



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)

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

Yearbook 2011

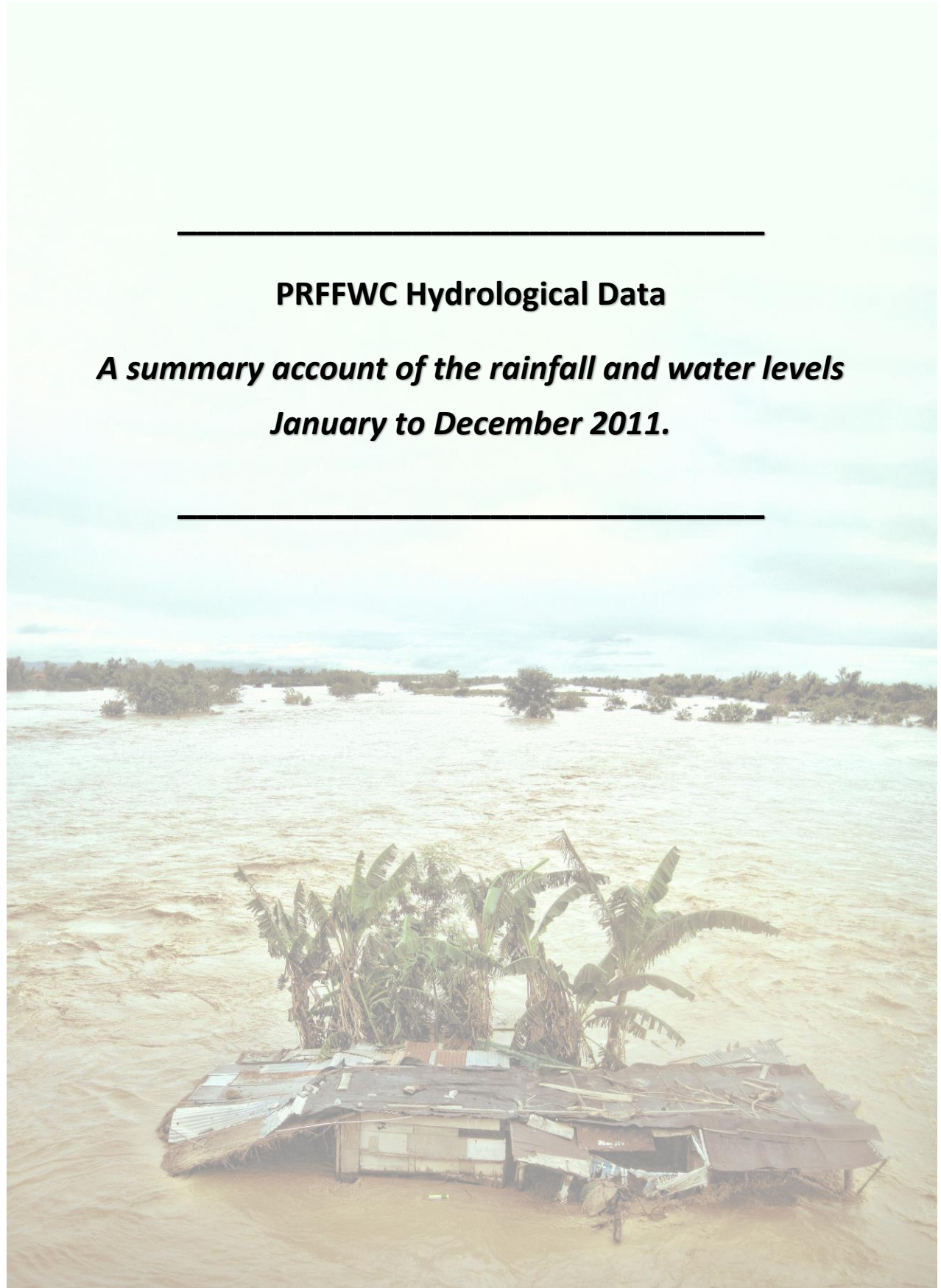
(March 2021)





Front Cover:  
A View of the Pampanga River from San Agustin Bridge in Arayat, Province of  
Pampanga with the majestic Mt. Arayat in the background. (24 October 2011)  
*Photograph: H. Hernando Edited by: M. Joson*





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## **PRFFWC Hydrological Data**

***A summary account of the rainfall and water levels  
January to December 2011.***

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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
- 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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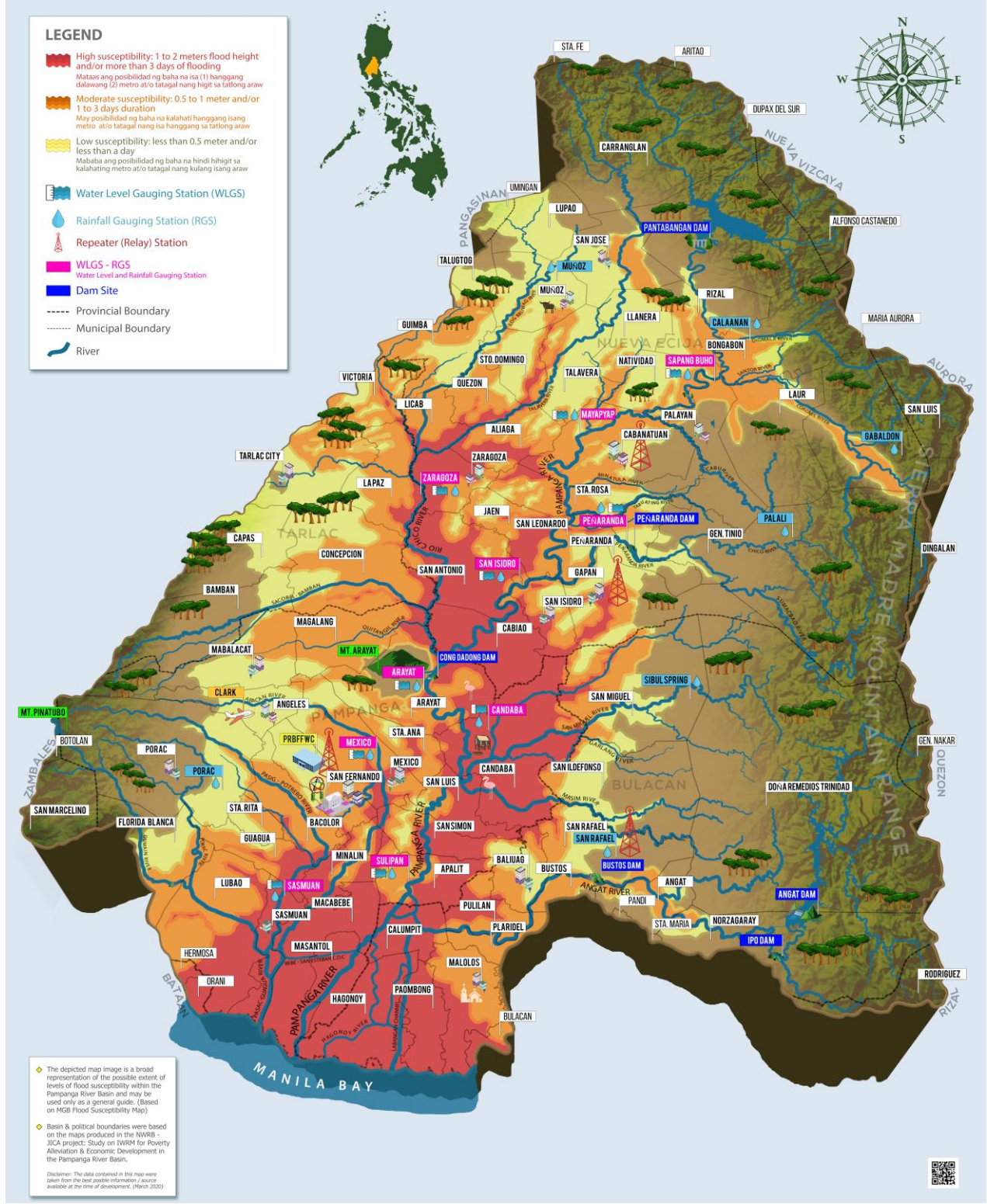




*The PRFFWC Telemetry Tower within the PRFFWC compound located in DMGC, Bgy. Maimpis, CSFP.*



# PAMPANGA RIVER BASIN FLOOD SUSCEPTIBILITY MAP (ANTAS NG PAGBAHA SA PAMPANGA RIVER BASIN)



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



- This Annual Hydrological Data Summary Yearbook is a summary of the rainfall and water level data observed and recorded by the telemetry system of the PRFFWC for the year 2011.
- 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 are the telemetry stations' data loggers that is if the data exist.
- No attempts were made to fill-in the gaps and breaks in the data series when there are no data available in the loggers except only for those with relatively short gap periods.
- Obvious and / or suspected data errors were directly deleted from the data series. However, these were done after doing some data consistency check, reference to field reports, and / or field station instrument validation.
- For further information and clarification on the general buildup of the PRFFWC data series please send a message to e-mail address: [prffwc@gmail.com](mailto:prffwc@gmail.com)

## Station Profile

Table of Rainfall and Water Level Stations of the PRFFWC

| Station       | Station Number   | Station Type<br>RR (rainfall) WL<br>(Water Level) | Location   | Coordinates<br>(estimated) |
|---------------|------------------|---|--|----------------------------|
|               | (DEC)<br>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,<br>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,<br>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,<br>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,<br>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,<br>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,<br>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,<br>121°11'09"E |
| Palali        | 68               | Telemetered RR                                    | Within Nueva Ecija Stock Farm in Bgy. Nazareth, Gen. Tinio, N.E.   | 15°22'50"N,<br>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,<br>120°54'09"E |
| Arayat        | 72               | Telemetered RR & WL                               | @ RB-D/S side of San Agustin Bridge, Arayat, Pampanga  | 15°10'06"N,<br>120°46'56"E |
| Candaba       | 73               | Telemetered RR & WL                               | Along Candaba-San Miguel road (Dukma) at Bgy. Paralaya, Candaba, Pampanga  | 15°06'56"N,<br>120°51'01"E |
| Sibul Spring  | 74               | Telemetered RR                                    | Bgy. Sibul, San Miguel, Bulacan  | 15°10'05"N,<br>121°03'33"E |
| Sasmuan       | 75               | Telemetered RR & WL                               | Bgy. Sta. Lucia (Poblacion), Sasmuan, Pampanga   | 14°56'11"N,<br>120°37'23"E |
| Sulipan       | 76               | Telemetered RR & WL                               | @ RB of Pampanga River at Bgy. Sulipan, Apalit, Pampanga   | 14°56'21"N,<br>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,<br>120°43'51"E |
| Porac         | 78               | Telemetered RR                                    | Within the municipal compound property, Bgy. Cangatba, Porac, Pampanga   | 15°04'48"N,<br>120°32'43"E |
| San Rafael    | 90               | Telemetered RR (Repeater)                         | NIA compound, Bgy. Sabang, Baliwag, Bulacan  | 14°58'05"N,<br>120°54'52"E |
| Cabanatuan    | 89               | Repeater station (no hydrological data reporting) | Within the NIA-UPRIIS Compound, Cabanatuan City  | 15°28'33"N,<br>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,<br>120°39'22"E |



## Scope and Limitations

1. This Data Yearbook presents the hydrological data summary of the 18 rainfall stations and 10 water level stations of the PRFFWC for the year 2011.
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, 2011, and will end at 0800H of 01 January 2012.
3. Accordingly, it follows a 24-hour daily total (or average for WL) which starts at (practically) 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 met day.
4. The shortest time period considered in this summary report is 1 hour.
5. Units used for some of the hydrological elements:
  - a. Rainfall – millimeters (mm)
  - b. Water Level (River Stage) – 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 day – rain-days
6. 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;
7. 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;
8. 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.
9. 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.

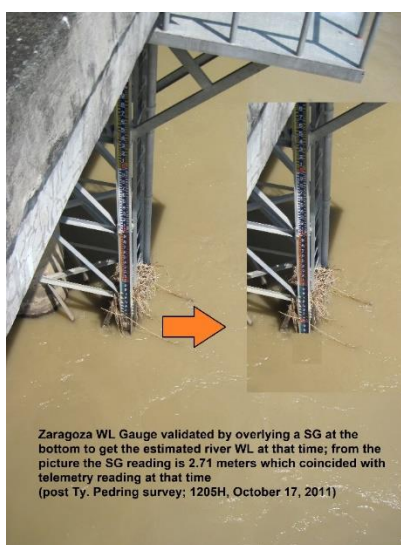
*Disclaimer: The dataset summary presented herein have been processed and validated through several steps using the best possible means available to the PRFFWC at the time of processing. However, still it is possible that results may contain inadvertent errors such as typographical in nature, errors 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 2011

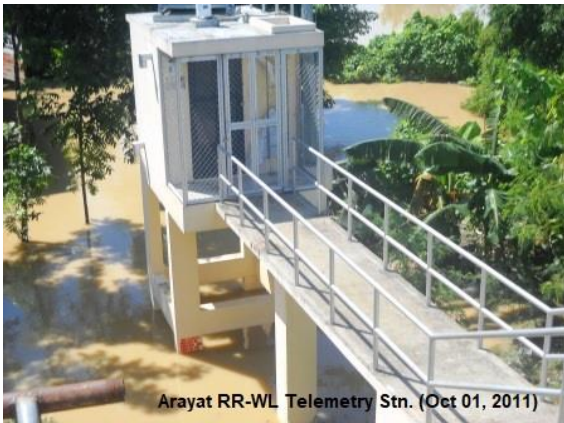
1. January: San Isidro and Mexico WL are zero for the whole month; Available data for Mayapyap WL are all zero for the month; Porac and San Rafael RR have no data for the following period: 1900H, 14 to 0500H, 19; 1600H, 19 to 0200H, 20; 1800H, 20 to 0200H, 21.
2. February: Mayapyap WL is zero for the whole month and was not included in the summary; Peñaranda & San Isidro WL are all zero as well for the whole month.
3. March: Mayapyap WL in the first 9 days were not included in the series; San Isidro WL remained zero for the whole month.
4. April: Mayapyap, San Isidro, and Mexico WL are zero for the whole month; No RR data for Calaanan for the period 2000H, 09 to 1700H, 12.
5. May: Mayapyap, Peñaranda & San Isidro WL are all zero for the whole month; San Rafael RR has no data for the period 2100H, 18 to 0900H, 24.
6. June: San Rafael RR as per supervisory data is relatively too low and highly doubtful; no logger data available except in last half of the month (as per DMPS data) at 1700H, 29.
7. July: Candaba RR is relatively too low for the month (doubtful starting around 0000H, 24 until end of month when all of its observations are zero for that period).
8. August: San Rafael supervisory RR is erroneous and was replaced with data loggers record; Candaba RR is rather doubtful at the beginning of the month; Porac RR also seems doubtful starting August 24 until end of the month; Arayat WL was vandalized and was out of order starting 0200H, 22.
9. September: Arayat WL remained out of order for the whole month; based on the post-flood survey and from flood marks (Ty. Pedring) maximum level attained during the event was about 10.6 meters which happened around early morning of September 30.
10. October: Arayat WL remained out of order for the whole month.
11. November: Arayat WL was restored 1400H, 24; gradual to rapid rise at end of the data series period may possibly be attributed to effects of the Cong Dadong Dam.
12. December: Arayat WL was again out of order starting 2300H, 16.

WL validation pictures taken after event Ty. Pedring-Quiel (Sept-Oct 2011)





## A. RAINFALL Data Summary Presentation



## Daily Point Rainfall in millimeters (meteorological day)

| 2011 | Station: Muñoz |     |     |     |     |     |     |     |     |     |     |     |
|------|----------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Day  | Jan            | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
| 1    | 0              | 0   | 0   | 0   | 0   | 0   | 0   | 2   | 1   | 164 | 0   | 9   |
| 2    | 0              | 0   | 0   | 0   | 0   | 0   | 4   | 7   | 0   | 7   | 3   | 1   |
| 3    | 0              | 0   | 0   | 0   | 0   | 0   | 4   | 5   | 3   | 2   | 8   | 1   |
| 4    | 0              | 0   | 0   | 0   | 0   | 0   | 1   | 1   | 23  | 1   | 46  | 32  |
| 5    | 0              | 0   | 1   | 0   | 0   | 0   | 3   | 53  | 1   | 0   | 18  | 0   |
| 6    | 0              | 0   | 0   | 0   | 0   | 0   | 7   | 52  | 0   | 5   | 7   | 0   |
| 7    | 0              | 0   | 0   | 0   | 0   | 15  | 3   | 12  | 0   | 6   | 1   | 6   |
| 8    | 0              | 0   | 0   | 0   | 0   | 26  | 16  | 0   | 8   | 14  | 0   | 3   |
| 9    | 9              | 0   | 0   | 0   | 125 | 2   | 9   | 0   | 2   | 14  | 0   | 14  |
| 10   | 0              | 0   | 0   | 0   | 0   | 18  | 0   | 56  | 4   | 0   | 0   | 5   |
| 11   | 0              | 0   | 0   | 0   | 0   | 1   | 2   | 0   | 3   | 0   | 0   | 0   |
| 12   | 1              | 0   | 0   | 0   | 0   | 0   | 1   | 0   | 0   | 12  | 0   | 0   |
| 13   | 0              | 0   | 0   | 1   | 0   | 0   | 7   | 1   | 0   | 1   | 0   | 0   |
| 14   | 0              | 0   | 0   | 0   | 0   | 0   | 0   | 6   | 8   | 0   | 0   | 0   |
| 15   | 46             | 0   | 0   | 0   | 0   | 0   | 0   | 1   | 23  | 0   | 51  | 0   |
| 16   | 0              | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 1   | 2   | 0   | 0   |
| 17   | 0              | 0   | 0   | 0   | 0   | 8   | 10  | 0   | 32  | 0   | 1   | 0   |
| 18   | 0              | 0   | 0   | 0   | 10  | 2   | 7   | 0   | 15  | 36  | 0   | 0   |
| 19   | 0              | 0   | 0   | 0   | 0   | 14  | 22  | 0   | 1   | 7   | 0   | 0   |
| 20   | 0              | 0   | 0   | 0   | 0   | 7   | 0   | 0   | 0   | 3   | 0   | 0   |
| 21   | 0              | 0   | 0   | 0   | 0   | 4   | 0   | 0   | 0   | 2   | 0   | 0   |
| 22   | 0              | 0   | 0   | 0   | 6   | 0   | 0   | 1   | 0   | 0   | 0   | 0   |
| 23   | 0              | 0   | 0   | 0   | 24  | 17  | 0   | 42  | 23  | 0   | 0   | 0   |
| 24   | 0              | 0   | 0   | 0   | 13  | 2   | 14  | 0   | 0   | 0   | 0   | 0   |
| 25   | 0              | 0   | 0   | 0   | 23  | 1   | 3   | 0   | 22  | 0   | 0   | 0   |
| 26   | 0              | 0   | 0   | 0   | 4   | 1   | 36  | 40  | 66  | 0   | 0   | 0   |
| 27   | 0              | 0   | 0   | 0   | 6   | 0   | 47  | 37  | 175 | 0   | 0   | 0   |
| 28   | 0              | 0   | 0   | 2   | 6   | 0   | 6   | 9   | 6   | 0   | 0   | 0   |
| 29   | 0              |     | 0   | 0   | 16  | 0   | 4   | 3   | 0   | 0   | 0   | 0   |
| 30   | 0              |     | 0   | 0   | 6   | 25  | 6   | 5   | 1   | 1   | 0   | 0   |
| 31   | 0              |     | 0   |     | 0   |     | 7   | 2   |     | 0   |     | 0   |

|                  |      |      |      |      |      |      |      |       |       |      |      |      |
|------------------|------|------|------|------|------|------|------|-------|-------|------|------|------|
| Monthly Total    | 56   | 0    | 1    | 3    | 239  | 143  | 219  | 335   | 418   | 277  | 135  | 71   |
| Average          | 1.81 | 0.00 | 0.03 | 0.10 | 7.71 | 4.77 | 7.06 | 10.81 | 13.93 | 8.94 | 4.50 | 2.29 |
| Max daily rain   | 46   | 0    | 1    | 2    | 125  | 26   | 47   | 56    | 175   | 164  | 51   | 32   |
| Day of Max Daily | 15   |      | 5    | 28   | 9    | 8    | 27   | 10    | 27    | 1    | 15   | 4    |
| No. of Rain days | 3    | 0    | 1    | 2    | 11   | 15   | 22   | 19    | 20    | 16   | 8    | 8    |
| Max 1-hr rain    | 24   |      | 1    | 2    | 19   | 13   | 22   | 54    | 35    | 26   | 10   | 10   |
| Day of max 1-hr  | 15   |      | 6    | 28   | 9    | 11   | 19   | 10    | 27    | 1    | 15   | 5    |

|                              |      |
|------------------------------|------|
| Total rain for the year      | 1897 |
| Total rain days for the year | 125  |



## Daily Point Rainfall in millimeters (meteorological day)

2011

Station:

Sapang\_Buho

| Day | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 1   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 3   | 1   | 97  | 3   | 0   |
| 2   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 4   | 1   | 11  | 7   | 14  |
| 3   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 9   | 1   | 0   | 31  | 0   |
| 4   | 0   | 0   | 0   | 0   | 0   | 0   | 4   | 0   | 5   | 10  | 62  | 58  |
| 5   | 0   | 0   | 2   | 0   | 0   | 0   | 8   | 36  | 9   | 0   | 29  | 0   |
| 6   | 0   | 0   | 1   | 0   | 0   | 0   | 45  | 1   | 2   | 0   | 2   | 0   |
| 7   | 0   | 0   | 0   | 0   | 0   | 12  | 19  | 9   | 0   | 4   | 0   | 0   |
| 8   | 0   | 0   | 0   | 0   | 9   | 37  | 22  | 0   | 3   | 35  | 0   | 1   |
| 9   | 35  | 0   | 0   | 0   | 81  | 2   | 8   | 2   | 2   | 35  | 0   | 21  |
| 10  | 0   | 0   | 0   | 0   | 37  | 6   | 1   | 26  | 9   | 1   | 0   | 21  |
| 11  | 0   | 0   | 0   | 0   | 0   | 0   | 2   | 0   | 3   | 0   | 0   | 0   |
| 12  | 0   | 0   | 0   | 0   | 0   | 0   | 14  | 0   | 3   | 13  | 0   | 0   |
| 13  | 0   | 0   | 0   | 0   | 0   | 0   | 4   | 0   | 0   | 5   | 0   | 0   |
| 14  | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 3   | 1   | 0   | 2   | 0   |
| 15  | 11  | 0   | 0   | 0   | 0   | 0   | 0   | 1   | 1   | 0   | 64  | 0   |
| 16  | 1   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 11  | 0   | 0   | 0   |
| 17  | 0   | 0   | 0   | 0   | 0   | 12  | 0   | 0   | 24  | 0   | 4   | 0   |
| 18  | 0   | 0   | 0   | 0   | 11  | 9   | 0   | 0   | 13  | 0   | 0   | 4   |
| 19  | 2   | 0   | 0   | 3   | 0   | 6   | 0   | 2   | 2   | 3   | 0   | 0   |
| 20  | 0   | 0   | 0   | 0   | 0   | 11  | 0   | 1   | 0   | 0   | 0   | 0   |
| 21  | 0   | 0   | 0   | 0   | 0   | 2   | 4   | 0   | 0   | 0   | 0   | 0   |
| 22  | 0   | 0   | 0   | 0   | 4   | 0   | 0   | 2   | 14  | 0   | 0   | 0   |
| 23  | 0   | 0   | 0   | 0   | 34  | 88  | 0   | 52  | 8   | 0   | 1   | 0   |
| 24  | 0   | 0   | 0   | 0   | 9   | 105 | 4   | 1   | 0   | 0   | 0   | 0   |
| 25  | 0   | 0   | 0   | 0   | 0   | 44  | 17  | 1   | 22  | 4   | 0   | 0   |
| 26  | 0   | 0   | 0   | 4   | 4   | 2   | 50  | 38  | 141 | 0   | 0   | 0   |
| 27  | 0   | 0   | 0   | 0   | 1   | 0   | 32  | 21  | 183 | 0   | 0   | 0   |
| 28  | 0   | 0   | 0   | 0   | 14  | 0   | 4   | 32  | 8   | 0   | 0   | 0   |
| 29  | 0   |     | 0   | 0   | 13  | 0   | 71  | 4   | 0   | 0   | 0   | 0   |
| 30  | 0   |     | 0   | 0   | 1   | 8   | 4   | 3   | 1   | 0   | 0   | 0   |
| 31  | 0   |     | 0   |     | 0   |     | 4   | 1   |     | 0   |     | 0   |

|                  |      |      |      |      |      |       |       |      |       |      |      |      |
|------------------|------|------|------|------|------|-------|-------|------|-------|------|------|------|
| Monthly Total    | 49   | 0    | 3    | 7    | 218  | 344   | 317   | 252  | 468   | 218  | 205  | 119  |
| Average          | 1.58 | 0.00 | 0.10 | 0.23 | 7.03 | 11.47 | 10.23 | 8.13 | 15.60 | 7.03 | 6.83 | 3.84 |
| Max daily rain   | 35   | 0    | 2    | 4    | 81   | 105   | 71    | 52   | 183   | 97   | 64   | 58   |
| Day of Max Daily | 9    |      | 5    | 26   | 9    | 24    | 29    | 23   | 27    | 1    | 15   | 4    |
| No. of Rain days | 4    | 0    | 2    | 2    | 12   | 14    | 19    | 22   | 24    | 11   | 10   | 6    |
| Max 1-hr rain    | 9    |      | 1    | 2    | 33   | 30    | 48    | 28   | 26    | 20   | 15   | 13   |
| Day of max 1-hr  | 10   |      | 6    | 19   | 10   | 25    | 29    | 5    | 27    | 1    | 4    | 5    |

Total rain for the year

2200

Total rain days for the year

126

## Daily Point Rainfall in millimeters (meteorological day)

| 2011 | Station: Gabaldon |     |     |     |     |     |     |     |     |     |     |     |
|------|-------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Day  | Jan               | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
| 1    | 0                 | 0   | 0   | 0   | 0   | 0   | 0   | 9   | 1   | 74  | 23  | 0   |
| 2    | 0                 | 0   | 0   | 0   | 0   | 0   | 0   | 3   | 1   | 15  | 10  | 1   |
| 3    | 0                 | 0   | 0   | 0   | 0   | 0   | 0   | 58  | 24  | 17  | 37  | 1   |
| 4    | 0                 | 1   | 0   | 0   | 0   | 2   | 3   | 0   | 11  | 7   | 125 | 81  |
| 5    | 0                 | 0   | 38  | 0   | 0   | 1   | 0   | 6   | 7   | 0   | 66  | 0   |
| 6    | 0                 | 0   | 12  | 0   | 0   | 0   | 2   | 1   | 3   | 0   | 3   | 16  |
| 7    | 0                 | 0   | 11  | 0   | 0   | 4   | 14  | 3   | 20  | 8   | 0   | 3   |
| 8    | 0                 | 0   | 0   | 2   | 57  | 139 | 7   | 0   | 2   | 83  | 0   | 2   |
| 9    | 80                | 0   | 0   | 1   | 84  | 1   | 17  | 0   | 5   | 42  | 0   | 54  |
| 10   | 3                 | 0   | 0   | 0   | 1   | 22  | 5   | 3   | 54  | 25  | 0   | 40  |
| 11   | 0                 | 0   | 0   | 0   | 0   | 2   | 4   | 0   | 3   | 3   | 0   | 0   |
| 12   | 2                 | 0   | 0   | 0   | 0   | 0   | 17  | 0   | 11  | 34  | 0   | 0   |
| 13   | 0                 | 0   | 0   | 0   | 0   | 3   | 20  | 10  | 1   | 11  | 0   | 0   |
| 14   | 0                 | 0   | 0   | 0   | 0   | 0   | 0   | 30  | 10  | 1   | 22  | 0   |
| 15   | 0                 | 0   | 0   | 0   | 0   | 1   | 0   | 0   | 10  | 0   | 223 | 0   |
| 16   | 0                 | 0   | 0   | 0   | 0   | 18  | 0   | 0   | 16  | 0   | 20  | 0   |
| 17   | 0                 | 0   | 0   | 0   | 1   | 15  | 2   | 1   | 9   | 0   | 20  | 14  |
| 18   | 0                 | 0   | 0   | 0   | 45  | 27  | 16  | 2   | 12  | 0   | 1   | 17  |
| 19   | 1                 | 0   | 0   | 0   | 0   | 18  | 8   | 2   | 9   | 12  | 0   | 1   |
| 20   | 0                 | 0   | 0   | 0   | 0   | 30  | 0   | 0   | 0   | 1   | 1   | 0   |
| 21   | 0                 | 0   | 0   | 0   | 0   | 13  | 0   | 0   | 3   | 0   | 10  | 0   |
| 22   | 0                 | 0   | 0   | 0   | 0   | 1   | 0   | 1   | 9   | 0   | 0   | 3   |
| 23   | 1                 | 0   | 0   | 0   | 0   | 34  | 0   | 35  | 9   | 0   | 6   | 0   |
| 24   | 10                | 0   | 0   | 0   | 0   | 110 | 0   | 3   | 0   | 0   | 9   | 0   |
| 25   | 0                 | 0   | 0   | 0   | 0   | 31  | 1   | 46  | 15  | 0   | 4   | 0   |
| 26   | 0                 | 0   | 0   | 0   | 37  | 0   | 105 | 35  | 422 | 0   | 1   | 0   |
| 27   | 0                 | 0   | 0   | 0   | 21  | 0   | 61  | 23  | 184 | 0   | 0   | 0   |
| 28   | 0                 | 0   | 0   | 0   | 10  | 0   | 4   | 44  | 3   | 0   | 0   | 0   |
| 29   | 0                 |     | 0   | 10  | 6   | 1   | 1   | 5   | 0   | 0   | 0   | 1   |
| 30   | 0                 |     | 0   | 0   | 9   | 1   | 4   | 6   | 19  | 0   | 0   | 0   |
| 31   | 0                 |     | 0   |     | 0   |     | 4   | 3   |     | 0   |     | 0   |

|                  |      |      |      |      |      |       |      |       |       |       |       |      |
|------------------|------|------|------|------|------|-------|------|-------|-------|-------|-------|------|
| Monthly Total    | 97   | 1    | 61   | 13   | 271  | 474   | 295  | 329   | 873   | 333   | 581   | 234  |
| Average          | 3.13 | 0.04 | 1.97 | 0.43 | 8.74 | 15.80 | 9.52 | 10.61 | 29.10 | 10.74 | 19.37 | 7.55 |
| Max daily rain   | 80   | 1    | 38   | 10   | 84   | 139   | 105  | 58    | 422   | 83    | 223   | 81   |
| Day of Max Daily | 9    | 4    | 5    | 29   | 9    | 8     | 26   | 3     | 26    | 8     | 15    | 4    |
| No. of Rain days | 6    | 1    | 3    | 3    | 10   | 21    | 19   | 22    | 27    | 14    | 17    | 13   |
| Max 1-hr rain    | 14   | 1    | 10   | 6    | 31   | 26    | 20   | 34    | 37    | 23    | 28    | 14   |
| Day of max 1-hr  | 9    | 5    | 7    | 30   | 18   | 25    | 13   | 3     | 27    | 1     | 15    | 4    |

|                              |      |
|------------------------------|------|
| Total rain for the year      | 3562 |
| Total rain days for the year | 156  |



## Daily Point Rainfall in millimeters (meteorological day)

| 2011 | Station: Zaragoza |     |     |     |     |     |     |     |     |     |     |     |
|------|-------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Day  | Jan               | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
| 1    | 0                 | 0   | 6   | 0   | 0   | 0   | 4   | 11  | 5   | 102 | 5   | 24  |
| 2    | 0                 | 0   | 0   | 0   | 0   | 0   | 0   | 4   | 0   | 12  | 0   | 45  |
| 3    | 0                 | 0   | 0   | 0   | 0   | 0   | 0   | 1   | 0   | 2   | 11  | 1   |
| 4    | 0                 | 0   | 0   | 0   | 0   | 0   | 4   | 0   | 16  | 0   | 26  | 32  |
| 5    | 0                 | 0   | 5   | 0   | 0   | 0   | 0   | 1   | 9   | 0   | 12  | 0   |
| 6    | 0                 | 0   | 0   | 0   | 0   | 0   | 7   | 4   | 0   | 0   | 49  | 3   |
| 7    | 0                 | 0   | 1   | 0   | 0   | 9   | 10  | 3   | 0   | 11  | 4   | 0   |
| 8    | 0                 | 2   | 0   | 0   | 0   | 21  | 2   | 0   | 0   | 20  | 0   | 0   |
| 9    | 8                 | 0   | 0   | 0   | 52  | 7   | 1   | 16  | 0   | 17  | 0   | 19  |
| 10   | 0                 | 0   | 0   | 0   | 4   | 0   | 6   | 0   | 0   | 0   | 0   | 1   |
| 11   | 0                 | 0   | 0   | 0   | 0   | 0   | 9   | 0   | 1   | 0   | 0   | 0   |
| 12   | 0                 | 0   | 0   | 0   | 0   | 0   | 14  | 0   | 1   | 25  | 0   | 0   |
| 13   | 0                 | 0   | 0   | 0   | 17  | 0   | 17  | 1   | 3   | 3   | 0   | 0   |
| 14   | 0                 | 0   | 0   | 0   | 0   | 3   | 1   | 8   | 24  | 0   | 0   | 0   |
| 15   | 0                 | 0   | 0   | 0   | 0   | 5   | 0   | 3   | 15  | 0   | 37  | 0   |
| 16   | 0                 | 0   | 0   | 0   | 0   | 3   | 0   | 14  | 1   | 0   | 0   | 0   |
| 17   | 0                 | 0   | 0   | 0   | 0   | 1   | 28  | 7   | 11  | 9   | 0   | 0   |
| 18   | 0                 | 0   | 0   | 2   | 8   | 1   | 0   | 0   | 33  | 0   | 0   | 0   |
| 19   | 0                 | 0   | 0   | 0   | 3   | 10  | 0   | 0   | 8   | 10  | 0   | 0   |
| 20   | 0                 | 0   | 0   | 0   | 1   | 25  | 0   | 0   | 9   | 0   | 0   | 0   |
| 21   | 0                 | 0   | 0   | 0   | 0   | 15  | 20  | 0   | 0   | 3   | 0   | 0   |
| 22   | 0                 | 0   | 0   | 0   | 12  | 1   | 4   | 28  | 27  | 0   | 0   | 0   |
| 23   | 0                 | 0   | 0   | 0   | 21  | 72  | 0   | 4   | 7   | 0   | 0   | 0   |
| 24   | 0                 | 0   | 0   | 0   | 3   | 96  | 0   | 0   | 1   | 0   | 0   | 0   |
| 25   | 0                 | 0   | 0   | 0   | 11  | 66  | 0   | 0   | 1   | 0   | 0   | 0   |
| 26   | 0                 | 0   | 0   | 0   | 1   | 7   | 110 | 32  | 46  | 0   | 0   | 0   |
| 27   | 0                 | 0   | 0   | 0   | 7   | 5   | 46  | 26  | 170 | 0   | 0   | 0   |
| 28   | 0                 | 0   | 0   | 0   | 3   | 0   | 3   | 17  | 8   | 0   | 0   | 0   |
| 29   | 0                 |     | 0   | 0   | 45  | 0   | 16  | 23  | 0   | 0   | 0   | 0   |
| 30   | 0                 |     | 0   | 0   | 0   | 11  | 6   | 20  | 0   | 0   | 0   | 0   |
| 31   | 0                 |     | 0   |     | 0   |     | 10  | 10  |     | 0   |     | 0   |

|                  |      |      |      |      |      |       |       |      |       |      |      |      |
|------------------|------|------|------|------|------|-------|-------|------|-------|------|------|------|
| Monthly Total    | 8    | 2    | 12   | 2    | 188  | 358   | 318   | 233  | 396   | 214  | 144  | 125  |
| Average          | 0.26 | 0.07 | 0.39 | 0.07 | 6.06 | 11.93 | 10.26 | 7.52 | 13.20 | 6.90 | 4.80 | 4.03 |
| Max daily rain   | 8    | 2    | 6    | 2    | 52   | 96    | 110   | 32   | 170   | 102  | 49   | 45   |
| Day of Max Daily | 9    | 8    | 1    | 18   | 9    | 24    | 26    | 26   | 27    | 1    | 6    | 2    |
| No. of Rain days | 1    | 1    | 3    | 1    | 14   | 18    | 20    | 20   | 20    | 11   | 7    | 7    |
| Max 1-hr rain    | 3    | 1    | 3    | 2    | 29   | 22    | 66    | 27   | 33    | 23   | 13   | 34   |
| Day of max 1-hr  | 10   | 8    | 2    | 18   | 29   | 25    | 26    | 22   | 27    | 1    | 6    | 2    |

|                              |      |
|------------------------------|------|
| Total rain for the year      | 2000 |
| Total rain days for the year | 123  |

## Daily Point Rainfall in millimeters (meteorological day)

| 2011 | Station: Mayapyap |     |     |     |     |     |     |     |     |     |     |     |
|------|-------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Day  | Jan               | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
| 1    | 0                 | 0   | 5   | 0   | 0   | 0   | 0   | 6   | 2   | 68  | 0   | 28  |
| 2    | 0                 | 0   | 0   | 0   | 0   | 0   | 0   | 1   | 0   | 5   | 4   | 60  |
| 3    | 0                 | 0   | 0   | 0   | 0   | 7   | 0   | 3   | 0   | 5   | 18  | 12  |
| 4    | 0                 | 0   | 0   | 0   | 0   | 0   | 4   | 0   | 1   | 11  | 44  | 35  |
| 5    | 0                 | 0   | 2   | 0   | 0   | 0   | 1   | 8   | 0   | 0   | 16  | 0   |
| 6    | 0                 | 0   | 1   | 0   | 0   | 0   | 3   | 3   | 0   | 0   | 18  | 0   |
| 7    | 0                 | 0   | 1   | 0   | 4   | 0   | 15  | 5   | 0   | 18  | 0   | 0   |
| 8    | 0                 | 2   | 0   | 0   | 5   | 26  | 13  | 0   | 12  | 20  | 0   | 1   |
| 9    | 36                | 0   | 0   | 0   | 49  | 4   | 1   | 8   | 8   | 33  | 0   | 18  |
| 10   | 0                 | 0   | 0   | 0   | 31  | 11  | 0   | 9   | 2   | 1   | 0   | 10  |
| 11   | 0                 | 0   | 0   | 0   | 0   | 0   | 3   | 5   | 14  | 0   | 4   | 0   |
| 12   | 0                 | 0   | 0   | 0   | 0   | 2   | 14  | 0   | 0   | 15  | 0   | 0   |
| 13   | 0                 | 0   | 0   | 0   | 0   | 5   | 5   | 1   | 10  | 2   | 0   | 0   |
| 14   | 0                 | 0   | 0   | 0   | 0   | 0   | 18  | 10  | 11  | 0   | 0   | 0   |
| 15   | 1                 | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 20  | 0   | 54  | 0   |
| 16   | 0                 | 0   | 0   | 0   | 0   | 1   | 0   | 4   | 4   | 16  | 2   | 0   |
| 17   | 0                 | 0   | 0   | 0   | 0   | 2   | 2   | 0   | 22  | 1   | 1   | 0   |
| 18   | 0                 | 0   | 0   | 0   | 5   | 3   | 0   | 0   | 25  | 0   | 0   | 0   |
| 19   | 0                 | 0   | 0   | 9   | 0   | 5   | 0   | 1   | 0   | 29  | 0   | 0   |
| 20   | 0                 | 0   | 0   | 0   | 0   | 10  | 0   | 0   | 0   | 9   | 0   | 0   |
| 21   | 0                 | 0   | 0   | 0   | 4   | 4   | 0   | 0   | 0   | 0   | 0   | 0   |
| 22   | 0                 | 0   | 0   | 0   | 7   | 0   | 0   | 10  | 1   | 0   | 0   | 0   |
| 23   | 0                 | 0   | 0   | 0   | 17  | 61  | 0   | 19  | 7   | 0   | 0   | 0   |
| 24   | 0                 | 0   | 0   | 0   | 28  | 112 | 3   | 0   | 0   | 0   | 0   | 0   |
| 25   | 0                 | 0   | 0   | 0   | 18  | 53  | 6   | 0   | 1   | 0   | 0   | 0   |
| 26   | 0                 | 0   | 0   | 0   | 5   | 3   | 64  | 37  | 82  | 0   | 0   | 0   |
| 27   | 0                 | 0   | 0   | 0   | 13  | 3   | 35  | 26  | 170 | 0   | 0   | 0   |
| 28   | 0                 | 0   | 2   | 0   | 1   | 0   | 1   | 22  | 16  | 0   | 0   | 0   |
| 29   | 0                 |     | 0   | 0   | 12  | 5   | 1   | 8   | 0   | 0   | 0   | 0   |
| 30   | 0                 |     | 0   | 0   | 0   | 76  | 5   | 9   | 1   | 0   | 0   | 0   |
| 31   | 0                 |     | 0   |     | 0   |     | 5   | 3   |     | 0   |     | 0   |

|                  |       |       |       |     |       |      |       |       |       |      |      |      |
|------------------|-------|-------|-------|-----|-------|------|-------|-------|-------|------|------|------|
| Monthly Total    | 37    | 2     | 11    | 9   | 199   | 393  | 199   | 198   | 409   | 233  | 161  | 164  |
| Average          | 1.194 | 0.071 | 0.355 | 0.3 | 6.419 | 13.1 | 6.419 | 6.387 | 13.63 | 7.52 | 5.37 | 5.29 |
| Max daily rain   | 36    | 2     | 5     | 9   | 49    | 112  | 64    | 37    | 170   | 68   | 54   | 60   |
| Day of Max Daily | 9     | 8     | 1     | 19  | 9     | 24   | 26    | 26    | 27    | 1    | 15   | 2    |
| No. of Rain days | 2     | 1     | 5     | 1   | 14    | 19   | 19    | 21    | 19    | 14   | 9    | 7    |
| Max 1-hr rain    | 10    | 2     | 5     | 8   | 30    | 36   | 17    | 9     | 26    | 23   | 15   | 36   |
| Day of max 1-hr  | 10    | 8     | 2     | 19  | 10    | 30   | 14    | 22    | 27    | 19   | 15   | 2    |

|                              |      |
|------------------------------|------|
| Total rain for the year      | 2015 |
| Total rain days for the year | 131  |

## Daily Point Rainfall in millimeters (meteorological day)

| 2011 | Station: Peñaranda |     |     |     |     |     |     |     |     |     |     |     |
|------|--------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Day  | Jan                | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
| 1    | 0                  | 0   | 20  | 0   | 0   | 0   | 0   | 22  | 3   | 37  | 1   | 12  |
| 2    | 0                  | 0   | 2   | 0   | 0   | 0   | 2   | 0   | 0   | 3   | 4   | 67  |
| 3    | 0                  | 0   | 0   | 0   | 0   | 0   | 0   | 3   | 0   | 0   | 34  | 0   |
| 4    | 0                  | 0   | 0   | 0   | 0   | 0   | 22  | 0   | 1   | 5   | 43  | 50  |
| 5    | 0                  | 0   | 9   | 0   | 0   | 0   | 0   | 20  | 5   | 4   | 25  | 0   |
| 6    | 0                  | 0   | 1   | 0   | 0   | 0   | 1   | 10  | 0   | 0   | 46  | 1   |
| 7    | 0                  | 0   | 0   | 0   | 0   | 0   | 50  | 3   | 0   | 17  | 0   | 0   |
| 8    | 0                  | 3   | 4   | 0   | 4   | 33  | 9   | 0   | 1   | 40  | 8   | 2   |
| 9    | 31                 | 0   | 0   | 0   | 71  | 7   | 3   | 0   | 3   | 42  | 0   | 32  |
| 10   | 0                  | 0   | 0   | 0   | 0   | 4   | 1   | 17  | 1   | 0   | 0   | 21  |
| 11   | 0                  | 0   | 0   | 0   | 0   | 0   | 1   | 0   | 2   | 0   | 30  | 0   |
| 12   | 0                  | 0   | 0   | 0   | 0   | 0   | 3   | 0   | 0   | 24  | 0   | 0   |
| 13   | 2                  | 0   | 0   | 0   | 0   | 0   | 4   | 2   | 0   | 4   | 0   | 0   |
| 14   | 0                  | 0   | 0   | 0   | 0   | 0   | 1   | 16  | 10  | 0   | 2   | 0   |
| 15   | 1                  | 0   | 0   | 0   | 2   | 13  | 1   | 1   | 7   | 0   | 43  | 0   |
| 16   | 0                  | 0   | 0   | 0   | 0   | 4   | 0   | 16  | 8   | 6   | 0   | 0   |
| 17   | 0                  | 0   | 0   | 0   | 0   | 4   | 4   | 18  | 14  | 0   | 4   | 1   |
| 18   | 0                  | 0   | 0   | 3   | 6   | 4   | 1   | 0   | 5   | 8   | 0   | 2   |
| 19   | 0                  | 0   | 0   | 4   | 0   | 17  | 11  | 6   | 1   | 4   | 0   | 0   |
| 20   | 0                  | 0   | 0   | 0   | 0   | 21  | 2   | 0   | 0   | 0   | 0   | 0   |
| 21   | 0                  | 0   | 0   | 0   | 0   | 7   | 14  | 2   | 0   | 0   | 1   | 0   |
| 22   | 0                  | 0   | 0   | 0   | 0   | 0   | 0   | 44  | 11  | 0   | 0   | 0   |
| 23   | 0                  | 0   | 0   | 0   | 77  | 29  | 0   | 7   | 17  | 0   | 0   | 0   |
| 24   | 0                  | 0   | 0   | 0   | 34  | 130 | 3   | 0   | 2   | 0   | 0   | 0   |
| 25   | 0                  | 0   | 0   | 0   | 1   | 45  | 0   | 1   | 1   | 0   | 0   | 0   |
| 26   | 0                  | 0   | 0   | 0   | 9   | 0   | 51  | 23  | 108 | 0   | 0   | 0   |
| 27   | 0                  | 0   | 1   | 0   | 21  | 0   | 34  | 9   | 199 | 0   | 0   | 0   |
| 28   | 0                  | 0   | 1   | 0   | 0   | 0   | 4   | 10  | 10  | 0   | 0   | 0   |
| 29   | 0                  |     | 0   | 0   | 18  | 0   | 1   | 10  | 1   | 0   | 0   | 0   |
| 30   | 0                  |     | 0   | 0   | 0   | 1   | 4   | 7   | 0   | 0   | 0   | 0   |
| 31   | 0                  |     | 0   |     | 0   |     | 9   | 9   |     | 0   |     | 0   |

|                  |      |      |      |      |      |       |      |      |       |      |      |      |
|------------------|------|------|------|------|------|-------|------|------|-------|------|------|------|
| Monthly Total    | 34   | 3    | 38   | 7    | 243  | 319   | 236  | 256  | 410   | 194  | 241  | 188  |
| Average          | 1.10 | 0.11 | 1.23 | 0.23 | 7.84 | 10.63 | 7.61 | 8.26 | 13.67 | 6.26 | 8.03 | 6.06 |
| Max daily rain   | 31   | 3    | 20   | 4    | 77   | 130   | 51   | 44   | 199   | 42   | 46   | 67   |
| Day of Max Daily | 9    | 8    | 1    | 19   | 23   | 24    | 26   | 22   | 27    | 9    | 6    | 2    |
| No. of Rain days | 3    | 1    | 7    | 2    | 10   | 14    | 24   | 22   | 21    | 12   | 12   | 9    |
| Max 1-hr rain    | 8    | 3    | 9    | 4    | 60   | 21    | 34   | 39   | 36    | 16   | 32   | 54   |
| Day of max 1-hr  | 9    | 8    | 2    | 19   | 23   | 24    | 7    | 22   | 27    | 9    | 6    | 2    |

|                              |      |
|------------------------------|------|
| Total rain for the year      | 2169 |
| Total rain days for the year | 137  |



## Daily Point Rainfall in millimeters (meteorological day)

| 2011 | Station: Calaanan |     |     |     |     |     |     |     |     |     |     |     |
|------|-------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Day  | Jan               | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
| 1    | 0                 | 0   | 0   | 0   | 0   | 0   | 0   | 5   | 1   | 112 | 2   | 0   |
| 2    | 0                 | 0   | 0   | 0   | 0   | 0   | 0   | 4   | 5   | 14  | 7   | 3   |
| 3    | 0                 | 0   | 0   | 0   | 0   | 0   | 0   | 19  | 0   | 1   | 22  | 1   |
| 4    | 0                 | 0   | 3   | 0   | 0   | 1   | 5   | 0   | 30  | 52  | 73  | 49  |
| 5    | 0                 | 0   | 9   | 0   | 0   | 0   | 3   | 53  | 9   | 0   | 21  | 0   |
| 6    | 0                 | 0   | 0   | 0   | 0   | 0   | 4   | 2   | 0   | 0   | 19  | 1   |
| 7    | 0                 | 0   | 0   | 0   | 0   | 8   | 23  | 1   | 41  | 5   | 0   | 1   |
| 8    | 0                 | 6   | 0   | 1   | 6   | 45  | 37  | 0   | 12  | 31  | 0   | 1   |
| 9    | 40                | 0   | 0   | 0   | 97  | 2   | 40  | 0   | 1   | 26  | 0   | 17  |
| 10   | 0                 | 0   | 0   |     | 2   | 9   | 1   | 0   | 19  | 1   | 0   | 23  |
| 11   | 0                 | 0   | 0   |     | 0   | 0   | 1   | 0   | 0   | 0   | 0   | 0   |
| 12   | 5                 | 0   | 0   | 0   | 2   | 0   | 20  | 0   | 4   | 10  | 0   | 0   |
| 13   | 0                 | 0   | 0   | 0   | 0   | 0   | 4   | 1   | 0   | 10  | 0   | 0   |
| 14   | 0                 | 0   | 0   | 0   | 0   | 0   | 0   | 9   | 5   | 0   | 0   | 3   |
| 15   | 0                 | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 1   | 0   | 79  | 0   |
| 16   | 0                 | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 9   | 0   | 2   | 0   |
| 17   | 0                 | 0   | 0   | 0   | 0   | 25  | 12  | 0   | 10  | 0   | 12  | 1   |
| 18   | 0                 | 0   | 0   | 0   | 5   | 9   | 0   | 0   | 35  | 0   | 0   | 1   |
| 19   | 0                 | 0   | 0   | 0   | 0   | 14  | 0   | 1   | 0   | 3   | 0   | 0   |
| 20   | 0                 | 0   | 0   | 0   | 0   | 15  | 0   | 1   | 0   | 0   | 0   | 0   |
| 21   | 1                 | 0   | 0   | 0   | 0   | 14  | 1   | 0   | 0   | 16  | 1   | 0   |
| 22   | 0                 | 0   | 0   | 0   | 0   | 0   | 1   | 0   | 3   | 0   | 0   | 0   |
| 23   | 0                 | 0   | 0   | 0   | 4   | 107 | 0   | 33  | 7   | 0   | 5   | 0   |
| 24   | 3                 | 0   | 0   | 0   | 1   | 99  | 1   | 4   | 0   | 0   | 1   | 0   |
| 25   | 0                 | 0   | 0   | 0   | 0   | 39  | 2   | 3   | 22  | 2   | 2   | 0   |
| 26   | 0                 | 0   | 0   | 12  | 4   | 2   | 59  | 37  | 177 | 0   | 0   | 0   |
| 27   | 0                 | 0   | 0   | 0   | 4   | 1   | 40  | 21  | 211 | 0   | 0   | 0   |
| 28   | 0                 | 0   | 1   | 0   | 1   | 0   | 14  | 18  | 6   | 0   | 0   | 0   |
| 29   | 0                 |     | 0   | 0   | 21  | 0   | 19  | 3   | 0   | 0   | 0   | 0   |
| 30   | 0                 |     | 0   | 0   | 5   | 2   | 6   | 2   | 8   | 1   | 0   | 0   |
| 31   | 0                 |     | 0   |     | 0   |     | 3   | 4   |     | 0   |     | 0   |

|                  |      |      |      |      |      |       |      |      |       |      |      |      |
|------------------|------|------|------|------|------|-------|------|------|-------|------|------|------|
| Monthly Total    | 49   | 6    | 13   | 13   | 152  | 392   | 296  | 221  | 616   | 284  | 246  | 101  |
| Average          | 1.58 | 0.21 | 0.42 | 0.46 | 4.90 | 13.07 | 9.55 | 7.13 | 20.53 | 9.16 | 8.20 | 3.26 |
| Max daily rain   | 40   | 6    | 9    | 12   | 97   | 107   | 59   | 53   | 211   | 112  | 79   | 49   |
| Day of Max Daily | 9    | 8    | 5    | 26   | 9    | 23    | 26   | 5    | 27    | 1    | 15   | 4    |
| No. of Rain days | 4    | 1    | 3    | 2    | 12   | 16    | 21   | 19   | 21    | 14   | 13   | 11   |
| Max 1-hr rain    | 12   | 3    | 7    | 9    | 12   | 40    | 33   | 34   | 36    | 32   | 21   | 13   |
| Day of max 1-hr  | 9    | 8    | 6    | 27   | 9    | 23    | 9    | 5    | 7     | 4    | 4    | 5    |

|                              |      |
|------------------------------|------|
| Total rain for the year      | 2389 |
| Total rain days for the year | 137  |

## Daily Point Rainfall in millimeters (meteorological day)

| 2011 | Station: Palali |     |     |     |     |     |     |     |     |     |     |     |
|------|-----------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Day  | Jan             | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
| 1    | 0               | 0   | 10  | 0   | 0   | 0   | 0   | 14  | 3   | 36  | 8   | 1   |
| 2    | 0               | 0   | 0   | 0   | 0   | 0   | 0   | 4   | 2   | 5   | 4   | 9   |
| 3    | 0               | 0   | 0   | 0   | 0   | 2   | 0   | 73  | 3   | 0   | 34  | 1   |
| 4    | 0               | 0   | 0   | 0   | 0   | 3   | 4   | 0   | 16  | 1   | 75  | 49  |
| 5    | 0               | 0   | 8   | 0   | 0   | 0   | 1   | 8   | 58  | 1   | 27  | 0   |
| 6    | 0               | 0   | 8   | 0   | 0   | 0   | 8   | 3   | 0   | 0   | 7   | 2   |
| 7    | 0               | 0   | 1   | 0   | 0   | 2   | 41  | 3   | 0   | 7   | 0   | 0   |
| 8    | 0               | 0   | 0   | 0   | 9   | 32  | 31  | 1   | 8   | 49  | 0   | 1   |
| 9    | 33              | 0   | 0   | 0   | 79  | 5   | 7   | 0   | 1   | 48  | 0   | 37  |
| 10   | 0               | 0   | 0   | 0   | 0   | 14  | 8   | 4   | 6   | 1   | 0   | 33  |
| 11   | 0               | 0   | 0   | 0   | 0   | 2   | 1   | 0   | 12  | 0   | 0   | 0   |
| 12   | 0               | 0   | 0   | 0   | 3   | 1   | 0   | 0   | 0   | 30  | 0   | 0   |
| 13   | 0               | 0   | 0   | 0   | 0   | 0   | 20  | 2   | 0   | 2   | 0   | 0   |
| 14   | 0               | 5   | 0   | 0   | 0   | 1   | 0   | 30  | 27  | 0   | 9   | 0   |
| 15   | 17              | 0   | 0   | 0   | 0   | 0   | 0   | 4   | 5   | 0   | 73  | 0   |
| 16   | 0               | 0   | 0   | 0   | 0   | 4   | 2   | 17  | 7   | 4   | 10  | 0   |
| 17   | 0               | 0   | 0   | 0   | 1   | 10  | 14  | 3   | 0   | 0   | 13  | 3   |
| 18   | 0               | 0   | 0   | 35  | 14  | 11  | 0   | 11  | 3   | 0   | 0   | 5   |
| 19   | 0               | 0   | 0   | 0   | 18  | 24  | 26  | 4   | 1   | 10  | 0   | 0   |
| 20   | 0               | 0   | 0   | 0   | 0   | 37  | 0   | 0   | 2   | 0   | 0   | 0   |
| 21   | 10              | 0   | 0   | 0   | 0   | 11  | 29  | 11  | 0   | 3   | 5   | 0   |
| 22   | 0               | 0   | 0   | 0   | 0   | 0   | 0   | 30  | 21  | 0   | 0   | 0   |
| 23   | 0               | 0   | 0   | 0   | 0   | 26  | 0   | 3   | 10  | 0   | 2   | 0   |
| 24   | 1               | 0   | 0   | 0   | 0   | 128 | 9   | 3   | 0   | 0   | 0   | 0   |
| 25   | 0               | 0   | 0   | 0   | 15  | 43  | 0   | 6   | 3   | 0   | 0   | 0   |
| 26   | 0               | 0   | 0   | 5   | 35  | 0   | 52  | 25  | 248 | 0   | 0   | 0   |
| 27   | 0               | 0   | 7   | 0   | 25  | 0   | 34  | 7   | 156 | 0   | 0   | 0   |
| 28   | 0               | 0   | 0   | 0   | 1   | 0   | 11  | 5   | 3   | 0   | 0   | 0   |
| 29   | 0               |     | 0   | 0   | 42  | 18  | 2   | 19  | 0   | 0   | 0   | 0   |
| 30   | 0               |     | 0   | 0   | 0   | 3   | 7   | 5   | 1   | 0   | 0   | 0   |
| 31   | 0               |     | 0   |     | 0   |     | 7   | 5   |     | 0   |     | 0   |

|                  |      |      |      |      |      |       |       |      |       |      |      |      |
|------------------|------|------|------|------|------|-------|-------|------|-------|------|------|------|
| Monthly Total    | 61   | 5    | 34   | 40   | 242  | 377   | 314   | 300  | 596   | 197  | 267  | 141  |
| Average          | 1.97 | 0.18 | 1.10 | 1.33 | 7.81 | 12.57 | 10.13 | 9.68 | 19.87 | 6.35 | 8.90 | 4.55 |
| Max daily rain   | 33   | 5    | 10   | 35   | 79   | 128   | 52    | 73   | 248   | 49   | 75   | 49   |
| Day of Max Daily | 9    | 14   | 1    | 18   | 9    | 24    | 26    | 3    | 26    | 8    | 4    | 4    |
| No. of Rain days | 4    | 1    | 5    | 2    | 11   | 20    | 20    | 26   | 22    | 13   | 12   | 10   |
| Max 1-hr rain    | 10   | 5    | 10   | 19   | 38   | 18    | 25    | 31   | 30    | 18   | 18   | 11   |
| Day of max 1-hr  | 15   | 14   | 2    | 18   | 29   | 24    | 8     | 3    | 5     | 9    | 5    | 9    |

|                              |      |
|------------------------------|------|
| Total rain for the year      | 2574 |
| Total rain days for the year | 146  |

## Daily Point Rainfall in millimeters (meteorological day)

| 2011 | Station: San Isidro |     |     |     |     |     |     |     |     |     |     |     |
|------|---------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Day  | Jan                 | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
| 1    | 0                   | 0   | 13  | 0   | 0   | 0   | 0   | 17  | 3   | 40  | 1   | 12  |
| 2    | 0                   | 0   | 1   | 0   | 0   | 1   | 6   | 1   | 0   | 23  | 2   | 15  |
| 3    | 0                   | 0   | 0   | 0   | 0   | 1   | 22  | 1   | 0   | 2   | 23  | 0   |
| 4    | 0                   | 0   | 0   | 0   | 0   | 0   | 14  | 0   | 12  | 0   | 21  | 47  |
| 5    | 0                   | 0   | 9   | 0   | 0   | 0   | 2   | 39  | 1   | 3   | 18  | 0   |
| 6    | 0                   | 0   | 4   | 0   | 0   | 0   | 6   | 5   | 0   | 0   | 36  | 1   |
| 7    | 0                   | 0   | 0   | 0   | 0   | 0   | 3   | 0   | 0   | 21  | 1   | 0   |
| 8    | 0                   | 21  | 0   | 0   | 0   | 55  | 0   | 0   | 2   | 26  | 0   | 2   |
| 9    | 18                  | 0   | 0   | 0   | 56  | 4   | 6   | 6   | 4   | 12  | 0   | 32  |
| 10   | 0                   | 0   | 0   | 0   | 0   | 0   | 1   | 2   | 0   | 0   | 0   | 8   |
| 11   | 0                   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 18  | 0   |
| 12   | 0                   | 0   | 0   | 0   | 0   | 0   | 5   | 0   | 0   | 24  | 0   | 0   |
| 13   | 1                   | 0   | 0   | 0   | 10  | 0   | 2   | 1   | 0   | 6   | 0   | 0   |
| 14   | 0                   | 0   | 0   | 0   | 0   | 1   | 3   | 21  | 9   | 0   | 2   | 0   |
| 15   | 0                   | 0   | 0   | 0   | 0   | 9   | 0   | 1   | 3   | 0   | 35  | 0   |
| 16   | 0                   | 0   | 0   | 0   | 0   | 5   | 0   | 4   | 20  | 0   | 0   | 0   |
| 17   | 0                   | 0   | 0   | 0   | 0   | 3   | 0   | 33  | 15  | 0   | 0   | 1   |
| 18   | 0                   | 0   | 0   | 0   | 43  | 1   | 0   | 0   | 4   | 0   | 1   | 0   |
| 19   | 0                   | 0   | 0   | 4   | 0   | 18  | 7   | 3   | 2   | 2   | 0   | 0   |
| 20   | 0                   | 0   | 0   | 0   | 0   | 29  | 3   | 0   | 0   | 0   | 0   | 0   |
| 21   | 0                   | 0   | 0   | 0   | 0   | 5   | 11  | 0   | 0   | 0   | 1   | 0   |
| 22   | 0                   | 0   | 0   | 0   | 6   | 0   | 0   | 3   | 2   | 0   | 0   | 0   |
| 23   | 0                   | 0   | 0   | 0   | 6   | 32  | 0   | 6   | 9   | 0   | 0   | 0   |
| 24   | 0                   | 0   | 0   | 0   | 37  | 129 | 1   | 0   | 3   | 0   | 0   | 0   |
| 25   | 0                   | 0   | 0   | 0   | 16  | 47  | 0   | 1   | 0   | 0   | 0   | 0   |
| 26   | 0                   | 0   | 0   | 0   | 8   | 1   | 34  | 24  | 73  | 0   | 0   | 0   |
| 27   | 0                   | 0   | 0   | 0   | 12  | 0   | 41  | 12  | 187 | 0   | 0   | 0   |
| 28   | 0                   | 0   | 0   | 0   | 0   | 0   | 2   | 6   | 9   | 0   | 0   | 0   |
| 29   | 0                   |     | 0   | 0   | 28  | 0   | 3   | 7   | 0   | 0   | 0   | 0   |
| 30   | 0                   |     | 0   | 0   | 0   | 2   | 4   | 13  | 0   | 0   | 0   | 0   |
| 31   | 0                   |     | 0   |     | 0   |     | 13  | 8   |     | 0   |     | 0   |

|                  |      |      |      |      |      |       |      |      |       |      |      |      |
|------------------|------|------|------|------|------|-------|------|------|-------|------|------|------|
| Monthly Total    | 19   | 21   | 27   | 4    | 222  | 343   | 189  | 214  | 358   | 159  | 159  | 118  |
| Average          | 0.61 | 0.75 | 0.87 | 0.13 | 7.16 | 11.43 | 6.10 | 6.90 | 11.93 | 5.13 | 5.30 | 3.81 |
| Max daily rain   | 18   | 21   | 13   | 4    | 56   | 129   | 41   | 39   | 187   | 40   | 36   | 47   |
| Day of Max Daily | 9    | 8    | 1    | 19   | 9    | 24    | 27   | 5    | 27    | 1    | 6    | 4    |
| No. of Rain days | 2    | 1    | 4    | 1    | 10   | 17    | 21   | 22   | 17    | 10   | 12   | 8    |
| Max 1-hr rain    | 6    | 19   | 4    | 4    | 36   | 14    | 18   | 30   | 35    | 9    | 17   | 10   |
| Day of max 1-hr  | 10   | 8    | 2    | 19   | 24   | 24    | 3    | 5    | 27    | 2    | 6    | 1    |

|                              |      |
|------------------------------|------|
| Total rain for the year      | 1833 |
| Total rain days for the year | 125  |



## Daily Point Rainfall in millimeters (meteorological day)

2011

Station:

Arayat

| Day | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 1   | 0   | 0   | 23  | 0   | 0   | 0   | 0   | 21  | 11  | 25  | 1   | 0   |
| 2   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 1   | 9   | 57  | 7   | 5   |
| 3   | 0   | 0   | 0   | 0   | 0   | 1   | 0   | 0   | 0   | 9   | 18  | 20  |
| 4   | 0   | 0   | 0   | 0   | 0   | 4   | 3   | 0   | 0   | 2   | 8   | 59  |
| 5   | 0   | 0   | 4   | 0   | 0   | 0   | 17  | 39  | 15  | 0   | 36  | 0   |
| 6   | 0   | 0   | 0   | 0   | 0   | 0   | 5   | 14  | 0   | 0   | 40  | 5   |
| 7   | 0   | 0   | 2   | 0   | 7   | 0   | 1   | 9   | 1   | 38  | 0   | 0   |
| 8   | 0   | 0   | 0   | 0   | 28  | 43  | 8   | 2   | 0   | 19  | 2   | 3   |
| 9   | 10  | 0   | 0   | 0   | 49  | 6   | 21  | 36  | 0   | 7   | 0   | 33  |
| 10  | 1   | 0   | 0   | 0   | 0   | 0   | 6   | 12  | 19  | 0   | 0   | 0   |
| 11  | 0   | 0   | 0   | 0   | 0   | 0   | 2   | 0   | 0   | 0   | 0   | 0   |
| 12  | 0   | 0   | 0   | 0   | 0   | 0   | 1   | 0   | 13  | 29  | 0   | 0   |
| 13  | 0   | 0   | 0   | 0   | 2   | 0   | 2   | 3   | 0   | 9   | 0   | 0   |
| 14  | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 12  | 1   | 0   | 9   | 0   |
| 15  | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 1   | 10  | 5   | 39  | 0   |
| 16  | 0   | 0   | 0   | 0   | 0   | 14  | 0   | 3   | 0   | 11  | 0   | 0   |
| 17  | 0   | 0   | 0   | 0   | 0   | 11  | 3   | 20  | 4   | 0   | 0   | 0   |
| 18  | 0   | 0   | 0   | 0   | 30  | 2   | 0   | 0   | 13  | 0   | 0   | 0   |
| 19  | 0   | 0   | 0   | 8   | 7   | 47  | 0   | 0   | 28  | 2   | 0   | 0   |
| 20  | 0   | 0   | 0   | 0   | 0   | 43  | 0   | 0   | 0   | 0   | 0   | 0   |
| 21  | 0   | 0   | 0   | 0   | 0   | 10  | 1   | 3   | 0   | 56  | 0   | 0   |
| 22  | 0   | 0   | 0   | 0   | 0   | 1   | 0   | 1   | 0   | 0   | 3   | 0   |
| 23  | 0   | 0   | 0   | 0   | 13  | 59  | 7   | 11  | 12  | 0   | 0   | 0   |
| 24  | 0   | 0   | 0   | 0   | 11  | 173 | 3   | 8   | 4   | 0   | 0   | 0   |
| 25  | 0   | 0   | 0   | 0   | 1   | 75  | 0   | 1   | 0   | 0   | 0   | 0   |
| 26  | 0   | 0   | 0   | 0   | 6   | 14  | 72  | 35  | 49  | 0   | 0   | 0   |
| 27  | 0   | 0   | 0   | 0   | 0   | 0   | 70  | 20  | 221 | 0   | 0   | 0   |
| 28  | 0   | 0   | 0   | 0   | 0   | 0   | 6   | 7   | 21  | 0   | 0   | 0   |
| 29  | 0   |     | 0   | 0   | 1   | 0   | 8   | 2   | 0   | 0   | 0   | 1   |
| 30  | 0   |     | 0   | 0   | 0   | 0   | 7   | 3   | 7   | 0   | 0   | 0   |
| 31  | 0   |     | 0   |     | 0   |     | 18  | 25  |     | 0   |     | 0   |

|                  |      |      |      |      |      |       |      |      |       |      |      |      |
|------------------|------|------|------|------|------|-------|------|------|-------|------|------|------|
| Monthly Total    | 11   | 0    | 29   | 8    | 155  | 503   | 261  | 289  | 438   | 269  | 163  | 126  |
| Average          | 0.35 | 0.00 | 0.94 | 0.27 | 5.00 | 16.77 | 8.42 | 9.32 | 14.60 | 8.68 | 5.43 | 4.06 |
| Max daily rain   | 10   | 0    | 23   | 8    | 49   | 173   | 72   | 39   | 221   | 57   | 40   | 59   |
| Day of Max Daily | 9    |      | 1    | 19   | 9    | 24    | 26   | 5    | 27    | 2    | 6    | 4    |
| No. of Rain days | 2    | 0    | 3    | 1    | 11   | 15    | 20   | 24   | 17    | 13   | 10   | 7    |
| Max 1-hr rain    | 4    |      | 5    | 8    | 24   | 28    | 35   | 27   | 49    | 54   | 27   | 20   |
| Day of max 1-hr  | 10   |      | 2    | 19   | 8    | 24    | 26   | 9    | 27    | 21   | 6    | 3    |

Total rain for the year

2252

Total rain days for the year

123

## Daily Point Rainfall in millimeters (meteorological day)

| 2011 | Station: Candaba |     |     |     |     |     |     |     |     |     |     |     |
|------|------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Day  | Jan              | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
| 1    | 0                | 0   | 19  | 0   | 0   | 0   | 0   | 1   | 8   | 11  | 5   | 0   |
| 2    | 0                | 0   | 1   | 0   | 0   | 0   | 0   | 0   | 0   | 5   | 16  | 1   |
| 3    | 0                | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 1   | 1   | 27  | 5   |
| 4    | 0                | 0   | 0   | 0   | 0   | 17  | 8   | 0   | 9   | 0   | 9   | 56  |
| 5    | 0                | 0   | 4   | 0   | 0   | 0   | 3   | 0   | 20  | 0   | 43  | 0   |
| 6    | 0                | 0   | 1   | 0   | 0   | 0   | 6   | 0   | 0   | 0   | 31  | 10  |
| 7    | 0                | 0   | 0   | 0   | 22  | 0   | 0   | 7   | 0   | 18  | 1   | 0   |
| 8    | 0                | 0   | 0   | 0   | 15  | 54  | 7   | 0   | 0   | 21  | 0   | 4   |
| 9    | 11               | 0   | 0   | 0   | 29  | 7   | 21  | 0   | 9   | 28  | 0   | 31  |
| 10   | 0                | 0   | 0   | 0   | 1   | 0   | 4   | 2   | 0   | 0   | 0   | 0   |
| 11   | 0                | 0   | 0   | 0   | 0   | 0   | 4   | 4   | 0   | 0   | 3   | 0   |
| 12   | 0                | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 11  | 26  | 0   | 0   |
| 13   | 0                | 0   | 0   | 0   | 2   | 0   | 0   | 1   | 0   | 7   | 0   | 0   |
| 14   | 0                | 0   | 0   | 0   | 0   | 0   | 0   | 11  | 1   | 0   | 9   | 0   |
| 15   | 2                | 0   | 0   | 0   | 0   | 0   | 0   | 1   | 0   | 0   | 61  | 0   |
| 16   | 0                | 0   | 0   | 0   | 0   | 19  | 0   | 7   | 0   | 14  | 0   | 0   |
| 17   | 0                | 0   | 0   | 0   | 0   | 18  | 0   | 0   | 8   | 4   | 0   | 1   |
| 18   | 0                | 0   | 0   | 0   | 4   | 1   | 0   | 0   | 2   | 0   | 0   | 0   |
| 19   | 0                | 0   | 0   | 14  | 22  | 30  | 0   | 1   | 7   | 4   | 0   | 0   |
| 20   | 2                | 0   | 0   | 0   | 0   | 25  | 0   | 0   | 1   | 0   | 0   | 0   |
| 21   | 1                | 0   | 0   | 0   | 0   | 7   | 14  | 0   | 0   | 2   | 4   | 0   |
| 22   | 0                | 0   | 0   | 0   | 0   | 3   | 0   | 0   | 3   | 0   | 4   | 0   |
| 23   | 0                | 0   | 0   | 0   | 7   | 34  | 0   | 0   | 18  | 0   | 0   | 0   |
| 24   | 0                | 0   | 0   | 0   | 12  | 99  | 0   | 17  | 8   | 0   | 0   | 0   |
| 25   | 0                | 0   | 0   | 0   | 2   | 32  | 0   | 0   | 0   | 0   | 0   | 0   |
| 26   | 0                | 0   | 0   | 0   | 8   | 5   | 0   | 23  | 49  | 0   | 0   | 0   |
| 27   | 0                | 0   | 0   | 0   | 0   | 0   | 0   | 10  | 200 | 0   | 0   | 0   |
| 28   | 0                | 0   | 0   | 1   | 2   | 0   | 0   | 6   | 12  | 0   | 0   | 0   |
| 29   | 0                |     | 0   | 0   | 1   | 2   | 0   | 3   | 0   | 0   | 0   | 0   |
| 30   | 0                |     | 0   | 0   | 0   | 0   | 0   | 2   | 5   | 0   | 1   | 0   |
| 31   | 0                |     | 0   |     | 0   |     | 0   | 22  |     | 0   |     | 0   |

|                  |      |      |      |      |      |       |      |      |       |      |      |      |
|------------------|------|------|------|------|------|-------|------|------|-------|------|------|------|
| Monthly Total    | 16   | 0    | 25   | 15   | 127  | 353   | 67   | 118  | 372   | 141  | 214  | 108  |
| Average          | 0.52 | 0.00 | 0.81 | 0.50 | 4.10 | 11.77 | 2.16 | 3.81 | 12.40 | 4.55 | 7.13 | 3.48 |
| Max daily rain   | 11   | 0    | 19   | 14   | 29   | 99    | 21   | 23   | 200   | 28   | 61   | 56   |
| Day of Max Daily | 9    |      | 1    | 19   | 9    | 24    | 9    | 26   | 27    | 9    | 15   | 4    |
| No. of Rain days | 4    | 0    | 4    | 2    | 13   | 15    | 8    | 16   | 18    | 12   | 13   | 7    |
| Max 1-hr rain    | 3    |      | 5    | 8    | 21   | 17    | 10   | 17   | 52    | 15   | 20   | 10   |
| Day of max 1-hr  | 9    |      | 2    | 19   | 7    | 4     | 9    | 24   | 27    | 9    | 6    | 9    |

|                              |      |
|------------------------------|------|
| Total rain for the year      | 1556 |
| Total rain days for the year | 112  |

## Daily Point Rainfall in millimeters (meteorological day)

2011

Station:

Sibul\_Springs

| Day | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 1   | 0   | 0   | 58  | 0   | 0   | 0   | 3   | 11  | 6   | 15  | 17  | 0   |
| 2   | 0   | 0   | 1   | 0   | 0   | 0   | 0   | 0   | 0   | 1   | 26  | 55  |
| 3   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 4   | 2   | 4   | 56  | 3   |
| 4   | 0   | 0   | 0   | 0   | 0   | 1   | 4   | 0   | 1   | 0   | 27  | 62  |
| 5   | 0   | 0   | 16  | 0   | 0   | 0   | 48  | 51  | 0   | 6   | 99  | 0   |
| 6   | 0   | 0   | 10  | 0   | 0   | 0   | 0   | 13  | 0   | 0   | 12  | 7   |
| 7   | 0   | 0   | 0   | 0   | 5   | 0   | 1   | 13  | 0   | 24  | 0   | 0   |
| 8   | 0   | 15  | 0   | 0   | 11  | 43  | 4   | 0   | 11  | 24  | 13  | 2   |
| 9   | 21  | 0   | 0   | 0   | 34  | 7   | 10  | 0   | 5   | 48  | 0   | 74  |
| 10  | 8   | 0   | 0   | 0   | 1   | 0   | 3   | 1   | 0   | 2   | 0   | 32  |
| 11  | 0   | 0   | 0   | 0   | 0   | 1   | 2   | 0   | 8   | 1   | 0   | 0   |
| 12  | 2   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 3   | 38  | 0   | 0   |
| 13  | 0   | 0   | 0   | 0   | 2   | 0   | 0   | 17  | 7   | 4   | 0   | 0   |
| 14  | 0   | 8   | 0   | 0   | 0   | 1   | 1   | 17  | 18  | 0   | 17  | 2   |
| 15  | 0   | 0   | 0   | 0   | 0   | 1   | 24  | 1   | 0   | 0   | 57  | 0   |
| 16  | 0   | 0   | 0   | 0   | 0   | 2   | 0   | 0   | 2   | 5   | 0   | 0   |
| 17  | 0   | 0   | 0   | 0   | 0   | 11  | 7   | 1   | 9   | 0   | 1   | 6   |
| 18  | 0   | 0   | 0   | 0   | 79  | 4   | 0   | 1   | 3   | 0   | 0   | 3   |
| 19  | 1   | 0   | 0   | 5   | 0   | 57  | 1   | 7   | 3   | 1   | 0   | 0   |
| 20  | 1   | 0   | 0   | 1   | 0   | 49  | 0   | 1   | 0   | 0   | 0   | 0   |
| 21  | 19  | 0   | 0   | 0   | 0   | 7   | 6   | 0   | 47  | 0   | 5   | 0   |
| 22  | 0   | 0   | 0   | 0   | 0   | 1   | 2   | 38  | 11  | 2   | 8   | 0   |
| 23  | 1   | 0   | 0   | 0   | 6   | 71  | 0   | 4   | 19  | 4   | 1   | 0   |
| 24  | 4   | 0   | 0   | 0   | 0   | 188 | 24  | 4   | 3   | 0   | 0   | 0   |
| 25  | 0   | 0   | 0   | 0   | 0   | 26  | 3   | 2   | 1   | 0   | 2   | 0   |
| 26  | 0   | 0   | 0   | 0   | 22  | 0   | 62  | 38  | 108 | 0   | 1   | 0   |
| 27  | 0   | 0   | 1   | 0   | 21  | 0   | 24  | 18  | 261 | 0   | 0   | 1   |
| 28  | 0   | 0   | 0   | 0   | 2   | 0   | 15  | 5   | 2   | 0   | 0   | 0   |
| 29  | 0   |     | 0   | 6   | 14  | 91  | 16  | 6   | 0   | 0   | 0   | 3   |
| 30  | 0   |     | 0   | 1   | 0   | 0   | 8   | 2   | 2   | 0   | 0   | 0   |
| 31  | 0   |     | 0   |     | 0   |     | 4   | 7   |     | 0   |     | 0   |

|                  |      |      |      |      |      |       |      |      |       |      |       |      |
|------------------|------|------|------|------|------|-------|------|------|-------|------|-------|------|
| Monthly Total    | 57   | 23   | 86   | 13   | 197  | 561   | 272  | 262  | 532   | 179  | 342   | 250  |
| Average          | 1.84 | 0.82 | 2.77 | 0.43 | 6.35 | 18.70 | 8.77 | 8.45 | 17.73 | 5.77 | 11.40 | 8.06 |
| Max daily rain   | 21   | 15   | 58   | 6    | 79   | 188   | 62   | 51   | 261   | 48   | 99    | 74   |
| Day of Max Daily | 9    | 8    | 1    | 29   | 18   | 24    | 26   | 5    | 27    | 9    | 5     | 9    |
| No. of Rain days | 8    | 2    | 5    | 4    | 11   | 17    | 22   | 23   | 22    | 15   | 15    | 12   |
| Max 1-hr rain    | 19   | 9    | 16   | 5    | 60   | 65    | 27   | 37   | 55    | 26   | 52    | 50   |
| Day of max 1-hr  | 21   | 9    | 1    | 19   | 18   | 29    | 5    | 22   | 27    | 9    | 6     | 2    |

Total rain for the year

2774

Total rain days for the year

156



## Daily Point Rainfall in millimeters (meteorological day)

| 2011 | Station: Sasmuan |     |     |     |     |     |     |     |     |     |     |     |
|------|------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Day  | Jan              | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
| 1    | 0                | 0   | 10  | 0   | 0   | 0   | 3   | 41  | 26  | 33  | 0   | 0   |
| 2    | 0                | 0   | 0   | 0   | 0   | 2   | 0   | 9   | 0   | 31  | 14  | 3   |
| 3    | 0                | 0   | 0   | 0   | 0   | 0   | 0   | 7   | 0   | 9   | 13  | 0   |
| 4    | 0                | 0   | 0   | 0   | 0   | 3   | 1   | 5   | 8   | 0   | 7   | 44  |
| 5    | 0                | 0   | 2   | 0   | 0   | 0   | 1   | 6   | 0   | 0   | 24  | 0   |
| 6    | 0                | 0   | 0   | 0   | 0   | 0   | 1   | 53  | 0   | 0   | 15  | 7   |
| 7    | 0                | 0   | 0   | 0   | 9   | 25  | 0   | 13  | 9   | 23  | 16  | 0   |
| 8    | 0                | 0   | 0   | 0   | 23  | 71  | 11  | 3   | 0   | 17  | 0   | 1   |
| 9    | 0                | 0   | 0   | 0   | 50  | 14  | 57  | 0   | 1   | 9   | 0   | 22  |
| 10   | 0                | 0   | 0   | 0   | 0   | 3   | 13  | 4   | 14  | 0   | 0   | 1   |
| 11   | 1                | 0   | 0   | 0   | 0   | 0   | 4   | 0   | 0   | 0   | 0   | 1   |
| 12   | 0                | 0   | 0   | 0   | 0   | 0   | 2   | 0   | 19  | 27  | 0   | 0   |
| 13   | 0                | 0   | 0   | 0   | 6   | 0   | 1   | 0   | 19  | 3   | 0   | 0   |
| 14   | 0                | 0   | 0   | 0   | 1   | 0   | 0   | 6   | 0   | 0   | 6   | 0   |
| 15   | 15               | 0   | 0   | 0   | 0   | 0   | 0   | 5   | 2   | 0   | 41  | 0   |
| 16   | 0                | 0   | 0   | 0   | 0   | 5   | 0   | 0   | 5   | 0   | 0   | 0   |
| 17   | 0                | 0   | 0   | 0   | 0   | 22  | 0   | 0   | 52  | 12  | 0   | 1   |
| 18   | 0                | 0   | 0   | 0   | 0   | 9   | 0   | 0   | 0   | 0   | 0   | 0   |
| 19   | 1                | 0   | 0   | 14  | 0   | 83  | 0   | 0   | 1   | 28  | 0   | 0   |
| 20   | 0                | 0   | 0   | 0   | 0   | 92  | 0   | 1   | 0   | 0   | 0   | 0   |
| 21   | 0                | 0   | 0   | 0   | 0   | 37  | 6   | 0   | 1   | 11  | 1   | 0   |
| 22   | 0                | 0   | 0   | 0   | 0   | 29  | 5   | 0   | 0   | 0   | 1   | 0   |
| 23   | 0                | 0   | 0   | 0   | 0   | 58  | 0   | 0   | 5   | 0   | 0   | 0   |
| 24   | 2                | 0   | 0   | 0   | 0   | 126 | 29  | 0   | 14  | 0   | 0   | 0   |
| 25   | 0                | 0   | 0   | 0   | 0   | 21  | 0   | 0   | 1   | 0   | 0   | 0   |
| 26   | 0                | 0   | 0   | 3   | 0   | 0   | 104 | 40  | 27  | 0   | 0   | 0   |
| 27   | 0                | 0   | 0   | 0   | 0   | 2   | 77  | 63  | 152 | 0   | 0   | 0   |
| 28   | 0                | 0   | 0   | 1   | 0   | 0   | 9   | 38  | 22  | 0   | 0   | 0   |
| 29   | 0                |     | 0   | 0   | 0   | 0   | 84  | 41  | 1   | 0   | 0   | 0   |
| 30   | 0                |     | 0   | 0   | 0   | 89  | 13  | 10  | 0   | 0   | 0   | 0   |
| 31   | 0                |     | 0   |     | 0   |     | 11  | 60  |     | 0   |     | 0   |

|                  |      |      |      |      |      |       |       |       |       |      |      |      |
|------------------|------|------|------|------|------|-------|-------|-------|-------|------|------|------|
| Monthly Total    | 19   | 0    | 12   | 18   | 89   | 691   | 432   | 405   | 379   | 203  | 138  | 80   |
| Average          | 0.61 | 0.00 | 0.39 | 0.60 | 2.87 | 23.03 | 13.94 | 13.06 | 12.63 | 6.55 | 4.60 | 2.58 |
| Max daily rain   | 15   | 0    | 10   | 14   | 50   | 126   | 104   | 63    | 152   | 33   | 41   | 44   |
| Day of Max Daily | 15   |      | 1    | 19   | 9    | 24    | 26    | 27    | 27    | 1    | 15   | 4    |
| No. of Rain days | 4    | 0    | 2    | 3    | 5    | 18    | 19    | 18    | 19    | 11   | 10   | 8    |
| Max 1-hr rain    | 13   |      | 3    | 11   | 13   | 32    | 48    | 18    | 20    | 27   | 15   | 8    |
| Day of max 1-hr  | 15   |      | 2    | 19   | 8    | 30    | 26    | 2     | 17    | 19   | 7    | 9    |

|                              |      |
|------------------------------|------|
| Total rain for the year      | 2466 |
| Total rain days for the year | 117  |

## Daily Point Rainfall in millimeters (meteorological day)

2011

Station:

Sulipan

| Day | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 1   | 0   | 0   | 11  | 0   | 0   | 0   | 0   | 24  | 17  | 13  | 3   | 0   |
| 2   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 4   | 1   | 8   | 17  | 6   |
| 3   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 2   | 1   | 3   | 27  | 45  |
| 4   | 0   | 0   | 0   | 0   | 0   | 3   | 1   | 1   | 25  | 0   | 13  | 50  |
| 5   | 0   | 0   | 2   | 0   | 0   | 0   | 0   | 1   | 0   | 0   | 33  | 0   |
| 6   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 37  | 0   | 0   | 11  | 13  |
| 7   | 0   | 0   | 0   | 0   | 49  | 11  | 0   | 3   | 1   | 14  | 43  | 0   |
| 8   | 0   | 3   | 0   | 0   | 23  | 53  | 11  | 1   | 0   | 14  | 2   | 3   |
| 9   | 4   | 0   | 0   | 0   | 28  | 7   | 35  | 0   | 20  | 9   | 0   | 31  |
| 10  | 0   | 0   | 0   | 0   | 0   | 0   | 10  | 5   | 3   | 0   | 0   | 1   |
| 11  | 0   | 0   | 0   | 3   | 0   | 0   | 7   | 0   | 0   | 0   | 9   | 0   |
| 12  | 0   | 0   | 0   | 0   | 0   | 0   | 1   | 0   | 1   | 26  | 0   | 0   |
| 13  | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 11  | 9   | 0   | 0   |
| 14  | 0   | 0   | 0   | 0   | 10  | 0   | 0   | 9   | 0   | 0   | 20  | 0   |
| 15  | 17  | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 53  | 0   |
| 16  | 0   | 0   | 0   | 0   | 0   | 3   | 0   | 9   | 0   | 33  | 3   | 0   |
| 17  | 0   | 0   | 0   | 0   | 0   | 4   | 0   | 0   | 36  | 0   | 6   | 3   |
| 18  | 0   | 0   | 0   | 0   | 6   | 24  | 0   | 0   | 5   | 0   | 0   | 0   |
| 19  | 3   | 0   | 0   | 14  | 55  | 97  | 0   | 1   | 25  | 2   | 0   | 0   |
| 20  | 0   | 0   | 0   | 1   | 0   | 51  | 0   | 1   | 0   | 16  | 0   | 2   |
| 21  | 4   | 0   | 0   | 0   | 0   | 29  | 0   | 0   | 0   | 0   | 8   | 19  |
| 22  | 0   | 0   | 0   | 0   | 0   | 11  | 30  | 0   | 12  | 0   | 4   | 0   |
| 23  | 0   | 0   | 0   | 0   | 0   | 69  | 0   | 8   | 22  | 0   | 0   | 0   |
| 24  | 4   | 0   | 0   | 0   | 24  | 152 | 4   | 2   | 7   | 0   | 1   | 0   |
| 25  | 0   | 0   | 0   | 0   | 0   | 25  | 0   | 0   | 0   | 0   | 0   | 0   |
| 26  | 0   | 0   | 0   | 0   | 12  | 0   | 141 | 29  | 34  | 0   | 0   | 0   |
| 27  | 0   | 0   | 0   | 0   | 2   | 0   | 42  | 41  | 158 | 0   | 0   | 0   |
| 28  | 0   | 0   | 0   | 0   | 4   | 0   | 7   | 24  | 26  | 0   | 0   | 0   |
| 29  | 0   |     | 0   | 0   | 4   | 0   | 50  | 10  | 2   | 0   | 0   | 0   |
| 30  | 0   |     | 0   | 0   | 0   | 23  | 12  | 11  | 21  | 0   | 0   | 0   |
| 31  | 0   |     | 0   |     | 0   |     | 5   | 22  |     | 0   |     | 0   |

|                  |      |      |      |      |      |       |       |      |       |      |      |      |
|------------------|------|------|------|------|------|-------|-------|------|-------|------|------|------|
| Monthly Total    | 32   | 3    | 13   | 18   | 217  | 562   | 356   | 245  | 428   | 147  | 253  | 173  |
| Average          | 1.03 | 0.11 | 0.42 | 0.60 | 7.00 | 18.73 | 11.48 | 7.90 | 14.27 | 4.74 | 8.43 | 5.58 |
| Max daily rain   | 17   | 3    | 11   | 14   | 55   | 152   | 141   | 41   | 158   | 33   | 53   | 50   |
| Day of Max Daily | 15   | 8    | 1    | 19   | 19   | 24    | 26    | 27   | 27    | 16   | 15   | 4    |
| No. of Rain days | 5    | 1    | 2    | 3    | 11   | 15    | 14    | 21   | 20    | 11   | 16   | 10   |
| Max 1-hr rain    | 10   | 2    | 5    | 13   | 48   | 30    | 47    | 10   | 26    | 23   | 33   | 44   |
| Day of max 1-hr  | 15   | 9    | 2    | 19   | 7    | 24    | 26    | 28   | 27    | 17   | 7    | 3    |

Total rain for the year

2447

Total rain days for the year

129

## Daily Point Rainfall in millimeters (meteorological day)

| 2011 | Station: Mexico |     |     |     |     |     |     |     |     |     |     |     |
|------|-----------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Day  | Jan             | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
| 1    | 0               | 0   | 23  | 0   | 0   | 0   | 0   | 20  | 17  | 13  | 5   | 0   |
| 2    | 0               | 0   | 0   | 0   | 0   | 2   | 0   | 0   | 0   | 33  | 10  | 1   |
| 3    | 0               | 0   | 0   | 0   | 0   | 1   | 0   | 2   | 14  | 5   | 21  | 8   |
| 4    | 0               | 0   | 0   | 0   | 0   | 0   | 1   | 4   | 31  | 0   | 9   | 58  |
| 5    | 0               | 0   | 4   | 0   | 0   | 0   | 12  | 4   | 3   | 0   | 40  | 0   |
| 6    | 0               | 0   | 0   | 0   | 0   | 6   | 0   | 19  | 3   | 0   | 37  | 10  |
| 7    | 0               | 0   | 4   | 0   | 10  | 8   | 0   | 9   | 1   | 18  | 31  | 0   |
| 8    | 0               | 0   | 0   | 0   | 34  | 44  | 7   | 2   | 0   | 28  | 0   | 2   |
| 9    | 3               | 0   | 0   | 0   | 40  | 6   | 32  | 0   | 9   | 7   | 0   | 26  |
| 10   | 0               | 0   | 0   | 0   | 0   | 0   | 9   | 38  | 5   | 0   | 0   | 0   |
| 11   | 0               | 5   | 0   | 0   | 0   | 0   | 4   | 2   | 0   | 0   | 0   | 0   |
| 12   | 0               | 0   | 0   | 0   | 0   | 0   | 9   | 0   | 27  | 30  | 0   | 0   |
| 13   | 0               | 0   | 0   | 0   | 0   | 0   | 1   | 2   | 11  | 7   | 0   | 0   |
| 14   | 0               | 0   | 0   | 0   | 0   | 0   | 0   | 48  | 2   | 0   | 15  | 0   |
| 15   | 2               | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 5   | 0   | 49  | 0   |
| 16   | 0               | 0   | 0   | 0   | 0   | 11  | 0   | 0   | 1   | 37  | 2   | 0   |
| 17   | 0               | 0   | 0   | 0   | 0   | 2   | 0   | 0   | 3   | 0   | 0   | 0   |
| 18   | 0               | 0   | 0   | 0   | 0   | 13  | 0   | 1   | 0   | 0   | 0   | 0   |
| 19   | 0               | 0   | 0   | 6   | 0   | 59  | 0   | 0   | 24  | 0   | 0   | 0   |
| 20   | 0               | 0   | 0   | 0   | 0   | 63  | 0   | 0   | 0   | 0   | 0   | 0   |
| 21   | 0               | 0   | 0   | 0   | 0   | 20  | 0   | 2   | 0   | 6   | 2   | 0   |
| 22   | 0               | 0   | 0   | 0   | 0   | 12  | 0   | 0   | 6   | 0   | 5   | 0   |
| 23   | 0               | 0   | 0   | 0   | 0   | 73  | 0   | 1   | 9   | 0   | 0   | 0   |
| 24   | 3               | 0   | 0   | 0   | 37  | 128 | 0   | 7   | 8   | 0   | 0   | 0   |
| 25   | 0               | 0   | 0   | 0   | 3   | 64  | 16  | 0   | 0   | 0   | 0   | 0   |
| 26   | 0               | 0   | 0   | 0   | 26  | 1   | 94  | 38  | 35  | 0   | 0   | 0   |
| 27   | 0               | 0   | 0   | 0   | 0   | 0   | 77  | 18  | 227 | 0   | 0   | 0   |
| 28   | 0               | 0   | 0   | 0   | 0   | 0   | 8   | 9   | 23  | 0   | 0   | 0   |
| 29   | 0               |     | 0   | 0   | 2   | 0   | 26  | 10  | 1   | 0   | 0   | 0   |
| 30   | 0               |     | 0   | 0   | 0   | 0   | 9   | 7   | 31  | 0   | 0   | 0   |
| 31   | 0               |     | 0   |     | 0   |     | 12  | 25  |     | 0   |     | 0   |

|                  |      |      |      |      |      |       |       |      |       |      |      |      |
|------------------|------|------|------|------|------|-------|-------|------|-------|------|------|------|
| Monthly Total    | 8    | 5    | 31   | 6    | 152  | 513   | 317   | 268  | 496   | 184  | 226  | 105  |
| Average          | 0.26 | 0.18 | 1.00 | 0.20 | 4.90 | 17.10 | 10.23 | 8.65 | 16.53 | 5.94 | 7.53 | 3.39 |
| Max daily rain   | 3    | 5    | 23   | 6    | 40   | 128   | 94    | 48   | 227   | 37   | 49   | 58   |
| Day of Max Daily | 9    | 11   | 1    | 19   | 9    | 24    | 26    | 14   | 27    | 16   | 15   | 4    |
| No. of Rain days | 3    | 1    | 3    | 1    | 7    | 17    | 15    | 21   | 23    | 10   | 12   | 6    |
| Max 1-hr rain    | 3    | 3    | 4    | 3    | 32   | 19    | 34    | 29   | 42    | 37   | 22   | 9    |
| Day of max 1-hr  | 24   | 11   | 2    | 19   | 24   | 24    | 26    | 14   | 27    | 17   | 7    | 9    |

|                              |      |
|------------------------------|------|
| Total rain for the year      | 2311 |
| Total rain days for the year | 119  |



## Daily Point Rainfall in millimeters (meteorological day)

2011

Station:

Porac

| Day | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 1   | 0   | 0   | 4   | 0   | 0   | 0   | 0   | 49  | 0   | 65  | 1   | 0   |
| 2   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 6   | 0   | 55  | 5   | 1   |
| 3   | 0   | 0   | 0   | 0   | 0   | 37  | 1   | 3   | 0   | 8   | 9   | 0   |
| 4   | 0   | 0   | 0   | 0   | 0   | 0   | 2   | 1   | 1   | 0   | 2   | 43  |
| 5   | 0   | 0   | 1   | 0   | 0   | 14  | 2   | 9   | 33  | 0   | 21  | 0   |
| 6   | 0   | 0   | 0   | 0   | 0   | 2   | 1   | 22  | 0   | 0   | 55  | 5   |
| 7   | 0   | 0   | 3   | 0   | 4   | 12  | 0   | 8   | 19  | 9   | 0   | 0   |
| 8   | 0   | 0   | 0   | 0   | 7   | 60  | 21  | 4   | 0   | 14  | 0   | 0   |
| 9   | 1   | 0   | 0   | 0   | 51  | 34  | 50  | 0   | 5   | 6   | 0   | 19  |
| 10  | 0   | 0   | 0   | 0   | 0   | 0   | 9   | 0   | 6   | 0   | 0   | 0   |
| 11  | 0   | 57  | 0   | 0   | 0   | 0   | 14  | 0   | 0   | 0   | 1   | 0   |
| 12  | 0   | 0   | 0   | 0   | 0   | 0   | 4   | 0   | 8   | 27  | 0   | 0   |
| 13  | 0   | 0   | 0   | 0   | 0   | 0   | 5   | 1   | 9   | 2   | 0   | 0   |
| 14  | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 6   | 0   | 0   | 6   | 3   |
| 15  |     | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 34  | 0   |
| 16  |     | 0   | 0   | 0   | 0   | 17  | 0   | 0   | 3   | 0   | 0   | 0   |
| 17  |     | 0   | 0   | 0   | 0   | 8   | 0   | 9   | 18  | 22  | 0   | 0   |
| 18  | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 2   | 0   | 0   | 0   |
| 19  | 0   | 0   | 0   | 0   | 0   | 83  | 0   | 0   | 3   | 15  | 0   | 0   |
| 20  | 0   | 0   | 0   | 0   | 0   | 80  | 0   | 0   | 0   | 0   | 0   | 0   |
| 21  | 0   | 0   | 0   | 0   | 0   | 39  | 1   | 0   | 0   | 0   | 0   | 0   |
| 22  | 0   | 0   | 0   | 0   | 0   | 34  | 0   | 0   | 1   | 0   | 8   | 0   |
| 23  | 0   | 0   | 0   | 0   | 12  | 55  | 0   | 11  | 17  | 0   | 0   | 0   |
| 24  | 3   | 0   | 0   | 0   | 10  | 242 | 37  | 0   | 9   | 0   | 0   | 0   |
| 25  | 0   | 0   | 0   | 0   | 29  | 92  | 0   | 0   | 0   | 0   | 0   | 0   |
| 26  | 0   | 0   | 0   | 0   | 5   | 40  | 45  | 0   | 30  | 0   | 0   | 0   |
| 27  | 0   | 0   | 0   | 0   | 0   | 0   | 96  | 0   | 211 | 0   | 1   | 0   |
| 28  | 0   | 0   | 0   | 5   | 3   | 0   | 26  | 0   | 32  | 0   | 0   | 0   |
| 29  | 0   |     | 0   | 1   | 5   | 31  | 52  | 0   | 2   | 0   | 0   | 0   |
| 30  | 0   |     | 0   | 0   | 0   | 1   | 8   | 0   | 10  | 0   | 0   | 0   |
| 31  | 0   |     | 0   |     | 0   |     | 23  | 0   |     | 0   |     | 0   |

|                  |      |      |      |      |      |       |       |      |       |      |      |      |
|------------------|------|------|------|------|------|-------|-------|------|-------|------|------|------|
| Monthly Total    | 4    | 57   | 8    | 6    | 126  | 881   | 397   | 129  | 419   | 223  | 143  | 71   |
| Average          | 0.14 | 2.04 | 0.26 | 0.20 | 4.06 | 29.37 | 12.81 | 4.16 | 13.97 | 7.19 | 4.77 | 2.29 |
| Max daily rain   | 3    | 57   | 4    | 5    | 51   | 242   | 96    | 49   | 211   | 65   | 55   | 43   |
| Day of Max Daily | 24   | 11   | 1    | 28   | 9    | 24    | 27    | 1    | 27    | 1    | 6    | 4    |
| No. of Rain days | 2    | 1    | 3    | 2    | 9    | 18    | 18    | 12   | 19    | 10   | 11   | 5    |
| Max 1-hr rain    | 3    | 47   | 3    | 5    | 23   | 52    | 28    | 25   | 36    | 42   | 23   | 6    |
| Day of max 1-hr  | 24   | 11   | 7    | 28   | 25   | 25    | 27    | 1    | 27    | 3    | 6    | 4    |

Total rain for the year

2464

Total rain days for the year

110

## Daily Point Rainfall in millimeters (meteorological day)

| 2011 | Station: San_Rafael |     |     |     |     |     |     |     |     |     |     |     |
|------|---------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Day  | Jan                 | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
| 1    | 0                   | 0   | 22  | 0   | 0   | 0   | 0   | 27  | 12  | 10  | 9   | 0   |
| 2    | 0                   | 0   | 0   | 0   | 0   | 0   | 17  | 0   | 0   | 4   | 37  | 6   |
| 3    | 0                   | 0   | 0   | 0   | 0   | 0   | 12  | 1   | 0   | 1   | 39  | 7   |
| 4    | 0                   | 0   | 0   | 0   | 0   | 0   | 11  | 0   | 46  | 0   | 21  | 77  |
| 5    | 0                   | 0   | 6   | 0   | 15  | 0   | 0   | 0   | 0   | 0   | 62  | 1   |
| 6    | 0                   | 0   | 0   | 0   | 0   | 0   | 1   | 40  | 0   | 0   | 9   | 10  |
| 7    | 0                   | 0   | 0   | 0   | 24  | 0   | 3   | 6   | 0   | 30  | 5   | 0   |
| 8    | 0                   | 1   | 0   | 0   | 23  | 0   | 17  | 0   | 1   | 16  | 3   | 6   |
| 9    | 9                   | 0   | 0   | 0   | 27  | 0   | 29  | 0   | 13  | 27  | 0   | 32  |
| 10   | 0                   | 0   | 0   | 0   | 0   | 0   | 11  | 30  | 2   | 0   | 3   | 1   |
| 11   | 2                   | 0   | 0   | 0   | 0   | 0   | 9   | 15  | 0   | 3   | 17  | 1   |
| 12   | 0                   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 2   | 34  | 0   | 0   |
| 13   | 0                   | 0   | 0   | 2   | 1   | 0   | 1   | 2   | 36  | 20  | 0   | 0   |
| 14   | 0                   | 0   | 0   | 0   | 0   | 0   | 0   | 5   | 0   | 0   | 25  | 0   |
| 15   |                     | 0   | 0   | 0   | 0   | 0   | 0   | 1   | 0   | 0   | 68  | 0   |
| 16   |                     | 0   | 0   | 0   | 0   | 0   | 0   | 35  | 0   | 36  | 0   | 0   |
| 17   |                     | 0   | 0   | 0   | 0   | 0   | 0   | 3   | 42  | 3   | 6   | 7   |
| 18   | 0                   | 0   | 0   | 0   | 0   | 0   | 6   | 0   | 1   | 7   | 0   | 1   |
| 19   | 0                   | 0   | 0   | 0   |     | 0   | 0   | 0   | 10  | 1   | 0   | 0   |
| 20   | 6                   | 0   | 0   | 0   |     | 0   | 0   | 0   | 0   | 0   | 0   | 0   |
| 21   | 5                   | 0   | 0   | 0   |     | 0   | 1   | 1   | 0   | 0   | 18  | 0   |
| 22   | 0                   | 0   | 0   | 0   |     | 3   | 0   | 4   | 65  | 6   | 4   | 0   |
| 23   | 1                   | 0   | 0   | 0   |     | 0   | 0   | 15  | 34  | 0   | 0   | 0   |
| 24   | 2                   | 0   | 0   | 0   | 2   | 0   | 1   | 2   | 8   | 0   | 0   | 0   |
| 25   | 0                   | 0   | 0   | 0   | 0   | 0   | 5   | 1   | 1   | 0   | 1   | 0   |
| 26   | 0                   | 0   | 0   | 0   | 0   | 0   | 97  | 26  | 61  | 0   | 1   | 0   |
| 27   | 0                   | 0   | 0   | 0   | 0   | 0   | 29  | 53  | 239 | 0   | 0   | 1   |
| 28   | 0                   | 0   | 0   | 0   | 0   | 0   | 8   | 20  | 5   | 0   | 0   | 0   |
| 29   | 0                   |     | 0   | 0   | 0   | 0   | 61  | 12  | 0   | 0   | 0   | 0   |
| 30   | 0                   |     | 0   | 0   | 0   | 27  | 11  | 3   | 10  | 0   | 0   | 0   |
| 31   | 0                   |     | 0   |     | 0   |     | 7   | 12  |     | 0   |     | 0   |

|                  |      |      |      |      |      |      |       |       |       |      |       |      |
|------------------|------|------|------|------|------|------|-------|-------|-------|------|-------|------|
| Monthly Total    | 25   | 1    | 28   | 2    | 92   | 30   | 337   | 314   | 588   | 198  | 328   | 150  |
| Average          | 0.89 | 0.04 | 0.90 | 0.07 | 3.54 | 1.00 | 10.87 | 10.13 | 19.60 | 6.39 | 10.93 | 4.84 |
| Max daily rain   | 9    | 1    | 22   | 2    | 27   | 27   | 97    | 53    | 239   | 36   | 68    | 77   |
| Day of Max Daily | 9    | 8    | 1    | 13   | 9    | 30   | 26    | 27    | 27    | 16   | 15    | 4    |
| No. of Rain days | 6    | 1    | 2    | 1    | 6    | 2    | 20    | 22    | 18    | 14   | 17    | 12   |
| Max 1-hr rain    | 5    | 1    | 5    | 2    | 18   | 20   | 25    | 15    | 42    | 36   | 18    | 15   |
| Day of max 1-hr  | 20   | 9    | 1    | 13   | 7    | 30   | 26    | 10    | 4     | 16   | 6     | 9    |

|                              |      |
|------------------------------|------|
| Total rain for the year      | 2093 |
| Total rain days for the year | 121  |

## Daily Point Rainfall in millimeters (meteorological day)

| 2011 | Station: PRFFWC_(CSFP) |      |      |     |      |       |      |      |       |      |      |      |
|------|------------------------|------|------|-----|------|-------|------|------|-------|------|------|------|
| Day  | Jan                    | Feb  | Mar  | Apr | May  | Jun   | Jul  | Aug  | Sep   | Oct  | Nov  | Dec  |
| 1    | 0.0                    | 0.0  | 12.4 | 0.0 | 0.0  | 0.0   | 0.0  | 37.1 | 19.3  | 18.8 | 2.0  | 0.0  |
| 2    | 0.0                    | 0.0  | 0.0  | 0.0 | 0.0  | 1.5   | 0.0  | 1.3  | 0.5   | 58.4 | 9.1  | 1.8  |
| 3    | 0.0                    | 0.0  | 0.0  | 0.0 | 0.0  | 6.1   | 0.0  | 0.5  | 1.3   | 4.1  | 15.0 | 19.6 |
| 4    | 0.0                    | 0.0  | 0.0  | 0.0 | 0.0  | 0.0   | 2.8  | 2.0  | 4.6   | 0.0  | 4.6  | 42.9 |
| 5    | 0.0                    | 0.0  | 4.6  | 0.0 | 0.0  | 0.0   | 4.3  | 8.9  | 0.0   | 0.0  | 36.8 | 0.0  |
| 6    | 0.0                    | 0.0  | 0.8  | 0.0 | 0.0  | 0.8   | 0.0  | 10.2 | 0.3   | 0.0  | 29.7 | 8.1  |
| 7    | 0.0                    | 0.3  | 0.0  | 0.0 | 57.2 | 1.5   | 0.0  | 8.6  | 5.8   | 15.5 | 16.0 | 0.0  |
| 8    | 0.0                    | 0.0  | 0.0  | 0.0 | 13.5 | 58.4  | 17.0 | 6.1  | 0.0   | 19.8 | 0.8  | 1.5  |
| 9    | 3.8                    | 0.0  | 0.0  | 0.0 | 37.6 | 10.9  | 34.0 | 0.0  | 23.6  | 8.1  | 0.0  | 24.6 |
| 10   | 0.0                    | 0.0  | 0.0  | 0.0 | 0.0  | 1.0   | 10.2 | 6.6  | 1.8   | 0.0  | 0.0  | 0.0  |
| 11   | 0.0                    | 55.9 | 0.0  | 0.0 | 0.0  | 0.0   | 3.3  | 0.5  | 0.0   | 0.0  | 0.0  | 0.0  |
| 12   | 0.0                    | 0.0  | 0.0  | 0.0 | 0.0  | 0.0   | 14.7 | 0.0  | 0.5   | 31.5 | 0.0  | 0.0  |
| 13   | 0.0                    | 0.0  | 0.0  | 0.0 | 8.6  | 0.0   | 2.8  | 1.8  | 27.4  | 1.8  | 0.0  | 0.0  |
| 14   | 0.0                    | 0.0  | 0.0  | 0.0 | 12.2 | 0.0   | 0.0  | 18.3 | 0.8   | 0.0  | 9.4  | 0.0  |
| 15   | 10.4                   | 0.0  | 0.0  | 0.0 | 0.0  | 0.0   | 0.0  | 0.3  | 1.3   | 0.0  | 45.7 | 0.0  |
| 16   | 0.0                    | 0.0  | 0.0  | 0.0 | 0.0  | 52.3  | 0.0  | 0.3  | 1.5   | 15.7 | 14.7 | 0.0  |
| 17   | 0.0                    | 0.0  | 0.0  | 0.0 | 0.0  | 7.1   | 0.0  | 0.5  | 2.3   | 19.3 | 0.3  | 0.0  |
| 18   | 0.0                    | 0.0  | 0.0  | 0.0 | 0.0  | 7.1   | 0.0  | 0.0  | 0.0   | 0.0  | 0.0  | 0.0  |
| 19   | 1.5                    | 0.0  | 0.0  | 0.5 | 0.0  | 68.6  | 0.0  | 0.0  | 11.9  | 0.0  | 0.0  | 0.0  |
| 20   | 0.0                    | 0.0  | 0.0  | 0.0 | 0.0  | 63.0  | 0.0  | 0.0  | 0.0   | 0.0  | 0.0  | 0.0  |
| 21   | 0.0                    | 0.0  | 0.0  | 0.0 | 10.2 | 32.0  | 0.0  | 4.3  | 12.4  | 10.2 | 1.5  | 0.0  |
| 22   | 0.0                    | 0.0  | 0.0  | 0.0 | 0.0  | 18.8  | 0.0  | 0.0  | 0.5   | 0.0  | 7.4  | 0.0  |
| 23   | 0.0                    | 0.0  | 0.0  | 0.0 | 0.0  | 59.2  | 0.0  | 50.5 | 20.6  | 0.0  | 0.0  | 0.0  |
| 24   | 3.6                    | 0.0  | 0.0  | 0.0 | 11.9 | 160.0 | 1.5  | 13.2 | 5.3   | 0.0  | 0.0  | 0.0  |
| 25   | 0.0                    | 0.0  | 0.0  | 0.0 | 58.9 | 159.5 | 0.0  | 0.0  | 0.0   | 0.0  | 0.0  | 0.0  |
| 26   | 0.0                    | 0.0  | 0.0  | 2.8 | 25.4 | 6.9   | 36.8 | 46.7 | 34.5  | 0.0  | 0.0  | 0.0  |
| 27   | 0.0                    | 0.0  | 0.0  | 0.0 | 0.3  | 0.0   | 78.7 | 23.4 | 189.7 | 0.0  | 0.0  | 0.0  |
| 28   | 0.0                    | 0.0  | 0.0  | 0.0 | 1.8  | 0.0   | 8.1  | 15.5 | 20.1  | 0.0  | 0.0  | 0.0  |
| 29   | 0.0                    |      | 0.0  | 1.0 | 3.8  | 0.0   | 11.7 | 6.1  | 6.4   | 0.0  | 0.0  | 0.0  |
| 30   | 0.0                    |      | 0.0  | 0.0 | 0.0  | 1.8   | 9.7  | 6.6  | 4.6   | 0.5  | 0.0  | 0.0  |
| 31   | 0.0                    |      | 0.0  |     | 0.0  |       | 14.0 | 29.2 |       | 0.0  |      | 0.0  |

|                  |      |      |      |      |       |       |       |       |       |       |       |      |
|------------------|------|------|------|------|-------|-------|-------|-------|-------|-------|-------|------|
| Monthly Total    | 19.3 | 56.1 | 17.8 | 4.3  | 241.3 | 716.5 | 249.7 | 298.5 | 397.0 | 203.7 | 193.0 | 98.6 |
| Average          | 0.62 | 2.00 | 0.57 | 0.14 | 7.78  | 23.88 | 8.05  | 9.63  | 13.23 | 6.57  | 6.43  | 3.18 |
| Max daily rain   | 10.4 | 55.9 | 12.4 | 2.8  | 58.9  | 160.0 | 78.7  | 50.5  | 189.7 | 58.4  | 45.7  | 42.9 |
| Day of Max Daily | 15   | 11   | 1    | 26   | 25    | 24    | 27    | 23    | 27    | 2     | 15    | 4    |
| No. of Rain days | 4    | 2    | 3    | 3    | 12    | 19    | 15    | 24    | 24    | 12    | 14    | 6    |
| Max 1-hr rain    | 8.6  | 25.7 |      |      | 53.1  | 52.3  |       | 49.8  | 38.1  |       | 24.4  | 11.7 |
| Day of max 1-hr  | 15   | 11   |      |      | 25    | 16    |       | 23    | 27    |       | 6     | 9    |

|                              |        |
|------------------------------|--------|
| Total rain for the year      | 2495.8 |
| Total rain days for the year | 138    |



Table 1.0

| Monthly Rainfall Summary for 2011 |      |      |      |     |       |       |       |       |       |       |       |      |                    |                   |                        |
|-----------------------------------|------|------|------|-----|-------|-------|-------|-------|-------|-------|-------|------|--------------------|-------------------|------------------------|
| 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                             | 56   | 0    | 1    | 3   | 239   | 143   | 219   | 335   | 418   | 277   | 135   | 71   | 1897               | 125               | 175                    |
| Sapang Buho                       | 49   | 0    | 3    | 7   | 218   | 344   | 317   | 252   | 468   | 218   | 205   | 119  | 2200               | 126               | 183                    |
| Gabaldon                          | 97   | 1    | 61   | 13  | 271   | 474   | 295   | 329   | 873   | 333   | 581   | 234  | 3562               | 156               | 422                    |
| Zaragoza                          | 8    | 2    | 12   | 2   | 188   | 358   | 318   | 233   | 396   | 214   | 144   | 125  | 2000               | 123               | 170                    |
| Mayapyap                          | 37   | 2    | 11   | 9   | 199   | 393   | 199   | 198   | 409   | 233   | 161   | 164  | 2015               | 131               | 170                    |
| Peñaranda                         | 34   | 3    | 38   | 7   | 243   | 319   | 236   | 256   | 410   | 194   | 241   | 188  | 2169               | 137               | 199                    |
| Calaanan                          | 49   | 6    | 13   | 13  | 152   | 392   | 296   | 221   | 616   | 284   | 246   | 101  | 2389               | 137               | 211                    |
| Palali                            | 61   | 5    | 34   | 40  | 242   | 377   | 314   | 300   | 596   | 197   | 267   | 141  | 2574               | 146               | 248                    |
| San Isidro                        | 19   | 21   | 27   | 4   | 222   | 343   | 189   | 214   | 358   | 159   | 159   | 118  | 1833               | 125               | 187                    |
| Arayat                            | 11   | 0    | 29   | 8   | 155   | 503   | 261   | 289   | 438   | 269   | 163   | 126  | 2252               | 123               | 221                    |
| Candaba                           | 16   | 0    | 25   | 15  | 127   | 353   | 67    | 118   | 372   | 141   | 214   | 108  | 1556               | 112               | 200                    |
| Sibul Spring                      | 57   | 23   | 86   | 13  | 197   | 561   | 272   | 262   | 532   | 179   | 342   | 250  | 2774               | 156               | 261                    |
| Sasmuan                           | 19   | 0    | 12   | 18  | 89    | 691   | 432   | 405   | 379   | 203   | 138   | 80   | 2466               | 117               | 152                    |
| Sulipan                           | 32   | 3    | 13   | 18  | 217   | 562   | 356   | 245   | 428   | 147   | 253   | 173  | 2447               | 129               | 158                    |
| Mexico                            | 8    | 5    | 31   | 6   | 152   | 513   | 317   | 268   | 496   | 184   | 226   | 105  | 2311               | 119               | 227                    |
| Porac                             | 4    | 57   | 8    | 6   | 126   | 881   | 397   | 129   | 419   | 223   | 143   | 71   | 2464               | 110               | 242                    |
| San Rafael                        | 25   | 1    | 28   | 2   | 92    | 30    | 337   | 314   | 588   | 198   | 328   | 150  | 2093               | 121               | 239                    |
| PRFFWC                            | 19.3 | 56.1 | 17.8 | 4.3 | 241.3 | 716.5 | 249.7 | 298.5 | 397.0 | 203.7 | 193.0 | 98.6 | 2495.8             | 138               | 189.7                  |

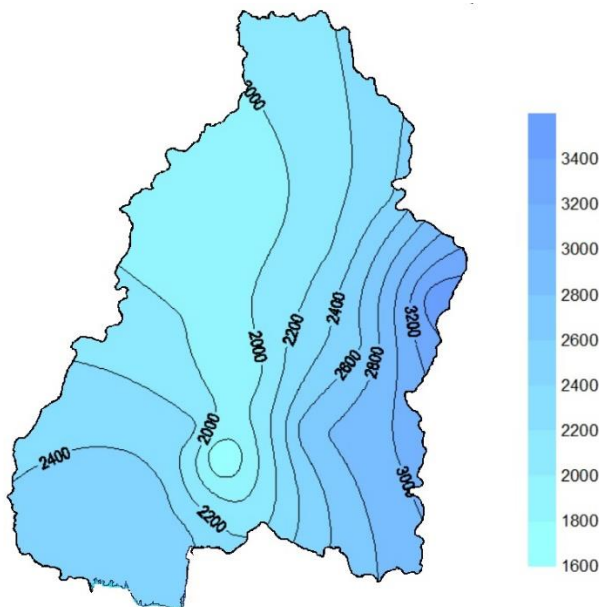


Figure 1a. The Isohyet rainfall distribution for the year 2011 in the Pampanga River Basin

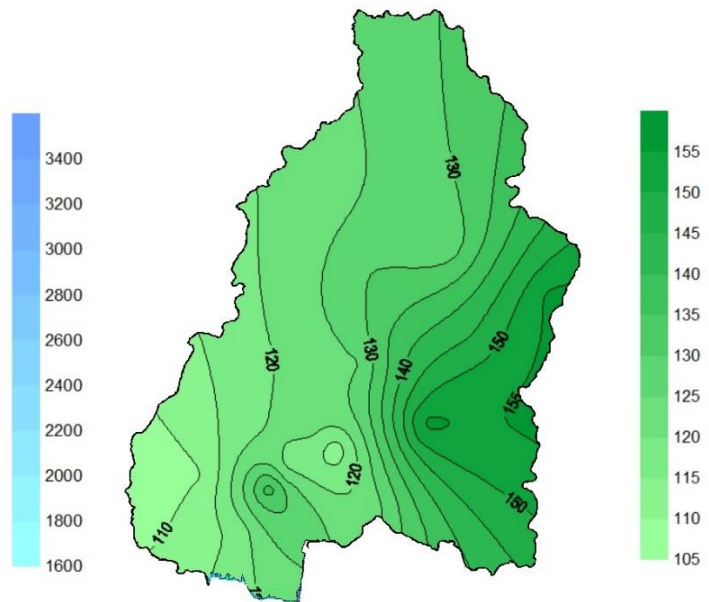


Figure 1b. Estimated rainfall days distribution (2011) in the Pampanga River Basin

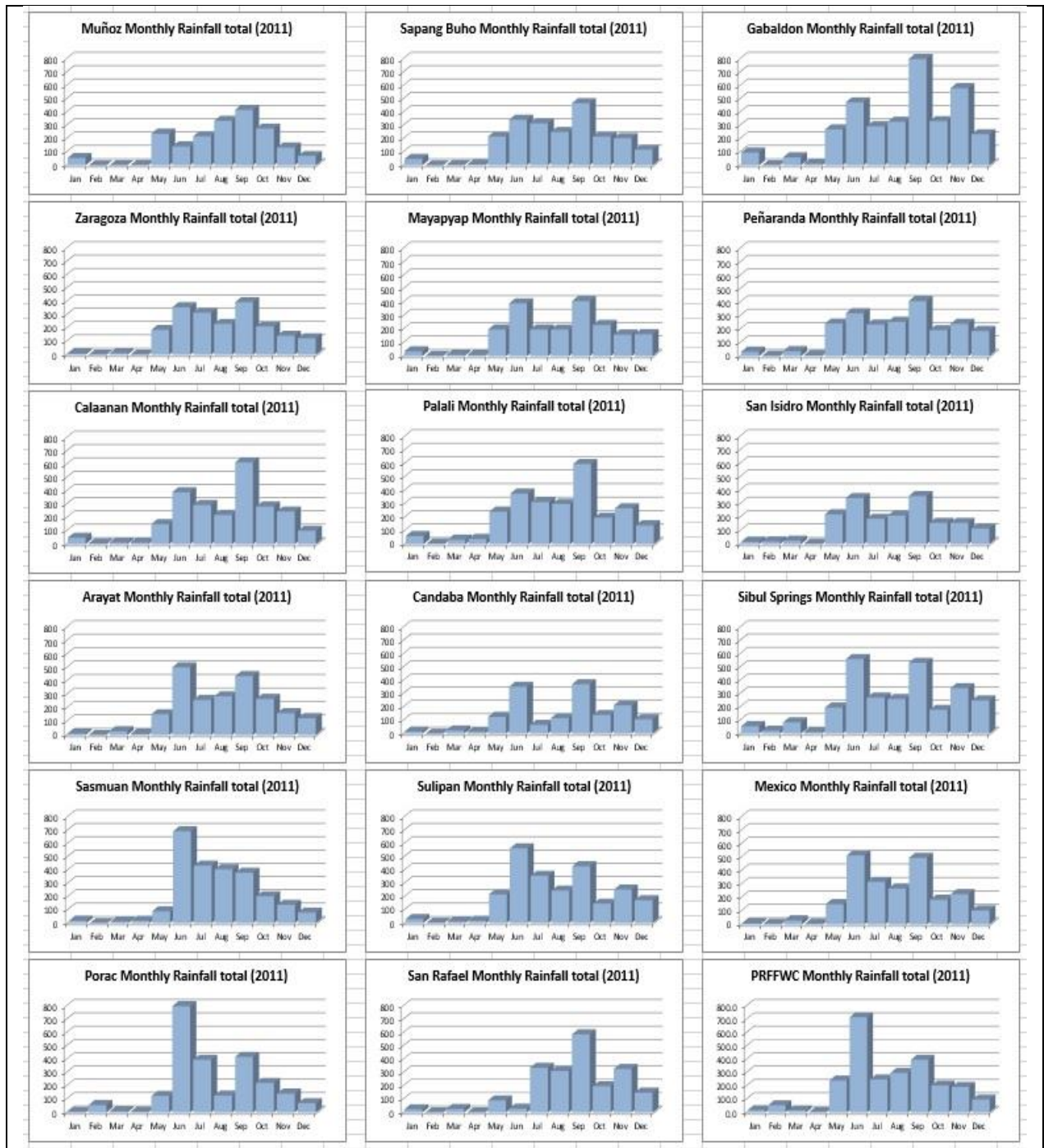


Figure 2. Monthly Rainfall distribution (hyetograph) of all operational RR monitoring stations of PRFFWC within the PRB for the year 2011.



## B. WATER LEVEL Data Summary Presentation



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

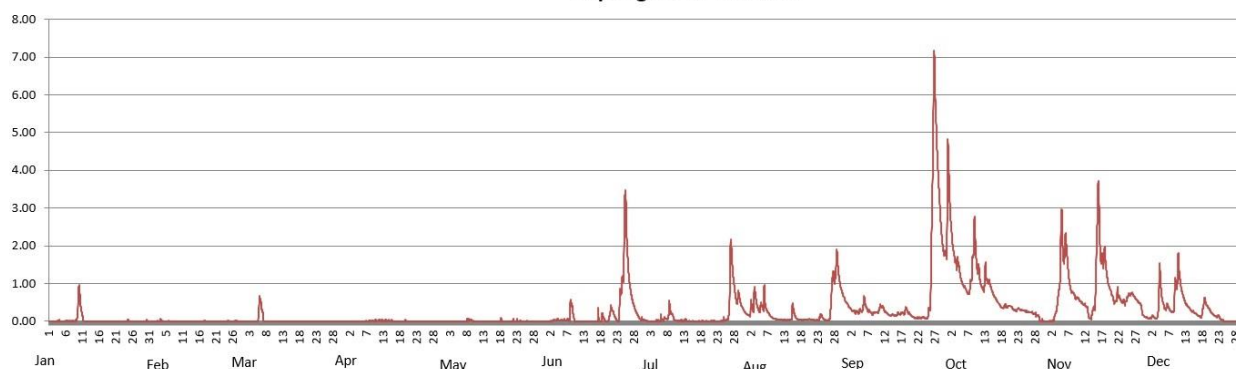
**2011**

Station: **Sapang\_Buho**

| Day | Jan  | Feb  | Mar  | Apr  | May  | Jun  | Jul  | Aug  | Sep  | Oct  | Nov  | Dec  |
|-----|------|------|------|------|------|------|------|------|------|------|------|------|
| 1   | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.02 | 0.19 | 0.38 | 3.43 | 0.01 | 0.09 |
| 2   | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 | 0.31 | 0.29 | 2.58 | 0.04 | 0.11 |
| 3   | 0.01 | 0.01 | 0.00 | 0.00 | 0.00 | 0.03 | 0.00 | 0.53 | 0.24 | 1.73 | 0.31 | 0.09 |
| 4   | 0.01 | 0.01 | 0.00 | 0.00 | 0.00 | 0.04 | 0.01 | 0.45 | 0.26 | 1.53 | 1.21 | 0.51 |
| 5   | 0.00 | 0.01 | 0.03 | 0.00 | 0.00 | 0.03 | 0.01 | 0.41 | 0.30 | 1.34 | 1.66 | 0.65 |
| 6   | 0.01 | 0.01 | 0.49 | 0.01 | 0.00 | 0.04 | 0.04 | 0.48 | 0.45 | 0.92 | 1.97 | 0.36 |
| 7   | 0.01 | 0.00 | 0.08 | 0.01 | 0.00 | 0.03 | 0.06 | 0.30 | 0.28 | 0.76 | 1.07 | 0.40 |
| 8   | 0.01 | 0.00 | 0.00 | 0.01 | 0.03 | 0.20 | 0.21 | 0.15 | 0.21 | 1.07 | 0.76 | 0.27 |
| 9   | 0.09 | 0.00 | 0.00 | 0.02 | 0.03 | 0.24 | 0.21 | 0.08 | 0.23 | 2.11 | 0.63 | 0.68 |
| 10  | 0.65 | 0.00 | 0.00 | 0.02 | 0.00 | 0.01 | 0.05 | 0.05 | 0.29 | 1.47 | 0.57 | 1.27 |
| 11  | 0.09 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.02 | 0.04 | 0.38 | 1.03 | 0.47 | 0.91 |
| 12  | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.02 | 0.04 | 0.27 | 0.99 | 0.41 | 0.56 |
| 13  | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.03 | 0.03 | 0.18 | 1.11 | 0.14 | 0.40 |
| 14  | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.01 | 0.05 | 0.17 | 0.94 | 0.24 | 0.29 |
| 15  | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 | 0.01 | 0.26 | 0.16 | 0.69 | 1.23 | 0.24 |
| 16  | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.08 | 0.20 | 0.54 | 2.74 | 0.17 |
| 17  | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 0.07 | 0.01 | 0.05 | 0.22 | 0.41 | 1.60 | 0.15 |
| 18  | 0.00 | 0.00 | 0.00 | 0.00 | 0.03 | 0.11 | 0.02 | 0.04 | 0.28 | 0.39 | 1.58 | 0.50 |
| 19  | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 | 0.01 | 0.01 | 0.04 | 0.25 | 0.39 | 0.95 | 0.40 |
| 20  | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.13 | 0.00 | 0.05 | 0.15 | 0.40 | 0.69 | 0.26 |
| 21  | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.29 | 0.02 | 0.04 | 0.09 | 0.32 | 0.53 | 0.16 |
| 22  | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.08 | 0.01 | 0.03 | 0.09 | 0.30 | 0.69 | 0.14 |
| 23  | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.31 | 0.00 | 0.10 | 0.09 | 0.31 | 0.54 | 0.07 |
| 24  | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 1.01 | 0.02 | 0.09 | 0.10 | 0.29 | 0.52 | 0.01 |
| 25  | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 2.81 | 0.03 | 0.03 | 0.19 | 0.25 | 0.68 | 0.00 |
| 26  | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.26 | 0.07 | 0.13 | 2.02 | 0.23 | 0.73 | 0.00 |
| 27  | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 0.60 | 1.57 | 1.07 | 6.13 | 0.21 | 0.62 | 0.00 |
| 28  | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.30 | 0.98 | 1.44 | 4.07 | 0.17 | 0.51 | 0.00 |
| 29  | 0.00 |      | 0.00 | 0.00 | 0.00 | 0.12 | 0.62 | 1.15 | 2.48 | 0.06 | 0.31 | 0.00 |
| 30  | 0.00 |      | 0.00 | 0.00 | 0.00 | 0.05 | 0.50 | 0.74 | 1.82 | 0.01 | 0.12 | 0.00 |
| 31  | 0.00 |      | 0.00 |      | 0.00 |      | 0.29 | 0.53 |      | 0.00 |      | 0.00 |

|                 |      |      |      |      |      |      |      |      |      |      |      |      |
|-----------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Max WL observed | 0.96 | 0.06 | 0.67 | 0.05 | 0.09 | 3.47 | 2.18 | 1.90 | 7.17 | 4.83 | 3.71 | 1.81 |
| Day of Max WL   | 10   | 4    | 6    | 19   | 18   | 25   | 27   | 29   | 27   | 1    | 16   | 10   |

**Sapang Buho WL 2011**





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

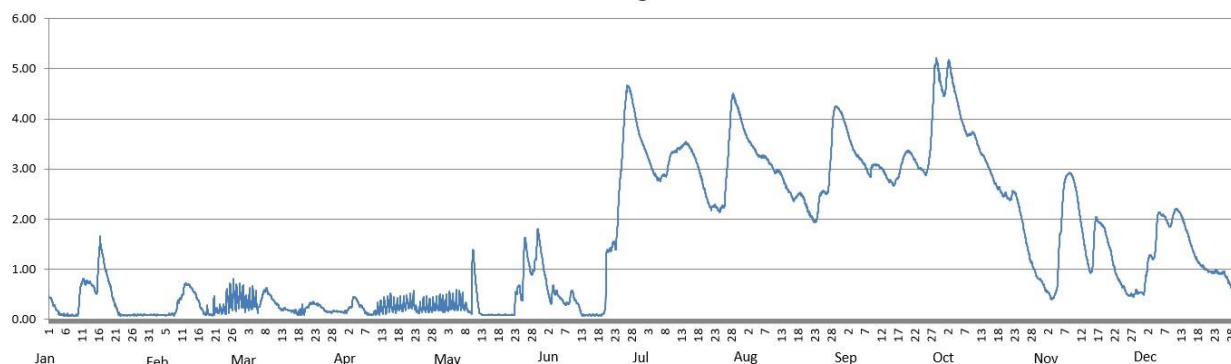
**2011**

Station: **Zaragoza**

| Day | Jan  | Feb  | Mar  | Apr  | May  | Jun  | Jul  | Aug  | Sep  | Oct  | Nov  | Dec  |
|-----|------|------|------|------|------|------|------|------|------|------|------|------|
| 1   | 0.43 | 0.09 | 0.41 | 0.15 | 0.26 | 0.89 | 3.48 | 3.75 | 3.83 | 4.52 | 0.58 | 0.63 |
| 2   | 0.31 | 0.09 | 0.32 | 0.20 | 0.27 | 0.54 | 3.31 | 3.59 | 3.61 | 5.02 | 0.50 | 1.07 |
| 3   | 0.19 | 0.09 | 0.34 | 0.30 | 0.30 | 0.45 | 3.13 | 3.49 | 3.42 | 4.92 | 0.43 | 1.26 |
| 4   | 0.10 | 0.08 | 0.37 | 0.44 | 0.29 | 0.57 | 2.96 | 3.40 | 3.29 | 4.59 | 0.56 | 1.28 |
| 5   | 0.09 | 0.08 | 0.33 | 0.39 | 0.29 | 0.53 | 2.90 | 3.34 | 3.26 | 4.45 | 0.98 | 1.62 |
| 6   | 0.08 | 0.09 | 0.30 | 0.27 | 0.32 | 0.41 | 2.79 | 3.25 | 3.14 | 4.03 | 2.26 | 2.10 |
| 7   | 0.08 | 0.11 | 0.51 | 0.17 | 0.30 | 0.31 | 2.87 | 3.25 | 3.02 | 3.83 | 2.82 | 2.07 |
| 8   | 0.08 | 0.12 | 0.58 | 0.11 | 0.25 | 0.33 | 2.89 | 3.19 | 2.89 | 3.69 | 2.91 | 1.94 |
| 9   | 0.08 | 0.32 | 0.49 | 0.09 | 0.16 | 0.51 | 3.18 | 3.09 | 3.06 | 3.70 | 2.85 | 1.89 |
| 10  | 0.45 | 0.44 | 0.39 | 0.14 | 0.98 | 0.43 | 3.33 | 2.96 | 3.08 | 3.70 | 2.63 | 2.12 |
| 11  | 0.77 | 0.65 | 0.31 | 0.19 | 0.68 | 0.31 | 3.36 | 2.96 | 3.05 | 3.52 | 2.21 | 2.19 |
| 12  | 0.74 | 0.69 | 0.24 | 0.24 | 0.18 | 0.14 | 3.42 | 2.91 | 3.00 | 3.34 | 1.78 | 2.11 |
| 13  | 0.74 | 0.64 | 0.20 | 0.26 | 0.09 | 0.08 | 3.46 | 2.75 | 2.88 | 3.24 | 1.37 | 1.94 |
| 14  | 0.67 | 0.55 | 0.20 | 0.30 | 0.08 | 0.08 | 3.51 | 2.60 | 2.78 | 3.11 | 1.06 | 1.75 |
| 15  | 0.56 | 0.40 | 0.18 | 0.28 | 0.09 | 0.08 | 3.46 | 2.51 | 2.71 | 2.95 | 1.05 | 1.54 |
| 16  | 1.32 | 0.25 | 0.17 | 0.25 | 0.09 | 0.08 | 3.35 | 2.40 | 2.74 | 2.78 | 1.88 | 1.34 |
| 17  | 1.29 | 0.12 | 0.16 | 0.27 | 0.09 | 0.08 | 3.20 | 2.46 | 2.87 | 2.65 | 1.95 | 1.19 |
| 18  | 0.97 | 0.15 | 0.14 | 0.24 | 0.09 | 0.08 | 3.00 | 2.50 | 3.12 | 2.58 | 1.89 | 1.09 |
| 19  | 0.74 | 0.09 | 0.16 | 0.28 | 0.09 | 0.14 | 2.75 | 2.41 | 3.30 | 2.48 | 1.76 | 1.05 |
| 20  | 0.47 | 0.19 | 0.21 | 0.32 | 0.09 | 1.23 | 2.51 | 2.23 | 3.35 | 2.46 | 1.52 | 0.99 |
| 21  | 0.26 | 0.16 | 0.28 | 0.32 | 0.09 | 1.39 | 2.31 | 2.09 | 3.29 | 2.40 | 1.27 | 0.95 |
| 22  | 0.11 | 0.19 | 0.33 | 0.31 | 0.08 | 1.51 | 2.23 | 1.99 | 3.17 | 2.54 | 0.99 | 0.94 |
| 23  | 0.08 | 0.21 | 0.31 | 0.19 | 0.37 | 1.76 | 2.26 | 2.04 | 3.04 | 2.43 | 0.81 | 0.97 |
| 24  | 0.08 | 0.37 | 0.30 | 0.21 | 0.64 | 2.79 | 2.18 | 2.46 | 3.00 | 2.17 | 0.69 | 0.92 |
| 25  | 0.08 | 0.43 | 0.24 | 0.26 | 0.52 | 3.73 | 2.23 | 2.55 | 2.92 | 1.86 | 0.60 | 0.94 |
| 26  | 0.08 | 0.47 | 0.17 | 0.26 | 1.49 | 4.54 | 2.49 | 2.53 | 3.07 | 1.53 | 0.49 | 0.84 |
| 27  | 0.08 | 0.42 | 0.16 | 0.25 | 1.15 | 4.56 | 3.36 | 3.01 | 3.76 | 1.24 | 0.49 | 0.71 |
| 28  | 0.09 | 0.43 | 0.15 | 0.24 | 0.93 | 4.26 | 4.29 | 3.97 | 4.89 | 1.06 | 0.51 | 0.61 |
| 29  | 0.09 |      | 0.16 | 0.27 | 1.14 | 3.93 | 4.38 | 4.24 | 5.03 | 0.89 | 0.54 | 0.61 |
| 30  | 0.09 |      | 0.16 | 0.27 | 1.67 | 3.66 | 4.19 | 4.17 | 4.65 | 0.80 | 0.54 | 0.62 |
| 31  | 0.08 |      | 0.15 |      | 1.29 |      | 3.96 | 4.03 |      | 0.71 |      | 0.61 |

|                 |      |      |      |      |      |      |      |      |      |      |      |      |
|-----------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Max WL observed | 1.67 | 0.82 | 0.68 | 0.57 | 1.81 | 4.67 | 4.50 | 4.26 | 5.21 | 5.18 | 2.93 | 2.21 |
| Day of Max WL   | 17   | 26   | 1    | 22   | 30   | 27   | 29   | 29   | 29   | 3    | 8    | 11   |

**Zaragoza WL 2011**

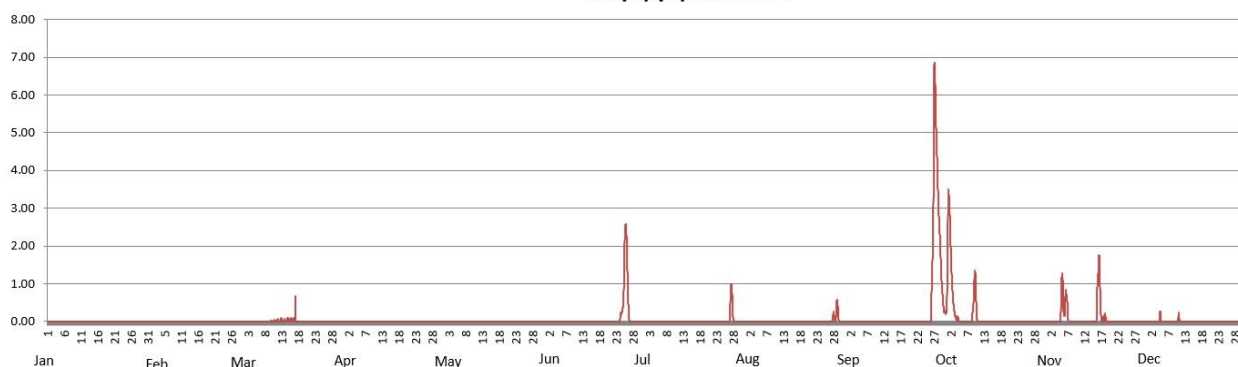


**Water Level in meters (Daily Average)**

| 2011 |      | Station: <b>Mayapyap</b> |      |      |      |      |      |      |      |      |      |      |
|------|------|--------------------------|------|------|------|------|------|------|------|------|------|------|
| 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 | 1.79 | 0.00 | 0.00 |
| 2    |      |                          |      | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.94 | 0.00 | 0.00 |
| 3    |      |                          |      | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.35 | 0.00 | 0.00 |
| 4    |      |                          |      | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.05 | 0.03 | 0.00 |
| 5    |      |                          |      | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.39 | 0.03 |
| 6    |      |                          |      | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.55 | 0.00 |
| 7    |      |                          |      | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.03 | 0.00 |
| 8    |      |                          |      | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 9    |      |                          | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.74 | 0.00 | 0.00 |
| 10   |      |                          | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.24 | 0.00 | 0.05 |
| 11   |      |                          | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 12   |      |                          | 0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 13   |      |                          | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 14   |      |                          | 0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 15   |      |                          | 0.05 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.12 | 0.00 |
| 16   |      |                          | 0.04 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.27 | 0.00 |
| 17   |      |                          | 0.04 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.07 | 0.00 |
| 18   |      |                          | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.07 | 0.00 |
| 19   |      |                          | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 20   |      |                          | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 21   | 0.00 |                          | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 22   | 0.00 |                          | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 23   |      |                          | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 24   |      |                          | 0.00 | 0.00 | 0.00 | 0.28 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 25   |      |                          | 0.00 | 0.00 | 0.00 | 2.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 26   |      |                          | 0.00 | 0.00 | 0.00 | 0.66 | 0.00 | 0.00 | 0.52 | 0.00 | 0.00 | 0.00 |
| 27   |      |                          | 0.00 | 0.00 | 0.00 | 0.00 | 0.47 | 0.09 | 5.13 | 0.00 | 0.00 | 0.00 |
| 28   |      |                          | 0.00 | 0.00 | 0.00 | 0.00 | 0.15 | 0.21 | 3.78 | 0.00 | 0.00 | 0.00 |
| 29   |      |                          | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.13 | 1.53 | 0.00 | 0.00 | 0.00 |
| 30   |      |                          | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.33 | 0.00 | 0.00 | 0.00 |
| 31   |      |                          | 0.00 |      | 0.00 |      | 0.00 | 0.00 |      | 0.00 |      | 0.00 |

|                 |      |  |      |      |      |      |      |      |      |      |      |      |
|-----------------|------|--|------|------|------|------|------|------|------|------|------|------|
| Max WL observed | 0.00 |  | 0.68 | 0.00 | 0.00 | 2.57 | 0.98 | 0.57 | 6.86 | 3.49 | 1.76 | 0.27 |
| Day of Max WL   |      |  | 17   |      |      | 26   | 28   | 29   | 27   | 2    | 16   | 5    |

**Mayapyap WL 2011**

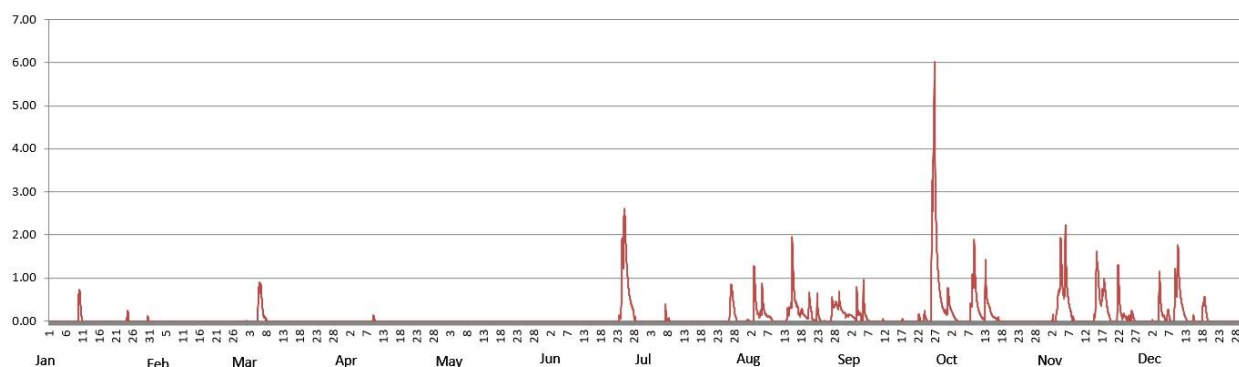


**Water Level in meters (Daily Average)**

| 2011 |      | Station: Peñaranda |      |      |      |      |      |      |      |      |      |      |
|------|------|--------------------|------|------|------|------|------|------|------|------|------|------|
| 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 | 0.02 | 0.15 | 0.45 | 0.00 | 0.00 |
| 2    | 0.00 | 0.00               | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.10 | 0.25 | 0.02 | 0.00 |
| 3    | 0.00 | 0.00               | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.53 | 0.25 | 0.08 | 0.23 | 0.00 |
| 4    | 0.00 | 0.00               | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.23 | 0.17 | 0.00 | 1.11 | 0.37 |
| 5    | 0.00 | 0.00               | 0.13 | 0.00 | 0.00 | 0.00 | 0.00 | 0.27 | 0.20 | 0.00 | 0.94 | 0.32 |
| 6    | 0.00 | 0.00               | 0.67 | 0.00 | 0.00 | 0.00 | 0.00 | 0.32 | 0.13 | 0.00 | 1.19 | 0.06 |
| 7    | 0.00 | 0.00               | 0.12 | 0.00 | 0.00 | 0.00 | 0.10 | 0.12 | 0.00 | 0.00 | 0.32 | 0.16 |
| 8    | 0.00 | 0.00               | 0.01 | 0.00 | 0.00 | 0.00 | 0.01 | 0.08 | 0.00 | 0.45 | 0.05 | 0.00 |
| 9    | 0.03 | 0.00               | 0.00 | 0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.14 | 0.00 | 0.52 |
| 10   | 0.48 | 0.00               | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.37 | 0.00 | 1.17 |
| 11   | 0.01 | 0.00               | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.12 | 0.00 | 0.45 |
| 12   | 0.00 | 0.00               | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.33 | 0.00 | 0.13 |
| 13   | 0.00 | 0.00               | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.10 | 0.00 | 0.51 | 0.00 | 0.00 |
| 14   | 0.00 | 0.00               | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.43 | 0.00 | 0.22 | 0.02 | 0.00 |
| 15   | 0.00 | 0.00               | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.04 | 0.00 | 0.09 | 0.86 | 0.02 |
| 16   | 0.00 | 0.00               | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.36 | 0.00 | 0.05 | 0.73 | 0.00 |
| 17   | 0.00 | 0.00               | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.19 | 0.01 | 0.00 | 0.64 | 0.06 |
| 18   | 0.00 | 0.00               | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.17 | 0.00 | 0.00 | 0.60 | 0.40 |
| 19   | 0.00 | 0.00               | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.08 | 0.00 | 0.00 | 0.12 | 0.06 |
| 20   | 0.00 | 0.00               | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.38 | 0.00 | 0.00 | 0.00 | 0.00 |
| 21   | 0.00 | 0.00               | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.03 | 0.00 | 0.00 | 0.05 | 0.00 |
| 22   | 0.00 | 0.00               | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.18 | 0.06 | 0.00 | 0.75 | 0.00 |
| 23   | 0.00 | 0.00               | 0.00 | 0.00 | 0.00 | 0.05 | 0.00 | 0.05 | 0.00 | 0.00 | 0.12 | 0.00 |
| 24   | 0.04 | 0.00               | 0.00 | 0.00 | 0.00 | 1.50 | 0.00 | 0.00 | 0.10 | 0.00 | 0.09 | 0.00 |
| 25   | 0.04 | 0.00               | 0.00 | 0.00 | 0.00 | 1.80 | 0.00 | 0.00 | 0.00 | 0.00 | 0.04 | 0.00 |
| 26   | 0.00 | 0.00               | 0.00 | 0.00 | 0.00 | 0.67 | 0.00 | 0.01 | 1.68 | 0.00 | 0.13 | 0.00 |
| 27   | 0.00 | 0.00               | 0.00 | 0.00 | 0.00 | 0.30 | 0.62 | 0.39 | 3.85 | 0.00 | 0.01 | 0.00 |
| 28   | 0.00 | 0.00               | 0.00 | 0.00 | 0.00 | 0.04 | 0.26 | 0.37 | 1.11 | 0.00 | 0.00 | 0.00 |
| 29   | 0.00 |                    | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.41 | 0.44 | 0.00 | 0.00 | 0.00 |
| 30   | 0.00 |                    | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.22 | 0.23 | 0.00 | 0.00 | 0.00 |
| 31   | 0.01 |                    | 0.00 |      | 0.00 |      | 0.00 | 0.15 |      | 0.00 |      | 0.00 |

|                 |      |      |      |      |      |      |      |      |      |      |      |      |
|-----------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Max WL observed | 0.74 | 0.00 | 0.91 | 0.14 | 0.00 | 2.62 | 0.85 | 1.95 | 6.01 | 1.90 | 2.24 | 1.76 |
| Day of Max WL   | 10   |      | 6    | 10   |      | 25   | 27   | 15   | 27   | 9    | 6    | 10   |

**Peñaranda WL 2011**

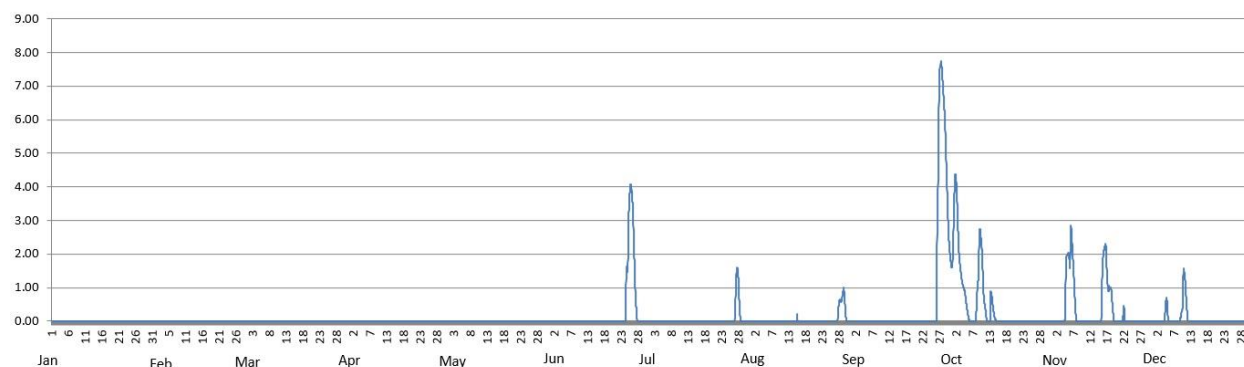


**Water Level in meters (Daily Average)**

| 2011 |      | Station: San_Isidro |      |      |      |      |      |      |      |      |      |      |
|------|------|---------------------|------|------|------|------|------|------|------|------|------|------|
| 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 | 0.00 | 0.00 | 2.23 | 0.00 | 0.00 |
| 2    | 0.00 | 0.00                | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 3.99 | 0.00 | 0.00 |
| 3    | 0.00 | 0.00                | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 2.02 | 0.00 | 0.00 |
| 4    | 0.00 | 0.00                | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.13 | 0.46 | 0.03 |
| 5    | 0.00 | 0.00                | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.88 | 1.20 | 0.22 |
| 6    | 0.00 | 0.00                | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.08 | 2.28 | 0.00 |
| 7    | 0.00 | 0.00                | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.86 | 0.00 |
| 8    | 0.00 | 0.00                | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.24 | 0.00 | 0.00 |
| 9    | 0.00 | 0.00                | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.97 | 0.00 | 0.06 |
| 10   | 0.00 | 0.00                | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.67 | 0.00 | 1.04 |
| 11   | 0.00 | 0.00                | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.28 | 0.00 | 0.51 |
| 12   | 0.00 | 0.00                | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.06 | 0.00 | 0.00 |
| 13   | 0.00 | 0.00                | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.58 | 0.00 | 0.00 |
| 14   | 0.00 | 0.00                | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.06 | 0.00 | 0.00 |
| 15   | 0.00 | 0.00                | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.04 | 0.00 | 0.00 | 0.37 | 0.00 |
| 16   | 0.00 | 0.00                | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 2.11 | 0.00 |
| 17   | 0.00 | 0.00                | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.28 | 0.00 |
| 18   | 0.00 | 0.00                | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.88 | 0.00 |
| 19   | 0.00 | 0.00                | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.09 | 0.00 |
| 20   | 0.00 | 0.00                | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 21   | 0.00 | 0.00                | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 22   | 0.00 | 0.00                | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.14 | 0.00 |
| 23   | 0.00 | 0.00                | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 24   | 0.00 | 0.00                | 0.00 | 0.00 | 0.00 | 1.11 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 25   | 0.00 | 0.00                | 0.00 | 0.00 | 0.00 | 3.64 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 26   | 0.00 | 0.00                | 0.00 | 0.00 | 0.00 | 2.95 | 0.00 | 0.00 | 1.07 | 0.00 | 0.00 | 0.00 |
| 27   | 0.00 | 0.00                | 0.00 | 0.00 | 0.00 | 0.44 | 0.60 | 0.14 | 6.69 | 0.00 | 0.00 | 0.00 |
| 28   | 0.00 | 0.00                | 0.00 | 0.00 | 0.00 | 0.00 | 1.02 | 0.62 | 7.02 | 0.00 | 0.00 | 0.00 |
| 29   | 0.00 |                     | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.73 | 4.83 | 0.00 | 0.00 | 0.00 |
| 30   | 0.00 |                     | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 2.28 | 0.00 | 0.00 | 0.00 |
| 31   | 0.00 |                     | 0.00 |      | 0.00 |      | 0.00 | 0.00 |      | 0.00 |      | 0.00 |

|                 |      |      |      |      |      |      |      |      |      |      |      |      |
|-----------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Max WL observed | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 4.08 | 1.60 | 0.99 | 7.75 | 4.38 | 2.85 | 1.56 |
| Day of Max WL   |      |      |      |      |      | 26   | 28   | 29   | 28   | 2    | 6    | 10   |

**San Isidro WL 2011**





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

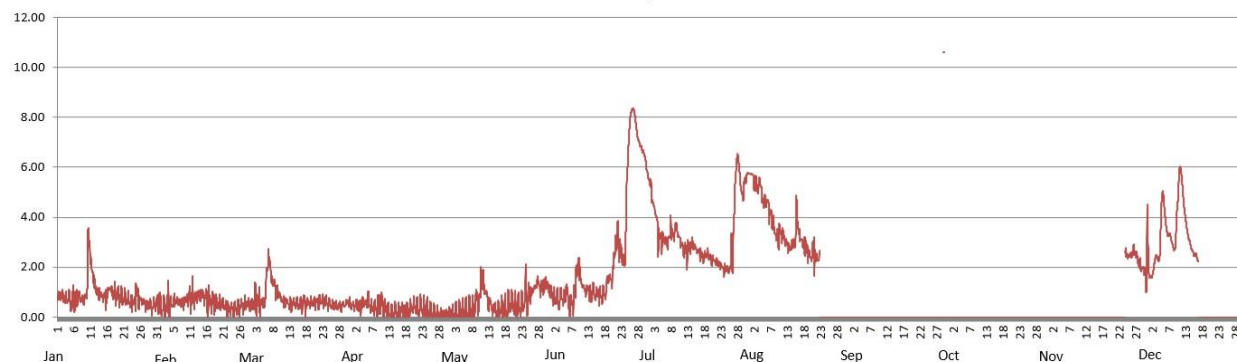
**2011**

Station: **Arayat**

| Day | Jan  | Feb  | Mar  | Apr  | May  | Jun  | Jul  | Aug  | Sep   | Oct | Nov  | Dec  |
|-----|------|------|------|------|------|------|------|------|-------|-----|------|------|
| 1   | 0.86 | 0.49 | 0.44 | 0.47 | 0.15 | 0.94 | 5.40 | 5.74 |       |     |      | 2.09 |
| 2   | 0.81 | 0.44 | 0.67 | 0.48 | 0.13 | 0.74 | 4.59 | 5.39 |       |     |      | 1.72 |
| 3   | 0.74 | 0.41 | 0.74 | 0.47 | 0.16 | 0.63 | 3.97 | 5.30 |       |     |      | 2.36 |
| 4   | 0.75 | 0.48 | 0.51 | 0.58 | 0.19 | 0.82 | 3.11 | 5.27 |       |     |      | 2.41 |
| 5   | 0.70 | 0.52 | 0.60 | 0.57 | 0.21 | 0.83 | 3.11 | 4.97 |       |     |      | 3.52 |
| 6   | 0.62 | 0.61 | 2.08 | 0.58 | 0.25 | 0.75 | 3.05 | 4.57 |       |     |      | 3.96 |
| 7   | 0.73 | 0.61 | 1.80 | 0.37 | 0.27 | 0.56 | 3.24 | 4.10 |       |     |      | 3.30 |
| 8   | 0.71 | 0.56 | 1.27 | 0.34 | 0.30 | 0.97 | 3.34 | 3.66 |       |     |      | 3.00 |
| 9   | 0.75 | 0.71 | 0.94 | 0.34 | 0.69 | 2.02 | 3.60 | 3.31 |       |     |      | 3.08 |
| 10  | 2.43 | 0.75 | 0.76 | 0.57 | 0.89 | 1.45 | 3.18 | 3.35 |       |     |      | 5.18 |
| 11  | 2.09 | 0.86 | 0.62 | 0.37 | 1.51 | 1.11 | 2.81 | 3.27 |       |     |      | 5.51 |
| 12  | 1.33 | 0.76 | 0.59 | 0.23 | 0.91 | 1.09 | 2.64 | 2.97 |       |     |      | 4.12 |
| 13  | 0.98 | 0.87 | 0.53 | 0.16 | 0.57 | 0.89 | 2.79 | 2.81 |       |     |      | 3.26 |
| 14  | 0.86 | 0.87 | 0.56 | 0.26 | 0.35 | 0.97 | 2.95 | 2.94 |       |     |      | 2.76 |
| 15  | 0.78 | 0.82 | 0.54 | 0.18 | 0.23 | 0.99 | 2.78 | 3.90 |       |     |      | 2.51 |
| 16  | 0.98 | 0.61 | 0.53 | 0.30 | 0.28 | 0.87 | 2.59 | 3.26 |       |     |      | 2.32 |
| 17  | 1.10 | 0.63 | 0.60 | 0.21 | 0.29 | 0.98 | 2.49 | 2.99 |       |     |      |      |
| 18  | 0.95 | 0.59 | 0.48 | 0.21 | 0.28 | 1.35 | 2.44 | 2.76 |       |     |      |      |
| 19  | 0.90 | 0.60 | 0.57 | 0.36 | 0.55 | 1.54 | 2.49 | 2.50 |       |     |      |      |
| 20  | 0.80 | 0.46 | 0.57 | 0.41 | 0.52 | 2.30 | 2.32 | 2.70 |       |     |      |      |
| 21  | 0.76 | 0.43 | 0.58 | 0.32 | 0.38 | 3.34 | 2.21 | 2.39 |       |     |      |      |
| 22  | 0.70 | 0.29 | 0.61 | 0.41 | 0.44 | 2.64 | 2.18 | 2.35 |       |     |      |      |
| 23  | 0.58 | 0.30 | 0.62 | 0.29 | 0.50 | 2.36 | 2.03 |      |       |     |      |      |
| 24  | 0.56 | 0.35 | 0.58 | 0.27 | 0.98 | 5.06 | 1.84 |      |       |     | 2.52 |      |
| 25  | 0.90 | 0.33 | 0.54 | 0.20 | 0.74 | 7.77 | 1.91 |      |       |     | 2.48 |      |
| 26  | 0.67 | 0.43 | 0.48 | 0.19 | 1.09 | 8.29 | 2.38 |      |       |     | 2.62 |      |
| 27  | 0.59 | 0.49 | 0.44 | 0.16 | 1.22 | 7.52 | 4.43 |      |       |     | 2.49 |      |
| 28  | 0.54 | 0.56 | 0.46 | 0.11 | 1.33 | 6.94 | 6.26 |      |       |     | 2.16 |      |
| 29  | 0.45 |      | 0.47 | 0.11 | 1.16 | 6.61 | 5.20 |      | 10.59 |     | 1.94 |      |
| 30  | 0.47 |      | 0.55 | 0.09 | 1.31 | 6.03 | 5.22 |      |       |     | 1.93 |      |
| 31  | 0.55 |      | 0.59 |      | 1.13 |      | 5.72 |      |       |     |      |      |

|                 |      |      |      |      |      |      |      |      |       |  |      |      |
|-----------------|------|------|------|------|------|------|------|------|-------|--|------|------|
| Max WL observed | 3.56 | 1.65 | 2.74 | 1.04 | 2.13 | 8.37 | 6.54 | 5.76 | 10.60 |  | 4.52 | 6.02 |
| Day of Max WL   | 10   | 11   | 7    | 6    | 24   | 26   | 28   | 1    | 29    |  | 31   | 11   |

**Arayat WL 2011**

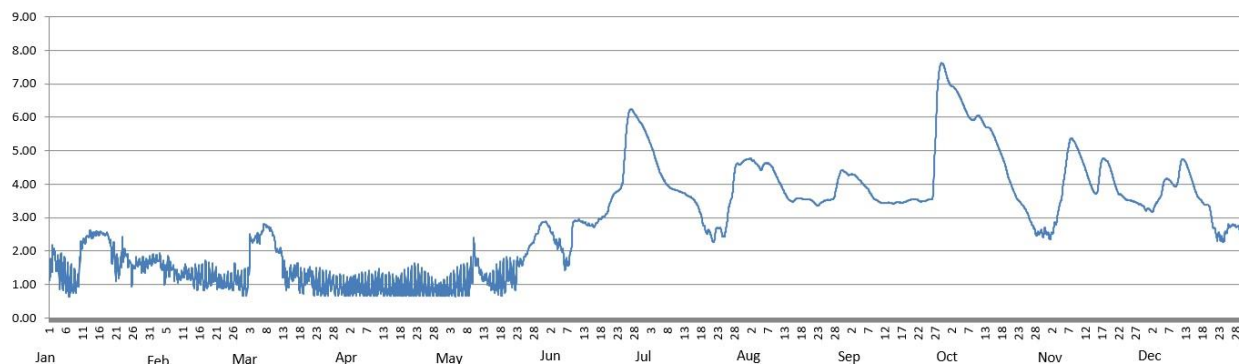


**Water Level in meters (Daily Average)**

| 2011 |      | Station: <b>Candaba</b> |      |      |      |      |      |      |      |      |      |      |
|------|------|-------------------------|------|------|------|------|------|------|------|------|------|------|
| Day  | Jan  | Feb                     | Mar  | Apr  | May  | Jun  | Jul  | Aug  | Sep  | Oct  | Nov  | Dec  |
| 1    | 1.40 | 1.73                    | 0.98 | 0.88 | 0.84 | 2.82 | 5.55 | 4.76 | 4.28 | 7.10 | 2.43 | 3.26 |
| 2    | 1.97 | 1.73                    | 1.12 | 0.92 | 0.86 | 2.63 | 5.32 | 4.75 | 4.29 | 6.94 | 2.67 | 3.20 |
| 3    | 1.63 | 1.77                    | 2.31 | 0.97 | 0.90 | 2.41 | 5.06 | 4.68 | 4.24 | 6.87 | 2.95 | 3.39 |
| 4    | 1.47 | 1.55                    | 2.37 | 0.96 | 0.96 | 2.20 | 4.75 | 4.58 | 4.13 | 6.72 | 3.41 | 3.54 |
| 5    | 1.39 | 1.42                    | 2.40 | 0.94 | 0.98 | 2.20 | 4.60 | 4.52 | 4.08 | 6.61 | 3.70 | 3.66 |
| 6    | 1.10 | 1.64                    | 2.50 | 0.92 | 0.99 | 1.80 | 4.23 | 4.60 | 3.92 | 6.28 | 4.73 | 4.13 |
| 7    | 1.04 | 1.50                    | 2.75 | 0.89 | 1.01 | 1.63 | 4.06 | 4.63 | 3.79 | 6.07 | 5.28 | 4.14 |
| 8    | 1.04 | 1.35                    | 2.74 | 0.92 | 1.06 | 1.89 | 3.93 | 4.57 | 3.62 | 5.95 | 5.32 | 4.04 |
| 9    | 1.02 | 1.20                    | 2.63 | 0.90 | 1.30 | 2.79 | 3.87 | 4.40 | 3.54 | 5.95 | 5.15 | 3.94 |
| 10   | 1.82 | 1.27                    | 2.38 | 0.94 | 1.94 | 2.91 | 3.83 | 4.19 | 3.48 | 6.04 | 4.91 | 4.19 |
| 11   | 2.31 | 1.43                    | 2.00 | 1.07 | 1.60 | 2.91 | 3.80 | 4.00 | 3.44 | 5.96 | 4.65 | 4.70 |
| 12   | 2.40 | 1.29                    | 1.98 | 0.92 | 1.29 | 2.85 | 3.76 | 3.79 | 3.44 | 5.78 | 4.38 | 4.69 |
| 13   | 2.52 | 1.25                    | 1.48 | 0.91 | 1.20 | 2.80 | 3.71 | 3.61 | 3.45 | 5.69 | 4.08 | 4.46 |
| 14   | 2.49 | 1.24                    | 1.08 | 0.92 | 1.11 | 2.78 | 3.65 | 3.51 | 3.43 | 5.62 | 3.83 | 4.17 |
| 15   | 2.54 | 1.19                    | 1.33 | 0.90 | 1.03 | 2.76 | 3.59 | 3.51 | 3.45 | 5.42 | 3.73 | 3.86 |
| 16   | 2.55 | 1.26                    | 1.30 | 0.88 | 1.02 | 2.83 | 3.49 | 3.57 | 3.46 | 5.18 | 4.26 | 3.62 |
| 17   | 2.52 | 1.17                    | 1.42 | 0.89 | 1.07 | 2.95 | 3.30 | 3.57 | 3.45 | 4.93 | 4.74 | 3.50 |
| 18   | 2.52 | 1.19                    | 1.08 | 0.89 | 1.06 | 3.02 | 2.99 | 3.56 | 3.48 | 4.67 | 4.72 | 3.40 |
| 19   | 2.28 | 1.20                    | 1.04 | 0.91 | 1.15 | 3.11 | 2.68 | 3.55 | 3.51 | 4.32 | 4.56 | 3.38 |
| 20   | 1.93 | 1.25                    | 1.23 | 0.92 | 1.32 | 3.39 | 2.59 | 3.54 | 3.55 | 4.03 | 4.24 | 3.05 |
| 21   | 1.53 | 1.07                    | 1.34 | 0.94 | 1.30 | 3.64 | 2.41 | 3.48 | 3.55 | 3.77 | 3.92 | 2.66 |
| 22   | 1.47 | 1.04                    | 1.00 | 1.00 | 1.21 | 3.77 | 2.44 | 3.38 | 3.51 | 3.57 | 3.71 | 2.46 |
| 23   | 1.89 | 1.03                    | 1.00 | 0.99 | 1.56 | 3.84 | 2.69 | 3.42 | 3.49 | 3.45 | 3.65 | 2.38 |
| 24   | 1.90 | 1.05                    | 0.97 | 0.98 | 1.67 | 4.18 | 2.59 | 3.49 | 3.50 | 3.33 | 3.56 | 2.42 |
| 25   | 1.66 | 1.04                    | 0.94 | 0.93 | 1.79 | 5.40 | 2.52 | 3.53 | 3.54 | 3.16 | 3.52 | 2.67 |
| 26   | 1.38 | 1.27                    | 0.95 | 0.93 | 1.98 | 6.14 | 3.09 | 3.53 | 3.60 | 2.91 | 3.50 | 2.76 |
| 27   | 1.60 | 1.10                    | 1.09 | 0.90 | 2.19 | 6.20 | 3.57 | 3.58 | 5.13 | 2.71 | 3.46 | 2.77 |
| 28   | 1.66 | 1.01                    | 1.03 | 0.86 | 2.33 | 6.05 | 4.32 | 3.92 | 7.10 | 2.52 | 3.42 | 2.74 |
| 29   | 1.61 |                         | 0.94 | 0.82 | 2.54 | 5.90 | 4.61 | 4.30 | 7.59 | 2.56 | 3.37 | 2.63 |
| 30   |      |                         | 0.97 | 0.81 | 2.79 | 5.75 | 4.62 | 4.41 | 7.42 | 2.54 | 3.25 | 2.55 |
| 31   |      |                         | 0.90 |      | 2.87 |      | 4.71 | 4.33 |      | 2.55 |      | 2.42 |

|                 |      |      |      |      |      |      |      |      |      |      |      |      |
|-----------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Max WL observed | 2.62 | 1.94 | 2.82 | 1.64 | 2.88 | 6.24 | 5.65 | 4.78 | 7.62 | 7.24 | 5.38 | 4.76 |
| Day of Max WL   | 13   | 4    | 7    | 22   | 31   | 27   | 1    | 2    | 29   | 1    | 8    | 12   |

**Candaba WL 2011**

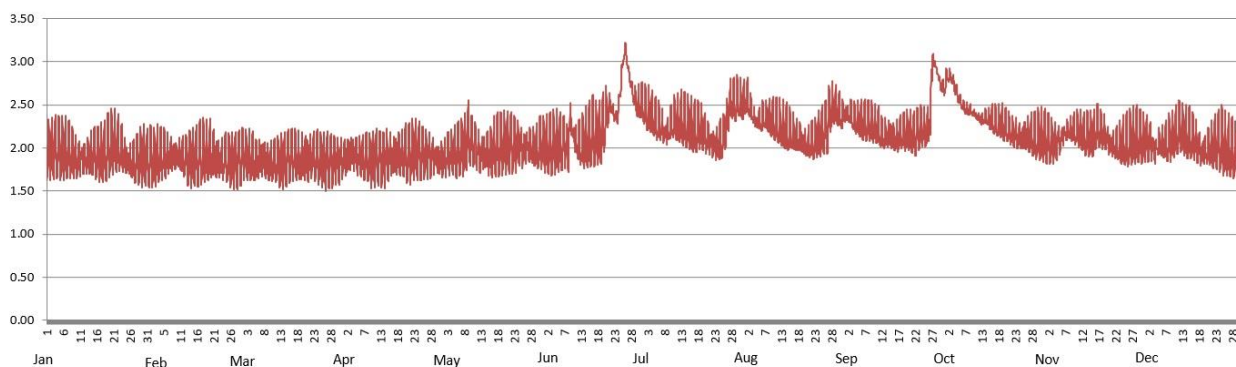


**Water Level in meters (Daily Average)**

| 2011 |      | Station: Sasmuan |      |      |      |      |      |      |      |      |      |      |
|------|------|------------------|------|------|------|------|------|------|------|------|------|------|
| Day  | Jan  | Feb              | Mar  | Apr  | May  | Jun  | Jul  | Aug  | Sep  | Oct  | Nov  | Dec  |
| 1    | 1.95 | 1.86             | 1.90 | 1.86 | 1.86 | 1.98 | 2.43 | 2.53 | 2.39 | 2.74 | 2.07 | 2.08 |
| 2    | 1.96 | 1.83             | 1.90 | 1.89 | 1.88 | 1.99 | 2.39 | 2.51 | 2.37 | 2.82 | 2.05 | 2.07 |
| 3    | 1.98 | 1.86             | 1.87 | 1.93 | 1.91 | 1.99 | 2.37 | 2.42 | 2.31 | 2.79 | 2.02 | 2.02 |
| 4    | 1.95 | 1.88             | 1.85 | 1.93 | 1.92 | 2.01 | 2.33 | 2.34 | 2.29 | 2.68 | 2.06 | 1.98 |
| 5    | 1.95 | 1.88             | 1.83 | 1.91 | 1.93 | 2.02 | 2.30 | 2.33 | 2.28 | 2.63 | 2.06 | 2.01 |
| 6    | 1.93 | 1.88             | 1.84 | 1.87 | 1.95 | 2.04 | 2.26 | 2.31 | 2.26 | 2.50 | 2.16 | 2.02 |
| 7    | 1.93 | 1.88             | 1.86 | 1.85 | 1.97 | 2.04 | 2.23 | 2.34 | 2.25 | 2.45 | 2.19 | 2.02 |
| 8    | 1.89 | 1.90             | 1.85 | 1.86 | 2.04 | 2.05 | 2.18 | 2.32 | 2.24 | 2.43 | 2.19 | 2.05 |
| 9    | 1.87 | 1.91             | 1.81 | 1.83 | 2.12 | 2.30 | 2.21 | 2.28 | 2.22 | 2.42 | 2.18 | 2.09 |
| 10   | 1.85 | 1.88             | 1.80 | 1.86 | 2.04 | 2.12 | 2.26 | 2.25 | 2.19 | 2.39 | 2.19 | 2.13 |
| 11   | 1.86 | 1.86             | 1.80 | 1.89 | 2.00 | 2.03 | 2.27 | 2.23 | 2.17 | 2.35 | 2.16 | 2.17 |
| 12   | 1.87 | 1.84             | 1.80 | 1.88 | 1.97 | 2.00 | 2.26 | 2.20 | 2.13 | 2.32 | 2.12 | 2.16 |
| 13   | 1.87 | 1.86             | 1.83 | 1.86 | 1.94 | 2.02 | 2.25 | 2.17 | 2.15 | 2.34 | 2.11 | 2.12 |
| 14   | 1.90 | 1.88             | 1.86 | 1.91 | 1.92 | 2.04 | 2.24 | 2.15 | 2.15 | 2.32 | 2.09 | 2.10 |
| 15   | 1.92 | 1.88             | 1.91 | 1.91 | 1.91 | 2.09 | 2.21 | 2.14 | 2.13 | 2.29 | 2.11 | 2.08 |
| 16   | 1.91 | 1.90             | 1.91 | 1.89 | 1.93 | 2.10 | 2.19 | 2.12 | 2.11 | 2.27 | 2.19 | 2.05 |
| 17   | 1.90 | 1.90             | 1.89 | 1.90 | 1.97 | 2.10 | 2.18 | 2.10 | 2.14 | 2.25 | 2.18 | 1.99 |
| 18   | 1.92 | 1.90             | 1.87 | 1.91 | 1.98 | 2.13 | 2.20 | 2.09 | 2.15 | 2.25 | 2.15 | 1.94 |
| 19   | 1.96 | 1.91             | 1.86 | 1.90 | 1.99 | 2.23 | 2.18 | 2.06 | 2.15 | 2.24 | 2.09 | 1.94 |
| 20   | 2.00 | 1.89             | 1.86 | 1.89 | 2.02 | 2.40 | 2.13 | 2.03 | 2.15 | 2.20 | 2.04 | 1.96 |
| 21   | 2.02 | 1.86             | 1.86 | 1.89 | 2.03 | 2.48 | 2.10 | 2.03 | 2.13 | 2.17 | 2.02 | 1.99 |
| 22   | 1.99 | 1.85             | 1.88 | 1.94 | 2.03 | 2.40 | 2.07 | 2.04 | 2.14 | 2.14 | 2.00 | 2.04 |
| 23   | 1.93 | 1.82             | 1.87 | 1.95 | 2.03 | 2.38 | 2.04 | 2.09 | 2.16 | 2.10 | 2.02 | 2.04 |
| 24   | 1.88 | 1.84             | 1.85 | 1.96 | 2.04 | 2.68 | 2.04 | 2.12 | 2.19 | 2.10 | 2.03 | 2.04 |
| 25   | 1.83 | 1.83             | 1.84 | 1.94 | 2.00 | 3.03 | 2.06 | 2.17 | 2.18 | 2.13 | 2.03 | 1.98 |
| 26   | 1.81 | 1.86             | 1.84 | 1.94 | 2.01 | 3.04 | 2.17 | 2.20 | 2.26 | 2.14 | 2.05 | 1.96 |
| 27   | 1.80 | 1.86             | 1.87 | 1.92 | 2.02 | 2.79 | 2.40 | 2.37 | 2.91 | 2.12 | 2.07 | 1.93 |
| 28   | 1.84 | 1.89             | 1.86 | 1.91 | 1.98 | 2.60 | 2.49 | 2.43 | 2.95 | 2.10 | 2.10 | 1.91 |
| 29   | 1.88 |                  | 1.86 | 1.89 | 1.95 | 2.48 | 2.47 | 2.40 | 2.82 | 2.10 | 2.08 | 1.94 |
| 30   | 1.89 |                  | 1.84 | 1.86 | 1.97 | 2.46 | 2.51 | 2.38 | 2.70 | 2.10 | 2.06 | 1.91 |
| 31   | 1.86 |                  | 1.86 |      | 2.00 |      | 2.49 | 2.40 |      | 2.10 |      | 1.89 |

|                 |      |      |      |      |      |      |      |      |      |      |      |      |
|-----------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Max WL observed | 2.46 | 2.35 | 2.24 | 2.34 | 2.55 | 3.22 | 2.85 | 2.82 | 3.09 | 2.93 | 2.51 | 2.55 |
| Day of Max WL   | 21   | 17   | 1    | 22   | 9    | 26   | 30   | 2    | 28   | 2    | 17   | 12   |

**Sasmuan WL 2011**



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

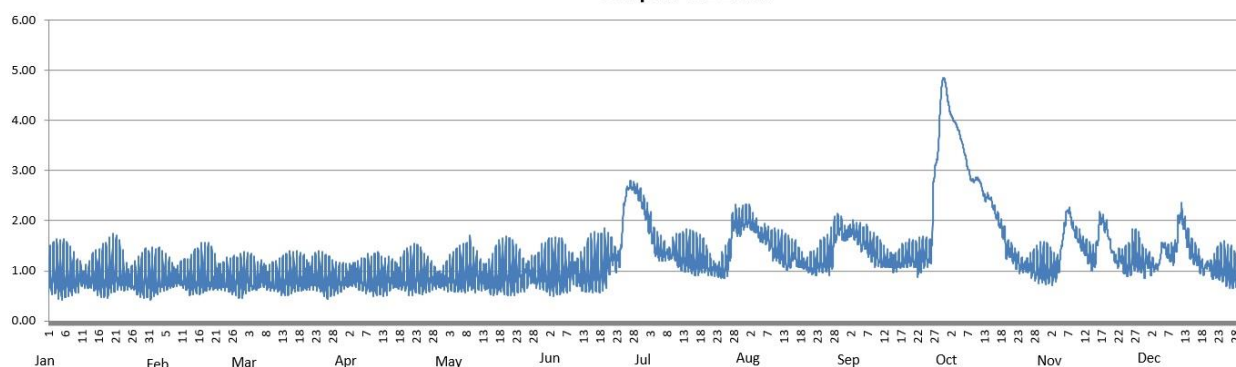
**2011**

Station: **Sulipan**

| Day | Jan  | Feb  | Mar  | Apr  | May  | Jun  | Jul  | Aug  | Sep  | Oct  | Nov  | Dec  |
|-----|------|------|------|------|------|------|------|------|------|------|------|------|
| 1   | 0.93 | 0.84 | 0.88 | 0.83 | 0.82 | 0.95 | 2.18 | 2.04 | 1.78 | 4.44 | 1.03 | 1.19 |
| 2   | 0.95 | 0.83 | 0.88 | 0.86 | 0.84 | 0.94 | 1.95 | 2.00 | 1.81 | 4.12 | 1.03 | 1.09 |
| 3   | 0.96 | 0.86 | 0.86 | 0.91 | 0.87 | 0.94 | 1.76 | 1.91 | 1.75 | 3.98 | 1.02 | 1.09 |
| 4   | 0.91 | 0.87 | 0.83 | 0.90 | 0.89 | 0.97 | 1.50 | 1.87 | 1.69 | 3.85 | 1.19 | 1.11 |
| 5   | 0.91 | 0.87 | 0.82 | 0.88 | 0.90 | 0.97 | 1.47 | 1.80 | 1.63 | 3.75 | 1.42 | 1.27 |
| 6   | 0.89 | 0.86 | 0.87 | 0.85 | 0.93 | 0.98 | 1.40 | 1.71 | 1.60 | 3.39 | 2.08 | 1.48 |
| 7   | 0.89 | 0.85 | 0.89 | 0.81 | 0.94 | 0.97 | 1.37 | 1.68 | 1.48 | 3.10 | 2.17 | 1.35 |
| 8   | 0.85 | 0.86 | 0.83 | 0.84 | 1.01 | 0.98 | 1.35 | 1.56 | 1.40 | 2.86 | 1.91 | 1.32 |
| 9   | 0.84 | 0.88 | 0.79 | 0.82 | 1.05 | 1.08 | 1.36 | 1.45 | 1.33 | 2.80 | 1.75 | 1.36 |
| 10  | 0.88 | 0.85 | 0.78 | 0.86 | 0.96 | 0.99 | 1.38 | 1.40 | 1.29 | 2.84 | 1.62 | 1.76 |
| 11  | 0.87 | 0.86 | 0.80 | 0.89 | 0.95 | 0.93 | 1.30 | 1.37 | 1.23 | 2.74 | 1.50 | 2.12 |
| 12  | 0.84 | 0.81 | 0.81 | 0.86 | 0.90 | 0.92 | 1.27 | 1.30 | 1.22 | 2.51 | 1.42 | 1.90 |
| 13  | 0.84 | 0.86 | 0.83 | 0.84 | 0.87 | 0.94 | 1.27 | 1.24 | 1.20 | 2.47 | 1.30 | 1.64 |
| 14  | 0.88 | 0.90 | 0.87 | 0.87 | 0.84 | 0.98 | 1.29 | 1.24 | 1.18 | 2.43 | 1.21 | 1.40 |
| 15  | 0.90 | 0.89 | 0.91 | 0.87 | 0.84 | 1.02 | 1.25 | 1.35 | 1.18 | 2.26 | 1.30 | 1.31 |
| 16  | 0.89 | 0.91 | 0.90 | 0.87 | 0.87 | 1.02 | 1.22 | 1.25 | 1.17 | 2.09 | 1.84 | 1.24 |
| 17  | 0.89 | 0.91 | 0.89 | 0.87 | 0.93 | 1.01 | 1.23 | 1.20 | 1.23 | 1.92 | 2.00 | 1.11 |
| 18  | 0.92 | 0.91 | 0.86 | 0.88 | 0.95 | 1.06 | 1.25 | 1.17 | 1.27 | 1.73 | 1.87 | 1.03 |
| 19  | 0.96 | 0.91 | 0.85 | 0.88 | 0.96 | 1.17 | 1.22 | 1.12 | 1.30 | 1.41 | 1.68 | 1.13 |
| 20  | 1.02 | 0.86 | 0.86 | 0.86 | 0.98 | 1.26 | 1.15 | 1.11 | 1.29 | 1.40 | 1.41 | 1.06 |
| 21  | 1.02 | 0.83 | 0.86 | 0.88 | 0.99 | 1.37 | 1.09 | 1.09 | 1.25 | 1.29 | 1.25 | 1.05 |
| 22  | 0.98 | 0.82 | 0.87 | 0.93 | 0.98 | 1.25 | 1.05 | 1.11 | 1.21 | 1.21 | 1.26 | 1.11 |
| 23  | 0.90 | 0.79 | 0.85 | 0.93 | 0.97 | 1.27 | 1.03 | 1.20 | 1.26 | 1.12 | 1.23 | 1.10 |
| 24  | 0.83 | 0.82 | 0.86 | 0.93 | 0.97 | 1.80 | 1.03 | 1.22 | 1.31 | 1.10 | 1.14 | 1.11 |
| 25  | 0.79 | 0.83 | 0.84 | 0.90 | 0.92 | 2.46 | 1.07 | 1.25 | 1.28 | 1.13 | 1.15 | 1.03 |
| 26  | 0.77 | 0.87 | 0.83 | 0.90 | 0.95 | 2.67 | 1.19 | 1.24 | 1.49 | 1.12 | 1.25 | 1.00 |
| 27  | 0.77 | 0.86 | 0.86 | 0.87 | 0.99 | 2.68 | 1.51 | 1.45 | 2.91 | 1.09 | 1.31 | 0.95 |
| 28  | 0.82 | 0.87 | 0.84 | 0.85 | 0.94 | 2.61 | 1.96 | 1.77 | 3.41 | 1.06 | 1.28 | 0.93 |
| 29  | 0.86 |      | 0.84 | 0.84 | 0.90 | 2.52 | 1.91 | 1.87 | 4.49 | 1.07 | 1.20 | 0.95 |
| 30  | 0.88 |      | 0.81 | 0.80 | 0.93 | 2.38 | 1.92 | 1.77 | 4.80 | 1.07 | 1.10 | 0.91 |
| 31  | 0.85 |      | 0.83 |      | 0.97 |      | 1.99 | 1.73 |      | 1.06 |      | 0.88 |

|                 |      |      |      |      |      |      |      |      |      |      |      |      |
|-----------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Max WL observed | 1.74 | 1.57 | 1.41 | 1.54 | 1.71 | 2.80 | 2.50 | 2.33 | 4.85 | 4.66 | 2.27 | 2.36 |
| Day of Max WL   | 20   | 17   | 17   | 22   | 9    | 27   | 1    | 1    | 30   | 1    | 7    | 12   |

**Sulipan WL 2011**



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

**2011**

Station: **Mexico**

| 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 | 0.99 | 1.23 | 0.68 | 1.67 | 0.49 | 0.23 |
| 2   | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.89 | 1.03 | 0.63 | 1.76 | 0.48 | 0.26 |
| 3   | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.08 | 0.79 | 0.94 | 0.68 | 1.81 | 0.48 | 0.20 |
| 4   | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.70 | 0.86 | 0.75 | 1.59 | 0.50 | 0.43 |
| 5   | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.77 | 0.83 | 0.69 | 1.53 | 0.48 | 0.37 |
| 6   | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.76 | 0.76 | 0.74 | 1.39 | 1.06 | 0.29 |
| 7   | 0.00 | 0.00 | 0.03 | 0.00 | 0.00 | 0.00 | 0.60 | 0.80 | 0.62 | 1.31 | 0.73 | 0.27 |
| 8   | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.52 | 0.72 | 0.54 | 1.38 | 0.67 | 0.26 |
| 9   | 0.00 | 0.00 | 0.00 | 0.00 | 0.08 | 0.15 | 0.63 | 0.67 | 0.55 | 1.31 | 0.63 | 0.36 |
| 10  | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.55 | 0.79 | 0.48 | 1.23 | 0.61 | 0.29 |
| 11  | 0.00 | 0.07 | 0.00 | 0.00 | 0.00 | 0.00 | 0.50 | 0.78 | 0.44 | 1.16 | 0.59 | 0.26 |
| 12  | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.52 | 0.72 | 0.42 | 1.20 | 0.56 | 0.25 |
| 13  | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.44 | 0.67 | 0.37 | 1.20 | 0.55 | 0.24 |
| 14  | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.36 | 0.71 | 0.36 | 1.14 | 0.54 | 0.24 |
| 15  | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.29 | 0.69 | 0.33 | 1.10 | 0.68 | 0.23 |
| 16  | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.22 | 0.62 | 0.35 | 1.09 | 0.62 | 0.22 |
| 17  | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.15 | 0.69 | 0.32 | 1.14 | 0.55 | 0.20 |
| 18  | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.09 | 0.58 | 0.29 | 1.07 | 0.53 | 0.18 |
| 19  | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.06 | 0.51 | 0.47 | 1.03 | 0.51 | 0.17 |
| 20  | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.22 | 0.04 | 0.46 | 0.32 | 1.00 | 0.50 | 0.16 |
| 21  | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.40 | 0.26 | 0.44 | 0.29 | 0.97 | 0.46 | 0.13 |
| 22  | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.20 | 0.11 | 0.40 | 0.30 | 0.93 | 0.44 | 0.10 |
| 23  | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.17 | 0.03 | 0.45 | 0.27 | 0.88 | 0.40 | 0.04 |
| 24  | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.35 | 0.36 | 0.40 | 0.37 | 0.84 | 0.37 | 0.01 |
| 25  | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.85 | 0.25 | 0.35 | 0.30 | 0.80 | 0.34 | 0.00 |
| 26  | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 1.40 | 0.57 | 0.44 | 0.44 | 0.75 | 0.32 | 0.00 |
| 27  | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.36 | 1.44 | 0.80 | 2.09 | 0.72 | 0.30 | 0.00 |
| 28  | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.23 | 1.22 | 0.54 | 1.96 | 0.67 | 0.28 | 0.00 |
| 29  | 0.00 |      | 0.00 | 0.00 | 0.00 | 1.17 | 1.07 | 0.50 | 1.59 | 0.64 | 0.26 | 0.00 |
| 30  | 0.00 |      | 0.00 | 0.00 | 0.00 | 1.07 | 1.10 | 0.49 | 1.60 | 0.60 | 0.25 | 0.00 |
| 31  | 0.00 |      | 0.00 |      | 0.00 |      | 1.03 | 0.66 |      | 0.52 |      | 0.00 |

|                 |      |      |      |      |      |      |      |      |      |      |      |      |
|-----------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Max WL observed | 0.00 | 0.52 | 0.49 | 0.00 | 0.27 | 2.72 | 2.17 | 1.42 | 3.30 | 2.42 | 1.55 | 0.72 |
| Day of Max WL   |      | 11   | 7    |      | 10   | 25   | 28   | 1    | 27   | 3    | 6    | 5    |

**Mexico WL 2011**

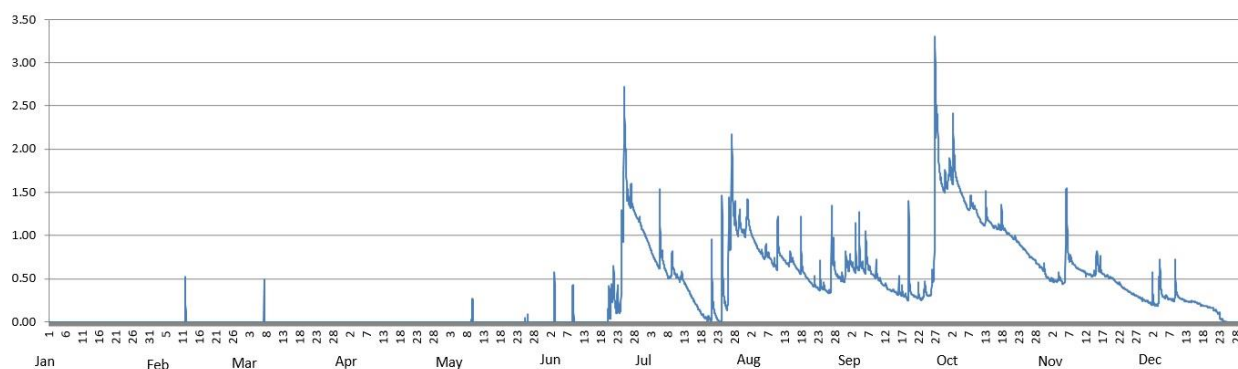




Table 2.0

## Maximum WL recorded per station for the year 2011

| Station     | January | February | March | April | May  | June | July | August | September | October | November | December |
|-------------|---------|----------|-------|-------|------|------|------|--------|-----------|---------|----------|----------|
| Sapang Buho | 0.96    | 0.06     | 0.67  | 0.05  | 0.09 | 3.47 | 2.18 | 1.90   | 7.17      | 4.83    | 3.71     | 1.81     |
| Zaragoza    | 1.67    | 0.82     | 0.68  | 0.57  | 1.81 | 4.67 | 4.50 | 4.26   | 5.21      | 5.18    | 2.93     | 2.21     |
| Mayapyap    | 0.00    |          | 0.68  | 0.00  | 0.00 | 2.57 | 0.98 | 0.57   | 6.86      | 3.49    | 1.76     | 0.27     |
| Penaranda   | 0.74    | 0.00     | 0.91  | 0.14  | 0.00 | 2.62 | 0.85 | 1.95   | 6.01      | 1.90    | 2.24     | 1.76     |
| San Isidro  | 0.00    | 0.00     | 0.00  | 0.00  | 0.00 | 4.08 | 1.60 | 0.99   | 7.75      | 4.38    | 2.85     | 1.56     |
| Arayat      | 3.56    | 1.65     | 2.74  | 1.04  | 2.13 | 8.37 | 6.54 | 5.76   | 10.60     |         | 4.52     | 6.02     |
| Candaba     | 2.62    | 1.94     | 2.82  | 1.64  | 2.88 | 6.24 | 5.65 | 4.78   | 7.62      | 7.24    | 5.38     | 4.76     |
| Sasmuan     | 2.46    | 2.35     | 2.24  | 2.34  | 2.55 | 3.22 | 2.85 | 2.82   | 3.09      | 2.93    | 2.51     | 2.55     |
| Sulipan     | 1.74    | 1.57     | 1.41  | 1.54  | 1.71 | 2.80 | 2.50 | 2.33   | 4.85      | 4.66    | 2.27     | 2.36     |
| Mexico      | 0.00    | 0.52     | 0.49  | 0.00  | 0.27 | 2.72 | 2.17 | 1.42   | 3.30      | 2.42    | 1.55     | 0.72     |

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 year 2011 |                   |             |          |          |          |           |          |        |            |        |         |              |         |         |        |       |            |
|---|-------------------|-------------|----------|----------|----------|-----------|----------|--------|------------|--------|---------|--------------|---------|---------|--------|-------|------------|
| Sliding time period<br>(minimum time<br>period of 1 hour)             | Rainfall Stations |             |          |          |          |           |          |        |            |        |         |              |         |         |        |       |            |
|   | Munoz             | Sapang Buhô | Gabaldon | Zaragoza | Mayapyap | Peñaranda | Calaanan | Palali | San Isidro | Arayat | Candaba | Sibul Spring | Sasmuan | Sulipan | Mexico | Porac | San Rafael |
| 1 hr  | 54                | 48          | 37       | 66       | 36       | 60        | 40       | 38     | 36         | 54     | 52      | 65           | 48      | 48      | 42     | 52    | 42         |
| 2 hrs   | 57                | 63          | 71       | 80       | 71       | 77        | 54       | 48     | 56         | 73     | 76      | 90           | 69      | 92      | 67     | 75    | 62         |
| 3 hrs   | 75                | 71          | 106      | 85       | 71       | 78        | 64       | 62     | 63         | 89     | 100     | 119          | 89      | 94      | 96     | 109   | 85         |
| 4 hrs   | 80                | 71          | 135      | 88       | 71       | 89        | 75       | 71     | 72         | 104    | 114     | 130          | 89      | 99      | 121    | 137   | 107        |
| 5 hrs   | 95                | 93          | 167      | 88       | 72       | 116       | 90       | 81     | 96         | 119    | 120     | 151          | 89      | 114     | 134    | 153   | 118        |
| 6 hrs   | 109               | 109         | 194      | 88       | 84       | 133       | 107      | 95     | 113        | 130    | 130     | 167          | 89      | 128     | 148    | 174   | 131        |
| 7 hrs   | 123               | 117         | 215      | 95       | 93       | 144       | 119      | 109    | 123        | 139    | 137     | 177          | 94      | 130     | 155    | 182   | 142        |
| 8 hrs   | 132               | 129         | 239      | 99       | 99       | 153       | 132      | 122    | 130        | 150    | 144     | 186          | 97      | 132     | 164    | 186   | 148        |
| 9 hrs   | 145               | 145         | 255      | 102      | 102      | 161       | 149      | 128    | 134        | 155    | 145     | 192          | 98      | 133     | 166    | 190   | 153        |
| 10 hrs  | 151               | 157         | 269      | 102      | 115      | 169       | 163      | 141    | 138        | 157    | 148     | 194          | 98      | 134     | 168    | 196   | 157        |
| 11 hrs  | 155               | 169         | 293      | 102      | 124      | 176       | 175      | 156    | 141        | 160    | 152     | 196          | 98      | 134     | 175    | 201   | 160        |
| 12 hrs  | 160               | 177         | 312      | 103      | 127      | 182       | 192      | 165    | 144        | 168    | 153     | 214          | 108     | 134     | 181    | 208   | 173        |
| 18 hrs  | 172               | 228         | 422      | 147      | 166      | 219       | 247      | 236    | 177        | 205    | 193     | 245          | 142     | 149     | 211    | 237   | 217        |
| 24 hrs  | 185               | 246         | 490      | 171      | 189      | 236       | 284      | 285    | 195        | 221    | 200     | 278          | 153     | 177     | 227    | 266   | 241        |
| 48 hrs (2 days)   | 241               | 325         | 607      | 218      | 252      | 307       | 388      | 404    | 260        | 296    | 249     | 369          | 203     | 242     | 263    | 370   | 301        |
| 72 hrs (3 days)   | 268               | 351         | 622      | 235      | 269      | 317       | 413      | 410    | 269        | 307    | 261     | 372          | 234     | 256     | 285    | 409   | 306        |
| 96 hrs (4 days)   | 269               | 354         | 624      | 241      | 269      | 319       | 416      | 412    | 269        | 321    | 261     | 381          | 276     | 277     | 296    | 430   | 323        |
| 120 hrs (5 days)  | 370               | 368         | 643      | 287      | 285      | 337       | 431      | 420    | 279        | 323    | 278     | 395          | 356     | 323     | 317    | 464   | 392        |
| 144 hrs (6 days)  | 413               | 440         | 712      | 327      | 338      | 355       | 518      | 447    | 309        | 386    | 288     | 403          | 444     | 426     | 390    | 566   | 411        |
| 240 hrs (10 days)   | 466               | 478         | 756      | 363      | 359      | 389       | 603      | 481    | 346        | 435    | 309     | 468          | 482     | 465     | 446    | 681   | 436        |
| 480 hrs (20 days)   | 546               | 576         | 968      | 480      | 455      | 516       | 686      | 601    | 435        | 508    | 404     | 578          | 597     | 536     | 509    | 796   | 545        |
| Meteorological day<br>(8 am to 8 am)                                  | 175               | 183         | 422      | 170      | 170      | 199       | 211      | 248    | 187        | 221    | 200     | 261          | 152     | 158     | 227    | 242   | 239        |
| Max monthly total   | 418               | 468         | 873      | 396      | 409      | 410       | 616      | 596    | 358        | 503    | 372     | 561          | 691     | 562     | 513    | 881   | 588        |

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.

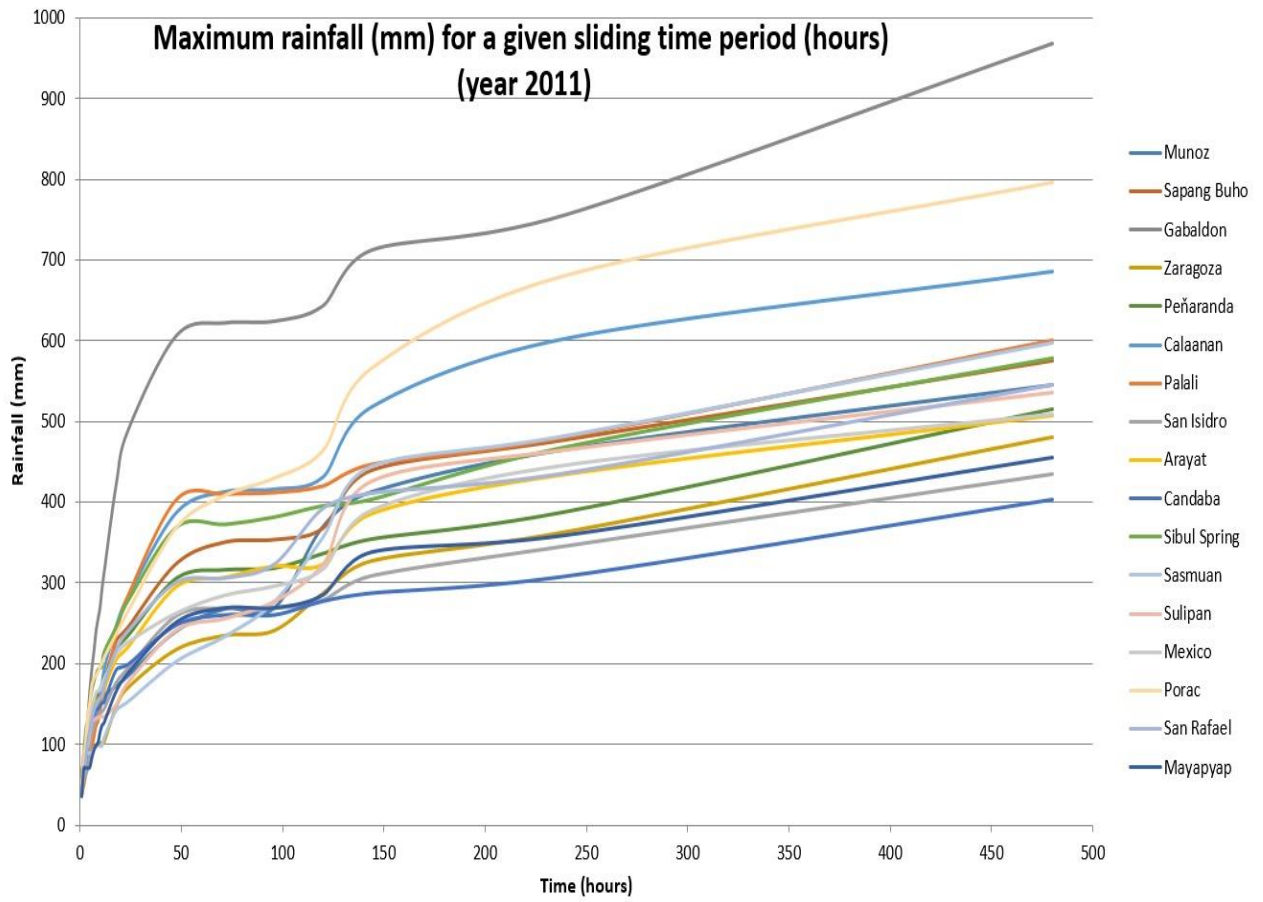


Figure AA-1. The sliding time period per station graph.

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

| Color code          | YELLOW             | ORANGE             | RED                |
|---------------------|--------------------|--------------------|--------------------|
| <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>3.00</b>        | <b>3.50</b>        | <b>4.50</b>        |
| <b>Zaragoza ++</b>  | <b>11.00</b>       | <b>12.50</b>       | <b>14.50</b>       |
| <b>Penaranda</b>    |                    |                    |                    |
| <b>San Isidro +</b> | <b>3.20</b>        | <b>4.50</b>        | <b>6.00</b>        |
| <b>Arayat</b>       | <b>5.00</b>        | <b>6.00</b>        | <b>8.50</b>        |
| <b>Candaba</b>      | <b>3.00</b>        | <b>4.50</b>        | <b>5.00</b>        |
| <b>Mexico</b>       |                    |                    |                    |
| <b>Sasmuan +</b>    |                    |                    | <b>2.90 *</b>      |
| <b>Sulipan +</b>    | <b>3.60 (2.50)</b> | <b>4.20 (3.00)</b> | <b>5.00 (3.50)</b> |

\* 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  | $Q = 4.015 (H - (-2.94))^2 \cdot 2.961^*$   | $0 < H \leq 3.4$          |
| 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 PRFFWC 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

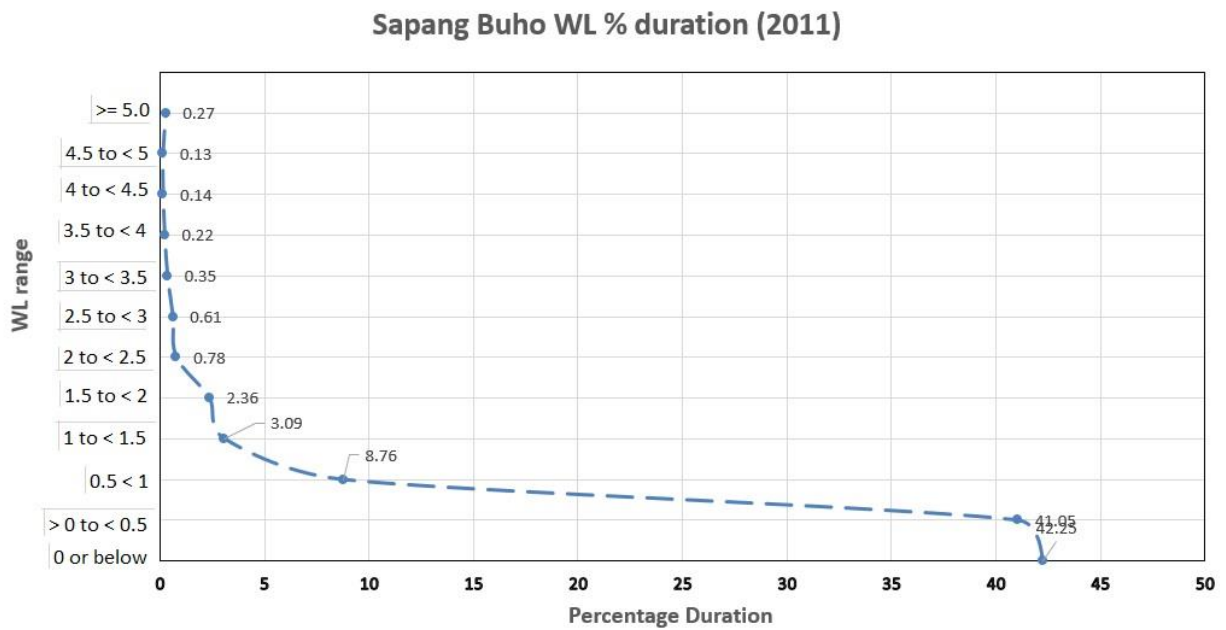


Figure AA-2. Sapang Buho WL percent duration curve (2011)

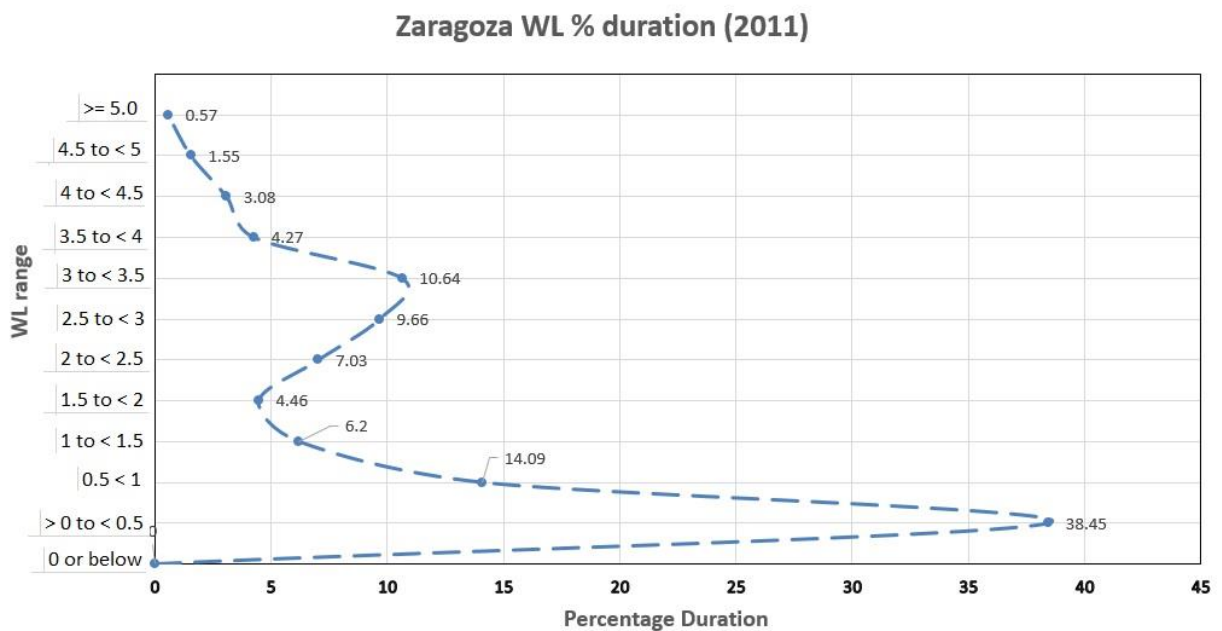


Figure AA-3. Zaragoza WL percent duration curve (2011)

### Arayat WL % duration (2011)

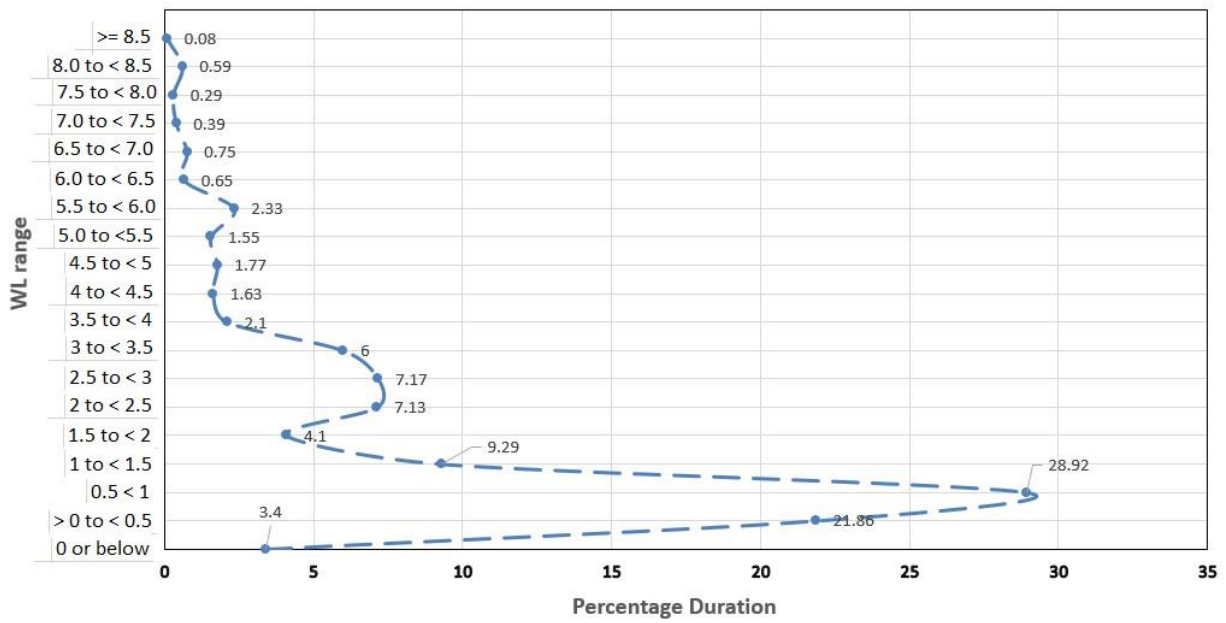


Figure AA-4. Arayat WL percent duration curve (2011)

### Candaba WL % duration (2011)

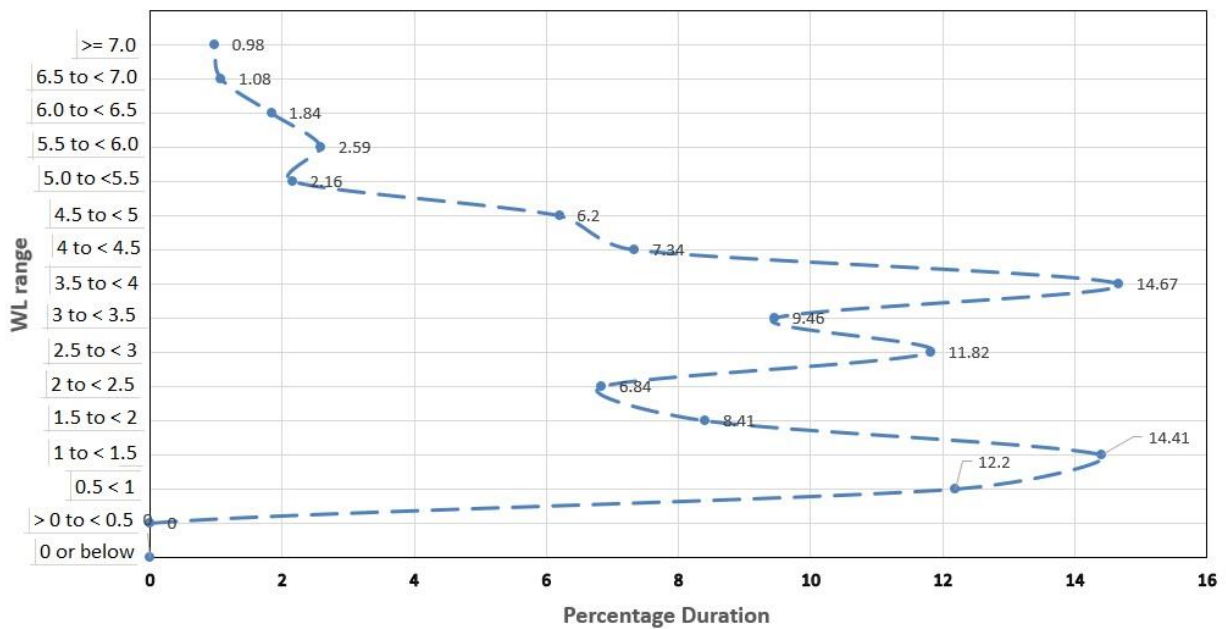


Figure AA-5. Candaba WL percent duration curve (2011)

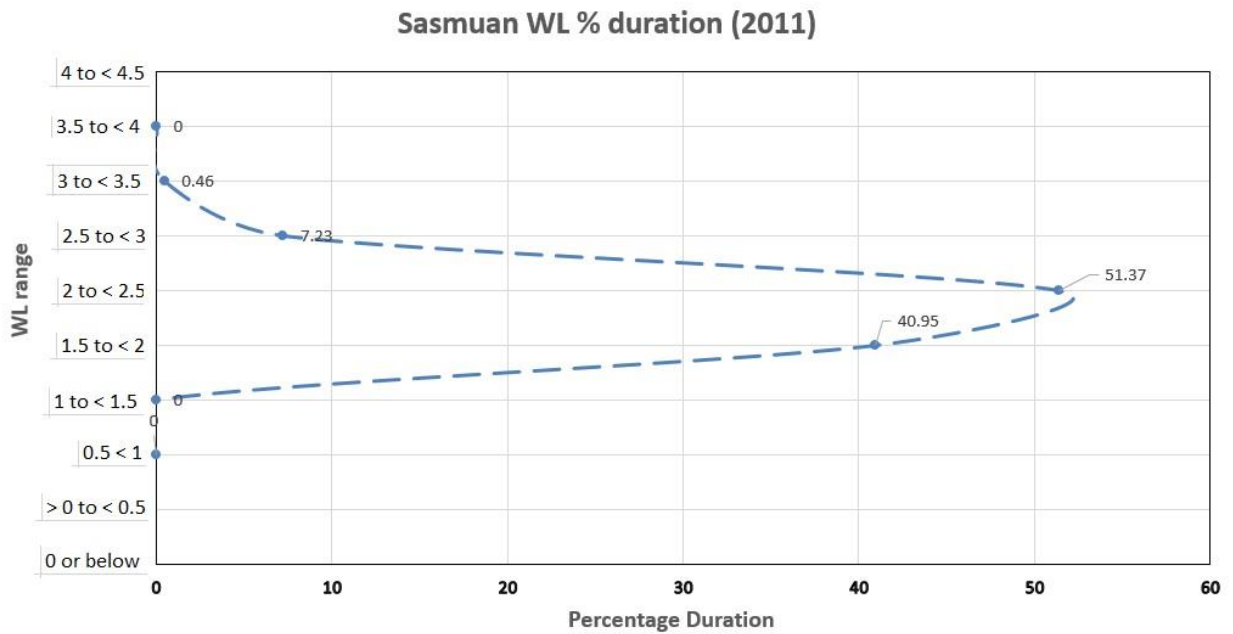


Figure AA-6. Sasmuan WL percent duration curve (2011)

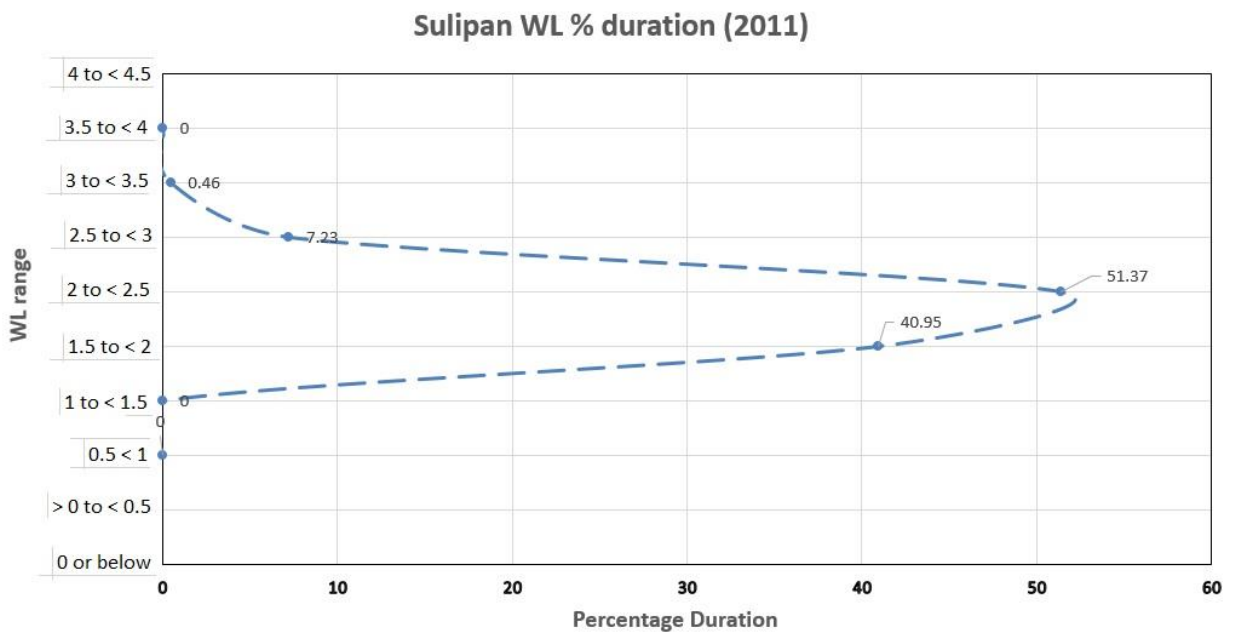


Figure AA-7. Sulipan WL percent duration curve (2011)

*Note: The 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: Areal view of flooded areas in Calumpit, Province of Bulacan (Ty. Pedring; Sept 2011)

