0	0	1
23			0	10	0	19	0	1	15	0	0	0
24			0	1	0	22	6	0	5	0	0	0
25			4	18	0	10	1	1	26	0	0	0
26			0	16	0	0	0	3	93	0	0	0
27			0	6	0	0	47	13	6	0	0	0
28			0	0	6	0	3	0	4	0	0	0
29			0	0	11	0	0	5	0	0	0	0
30			0	0	6	7	17	1	0	24	0	0
31			0		49		22	0		3		0

Monthly Total			4	142	249	299	261	207	508	410	26	4
Average			0.13	4.73	8.03	9.97	8.42	6.68	16.93	13.23	0.87	0.13
Max daily rain			4	44	108	53	64	75	109	94	17	3
Day of Max Daily			25	21	7	14	17	6	7	20	4	16
No. of Rain days			1	10	14	18	23	20	19	16	3	2
Max 1-hr rain			4	37	19	49	20	30	30	57	5	3
Day of max 1-hr			25	21	7	14	27	20	19	20	2	16

Total rain for the year	**2110**
Total rain days for the year	**126**

Daily Point Rainfall in millimeters (meteorological day)

2009 Station: **Candaba**

Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1				4	0	0	1	8	2	11	0	0
2				1	0	27	0	2	0	21	1	0
3				0	0	14	2	5	0	34	2	0
4				0	2	10	1	12	1	0	13	0
5				0	0	38	4	18	3	0	1	0
6				0	31	7	0	59	24	0	0	0
7			0	0	90	0	20	8	83	19	0	0
8			0	0	1	8	12	0	58	23	0	0
9			0	0	0	0	45	0	7	0	0	0
10			0	0	22	1	3	0	1	0	0	0
11			0	0	0	0	0	0	32	0	0	0
12			0	0	0	0	0	1	14	0	0	0
13			0	0	0	19	5	1	3	0	0	0
14			0	0	7	51	9	0	0	31	0	0
15			0	0	2	6	0	17	0	0	0	0
16			0	0	0	12	15	0	0	0	0	0
17			0	0	0	11	34	10	0	0	0	0
18			0	0	0	26	5	0	0	1	0	0
19			0	0	0	19	0	0	8	9	0	0
20			0	25	0	0	1	2	5	42	0	0
21			0	33	11	1	52	0	6	0	0	0
22			0	17	7	0	1	0	0	0	0	1
23			0	12	1	7	0	0	9	0	0	0
24			0	3	0	18	2	5	3	0	0	0
25			0	0	0	4	0	5	61	0	0	0
26			0	11	0	0	0	0	77	0	0	0
27			2	7	0	1	52	0	3	0	0	0
28			0	0	0	0	0	0	7	0	0	0
29			0	0	33	12	0	0	0	0	0	0
30			0	0	30	16	10	1	0	14	0	0
31			0		34		12	0		1		0

Monthly Total			2	113	271	308	286	154	407	206	17	1
Average			0.08	3.77	8.74	10.27	9.23	4.97	13.57	6.65	0.57	0.03
Max daily rain			2	33	90	51	52	59	83	42	13	1
Day of Max Daily			27	21	7	14	21	6	7	20	4	22
No. of Rain days			1	9	13	21	20	15	20	11	4	1
Max 1-hr rain			2	26	24	29	31	28	28	26	3	1
Day of max 1-hr			27	21	29	14	21	6	26	20	4	23

Total rain for the year	**1765**
Total rain days for the year	**115**

Daily Point Rainfall in millimeters (meteorological day)

2009 Station: **Sibul_Springs**

Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1			0	9	0	5	7	7	3	0	0	0
2			2	4	0	13	2	5	0	41	16	0
3			0	0	3	18	0	0	1	58	9	0
4			0	0	0	3	1	12	1	0	23	0
5			0	0	3	33	22	24	0	0	1	0
6			0	0	18	3	0	50	28	0	0	0
7			0	0	68	0	0	5	74	48	0	0
8			0	0	25	14	6	1	60	39	0	0
9			0	0	0	15	25	1	13	0	0	2
10			0	0	13	0	29	0	0	0	0	0
11			0	0	7	1	28	0	40	0	0	0
12			0	0	0	0	22	3	14	0	0	0
13			0	0	0	0	8	0	2	1	0	0
14			0	74	1	2	12	0	0	52	0	0
15			0	0	2	18	1	0	0	1	0	0
16			1	0	0	12	41	0	0	2	0	0
17			1	0	0	33	26	12	0	0	0	0
18			0	3	0	65	4	6	1	0	0	0
19			0	50	0	17	1	35	2	6	3	0
20			0	4	5	0	5	24	46	17	0	0
21			0	37	1	0	32	5	4	0	0	0
22			0	23	0	0	8	0	0	0	0	6
23			0	14	0	15	2	3	44	0	0	0
24			0	23	0	19	0	6	1	0	0	0
25			0	14	0	5	2	21	113	0	0	0
26			0	6	17	0	1	13	81	0	0	0
27			5	54	0	0	63	0	2	0	0	0
28			0	0	1	0	1	2	5	0	0	0
29			0	0	26	0	1	36	0	0	0	0
30			0	0	3	0	34	72	0	51	0	0
31			0		12		39	1		0		0

Monthly Total			9	315	205	291	423	344	535	316	52	8
Average			0.29	10.50	6.61	9.70	13.65	11.10	17.83	10.19	1.73	0.26
Max daily rain			5	74	68	65	63	72	113	58	23	6
Day of Max Daily			27	14	7	18	27	30	25	3	4	22
No. of Rain days			4	13	16	18	27	22	20	11	5	2
Max 1-hr rain			4	54	20	28	36	40	46	24	13	2
Day of max 1-hr			27	14	7	19	27	30	26	15	2	9

Total rain for the year	**2498**
Total rain days for the year	**138**

Daily Point Rainfall in millimeters (meteorological day)

2009 Station: **Sasmuan**

Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1			0	2	0	0	0	8	0	1	0	0
2			0	0	0	44	0	3	0	6	4	0
3			0	0	0	56	0	1	1	31	0	0
4			0	0	17	51	0	11	10	0	15	0
5			0	0	5	48	2	35	45	0	16	0
6			0	0	48	20	0	50	31	1	0	0
7			0	0	109	0	19	26	92	7	0	0
8			0	0	53	29	0	0	94	9	0	0
9			6	0	2	1	0	0	15	0	0	0
10			0	0	0	2	2	0	1	0	0	0
11			0	0	0	0	1	0	33	0	0	0
12			0	0	0	0	7	0	26	0	0	0
13			0	0	0	0	20	1	15	0	0	0
14			0	0	0	1	0	0	0	39	0	0
15			0	0	0	0	0	0	0	0	0	0
16			1	0	0	16	59	0	38	0	0	0
17			0	0	0	28	40	0	0	0	0	0
18			0	0	0	28	17	0	1	3	0	0
19			0	0	0	16	5	0	28	7	0	0
20			0	14	0	0	6	1	0	2	0	0
21			0	7	0	0	0	0	5	0	0	0
22			0	6	0	0	0	24	0	0	0	0
23			0	34	0	40	0	1	8	0	0	0
24			0	0	0	8	0	0	0	0	0	0
25			0	0	0	5	0	11	27	0	0	0
26			0	0	0	0	0	1	150	0	0	0
27			0	25	0	1	0	1	22	0	0	0
28			6	1	1	0	6	1	3	0	0	0
29			14	0	5	0	0	0	0	0	0	0
30			0	0	99	19	0	0	0	29	0	0
31			0		4		2	0		0		0

Monthly Total			27	89	343	413	186	175	645	135	35	0
Average			0.87	2.97	11.06	13.77	6.00	5.65	21.50	4.35	1.17	0.00
Max daily rain			14	34	109	56	59	50	150	39	16	0
Day of Max Daily			29	23	7	3	16	6	26	14	5	
No. of Rain days			4	7	10	18	13	15	20	11	3	0
Max 1-hr rain			13	22	31	23	13	22	43	9	7	0
Day of max 1-hr			29	23	7	24	7	22	26	3	5	

Total rain for the year	**2048**
Total rain days for the year	**101**

Daily Point Rainfall in millimeters (meteorological day)

2009 Station: **Sulipan**

Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1			0	8	0	0	2	4	0	1	0	0
2			3	0	0	40	6	7	0	17	8	0
3			0	0	1	32	0	3	0	31	1	0
4			0	0	10	26	0	23	5	0	16	0
5			0	0	2	42	0	23	21	0	28	0
6			0	0	34	20	0	34	37	1	0	0
7			0	0	99	0	10	14	95	7	0	0
8			0	0	9	3	2	0	82	7	0	0
9			0	0	2	0	1	1	31	0	0	0
10			0	0	16	2	5	0	0	0	0	0
11			0	0	0	4	1	0	33	0	0	0
12			0	0	0	0	9	1	14	0	0	0
13			0	0	8	0	19	0	7	0	0	0
14			0	0	0	36	2	0	0	52	0	0
15			0	0	2	0	3	4	0	0	0	0
16			5	0	0	19	33	5	14	0	0	1
17			1	0	0	26	29	1	0	0	0	0
18			0	0	0	28	8	20	10	0	0	0
19			0	13	11	9	0	0	1	3	0	0
20			0	34	0	1	4	13	2	13	0	0
21			0	25	21	0	0	0	2	0	0	0
22			0	6	16	0	0	1	0	0	0	0
23			0	37	0	16	0	0	9	0	0	0
24			0	24	7	11	0	0	0	0	0	0
25			14	0	0	11	0	3	33	0	0	0
26			0	0	67	0	0	2	115	0	0	0
27			0	12	0	0	6	0	9	0	0	0
28			0	23	0	0	1	0	9	0	0	0
29			0	0	13	0	0	0	0	0	0	0
30			0	0	65	6	0	11	0	25	0	0
31			0		18		7	5		0		0

Monthly Total			23	182	401	332	148	175	529	157	53	1
Average			0.74	6.07	12.94	11.07	4.77	5.65	17.63	5.06	1.77	0.03
Max daily rain			14	37	99	42	33	34	115	52	28	1
Day of Max Daily			25	23	7	5	16	6	26	14	5	16
No. of Rain days			4	9	18	18	18	19	19	10	4	1
Max 1-hr rain			8	25	44	34	8	19	36	13	13	1
Day of max 1-hr			25	23	26	14	12	18	26	15	5	16

Total rain for the year	**2001**
Total rain days for the year	**120**

Daily Point Rainfall in millimeters (meteorological day)

2009 Station: **Mexico**

Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1			0	2	0	0	0	20	0	1	0	0
2			0	0	0	28	0	2	0	25	2	0
3			0	0	2	25	0	2	1	31	2	0
4			0	0	37	3	0	12	2	0	21	0
5			0	0	6	40	5	13	9	0	2	0
6			0	0	37	16	0	90	34	0	0	0
7			0	0	102	0	60	17	103	11	0	0
8			0	0	8	6	8	3	86	21	0	0
9			0	0	17	0	17	0	13	0	0	0
10			0	0	0	1	14	0	6	0	0	0
11			0	0	0	1	0	0	12	0	0	0
12			0	0	0	1	1	1	14	0	0	0
13			0	8	0	0	11	1	14	0	0	0
14			0	0	9	28	1	0	0	43	0	0
15			0	0	3	0	0	2	0	0	0	0
16			0	0	0	4	29	0	0	0	0	4
17			0	0	0	23	44	1	0	0	0	0
18			0	0	0	14	9	0	9	3	0	0
19			0	0	8	15	0	0	12	5	0	0
20			0	10	4	0	8	4	8	39	0	0
21			0	23	10	0	0	0	7	0	0	0
22			0	17	3	0	0	0	0	0	0	0
23			0	18	0	7	17	0	17	0	0	0
24			0	2	5	13	4	0	3	0	0	0
25			0	0	0	9	0	0	34	0	0	0
26			0	0	8	0	0	4	126	0	0	0
27			0	5	0	0	15	8	14	0	0	0
28			0	1	5	0	4	0	4	0	0	0
29			0	0	57	0	0	0	0	0	0	0
30			0	0	27	17	17	0	0	17	0	0
31			0		48		10	0		0		0

Monthly Total			0	86	396	251	274	180	528	196	27	4
Average			0.00	2.87	12.77	8.37	8.84	5.81	17.60	6.32	0.90	0.13
Max daily rain			0	23	102	40	60	90	126	43	21	4
Day of Max Daily				21	7	5	7	6	26	14	4	16
No. of Rain days			0	9	19	18	18	15	21	10	4	1
Max 1-hr rain			0	13	29	25	39	21	25	30	4	4
Day of max 1-hr				21	31	14	7	6	26	20	4	16

Total rain for the year	**1942**
Total rain days for the year	**115**

Daily Point Rainfall in millimeters (meteorological day)

2009 Station: **Porac**

Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1			0	2	0	0	1	18	0	0	0	0
2			0	0	0	29	0	0	0	6	6	0
3			0	0	20	23	0	1	0	46	1	0
4			0	0	67	20	0	16	4	0	16	0
5			0	0	2	76	51	22	29	0	1	0
6			0	0	60	23	0	142	38	0	0	0
7			0	0	161	0	19	13	170	8	0	0
8			0	0	7	10	6	11	132	21	0	0
9			7	0	8	2	0	26	53	0	0	0
10			0	0	0	1	14	1	13	0	0	0
11			0	0	0	0	5	0	10	0	0	0
12			0	0	0	0	2	0	28	0	0	0
13			0	0	0	0	30	1	11	0	0	0
14			0	0	0	4	0	0	0	30	0	0
15			0	0	4	5	1	1	0	0	0	0
16			0	0	0	17	41	0	25	0	0	4
17			0	0	0	39	91	0	0	0	0	0
18			0	6	0	135	30	0	3	10	0	0
19			0	0	6	24	13	0	33	4	0	0
20			0	4	30	0	8	47	8	4	0	0
21			0	10	0	0	0	3	1	4	0	0
22			0	3	5	0	0	6	1	0	0	0
23			0	8	0	49	0	24	66	0	0	0
24			0	0	0	23	0	9	1	0	0	0
25			0	3	1	10	1	0	26	0	0	0
26			0	1	0	0	0	0	172	0	0	0
27			0	12	3	1	0	0	38	0	0	0
28			0	1	9	0	4	7	21	0	0	0
29			29	0	17	16	2	0	0	0	0	0
30			0	0	13	0	6	0	1	13	0	0
31			0		1		3	0		3		0

Monthly Total			36	50	414	507	328	348	884	149	24	4
Average			1.16	1.67	13.35	16.90	10.58	11.23	29.47	4.81	0.80	0.13
Max daily rain			29	12	161	135	91	142	172	46	16	4
Day of Max Daily			29	27	7	18	17	6	26	3	4	16
No. of Rain days			2	10	17	19	19	17	23	11	4	1
Max 1-hr rain			29	6	45	43	25	54	51	14	6	4
Day of max 1-hr			29	27	4	24	5	6	23	3	2	16

Total rain for the year	**2744**
Total rain days for the year	**123**

Daily Point Rainfall in millimeters (meteorological day)

2009 Station: **San_Rafael**

Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1			0	11	0	0	0	3	0	0	0	0
2			0	0	0	19	0	11	0	28	5	0
3			0	0	0	26	0	1	0	28	5	0
4			0	0	1	16	0	29	3	0	23	0
5			0	0	1	30	3	47	20	0	36	0
6			0	0	28	12	0	36	25	0	0	0
7			0	0	101	0	0	10	101	13	0	0
8			0	0	28	58	0	0	66	11	0	0
9			0	0	1	4	0	0	35	0	0	0
10			0	0	8	0	33	0	0	0	0	0
11			0	0	1	12	3	0	28	0	0	0
12			0	0	0	0	1	1	21	0	0	0
13			0	0	0	0	16	0	3	0	0	0
14			0	18	0	10	12	0	0	62	0	0
15			0	0	1	8	1	7	0	0	0	0
16			3	0	0	37	29	7	7	0	0	0
17			3	2	0	20	36	2	3	0	0	0
18			0	0	0	25	15	0	1	1	0	0
19			0	29	2	16	0	0	0	3	0	0
20			0	8	0	3	7	0	0	24	0	0
21			0	33	0	1	4	24	13	0	3	0
22			0	14	3	0	0	4	1	0	0	0
23			0	15	0	45	0	0	75	0	0	0
24			0	5	0	14	0	9	0	0	0	0
25			0	39	0	7	0	2	87	0	0	0
26			0	2	0	0	23	18	129	0	0	0
27			0	7	0	0	17	0	6	0	0	0
28			0	0	3	0	2	0	7	0	0	0
29			0	0	4	12	3	16	0	0	0	0
30			0	0	20	42	20	4	0	40	0	0
31			0		46		21	1		1		0

Monthly Total			6	183	248	417	246	232	631	211	72	0
Average			0.19	6.10	8.00	13.90	7.94	7.48	21.03	6.81	2.40	0.00
Max daily rain			3	39	101	58	36	47	129	62	36	0
Day of Max Daily			16	25	7	8	17	5	26	14	5	
No. of Rain days			2	12	15	21	18	19	19	10	5	0
Max 1-hr rain			3	30	36	39	23	21	42	18	16	0
Day of max 1-hr			17	25	7	30	26	22	23	15	5	

Total rain for the year	**2246**
Total rain days for the year	**121**

Daily Point Rainfall in millimeters (meteorological day)

2009 Station: **PRFFWC_(CSFP)**

Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1				3.3	0.0	0.0	0.0	35.3	0.0	4.6	0.0	0.0
2				0.0	0.0	37.8	0.0	0.8	0.0	8.1	3.3	0.0
3				0.0	12.4	27.2	0.0	0.0	0.0	45.0	3.6	0.0
4				0.0	25.9	8.9	0.0	21.3	4.1	1.3	18.0	0.0
5				0.0	11.9	48.5	13.7	17.3	22.6	0.0	2.8	0.0
6				0.0	49.3	17.3	0.0	113.5	35.1	0.0	0.0	0.0
7				0.0	167.4	0.0	45.0	27.4	127.8	10.9	0.0	0.0
8				0.0	20.6	19.6	1.0	7.6	98.3	23.1	0.0	0.0
9				0.0	1.3	0.5	1.3	12.2	51.6	0.0	0.0	0.0
10				0.0	0.0	0.5	2.3	0.0	4.6	0.0	0.0	0.0
11				0.0	0.0	2.3	0.0	0.0	23.1	0.0	0.0	0.0
12				0.0	0.0	0.0	11.7	1.3	18.3	0.0	0.0	0.0
13				11.7	0.0	0.0	15.0	0.5	7.9	0.0	0.0	0.0
14				0.0	2.0	19.3	0.3	0.0	0.0	36.1	0.0	0.0
15				0.0	3.6	0.0	1.0	0.0	0.0	0.3	0.0	0.0
16				0.0	0.0	3.6	27.7	0.0	9.1	0.0	0.0	0.0
17				0.0	0.0	28.4	57.9	1.3	0.0	0.0	0.0	0.0
18				0.0	0.3	24.4	6.6	0.0	19.8	3.0	0.0	0.0
19				0.0	4.3	12.7	1.5	0.0	10.2	3.3	0.0	0.0
20				50.5	0.3	2.3	4.3	27.2	3.3	13.2	0.0	0.0
21				9.1	3.8	0.0	0.0	0.0	3.6	0.3	0.0	0.0
22				6.1	2.3	0.0	0.0	8.4	0.0	0.0	0.0	1.5
23				21.6	0.0	10.9	3.6	3.3	19.8	0.0	0.0	0.0
24				0.0	14.0	10.2	1.3	0.0	3.0	0.0	0.0	0.0
25				0.0	0.0	7.6	0.0	0.0	31.5	0.0	0.0	0.0
26				9.4	0.3	0.0	2.3	0.8	146.8	0.0	0.0	0.0
27				2.3	0.3	0.0	8.6	0.0	15.0	0.0	0.0	0.0
28				0.8	70.9	0.0	6.6	16.8	0.8	0.0	0.0	0.0
29				0.0	1.3	0.0	0.8	0.0	0.0	0.0	0.0	0.0
30				0.0	48.3	2.3	1.0	0.0	0.0	24.1	0.0	0.0
31					3.6		4.8	0.0		0.5		0.0

Monthly Total				114.8	443.7	284.2	218.2	294.9	656.1	173.7	27.7	1.5
Average				3.83	14.31	9.47	7.04	9.51	21.87	5.60	0.92	0.05
Max daily rain				50.5	167.4	48.5	57.9	113.5	146.8	45.0	18.0	1.5
Day of Max Daily				20	7	5	17	6	26	3	4	22
No. of Rain days				9	21	19	22	16	21	14	4	1
Max 1-hr rain												
Day of max 1-hr												

Total rain for the year	**2214.9**
Total rain days for the year	**127**

Table 1.0

Monthly Rainfall Summary for 2009															
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			38	163	205	351	386	473	413	427	7	3	2466	129	190
Sapang Buho			37	251	125	236	312	358	484	401	31	2	2237	126	129
Gabaldon			51	195	268	338	293	325	510	659	80	3	2722	157	100
Zaragoza			4	170	204	349	389	271	386	264	55	0	2092	138	82
Mayapyap			34	161	161	237	393	309	417	331	21	3	2067	125	109
Peñaranda			13	226	134	346	524	247	476	360	32	9	2367	133	91
Calaanan			49	248	99	415	441	294	585	526	17	3	2677	135	172
Palali			31	255	175	316	369	295	531	441	30	8	2451	139	90
San Isidro			7	240	163	304	346	186	423	342	25	6	2042	120	116
Arayat			4	142	249	299	261	207	508	410	26	4	2110	126	109
Candaba			2	113	271	308	286	154	407	206	17	1	1765	115	90
Sibul Spring			9	315	205	291	423	344	535	316	52	8	2498	138	113
Sasmuan			27	89	343	413	186	175	645	135	35	0	2048	101	150
Sulipan			23	182	401	332	148	175	529	157	53	1	2001	120	115
Mexico			0	86	396	251	274	180	528	196	27	4	1942	115	126
Porac			36	50	414	507	328	348	884	149	24	4	2744	123	172
San Rafael			6	183	248	417	246	232	631	211	72	0	2246	121	129
PRFFWC				114.8	443.7	284.2	218.2	294.9	656.1	173.7	27.7	1.5	2214.9	127	167.4

Month of March (2009) was the start of PRFFWC operations and some stations did not start observations on the first hour of the first day for the said month.

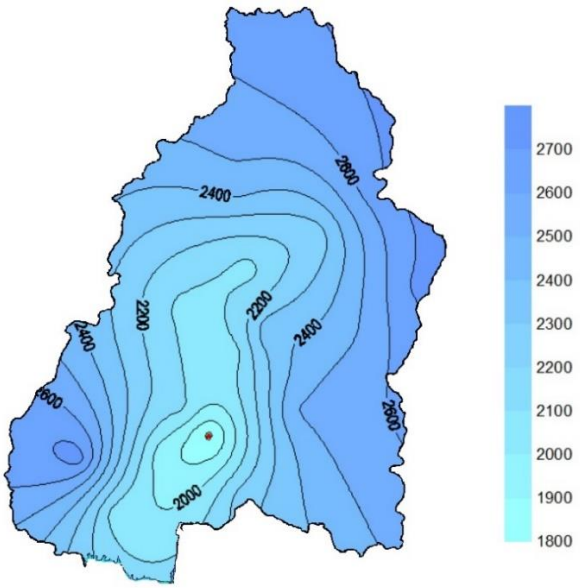


Figure 1a. The Isohyet rainfall distribution for the period March to December 2009 in the PRB

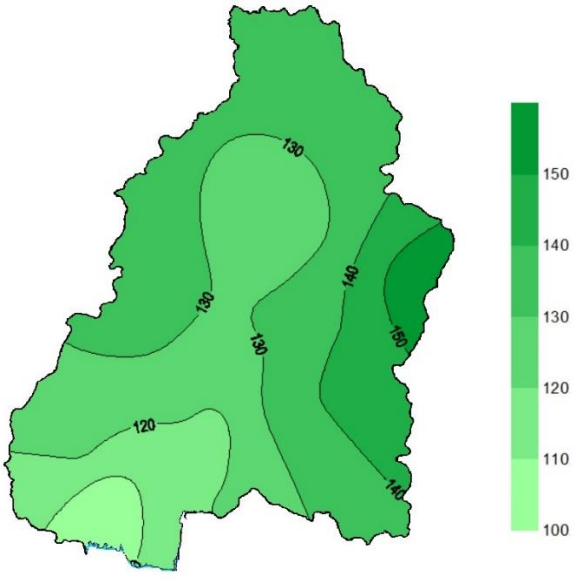


Figure 1b. Estimated rainfall days distribution (Mar to Dec 2009) in the PRB

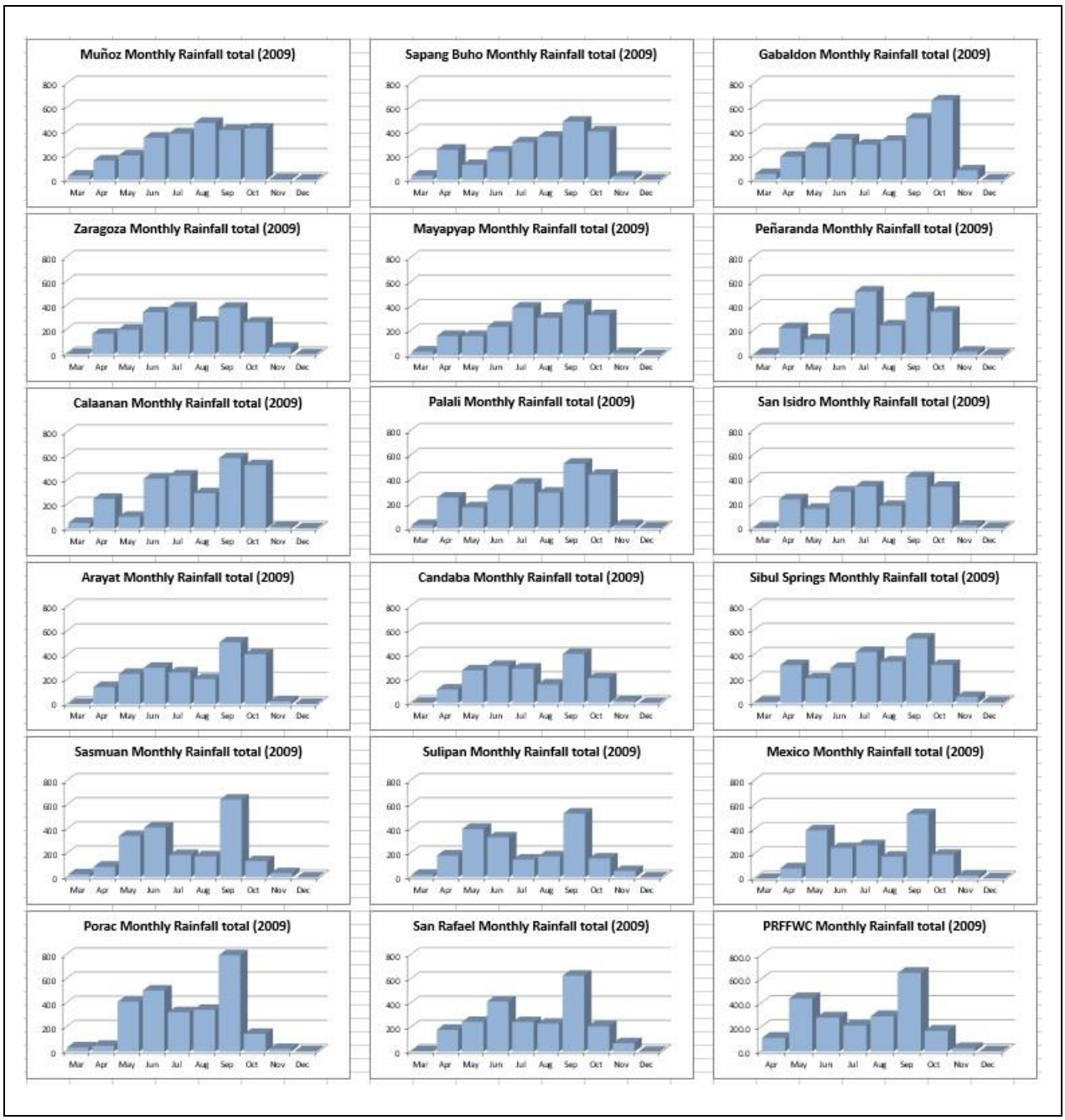


Figure 2. Monthly Rainfall distribution (hyetograph) from March to December 2009 for all operational RR monitoring stations of PRFFWC within the PRB. For PRFFWC station, RR observations started only in April 2009.

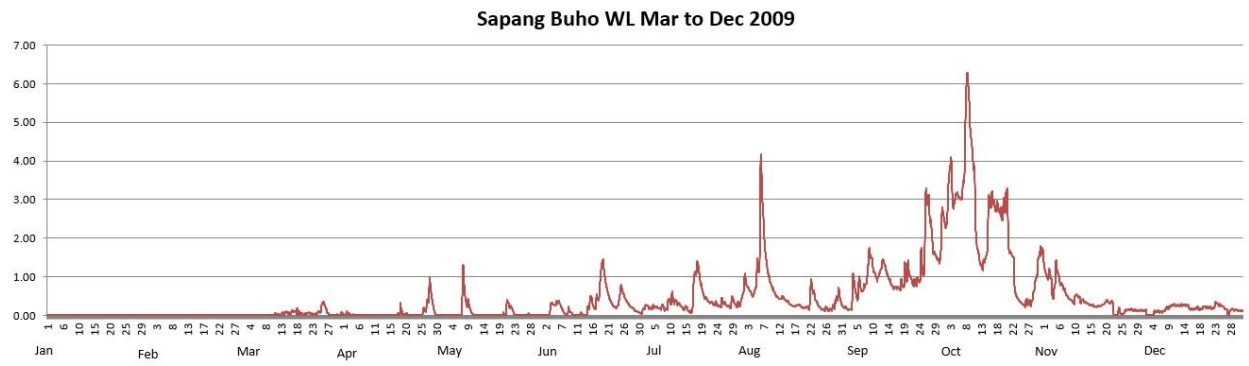
B. WATER LEVEL Data Summary Presentation

Water Level in meters (Daily Average)

2009 Station: **Sapang_Buho**

Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1				0.02		0.02	0.09	0.73	0.20	2.59	1.20	0.13
2				0.04		0.02	0.22	0.80	0.16	2.59	1.02	0.05
3				0.03		0.17	0.22	0.62	0.43	3.81	0.77	0.01
4				0.02		0.27	0.19	0.55	0.72	2.96	0.88	0.04
5				0.02		0.30	0.21	0.79	0.69	3.04	0.97	0.07
6				0.01		0.29	0.19	2.54	0.67	3.04	0.80	0.10
7				0.01	0.63	0.10	0.22	2.56	0.76	3.37	0.64	0.11
8				0.01	0.56	0.03	0.17	1.39	1.30	5.64	0.47	0.17
9				0.01	0.29	0.12	0.32	0.91	1.46	5.23	0.39	0.22
10				0.01	0.08	0.02	0.42	0.67	1.10	4.07	0.41	0.27
11			0.04	0.01		0.01	0.37	0.51	0.99	2.23	0.50	0.25
12			0.01	0.01		0.03	0.31	0.44	1.25	1.46	0.40	0.26
13			0.04	0.01		0.03	0.22	0.47	1.32	1.31	0.36	0.27
14			0.06	0.01		0.05	0.18	0.38	1.04	1.53	0.30	0.26
15			0.06	0.01		0.32	0.14	0.31	0.83	2.83	0.26	0.20
16			0.08	0.01		0.30	0.10	0.24	0.71	3.01	0.23	0.16
17			0.10	0.05	0.01	0.35	0.94	0.24	0.71	2.80	0.24	0.18
18			0.08	0.10		0.68	1.25	0.26	0.77	2.73	0.25	0.18
19			0.04	0.05		1.32	0.81	0.21	0.96	2.69	0.30	0.19
20			0.02	0.03	0.04	0.82	0.50	0.21	1.10	3.01	0.37	0.22
21			0.05	0.01	0.29	0.46	0.39	0.30	0.98	1.95	0.34	0.20
22			0.04	0.01	0.20	0.28	0.34	0.74	0.83	1.55	0.09	0.19
23			0.03	0.01	0.07	0.21	0.30	0.42	0.88	0.65	0.03	0.28
24			0.06	0.01		0.41	0.27	0.24	1.24	0.40	0.09	0.27
25			0.17	0.13		0.66	0.29	0.16	1.44	0.31	0.07	0.24
26			0.29	0.20		0.42	0.33	0.18	3.07	0.32	0.14	0.18
27			0.09	0.61	0.03	0.28	0.26	0.15	2.50	0.36	0.15	0.06
28			0.01	0.38	0.01	0.20	0.27	0.19	1.71	0.39	0.14	0.16
29			0.01	0.07		0.12	0.37	0.33	1.48	0.83	0.13	0.14
30			0.01	0.01		0.08	0.28	0.51	1.64	1.42	0.13	0.13
31			0.02				0.31	0.29		1.67		0.12

Max WL observed			0.36	0.99	1.32	1.45	1.40	4.17	3.30	6.29	1.46	0.35
Day of Max WL			26	28	8	19	18	7	26	9	1	23

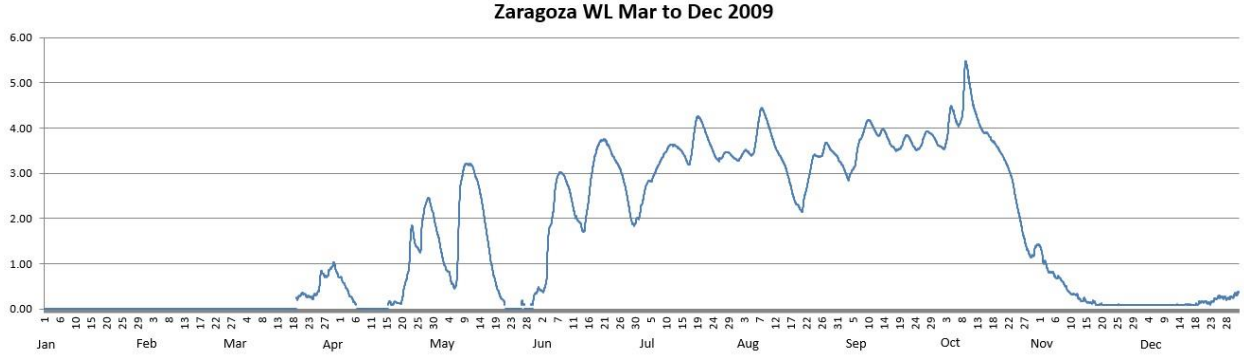


Water Level in meters (Daily Average)

2009 Station: **Zaragoza**

Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1				0.70	1.59	0.43	2.00	3.30	3.22	3.61	1.34	0.09
2				0.58	1.24	0.40	2.26	3.43	3.08	3.56	1.05	0.09
3				0.45	0.96	0.77	2.58	3.50	2.91	3.64	0.90	0.09
4				0.29	0.83	1.76	2.80	3.44	3.00	4.15	0.80	0.09
5				0.24	0.72	1.94	2.82	3.43	3.06	4.29	0.79	0.09
6				0.11	0.49	2.78	2.98	3.71	3.49	4.20	0.69	0.09
7					1.34	3.00	3.14	4.21	3.74	4.08	0.67	0.09
8					2.80	2.99	3.29	4.41	3.94	4.31	0.56	0.09
9					3.15	2.83	3.42	4.25	4.14	5.30	0.45	0.09
10					3.20	2.64	3.53	4.03	4.14	5.13	0.34	0.09
11					3.18	2.31	3.63	3.79	4.00	4.67	0.32	0.09
12					3.02	2.05	3.62	3.57	3.86	4.37	0.30	0.09
13					2.80	1.93	3.58	3.43	3.88	4.15	0.21	0.08
14					2.49	1.75	3.51	3.30	3.96	3.97	0.20	0.09
15					2.05	1.94	3.41	3.14	3.83	3.90	0.16	0.09
16				0.14	1.58	2.47	3.25	2.89	3.67	3.86	0.14	0.09
17				0.10	1.09	3.03	3.30	2.61	3.57	3.74	0.15	0.09
18				0.14	0.72	3.41	3.80	2.38	3.51	3.66	0.10	0.09
19			0.25	0.12	0.46	3.64	4.21	2.28	3.54	3.55	0.09	0.10
20			0.32	0.24	0.27	3.73	4.20	2.18	3.69	3.43	0.08	0.15
21			0.33	0.59	0.17	3.72	4.03	2.52	3.83	3.29	0.08	0.16
22			0.27	0.99	0.09	3.61	3.84	2.83	3.76	3.14	0.08	0.13
23			0.26	1.75	0.09	3.43	3.65	3.19	3.62	2.94	0.08	0.14
24			0.28	1.44	0.09	3.30	3.47	3.40	3.53	2.59	0.08	0.19
25			0.34	1.30	0.09	3.18	3.33	3.37	3.56	2.22	0.09	0.25
26			0.68	1.75	0.13	3.00	3.31	3.38	3.72	1.88	0.09	0.26
27			0.75	2.27	0.12	2.73	3.39	3.59	3.90	1.55	0.09	0.25
28			0.73	2.43	0.09	2.35	3.46	3.63	3.90	1.30	0.09	0.23
29			0.88	2.21	0.10	1.96	3.44	3.51	3.84	1.17	0.09	0.25
30			0.98	1.90	0.22	1.89	3.36	3.44	3.71	1.25	0.09	0.29
31			0.81		0.37		3.30	3.34		1.41		0.33

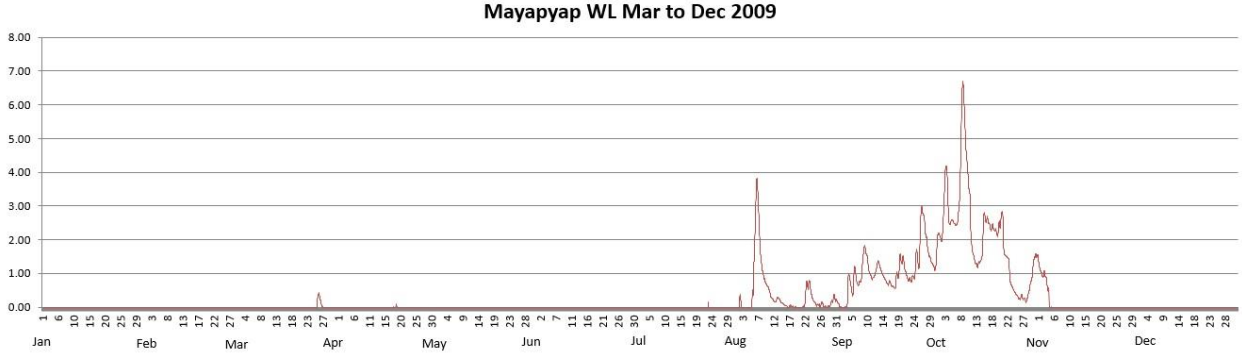
Max WL observed			1.03	2.46	3.22	3.75	4.27	4.45	4.18	5.47	1.42	0.37
Day of Max WL			30	28	10	21	20	8	10	9	1	Jan 01



Water Level in meters (Daily Average)

2009 Station: **Mayapyap**

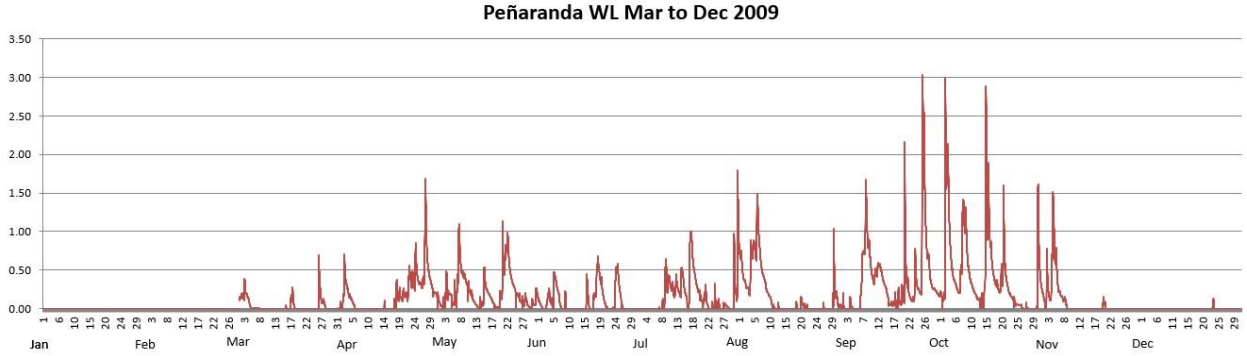
Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1				0.00				0.05	0.03	2.05	1.21	0.00
2				0.00			0.00	0.11	0.00	2.07	0.96	0.00
3				0.00				0.00	0.08	3.44	0.84	0.00
4				0.00				0.00	0.84	3.29	0.19	0.00
5				0.00				0.07	0.73	2.91	0.10	0.00
6				0.00				1.86	0.90	2.49	0.00	0.00
7				0.00				3.23	0.71	2.64	0.00	0.00
8				0.00				1.46	1.31	4.89	0.00	0.00
9				0.00				0.83	1.63	5.92	0.00	0.00
10				0.00				0.61	1.09	4.09	0.00	0.00
11				0.00				0.34	0.87	2.49	0.00	0.00
12				0.00				0.19	1.07	1.47	0.00	0.00
13				0.00				0.25	1.28	1.25	0.00	0.00
14				0.00				0.17	1.00	1.39	0.00	0.00
15				0.00				0.08	0.80	2.44	0.00	0.00
16				0.00				0.02	0.72	2.57	0.00	0.00
17				0.00				0.03	0.63	2.37	0.00	0.00
18				0.00				0.01	0.71	2.34	0.00	0.00
19				0.02				0.00	1.13	2.22	0.00	0.00
20				0.00				0.00	1.41	2.55	0.00	0.00
21				0.00				0.05	1.11	2.12	0.00	0.00
22				0.00				0.63	0.83	1.49	0.00	0.00
23				0.00			0.01	0.60	0.84	0.94	0.00	0.00
24				0.00			0.00	0.20	1.17	0.53	0.00	0.00
25			0.04	0.00			0.00	0.07	1.40	0.36	0.00	0.00
26			0.32	0.00			0.00	0.06	2.76	0.27	0.00	0.00
27			0.05	0.00			0.00	0.06	2.41	0.28	0.00	0.00
28			0.00	0.00			0.00	0.01	1.67	0.23	0.00	0.00
29			0.00	0.00			0.00	0.06	1.35	0.59	0.00	0.00
30			0.00	0.00			0.00	0.25	1.20	1.15	0.00	0.00
31			0.00				0.00	0.19		1.52		0.00
Max WL observed			0.43	0.11			0.17	3.82	2.97	6.71	1.52	0.00
Day of Max WL			26	19			23	7	26	9	1	



Water Level in meters (Daily Average)

2009 Station: **Peñaranda**

Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1			0.11	0.02	0.11	0.07	0.00	0.69	0.04	0.17	0.20	0.00
2			0.16	0.21	0.03	0.00	0.00	0.40	0.00	0.72	0.23	0.00
3			0.22	0.34	0.14	0.08	0.00	0.27	0.04	1.71	0.17	0.00
4			0.15	0.16	0.23	0.12	0.00	0.48	0.02	0.74	0.91	0.00
5			0.08	0.12	0.17	0.16	0.00	0.64	0.01	0.56	0.76	0.00
6			0.01	0.00	0.14	0.31	0.00	1.05	0.02	0.26	0.23	0.00
7			0.01	0.00	0.60	0.08	0.00	0.71	0.50	0.41	0.13	0.00
8			0.00	0.00	0.54	0.00	0.04	0.42	1.08	1.21	0.09	0.00
9			0.00	0.00	0.40	0.04	0.32	0.24	0.81	0.79	0.00	0.00
10			0.00	0.00	0.29	0.00	0.33	0.14	0.45	0.38	0.00	0.00
11			0.00	0.00	0.19	0.00	0.28	0.03	0.43	0.24	0.00	0.00
12			0.00	0.00	0.08	0.00	0.24	0.01	0.55	0.15	0.00	0.00
13			0.00	0.00	0.02	0.00	0.26	0.00	0.46	0.10	0.00	0.00
14			0.00	0.00	0.04	0.00	0.33	0.00	0.29	0.19	0.00	0.00
15			0.00	0.02	0.30	0.18	0.25	0.00	0.11	1.69	0.00	0.00
16			0.00	0.00	0.23	0.04	0.11	0.00	0.06	0.95	0.00	0.00
17			0.07	0.00	0.14	0.06	0.86	0.00	0.09	0.45	0.00	0.00
18			0.08	0.15	0.04	0.33	0.46	0.02	0.10	0.30	0.00	0.00
19			0.00	0.16	0.02	0.48	0.25	0.01	0.13	0.30	0.02	0.00
20			0.00	0.17	0.15	0.23	0.12	0.06	0.59	0.73	0.04	0.00
21			0.00	0.18	0.65	0.04	0.15	0.02	0.27	0.37	0.00	0.00
22			0.00	0.35	0.82	0.00	0.05	0.00	0.12	0.19	0.00	0.00
23			0.00	0.36	0.46	0.00	0.01	0.00	0.38	0.11	0.00	0.04
24			0.00	0.48	0.28	0.34	0.08	0.00	0.28	0.06	0.00	0.00
25			0.00	0.36	0.18	0.34	0.04	0.00	0.92	0.05	0.00	0.00
26			0.30	0.33	0.13	0.04	0.01	0.01	1.64	0.01	0.00	0.00
27			0.08	0.90	0.07	0.00	0.03	0.00	0.69	0.01	0.00	0.00
28			0.00	0.50	0.08	0.00	0.03	0.00	0.35	0.00	0.00	0.00
29			0.00	0.29	0.02	0.00	0.00	0.19	0.25	0.00	0.00	0.00
30			0.00	0.21	0.07	0.00	0.24	0.21	0.19	0.10	0.00	0.00
31			0.00		0.17		0.72	0.04		0.76		0.00
Max WL observed			0.69	1.68	1.14	0.68	1.80	1.49	3.03	3.00	1.51	0.13
Day of Max WL			26	27	21	19	31	6	26	3	4	23



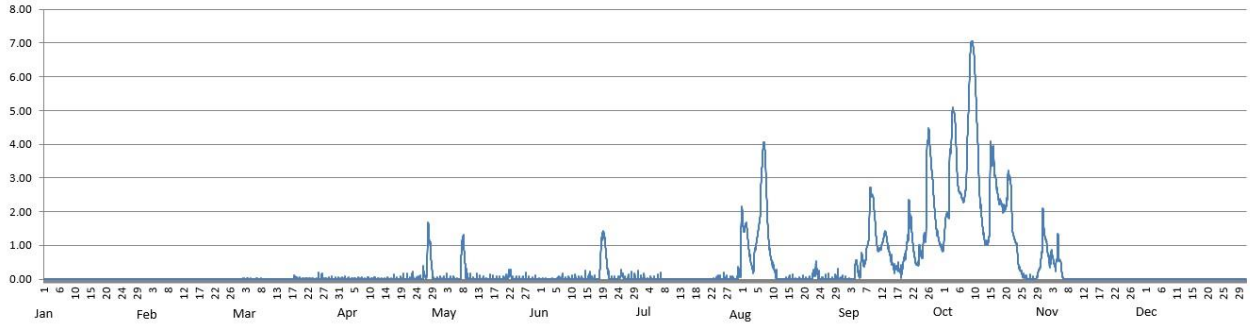
Water Level in meters (Daily Average)

2009 Station: **San_Isidro**

Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1			0.00	0.01	0.01	0.00	0.01	1.60	0.00	1.44	0.95	0.00
2			0.01	0.01	0.01	0.00	0.01	1.39	0.00	2.11	0.59	0.00
3			0.00	0.01	0.01	0.00	0.00	0.59	0.00	4.32	0.55	0.00
4			0.00	0.01	0.01	0.00	0.01	0.49	0.38	4.69	0.78	0.00
5			0.00	0.01	0.01	0.00	0.01	0.84	0.27	3.80	0.65	0.00
6			0.01	0.01	0.00	0.04	0.01	2.21	0.57	2.47	0.04	0.00
7			0.00	0.01	0.27	0.01	0.01	3.80	0.66	2.46	0.00	0.00
8			0.00	0.00	0.94	0.01	0.00	2.32	1.71	4.49	0.00	0.00
9			0.00	0.01	0.11	0.01	0.00	0.80	2.46	6.83	0.00	0.00
10			0.00	0.00	0.02	0.01	0.00	0.36	1.49	6.31	0.00	0.00
11			0.00	0.01	0.00	0.01	0.00	0.07	0.88	4.03	0.00	0.00
12			0.00	0.01	0.01	0.01	0.00	0.00	1.04	1.99	0.00	0.00
13			0.00	0.00	0.01	0.01	0.00	0.00	1.33	1.21	0.00	0.00
14			0.00	0.00	0.01	0.01	0.00	0.00	0.88	1.10	0.00	0.00
15			0.00	0.01	0.00	0.07	0.00	0.01	0.48	3.25	0.00	0.00
16			0.00	0.00	0.01	0.02	0.00	0.01	0.31	3.37	0.00	0.00
17			0.00	0.02	0.01	0.01		0.00	0.30	2.55	0.00	0.00
18			0.04	0.01	0.01	0.10		0.00	0.26	2.26	0.00	0.00
19			0.01	0.01	0.01	1.17		0.01	0.71	2.08	0.00	0.00
20			0.01	0.01	0.01	0.96		0.00	1.60	2.66	0.00	0.00
21			0.01	0.01	0.02	0.14		0.01	1.35	2.61	0.00	0.00
22			0.01	0.05	0.18	0.01		0.14	0.58	1.24	0.00	0.00
23			0.01	0.03	0.01	0.01	0.00	0.23	0.65	0.77	0.00	0.00
24			0.00	0.02	0.01	0.03	0.02	0.02	0.77	0.25	0.00	0.00
25			0.02	0.01	0.00	0.14	0.01	0.01	1.47	0.09	0.00	0.00
26			0.05	0.12	0.01	0.01	0.04	0.01	4.16	0.01	0.00	0.00
27			0.01	0.83	0.01	0.01	0.01	0.01	3.26	0.01	0.00	0.00
28			0.01	0.79	0.01	0.02	0.00	0.00	1.98	0.01	0.00	0.00
29			0.01	0.02	0.00	0.01	0.01	0.03	1.23	0.09	0.00	0.00
30			0.01	0.01	0.01	0.01	0.12	0.04	0.92	0.46	0.00	0.00
31			0.01		0.00		0.76	0.01		1.56		0.00

Max WL observed			0.19	1.68	1.32	1.44	2.15	4.06	4.49	7.06	1.34	0.00
Day of Max WL			25	28	8	20	Aug 01	7	28	10	5	

San Isidro WL Mar to Dec 2009

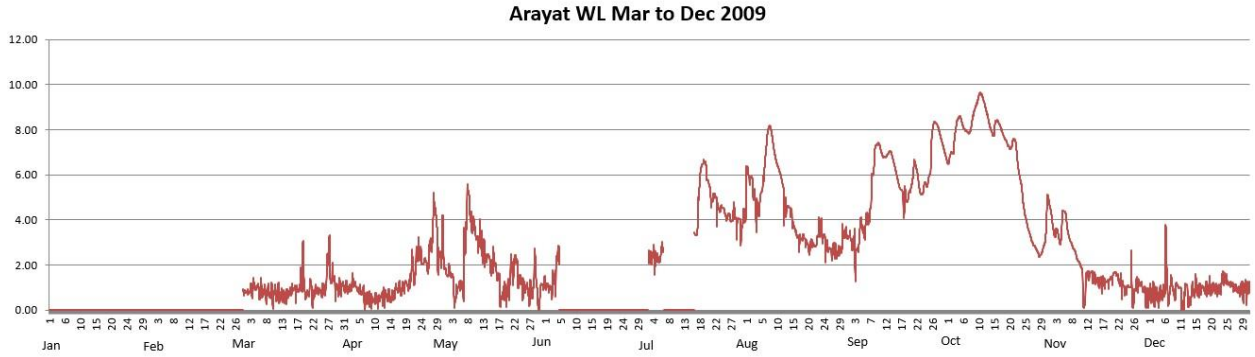


Water Level in meters (Daily Average)

2009 Station: **Arayat**

Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1			0.81	1.00	1.76	1.04		6.05	3.22	6.65	4.32	0.67
2			0.79	0.94	1.72	0.96	2.44	5.80	3.00	6.98	3.43	0.70
3			0.85	1.26	1.48	1.35	2.41	4.82	2.51	7.92	3.44	0.70
4			1.09	0.99	0.61	2.35	2.18	4.39	3.58	8.53	3.28	0.57
5			1.02	0.93	0.83	2.37	2.23	4.82	3.53	8.42	3.83	0.65
6			0.86	0.71	1.07		2.74	6.39	4.05	7.99	3.65	1.95
7			0.82	0.52	3.04		0.00	7.88	4.35	7.88	3.04	0.69
8			0.78	0.52	5.07		0.00	7.90	6.14	8.34	2.70	1.06
9			0.76	0.42	3.83		0.00	7.00	7.33	8.97	2.29	0.86
10			0.71	0.49	3.53		0.00	6.38	7.25	9.43	1.99	1.01
11			0.68	0.50	3.06		0.00	5.88	6.84	9.52	0.53	0.16
12			0.66	0.65	2.87		0.00	4.90	6.83	9.04	1.58	1.03
13			0.65	0.60	2.49		0.00	4.56	7.01	8.46	1.61	0.33
14			0.71	0.58	2.36		0.00	4.31	6.68	7.90	1.50	0.89
15			0.82	0.67	1.84		0.00	3.69	6.06	8.14	1.32	0.95
16			0.92	0.90	2.13		3.36	3.23	5.48	8.33	1.25	0.92
17			0.87	0.97	1.47		4.92	3.12	4.87	7.99	1.26	0.94
18			1.14	0.95	0.48		6.43	3.19	5.02	7.62	1.28	0.98
19			1.62	1.18	0.83		6.40	2.92	5.18	7.31	1.35	0.94
20			0.71	1.18	0.85		5.61	2.92	5.95	7.29	1.52	1.00
21			1.07	1.90	1.76		4.91	2.89	6.35	7.50	1.57	0.98
22			0.61	2.00	2.07		5.04	3.20	5.48	6.44	1.30	0.96
23			0.83	2.55	1.72		4.42	3.65	5.23	5.51	0.96	1.27
24			0.79	2.16	1.29		4.56	3.16	5.57	4.35	0.96	1.39
25			0.96	2.14	0.99		4.27	2.72	5.92	3.67	1.23	1.21
26			1.86	2.34	0.85		4.21	2.64	7.82	3.17	0.55	1.13
27			1.85	3.41	0.88		4.01	2.69	8.30	2.84	1.05	0.97
28			1.47	4.29	1.78		4.22	2.61	7.96	2.56	1.20	0.87
29			0.95	2.50	0.58		3.98	2.61	7.39	2.49	0.92	0.90
30			0.96	2.74	0.96		3.59	3.31	6.85	2.96	0.61	0.99
31			1.06		1.22		4.41	3.35		4.64		0.98

Max WL observed			3.31	5.21	5.60	2.86	6.66	8.21	8.35	9.66	4.69	3.78
Day of Max WL			27	28	8	5	19	8	27	11	1	6

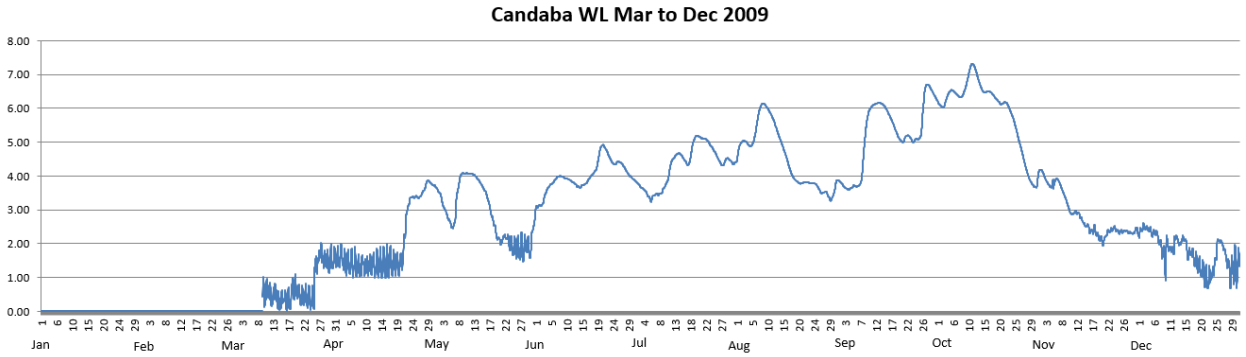


Water Level in meters (Daily Average)

2009 Station: **Candaba**

Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1				1.53	3.63	3.12	3.80	4.80	3.81	6.13	4.17	2.32
2				1.63	3.46	3.16	3.69	5.01	3.69	6.04	4.00	2.48
3				1.43	3.12	3.44	3.61	5.02	3.62	6.21	3.80	2.46
4				1.42	2.87	3.67	3.47	4.91	3.63	6.46	3.70	2.41
5				1.42	2.75	3.72	3.39	4.92	3.67	6.49	3.75	2.36
6				1.39	2.53	3.89	3.41	5.27	3.70	6.44	3.90	2.32
7				1.31	3.28	3.98	3.46	5.83	3.81	6.35	3.70	2.07
8				1.35	3.89	3.98	3.48	6.11	4.67	6.38	3.45	1.84
9			0.70	1.32	4.08	3.95	3.61	6.10	5.61	6.62	3.19	1.72
10			0.52	1.34	4.07	3.91	3.82	5.95	5.99	7.02	2.92	1.90
11			0.56	1.36	4.06	3.85	4.21	5.77	6.10	7.29	2.91	1.78
12			0.37	1.35	4.05	3.78	4.51	5.53	6.15	7.15	2.92	2.19
13			0.56	1.34	3.96	3.70	4.63	5.24	6.16	6.84	2.80	2.04
14			0.26	1.34	3.83	3.70	4.65	4.97	6.10	6.57	2.61	2.11
15			0.34	1.33	3.68	3.75	4.54	4.69	5.96	6.48	2.53	2.04
16			0.28	1.42	3.48	3.86	4.39	4.37	5.75	6.50	2.39	1.69
17			0.31	1.47	3.14	3.99	4.45	4.08	5.54	6.44	2.41	1.70
18			0.68	1.44	2.72	4.12	4.96	3.90	5.29	6.32	2.28	1.49
19			0.67	1.41	2.33	4.42	5.18	3.82	5.09	6.20	2.14	1.32
20			0.53	1.42	2.13	4.85	5.16	3.78	5.03	6.13	2.06	1.20
21			0.45	1.97	2.13	4.87	5.10	3.82	5.18	6.17	2.28	0.99
22			0.44	2.97	2.19	4.68	5.08	3.81	5.15	6.08	2.38	0.90
23			0.37	3.33	2.00	4.48	4.97	3.79	5.03	5.84	2.44	1.07
24			0.35	3.38	1.87	4.36	4.81	3.78	5.08	5.54	2.41	1.40
25			1.08	3.39	1.81	4.40	4.65	3.68	5.13	5.16	2.35	2.04
26			1.56	3.41	1.82	4.39	4.45	3.51	5.86	4.79	2.37	2.02
27			1.71	3.57	1.81	4.27	4.33	3.52	6.64	4.39	2.38	1.76
28			1.55	3.82	1.92	4.10	4.47	3.45	6.65	4.05	2.32	1.37
29			1.39	3.80	1.82	3.98	4.49	3.31	6.49	3.82	2.31	1.19
30			1.51	3.72	2.24	3.89	4.38	3.54	6.30	3.70	2.42	1.39
31			1.55		2.87		4.41	3.86		3.90		1.35

Max WL observed			2.02	3.87	4.09	4.93	5.20	6.15	6.71	7.32	4.19	2.60
Day of Max WL			27	29	9	21	20	9	28	11	1	3

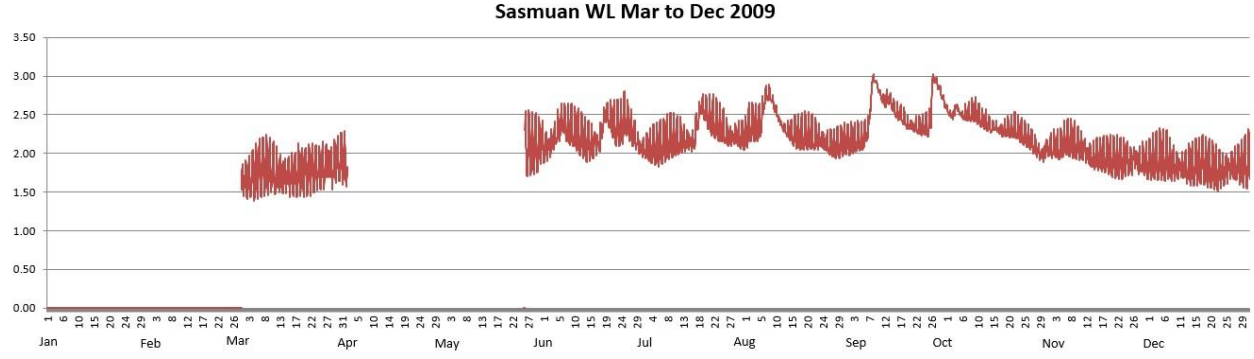


Water Level in meters (Daily Average)

2009 Station: **Sasmuan**

Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1			1.64	1.91		2.09	2.04	2.27	2.13	2.54	2.05	1.87
2			1.64	1.82		2.10	2.04	2.33	2.14	2.49	2.09	1.90
3			1.66			2.15	2.04	2.32	2.15	2.56	2.06	1.92
4			1.70			2.22	2.05	2.32	2.16	2.57	2.06	1.94
5			1.73			2.27	2.06	2.35	2.17	2.53	2.09	1.93
6			1.82			2.39	2.08	2.62	2.24	2.50	2.14	1.91
7			1.82			2.32	2.10	2.75	2.46	2.50	2.14	1.88
8			1.82			2.29	2.14	2.73	2.89	2.51	2.12	1.84
9			1.80			2.28	2.16	2.63	2.92	2.51	2.09	1.83
10			1.76			2.24	2.17	2.52	2.81	2.48	2.07	1.80
11			1.69			2.21	2.17	2.41	2.71	2.43	2.04	1.80
12			1.72			2.18	2.18	2.33	2.68	2.40	1.99	1.80
13			1.70			2.13	2.16	2.29	2.69	2.35	1.96	1.82
14			1.69			2.13	2.18	2.26	2.62	2.32	1.94	1.83
15			1.68			2.14	2.15	2.23	2.53	2.34	1.94	1.85
16			1.70			2.14	2.19	2.21	2.49	2.32	1.94	1.85
17			1.71			2.15	2.41	2.21	2.45	2.30	1.94	1.88
18			1.76			2.31	2.58	2.20	2.41	2.29	1.94	1.85
19			1.77			2.48	2.53	2.21	2.37	2.30	1.93	1.82
20			1.78			2.44	2.45	2.21	2.35	2.30	1.90	1.79
21			1.80			2.36	2.41	2.20	2.34	2.31	1.91	1.77
22			1.82			2.31	2.38	2.20	2.33	2.29	1.89	1.74
23			1.81			2.32	2.35	2.19	2.32	2.25	1.90	1.75
24			1.79			2.34	2.32	2.16	2.33	2.23	1.92	1.80
25			1.84			2.45	2.27	2.13	2.34	2.18	1.90	1.80
26			1.79		2.03	2.35	2.22	2.09	2.69	2.15	1.90	1.80
27			1.87		2.07	2.26	2.22	2.08	2.94	2.10	1.92	1.82
28			1.78		2.07	2.19	2.23	2.09	2.87	2.03	1.87	1.82
29			1.88		2.08	2.13	2.21	2.11	2.75	1.99	1.88	1.85
30			1.90		2.12	2.06	2.19	2.13	2.63	1.99	1.87	1.87
31			1.89		2.12		2.20	2.14		2.07		1.87

Max WL observed			2.27	2.29	2.56	2.80	2.77	2.89	3.03	2.73	2.45	2.33
Day of Max WL			31	1	27	25	19	8	27	10	7	5

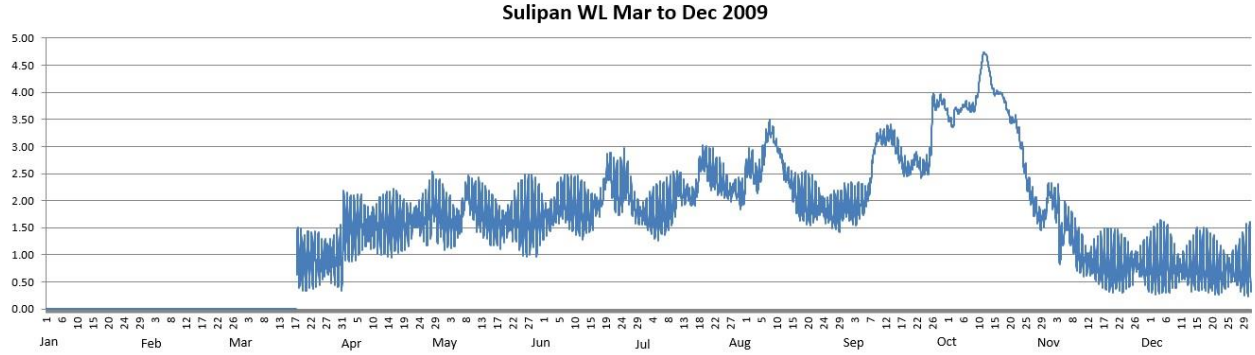


Water Level in meters (Daily Average)

2009 Station: **Sulipan**

Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1				1.49	1.66	1.70	1.74	2.61	1.91	3.53	2.09	0.79
2				1.47	1.64	1.71	1.70	2.63	1.88	3.41	1.94	0.83
3				1.50	1.64	1.74	1.73	2.49	1.84	3.67	1.83	0.83
4				1.50	1.59	1.84	1.70	2.36	1.95	3.65	1.18	0.86
5				1.53	1.59	1.88	1.71	2.46	1.96	3.68	1.35	0.85
6				1.58	1.61	1.99	1.77	2.86	2.06	3.77	1.58	0.87
7				1.53	1.89	1.94	1.77	3.19	2.27	3.72	1.41	0.77
8				1.52	2.17	1.89	1.85	3.30	2.76	3.71	1.27	0.75
9				1.49	2.00	1.87	1.92	3.17	3.09	3.77	1.05	0.72
10				1.52	1.94	1.83	2.04	3.00	3.18	4.09	1.00	0.71
11				1.50	1.84	1.83	2.26	2.86	3.14	4.54	0.91	0.71
12				1.53	1.84	1.75	2.17	2.62	3.17	4.71	0.86	0.73
13				1.54	1.76	1.78	2.14	2.45	3.22	4.49	0.85	0.75
14				1.54	1.72	1.80	2.16	2.34	3.14	4.15	0.85	0.78
15				1.52	1.64	1.81	2.04	2.17	3.00	3.98	0.84	0.82
16				1.61	1.65	1.94	2.07	2.04	2.82	3.99	0.84	0.81
17			0.63	1.60	1.61	1.90	2.34	1.95	2.66	3.96	0.84	0.83
18			0.83	1.58	1.55	2.04	2.70	1.95	2.60	3.82	0.82	0.80
19			0.92	1.59	1.58	2.37	2.72	1.91	2.57	3.63	0.81	0.74
20			0.89	1.58	1.61	2.56	2.59	1.89	2.67	3.47	0.78	0.72
21			0.93	1.64	1.64	2.36	2.47	1.91	2.79	3.47	0.82	0.67
22			0.93	1.66	1.62	2.18	2.50	1.92	2.66	3.29	0.78	0.65
23			0.93	1.69	1.63	2.13	2.36	1.98	2.55	2.99	0.78	0.67
24			0.92	1.66	1.61	2.20	2.35	1.90	2.63	2.59	0.80	0.71
25			0.89	1.64	1.62	2.39	2.28	1.81	2.70	2.28	0.77	0.71
26			0.91	1.67	1.63	2.23	2.21	1.79	3.55	2.07	0.79	0.72
27			0.91	1.78	1.65	2.01	2.17	1.77	3.76	1.89	0.87	0.72
28			0.90	1.98	1.70	1.85	2.26	1.77	3.82	1.74	0.79	0.72
29			0.88	1.73	1.65	1.81	2.17	1.76	3.83	1.65	0.79	0.78
30			0.90	1.78	1.70	1.75	2.08	1.89	3.73	1.69	0.77	0.82
31			0.88		1.71		2.19	1.94		2.10		0.81

Max WL observed			1.55	2.54	2.49	2.98	3.02	3.49	3.99	4.73	2.32	1.64
Day of Max WL			31	28	26	25	19	8	27	12	1	5



Water Level in meters (Daily Average)

2009 Station: **Mexico**

Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1			0.00	0.00	0.00	0.18	0.49	0.91	0.58	1.59	0.97	0.19
2			0.00	0.00	0.00	0.25	0.45	0.82	0.60	1.57	1.05	0.19
3			0.00	0.00	0.00	0.39	0.43	0.76	0.56	1.88	0.95	0.20
4			0.00	0.00	0.02	0.39	0.41	0.81	0.56	1.70	1.04	0.21
5			0.00	0.00	0.01	0.46	0.58	0.87	0.57	1.65	0.88	0.21
6			0.00	0.00	0.11	0.76	0.56	1.54	0.67	1.53	0.58	0.20
7			0.00	0.00	1.24	0.52	0.87	1.36	1.19	1.52	0.54	0.20
8			0.00	0.00	0.47	0.46	0.76	1.19	2.15	1.60	0.52	0.20
9			0.00	0.00	0.91	0.41	0.68	1.10	1.73	1.56	0.50	0.19
10			0.00	0.00	0.57	0.33	0.70	1.03	1.56	1.45	0.48	0.19
11			0.00	0.00	0.33	0.29	0.80	0.98	1.52	1.42	0.45	0.17
12			0.00	0.00	0.27	0.29	0.73	0.95	1.57	1.39	0.44	0.15
13			0.00	0.00	0.23	0.26	0.71	0.93	1.51	1.36	0.42	0.15
14			0.00	0.00	0.21	0.41	0.65	0.89	1.43	1.43	0.40	0.13
15			0.00	0.00	0.14	0.33	0.62	0.86	1.36	1.45	0.38	0.13
16			0.00	0.00	0.09	0.33	0.73	0.82	1.31	1.32	0.36	0.14
17			0.00	0.00	0.08	0.39	1.06	0.91	1.26	1.27	0.36	0.12
18			0.02	0.00	0.08	1.15	1.40	0.87	1.29	1.34	0.34	0.12
19			0.00	0.00	0.09	0.99	1.11	0.78	1.28	1.38	0.33	0.12
20			0.00	0.04	0.10	0.71	1.05	0.83	1.30	1.32	0.31	0.11
21			0.00	0.00	0.08	0.59	0.97	0.80	1.22	1.28	0.31	0.11
22			0.00	0.00	0.02	0.54	0.91	0.77	1.18	1.22	0.30	0.11
23			0.00	0.00	0.03	0.78	0.90	0.73	1.20	1.19	0.29	0.09
24			0.00	0.00	0.01	0.62	0.89	0.70	1.17	1.16	0.28	0.10
25			0.00	0.00	0.00	0.74	0.86	0.69	1.21	1.14	0.27	0.10
26			0.00	0.00	0.01	0.60	0.83	0.68	2.22	1.12	0.27	0.08
27			0.00	0.00	0.00	0.57	0.85	0.70	1.85	1.09	0.24	0.07
28			0.00	0.00	0.12	0.53	0.86	0.77	1.73	1.06	0.24	0.07
29			0.02	0.00	0.18	0.51	0.82	0.74	1.64	1.03	0.24	0.04
30			0.00	0.00	0.18	0.52	0.84	0.69	1.66	1.04	0.21	0.00
31			0.00		0.23		0.90	0.63		1.09		0.00

Max WL observed			0.23	0.40	3.54	2.26	2.13	2.42	3.11	2.29	1.32	0.23
Day of Max WL			30	20	7	19	7	6	27	3	2	4

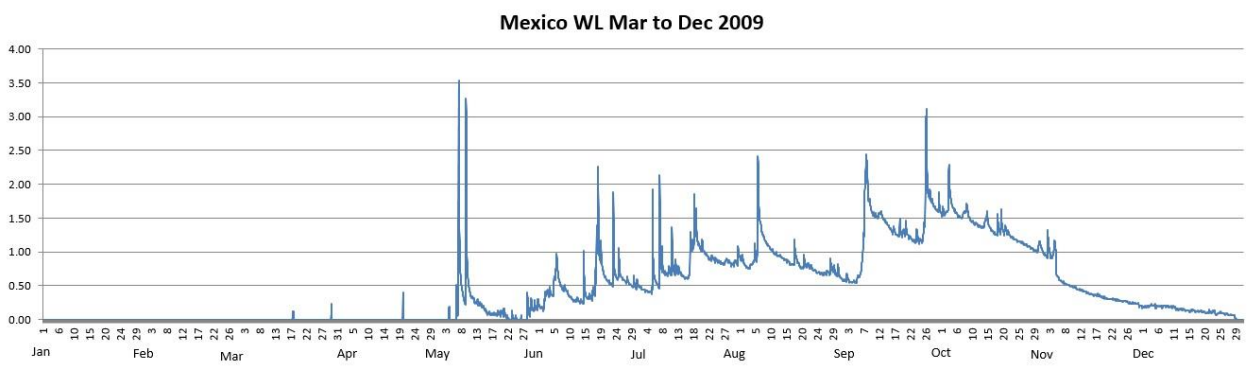


Table 2.0

Monthly Maximum WL recorded per station for the period Mar to Dec 2009

Station	January	February	March	April	May	June	July	August	September	October	November	December
Sapang Buho			0.36	0.99	1.32	1.45	1.40	4.17	3.30	6.29	1.46	0.35
Zaragoza			1.03	2.46	3.22	3.75	4.27	4.45	4.18	5.47	1.42	0.37
Mayapyap			0.43	0.11			0.17	3.82	2.97	6.71	1.52	0.00
Penaranda			0.69	1.68	1.14	0.68	1.80	1.49	3.03	3.00	1.51	0.13
San Isidro			0.19	1.68	1.32	1.44	2.15	4.06	4.49	7.06	1.34	0.00
Arayat			3.31	5.21	5.60	2.86	6.66	8.21	8.35	9.66	4.69	3.78
Candaba			2.02	3.87	4.09	4.93	5.20	6.15	6.71	7.32	4.19	2.60
Sasmuan			2.27	2.29	2.56	2.80	2.77	2.89	3.03	2.73	2.45	2.33
Sulipan			1.55	2.54	2.49	2.98	3.02	3.49	3.99	4.73	2.32	1.64
Mexico			0.23	0.40	3.54	2.26	2.13	2.42	3.11	2.29	1.32	0.23

Note: Shaded cell indicates maximum WL recorded for the station during the year

C. ANNEX

Table A-1.

	Maximum Rainfall for a given sliding time period during the Period Mar to Dec 2009																
	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	79	56	39	53	45	52	40	43	71	57	31	54	43	44	39	54	42
2 hrs	83	62	54	100	56	60	47	56	105	93	51	74	76	57	58	72	53
3 hrs	85	62	54	107	61	70	62	65	112	93	51	74	96	67	59	87	67
4 hrs	85	66	55	107	65	70	62	71	114	94	51	76	109	71	70	107	79
5 hrs	85	75	71	108	68	70	65	75	115	94	56	85	119	80	80	119	89
6 hrs	85	79	76	109	68	70	71	75	116	94	61	98	123	87	89	121	101
7 hrs	85	90	78	109	68	70	74	75	116	94	68	103	129	93	101	146	105
8 hrs	85	91	83	109	69	71	84	75	116	94	73	107	139	98	110	161	112
9 hrs	92	93	86	109	75	83	97	78	116	94	76	107	143	104	115	165	118
10 hrs	101	93	95	109	80	87	107	79	116	96	78	109	146	110	120	168	122
11 hrs	111	93	99	109	81	88	116	79	116	104	86	110	148	114	123	169	126
12 hrs	120	93	105	109	81	88	124	81	116	107	88	110	149	115	125	170	127
18 hrs	175	123	137	109	88	92	177	92	116	119	94	170	158	121	128	189	184
24 hrs	216	146	162	135	105	96	203	113	116	138	116	191	175	141	154	209	209
48 hrs (2 days)	255	182	194	160	116	129	251	146	146	211	154	195	200	202	202	319	218
72 hrs (3 days)	264	189	201	176	139	175	263	146	177	243	167	233	255	238	227	382	255
96 hrs (4 days)	264	189	212	179	172	178	263	161	182	250	173	240	272	266	243	409	292
120 hrs (5 days)	264	189	221	204	177	200	264	204	190	257	201	244	283	270	251	426	298
144 hrs (6 days)	320	252	319	240	197	217	372	235	210	285	214	277	304	296	258	437	307
240 hrs (10 days)	403	295	398	277	221	259	437	287	242	309	226	329	363	325	293	488	343
480 hrs (20 days)	523	482	634	481	341	462	723	479	370	486	386	521	549	478	479	784	588
Meteorological day (8 am to 8 am)	190	129	100	109	82	91	172	90	116	109	90	113	150	115	126	172	129
Max monthly total	473	484	659	417	389	524	585	531	423	508	407	535	645	529	528	884	631

The maximum monthly total values for some stations may be smaller than their 480 hours (20 days) of sliding time total. This means that the 20-day total transcends 2 succeeding months. Likewise, the 24-hour unrestricted sliding time period is relatively much larger than the meteorological day (fixed 8am to 8am) total.

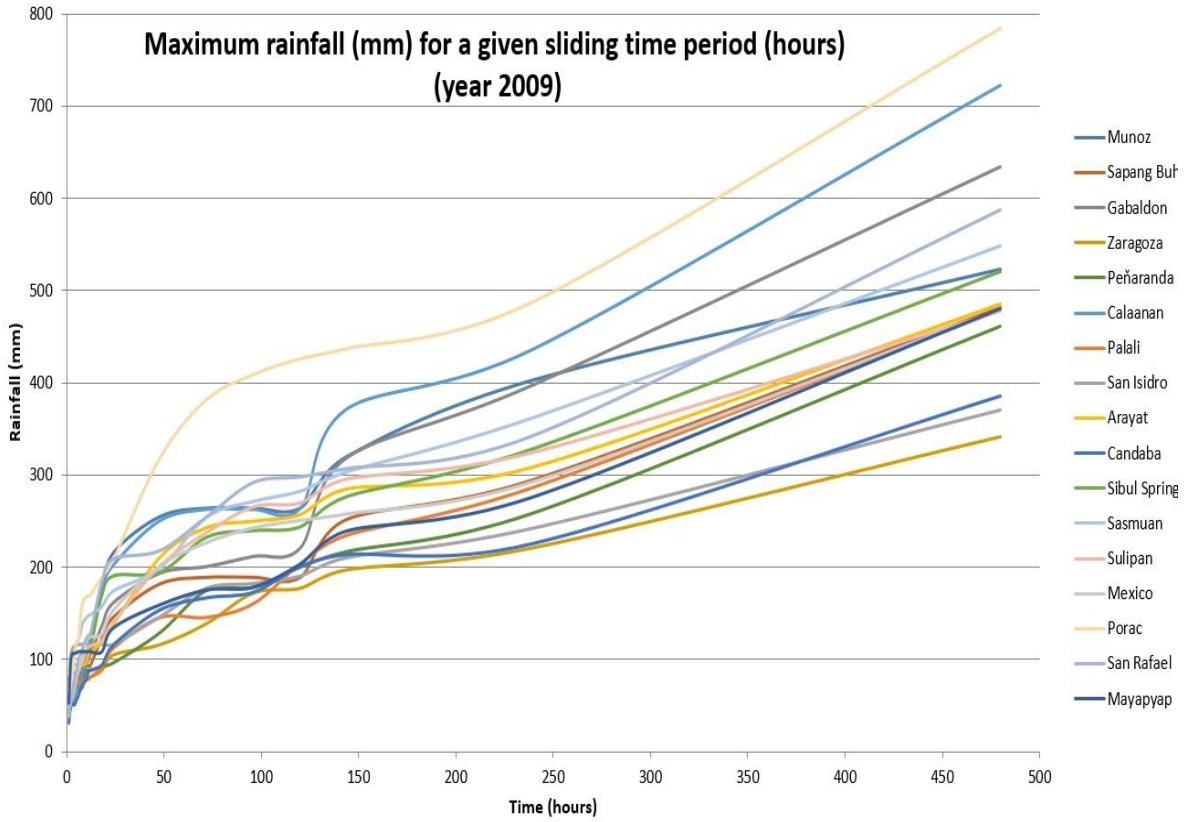


Figure AA-1. The sliding time period per station graph.

Table A-2. PRFFWC Existing Flood Warning Assessment Levels (SG in meters)

Color code	YELLOW	ORANGE	RED
STATION	ALERT	ALARM	CRITICAL
Sapang Buho	3.70	4.50	6.50
Mayapyap	3.00	3.50	4.50
Zaragoza ++	11.00	12.50	14.50
Penaranda			
San Isidro +	3.20	4.50	6.00
Arayat	5.00	6.00	8.50
Candaba	3.00	4.50	5.00
Mexico			
Sasmuan +			2.90 *
Sulipan +	3.60 (2.50)	4.20 (3.00)	5.00 (3.50)

** Based on past observations from various flood events (for validation)*

+ for updating of assessment levels (Sulipan values in parenthesis are proposed assessment levels)

++ assessment values are in MSL

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))^2.961*	0 < H <= 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 <= 4.0
San Isidro	9.585	Q = 15.2 (H - (-1.70))^2	0 < H <= 8.0
Arayat	0.077	Q = 9.106 (H - (-0.39))^2	0 < H <= 9.0
Candaba	-0.157	Q = 1.80 (H - (-1.30))^2	0 < H <= 2.0
Sasmuan	-1.147	Q = 1.50 (H- (-2.0))^2	0 < H <= 2.0
Sulipan	-0.062	Q = 9.50 (H - (-0.4))^2	0 < H <= 3.0
Mexico	5.933**	Q = 11.0 (H - (-0.50))^2	0 < H <= 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 PRFFWC streamgaging sites. The above rating curve equations remain the latest available for now and may require regular updating.

Water Level Percent Duration Curves of some stations

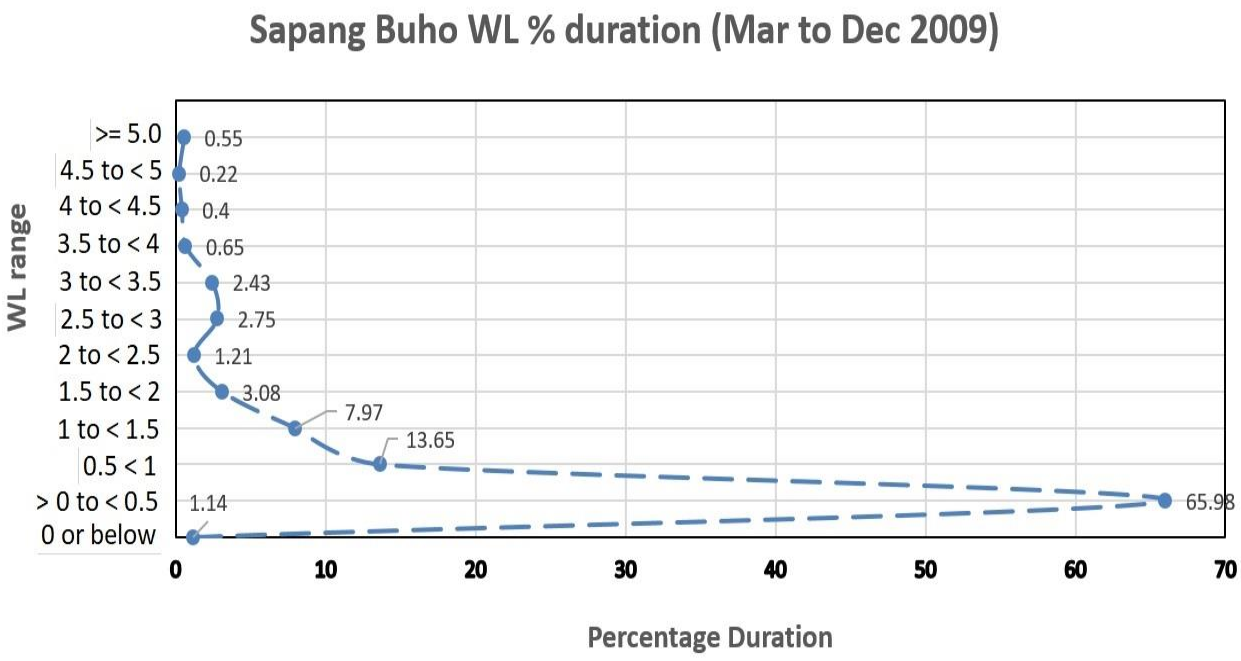


Figure AA-2. Sapang Buho WL percent duration curve (Mar to Dec 2009)

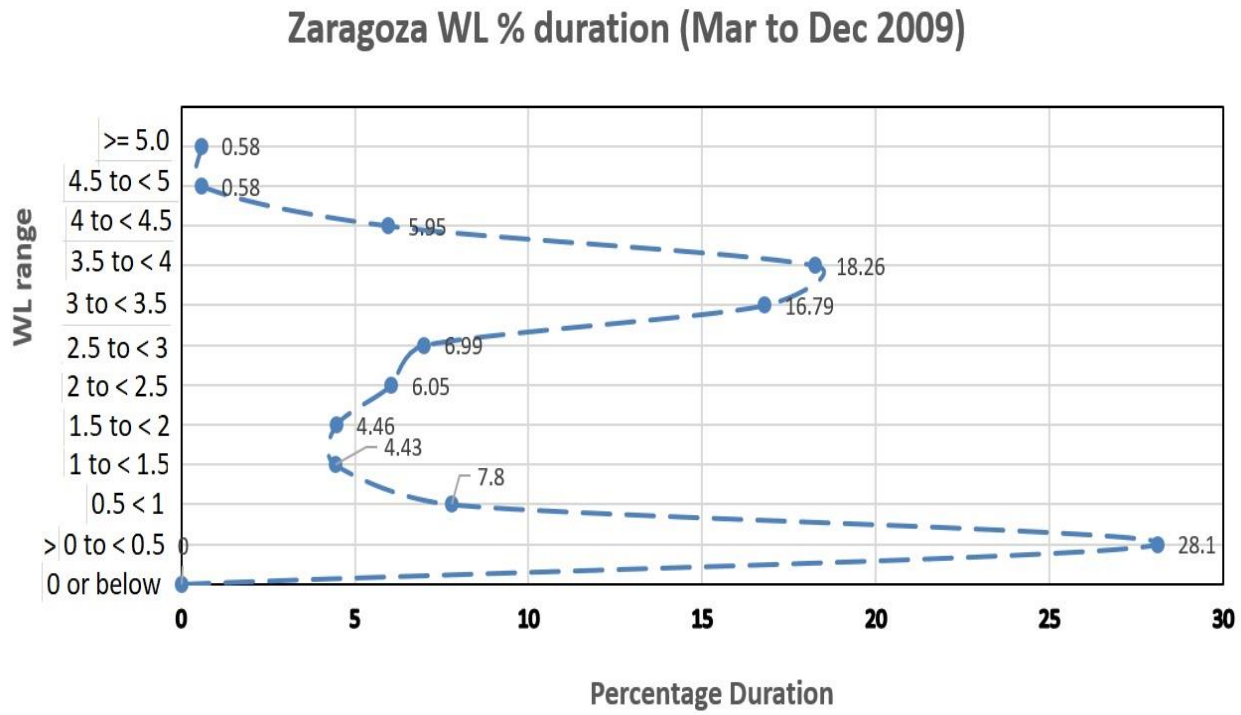


Figure AA-3. Zaragoza WL percent duration curve (Mar to Dec 2009)

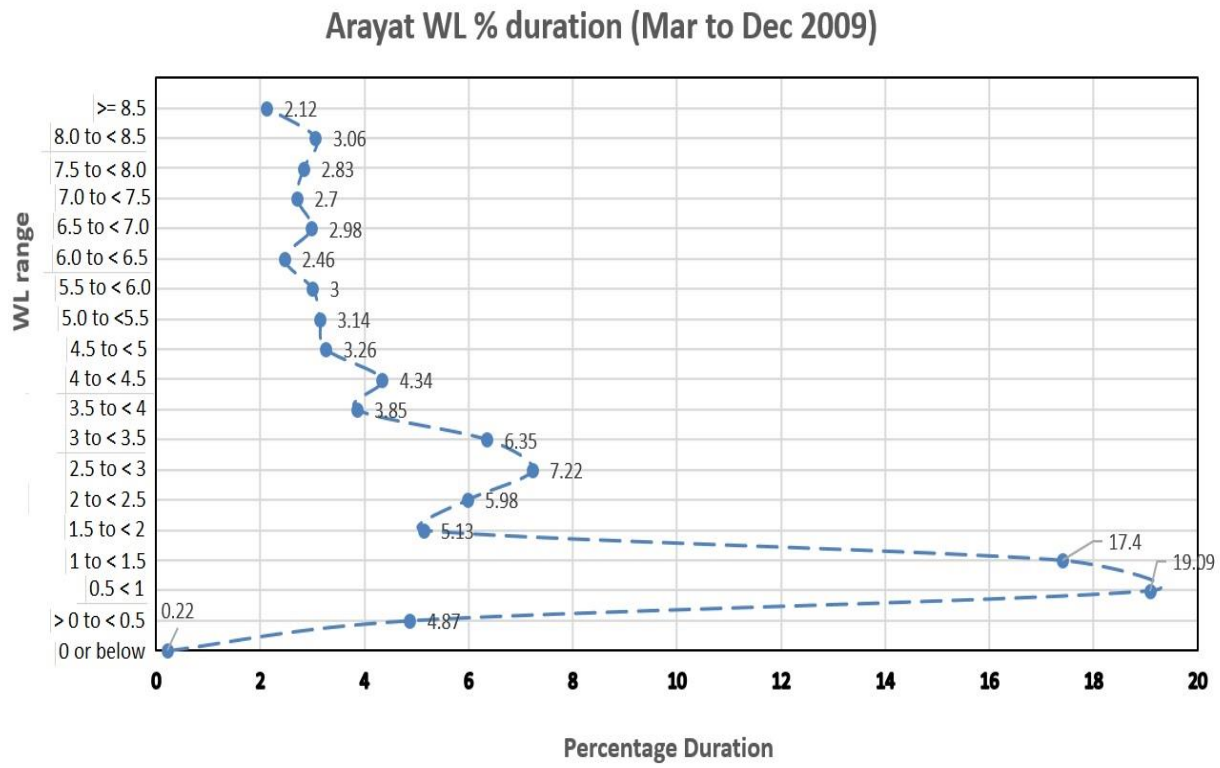


Figure AA-4. Arayat WL percent duration curve (Mar to Dec 2009)

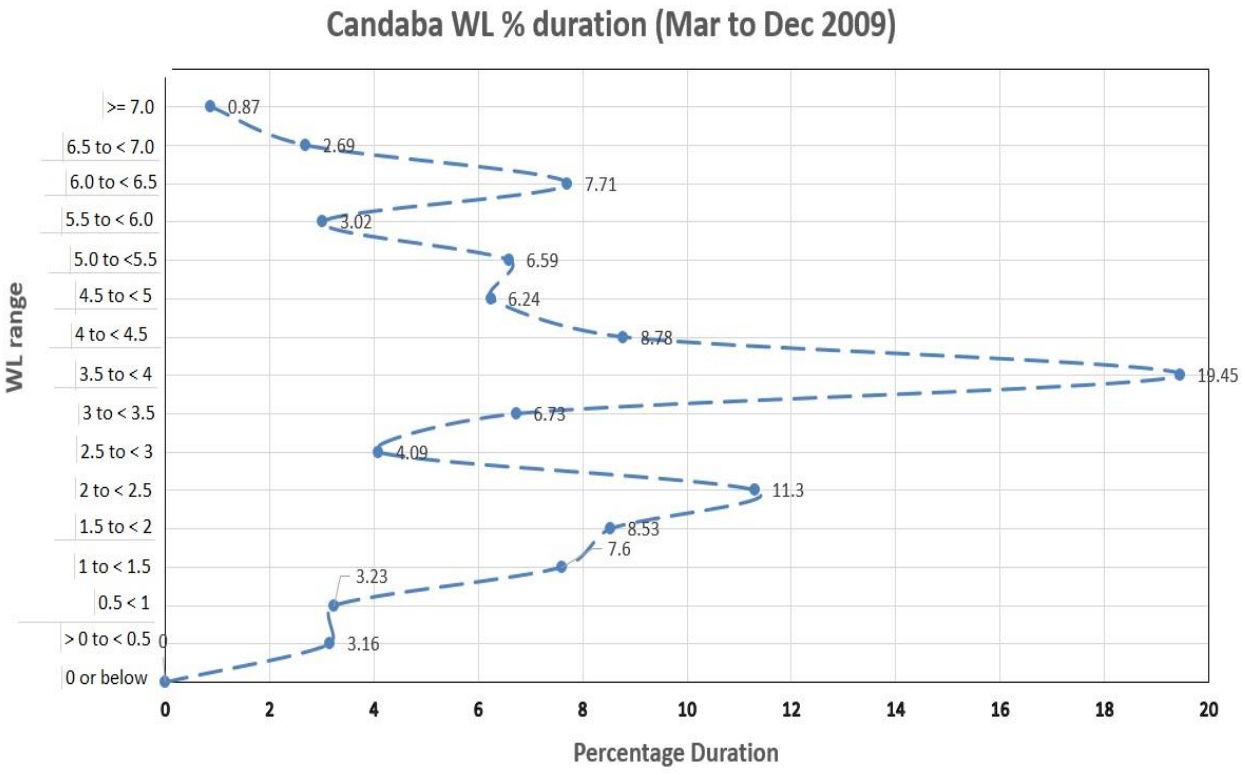


Figure AA-5. Candaba WL percent duration curve (Mar to Dec 2009)

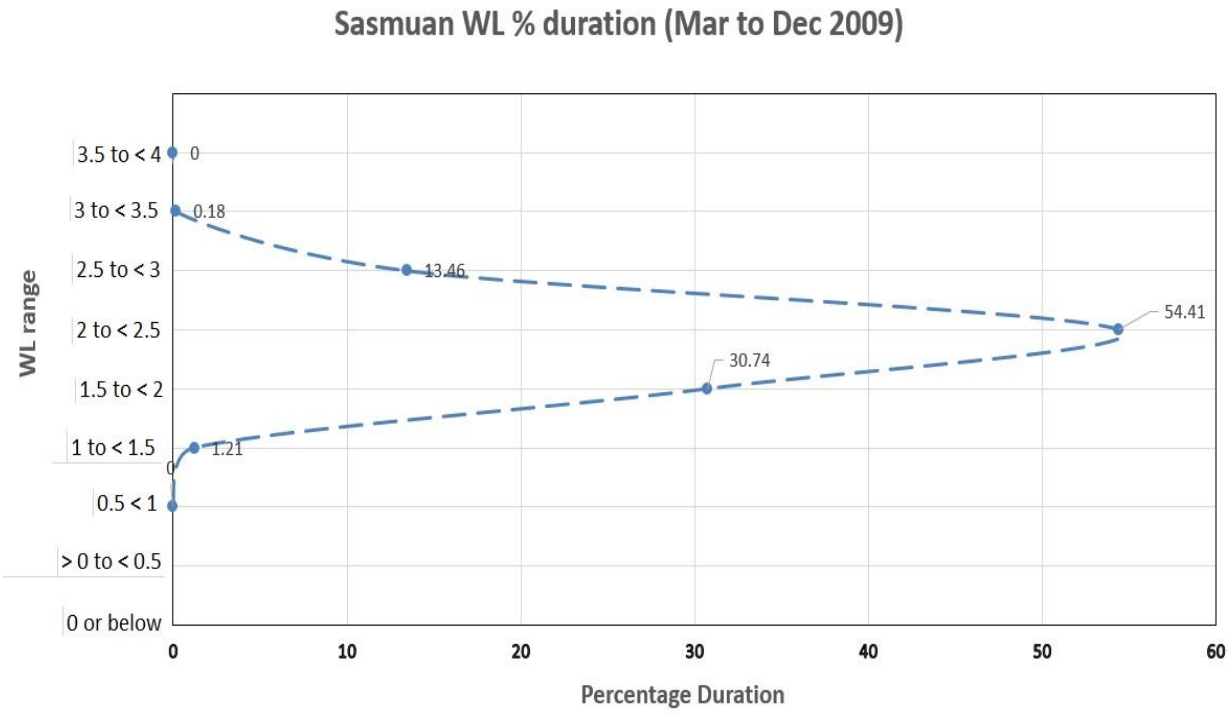


Figure AA-6. Sasmuan WL percent duration curve (Mar to Dec 2009)

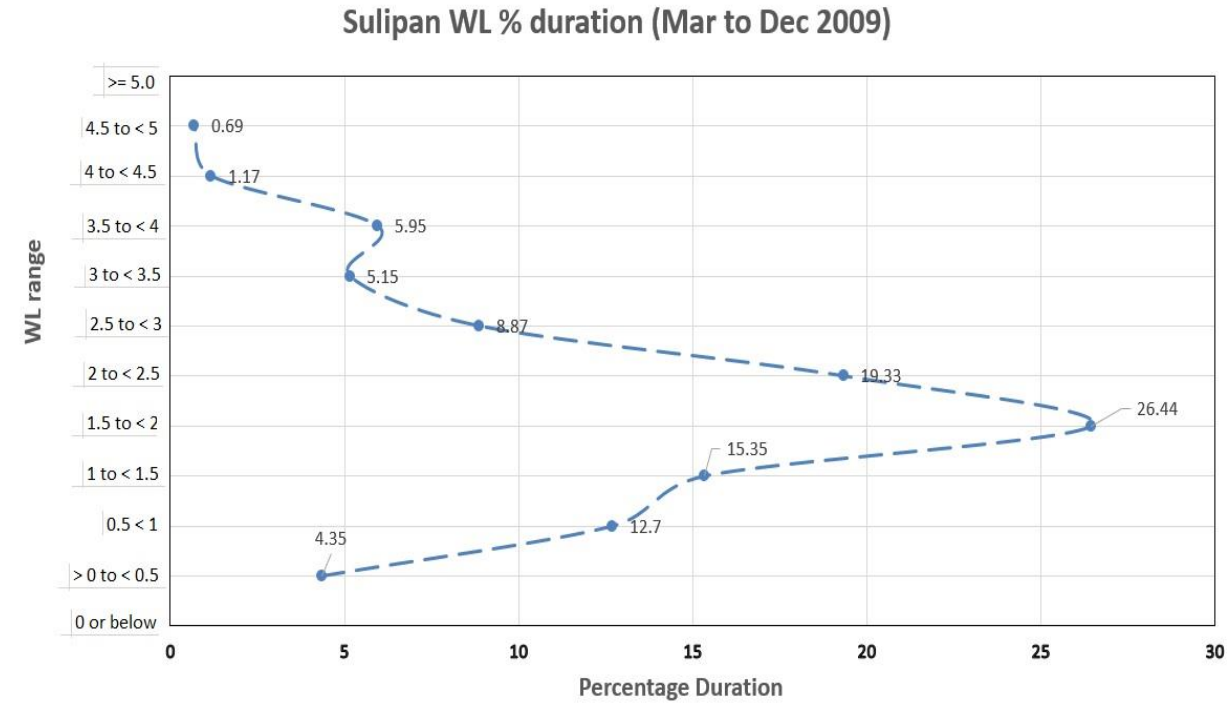


Figure AA-7. Sulipan WL percent duration curve (Mar to Dec 2009)

Note: Other WL stations were not included in WL percent duration curves as most of their observations are either erroneous, and / or zero such as for San Isidro, Peñaranda and Mayapyap stations.

PRFFWC report 2021

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Back Cover: View of the Pampanga River from San Agustin Bridge with the majestic Mt. Arayat in the background (March 25, 2009)