



YEAR END REPORT 2018



Pampanga River Basin Flood Forecasting & Warning Center (PRFFWC)
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f  PRFFWC

In Retrospect... PRFFWC in year 2018

Highlights for the year:

- Issuance of 26 Flood Advisories and 39 Flood Bulletins in 6 flood-related events affecting the PRB;
- Year-round 365 days daily updating of hydrological forecasts and 364 days of rainfall and water level status updates in the center's website (prffwc.synthasite.com)
- 3 stream gaugings (two river cross-sectioning and one river velocity measurements) undertaken;
- Assisted HMTS of HMD in the quarterly maintenance of all telemetry stations within the PRFFW System (3 field trips);
- Conducted almost 40 telemetry-related system resets and emergency trips;
- On-going calibration of RRI model
- Active participation in several regional and national undertakings such as in the 2nd PAGASA River Basin Flood Forecasting & Warning Centers (RBFFWCs) Conference, Regional (Reg. 3) and Provincial DRRM Quarterly Full Council meetings and summits, and PAGASA Regional (NCR) Services Division Conference, School Hydrological Information Network (SHINe) Conference, Optimization Project national summits and several Pre-Disaster Risk Assessment (PDRA) meetings;
- Lectures and presentations conducted in more than 30 DRR and River Basin related events;
- Various coordination meetings with international entities (JICA, KOICA, NCHM of Bhutan), national and regional government agencies (NGAs), NGOs, LGUs, secondary level schools; On-the-Job trainings of University and College level students, immersion program of senior high school students;
- Participation of center personnel in one overseas (Japan) training in data management; several local trainings in model simulations; several regional and national local trainings;
- Validated 68 and 24 station-months of rainfall and water level data (January to April 2018), respectively, including append and data quality control; encoded 12 station-months of rainfall data for PRFFWC station;
- Scanned some 57 various documents (papers, reports, etc.) as part of the center's on-going electronic filing system management;
- Media (Regional Radio and TV) interviews and regional and local personality interactions: 17 pre-recorded and live TV interviews and 15 radio interviews particularly during the passage of Tropical Cyclones Henry, Inday, Josie, and Ompong that affected the PRB; personal interactions with Governor of Province of Bulacan, Vice Governor of Province of Pampanga, Chairman of RDRRMC-3, Chief of PDRRMOs of Bulacan, Pampanga, Tarlac, Nueva Ecija and even Bataan provinces in many occasions (flood events);
- Accommodated the needs of some 342 center walk-in clients from various sectors during the whole year.

There were also quite a number of PRFFWC compound improvements for the year with the construction of GAD-related facilities such as gender specific comfort rooms with security guard post and quarter, PWD ramp entrance to the main building, also a 3-vehicle parking shed, partial perimeter fencing and entrance gate, center building repainting, etc. It was also during the year that the center's vehicle was upgraded to a pick-up truck to better handle the center's hydrographic and DRR related activities.



A view of the comfort room facility just adjacent to the PRFFWC building.



A newly repainted PRFFWC building now equipped with PWD ramp.



The 3-vehicle parking shed is another one of the many improvements within the PRFFWC compound.

While in general there were quite a number of center operational activity improvements during the year, hydrological telemetry data reception at the center was generally not that good particularly during the last month of the year with percentage downtimes reaching a level high of 41.2% and 45.1% for rainfall and water level, respectively. This is not to consider the erroneous values recorded at some of the stations (Candaba and Zaragoza

WLs). Overall reception percentage downtime for rainfall and water level for the year were 18.3% and 20.4%, respectively. Mayapyap station still remains totally down for the whole year.

During the year, the center was able to receive its requisitioned radar profiler (RP-30) and a new current meter. Unfortunately, there were not much streamgaging activities carried out for 2018. It was also during the year that the center was the main proponent responsible in working-out a free use of a lot for the establishment of a Synoptic station in the Province of Bataan. This was in the Abucay Campus of Bataan Peninsula State University.



The upgraded service vehicle (Toyota Hi-lux pick-up) of the PRFFWC equipped with a camper shell.



A signage is put-up where the proposed Synoptic station will be constructed in the Bataan province.



A newly acquired radar profiler (RP-30) to facilitate river velocity measurements of the center.



Ground level (left) and tower level (right) views of the PRFFWC compound.



San Juan, San Miguel, Bulacan

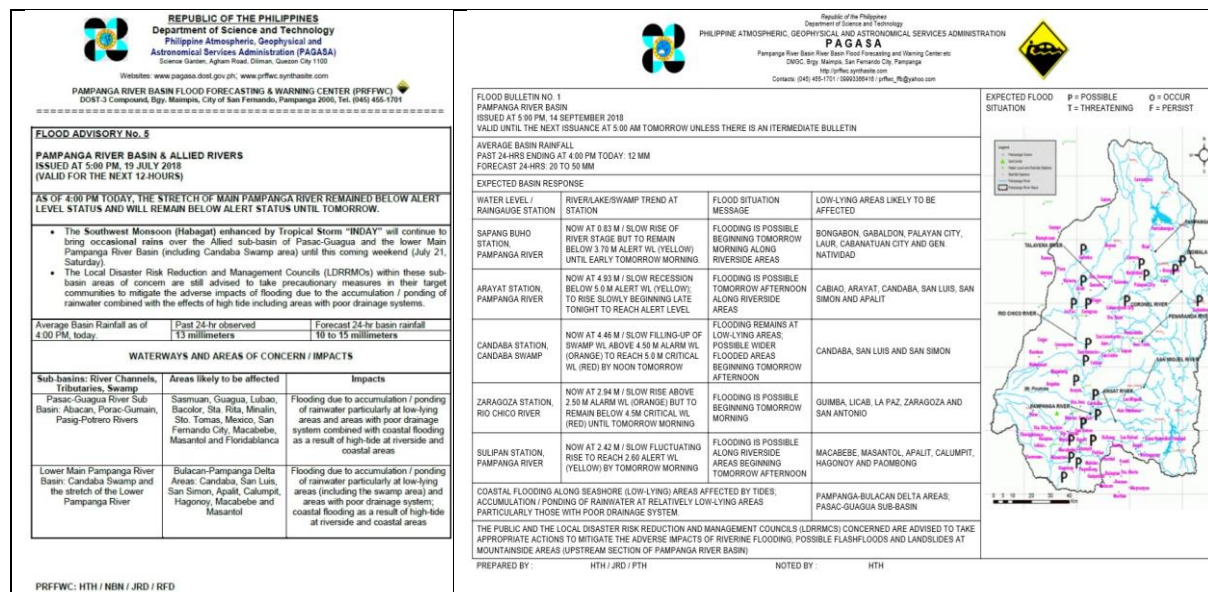
During the year the project entitled "Optimization of the Operational Capabilities of Hydromet Sensors in line with International Standards (WMO Standards) for Effective Weather, Flood Warning (CBFEWS) and application to Research (Optimization Project)" was forwarded to the center which focuses Region 3 for its area of concern. With the project operational responsibility and management in the area being handed down to the center came with two Job Order (JO) personnel who were originally assigned in the DOST Reg. 3.

I. Operational Activities

1.1 Flood Monitoring and Warning Activities

For the year 2018, six flood-related events were monitored within the PRB and given appropriate warnings; there were no major flood events for the year as well:

2018 Event	Period	FA issued	FB issued
Southwest Monsoon as enhanced by Tropical Depression Domeng (Maliksi)	June 19-13	6	
Southwest Monsoon as enhanced by Tropical Cyclones Henry (Son-Tin); Inday (Ampil), and Josie	July 17-26	6	14
Southwest Monsoon as enhanced by Tropical Storm Karding (Yagi)	August 11-17	2	10
Southwest Monsoon by an LPA (W-NW of the Basin)	September 07-09	3	
Typhoon Ompong (Mangkhut)	September 14-21	1	15
Typhoon Rosita (Yutu)	October 29 to November 01	8	
Total		26	39



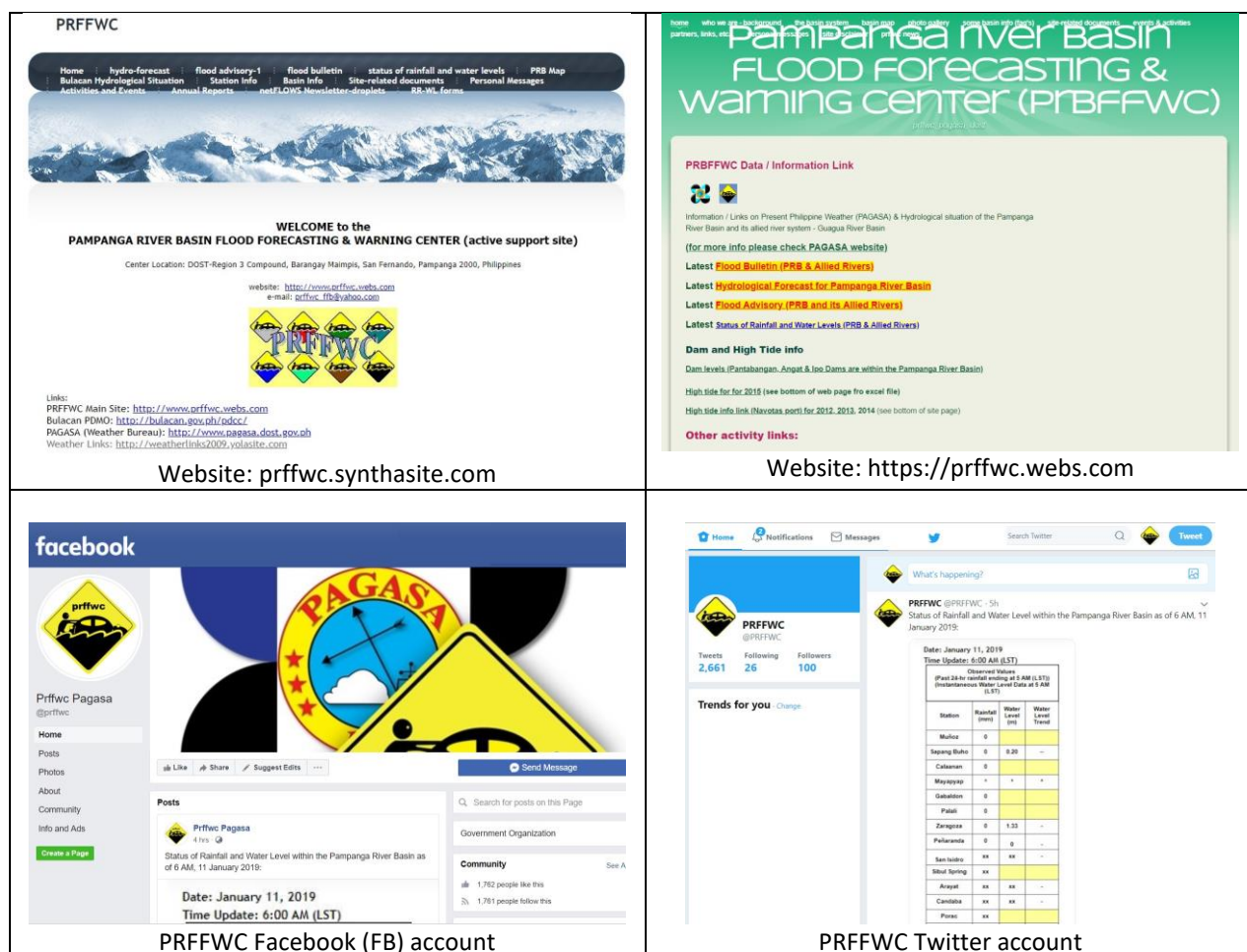
A new format of Flood Advisory (FA) was initiated by the center for the year and was first issued at the height of the SW monsoon as enhanced by Tropical Storm Inday (July 19, 2018) – see top left figure. Flood Bulletins are still generated using the application of Google Cap (top right figure).

No post-flood reports were generated for any of the above events. Considering reception downtimes, data validation for the said events are continuously carried-out to form part of the set of flood events for modeling if applicable.

1.2 Daily Hydrological Forecast / other related info

River Basin Hydrological Forecasts are issued by the center on a daily basis on or before 6:00 AM in the morning. A year-round 365 days of basin hydrological forecasts were issued and uploaded in the center's website in 2018. The status of station rainfall (24-hour totals) and station's water levels (instantaneous at 5:00 AM observations) are likewise updated and uploaded together with the hydrological forecasts. Only 364 status updates were issued and uploaded last year. This was due to a complete downed system data reception on July 31.

PRFFWC Hydrological forecasts are now presented in a matrix format and its usage was started in the last quarter of 2017. The center's maintained websites are as follows: prffwc.synthasite.com and <https://prffwc.webs.com/>. Further, social accounts such as Facebook (FB) and Twitter are also being managed.



PRFFWC served also as a redundant messaging point for dam information when it comes to FFWSO (Flood Forecasting & Warning System for Dam Operations) for Angat and Pantabangan dams. As per warning information network schematic, HMD will be directly providing the info to the center aside from the other dam info recipients. However, HMD has not been consistent with this info protocol (if ever this was agreed upon) and the center at times have been caught unaware of dam releases; nonetheless, whatever info has been provided to the center is automatically forwarded to regional and provincial DRRM offices.

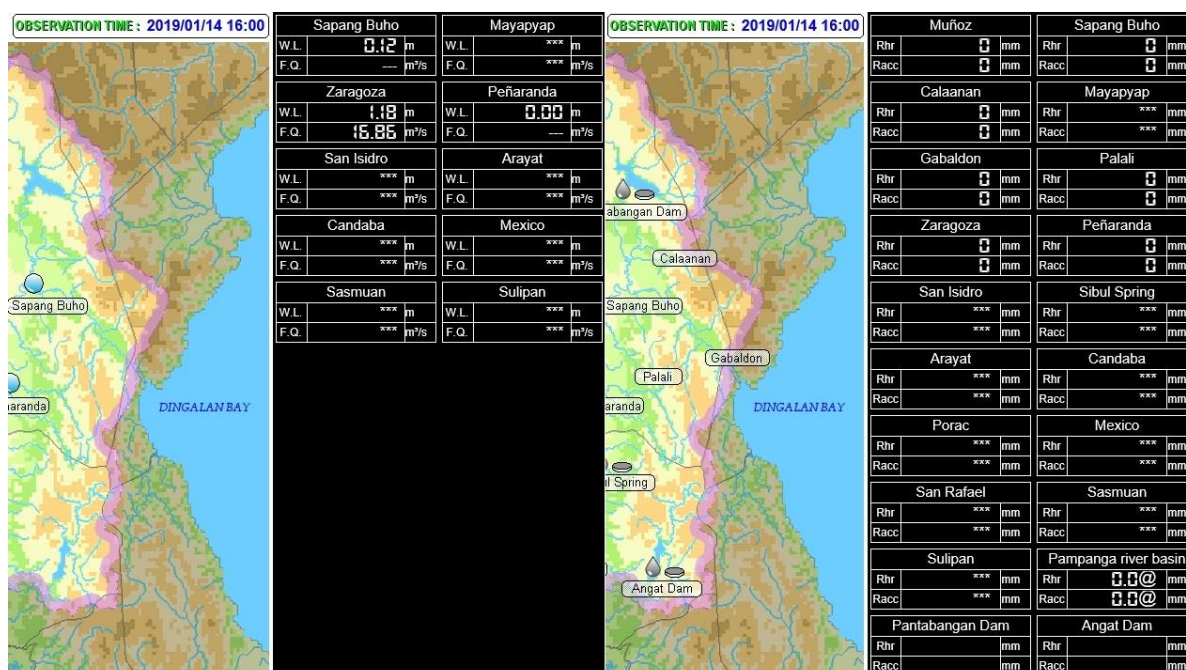
1.3 PRB hydrological data for year 2018

The present PRFFWC system can only monitor 16 of the 17 Rainfall and 9 of the 10 Water Level telemetry stations situated within the PRB. Mayapayap RR-WL telemetry station is still inoperative since 2015. Furthermore, Candaba water level observations only starts at 3.15 meters and up; sensor cannot measure below this level. Another erroneous-prone station in terms of water level observations is the Zaragoza water level. There have been instances of abrupt increases; actual field validation has been carried-out and such abrupt increases were not true and not being realistic as well.

Data downtimes were quite evident during the months of June, until December particularly at the downstream stations of the basin. As always, downtimes were mostly due to interferences and malfunctioning of the San Rafael repeater station. This is indicative by number of times of emergency trips (39 for the year 2018) carried-out by the center's technician to the repeater station during the year starting March last year. Candaba's WL increase in data reception was due to the recommissioning of the sensor to operational mode. WL sensor was pulled-out last year due to the bridge construction adjacent to the station. Unfortunately, with its recommissioning, Candaba WL cannot measure below 3.15 meters. Problem was reported to HMTS-HMD and still waiting for their action on this.

Telemetry RR stations Data Reception Summary (2018)																
Monthly Telemetry RR data received (station-hours)																
Station	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total (stn-hrs) for the year	% data received (2018)	% data received (2017)	% change
Monthly total (baseline)	744	672	744	720	744	720	744	744	720	744	720	744	8760			
Muñoz	744	670	744	720	742	720	719	666	544	742	718	738	8467	96.7	96.6	0.1
Sapang Buho	744	670	744	720	742	720	719	666	544	742	718	738	8467	96.7	96.6	0.1
Calaanan	744	672	744	720	742	720	719	666	544	742	718	738	8469	96.7	96.6	0.1
Mayapyap	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Gabalton	744	670	744	720	742	720	719	666	544	742	718	735	8464	96.6	96.6	0.0
Palali	744	672	744	720	742	720	719	664	544	742	718	738	8467	96.7	96.6	0.1
Zaragoza	744	670	737	708	742	720	719	664	544	742	716	738	8444	96.4	96.5	-0.1
Peñaranda	744	672	744	720	742	720	719	664	544	742	718	738	8467	96.7	96.6	0.1
San Isidro	721	659	715	661	728	578	535	674	587	485	440	252	7035	80.3	84.4	-4.1
Sibul Spring	723	658	729	671	738	571	535	674	590	498	446	253	7086	80.9	84.5	-3.6
Arayat	715	659	723	661	736	541	529	474	455	487	441	253	6674	76.2	84.1	-7.9
Candaba	725	660	731	669	738	569	533	658	580	474	443	253	7033	80.3	84.4	-4.1
Porac	725	661	731	671	738	536	535	668	593	494	458	253	7063	80.6	84.5	-3.9
Mexico	725	661	731	671	738	522	535	663	594	480	444	253	7017	80.1	84.5	-4.4
San Rafael	725	640	733	667	744	495	539	677	603	456	268	253	6800	77.6	84.5	-6.9
Sasmuan	725	197	731	671	726	576	535	665	594	503	464	253	6640	75.8	84.6	-8.8
Sulipan	725	657	729	671	738	505	535	669	589	492	464	253	7027	80.2	84.5	-4.3

Telemetry WL stations Data Reception Summary (2018)																
Monthly Telemetry WL data received (station-hours)																
Station	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total (stn-hrs)	% data received (2018)	% data received (2017)	% change
Sapang Buho	744	671	744	720	743	720	720	674	555	743	718	741	8493	97.0	94.5	2.4
Mayapyap	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Zaragoza	744	672	741	712	743	720	720	674	555	742	717	741	8481	96.8	94.4	2.4
Peñaranda	744	672	744	720	743	720	720	674	555	743	719	741	8495	97.0	94.5	2.5
San Isidro	738	660	730	673	736	635	633	707	637	584	487	310	7530	86.0	84.5	1.5
Arayat	738	660	734	674	740	616	627	565	505	587	489	311	7246	82.7	83.9	-1.2
Candaba	738	659	738	678	741	635	631	702	634	578	485	311	7530	86.0	34.3	51.7
Mexico	738	661	738	678	741	635	633	701	638	584	479	311	7537	86.0	84.6	1.4
Sasmuan	700	191	738	678	735	635	633	703	505	588	397	311	6814	77.8	84.6	-6.9
Sulipan	738	659	738	678	735	635	633	704	637	586	495	311	7549	86.2	84.6	1.6



A recent (Jan. 14, 2019) screenshot of the center's system for both WL (top left) and RR (top right) displays shows more than half of the stations without data, mostly midstream to downstream stations.

1.4 PRB available station data summary for the year

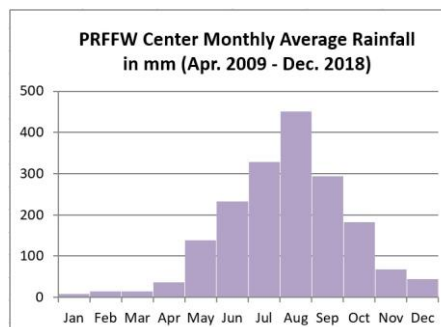
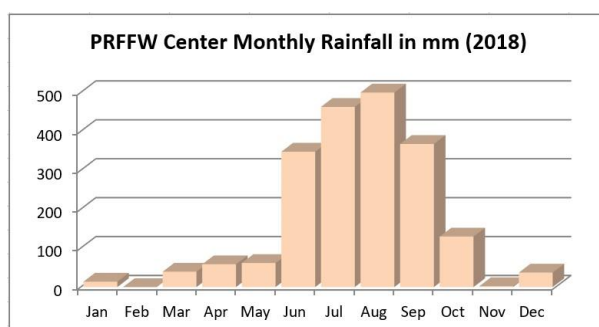
Summary of available RR and WL data of all stations within the basin (without data append and quality-control applied particularly from May to Dec 2018) and at the center are as follows:

Available Monthly Rainfall Totals Summary for 2018 (without Quality-Control)																
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	8	0	17	59	142	353	648	382	289	243	0	29	2170	119	138	
Sapang Buho	18	0	0	0	75	280	529	438	262	160	0	63	1825	109	105	
Gabalton	79	15	3	24	18	193	456	313	296	157	17	223	1794	144	118	
Zaragoza	4	1	20	1	102	287	318	364	409	101	0	26	1633	94	77	
Mayapyap																
Peñaranda	15	0	7	40	49	274	313	236	253	146	1	52	1386	108	85	
Calaanan	42	0	3	6	4	410	715	493	284	160	17	64	2198	111	138	
Palali	23	7	17	8	11	253	505	212	183	97	3	67	1386	126	81	
San Isidro	10	3	37	44	90	162	154	216	220	90	1	21	1048	97	61	
Arayat	10	0	45	7	62	221	259	228	324	112	20	12	1300	96	126	
Candaba	19	0	16	0	51	54	190	365	226	94	24	21	1060	109	94	
Sibul Spring	40	7	7	25	86	564	206	430	270	76	5	38	1754	117	187	
Sasmuan	21	0	47	38	175	408	357	707	251	66	0	10	2080	94	148	
Sulipan	26	1	6	8	70	304	405	382	148	66	1	4	1421	98	112	
Mexico	15	0	26	8	42	69	257	461	232	69	0	2	1181	104	105	
Porac	9	0	99	12	45	425	402	512	276	83	0	2	1865	99	90	
San Rafael	43	6	22	0	90	236	255	463	271	61	6	13	1466	111	78	
PRFFWC	14.0	0.0	39.6	58.7	62.0	348.0	463.0	522.5	367.8	129.8	2.3	37.3	2045.0	125	94.7	
* no data append and quality-control applied from May to Dec 2018																

PRB Water Level Stations

Station	Max WL observed for the year (meters) *	Time / Day of Max WL (2019)	Remarks (event of maximum WL for the year) *
Sapang Buho	5.13	1500H / 15 Sept	Ty. Ompong
Zaragoza			Erroneous record of maximum
Mayapyap			Still not operational
Peñaranda	2.79	1100H / 15 Sept	Ty. Ompong
San Isidro	4.69	0900H / 16 Sept	Ty. Ompong
Arayat	9.04	2200H / 23 Jul	Enhanced SW Monsoon
Candaba	6.37	0800H / 17 Sept	Ty. Ompong
Sasmuan	3.63	0100H / 06 Jan	
Sulipan	3.52	0600H / 19 Sept	Ty. Ompong
Mexico	2.45	2000H / 12 Aug	Enhanced SW Monsoon by T.S. Karding

*Data Breaks from May to Dec



Above shows the monthly rainfall totals for 2018 (top left) and monthly average distribution (top right) for PRFFW Center, CSFP.

List of electronic info/data filling activities of the center for the year 2018:

- Validated 64 rainfall station-months and 36 water level station-months for data gaps and breaks
- Encoded 12 RR station-months for PRFFW Center station (2018)

- Scanned 57 documents (reports and various papers, etc.)

Improvements of the PRFFWC database management system was temporarily put on hold to give way to the improvement on application of the RRI model in the center.

1.5 Telemetry System and Station Physical Maintenance:

The PRFFWC system will be 10 years in operation by March 2019 since it was rehabilitated and restarted operations in 2009 at City of San Fernando, Pampanga. Lately, serious system operational problems are being experienced at the center with more frequent data reception downtimes. Telemetry system and station maintenance are normally done on a quarterly basis. During the year HMTS together with the support and assistance of PRFFWC personnel carried-out several maintenance trip. Unfortunately, HMTS has not been providing nor sharing reports of their activities to the PRFFWC and hence, the center has few documentations of their telemetry and station physical maintenance last year. Quarterly maintenance of the PRFFWC System was carried out on the following dates: Jan. 30 to Feb. 05; Jun. 29 to Jul. 04; and Oct. 08-14.

For PRFFWC, there were a total of 39 system resets / emergency trips (about 3 to 4 times in a month starting March 2018) to San Rafael Repeater station. The trips included switching and exchange of operations of air conditioning units at the station and at times a check of Sulipan telemetry station along the way. Further, ocular checks of WL reading trips were also undertaken as part of data verification and hopefully to be used for data quality-control.

Physical maintenance of center facilities was mostly undertaken by center personnel. Clearing of station surroundings particularly at San Rafael Repeater station were carried-out by center personnel.



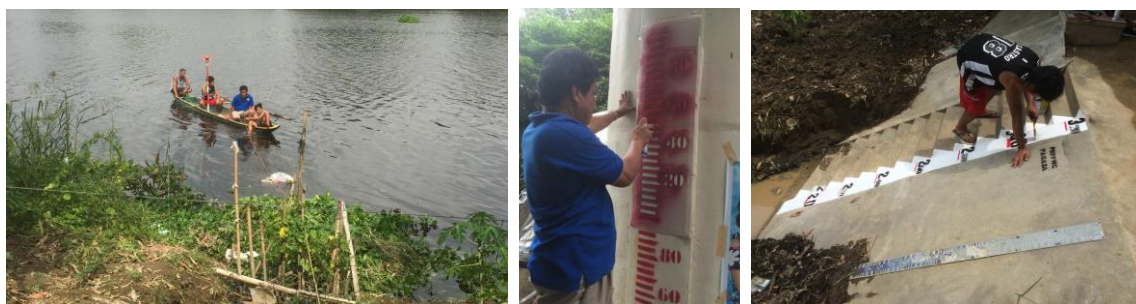
(Above pictures, L to R) PRFFWC personnel filling-up the diesel tank of the San Rafael Repeater's generator set; Cleaning and testing of tipping bucket in one of the telemetry stations; another split type air conditioner was installed at San Rafael Repeater station to augment the previous one installed in 2017; repair of the steel mesh gate of Sulipan telemetry station compound.

1.6 Streamgaging and hydrological related activities

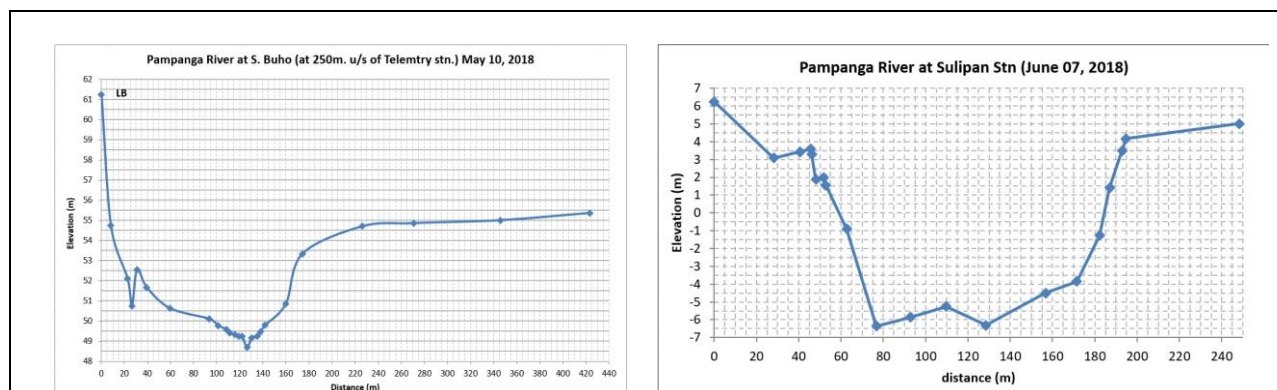
There were relatively few streamgagings carried-out in 2018. These were two river cross-sectioning activities of Pampanga River, at Sapang Buho and Sulipan forecasting points. River velocity measurements by wading were also carried-out at Sapang Buho point. Further, staff gauges were repainted at Sulipan telemetry station.



Top pictures: River cross-sectioning and river velocity measurements by wading at Sapang Buho, upper Pampanga River forecasting point, together with personnel of Palayan City DRRMO;



Above pictures (L to R): river cross-sectioning by boat at Sulipan station; placement of staff gauges for manual monitoring of the station's part-time observer.



Left: The river cross-section of Pampanga River at around 250 meters upstream of the Sapang Buho telemetry station; Right: The Pampanga River cross-section adjacent to the Sulipan Telketry station as seen from downstream.

II. Public Information, Data provision, Trainings and other related Center Functions

2.1 Presentations & lectures in events, various occasions and functions

There were 32 various occasions that the PRFFWC participated in and acted as a resource person in 2018 as part of its information, education and communication (IEC) activities. A total of 2,204 individuals (1,348 males, 856 females) from various sectors were provided with hydrometeorological-climatological related topic presentations.

Date	Topic / Presentation	Event / (Venue)	Remarks
January 17	Center Orientation: PRB & PRFFWC	Center visit of KOICA and NWRB personnel for KOICA PRB Phase 2 project	6 KOICA and 3 NWRB personnel
January 31	Local Climate Change Projections (Pampanga Province)	Enhanced LCCAP Formulation Workshop for Pampanga LGUs / Hotel Stotsenberg, Clark, Pampanga	140 persons from various LGUs of Pampanga province
February 06	Center Orientation: PRB & PRFFWC	Center visit of National Center for Hydrology and Meteorology from the Kingdom of Bhutan	5 NCHM personnel
February 07	Hydromet Hazards Awareness and Mitigation, LFEWS, and Tropical Cyclone Tracking	As requested by Cleanworld Trading & Supplies Inc. / Cleanworld, Caloocan City	16 Cleanworld employees
February 13	Climate Outlook from Feb-Jul2018	1st Quarter CY 2018 Committee on Disaster Preparedness Meeting – Updates on Disaster Preparedness Initiative / Kingsborough Convention Ctr., CSFP	129 persons from various RDRRMC member agencies
March 21	Hydromet Hazards Awareness & Mitigation	DRRM trainings for PWDs and NGOs organized by OCD-3 / Subic International Hotel	40 persons from various local sectors

March 27	Climate Outlook from April to September 2018	Bulacan-PDRRMC 1st Quarter Meeting	34 PDRRMC members
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(L to R) Enhanced Local Climate Change Projections for Pampanga Province presentation (January 31); Orientation of NCHM of Kingdom of Bhutan at the PRFFWC (February 06); 1st Quarter RDRRMC-3 meeting (February 13)

April 18	Center Orientation: PRB & PRFFWC	Center visit of DepEd Officials (school principals) from Davao City	10 school principals from Davao City
April 24	Hydromet Hazards Awareness and Mitigation	1-day DRRM training sponsored by OCD-3 for the Urban Poor sector / King's Royale, Bacolor	19 persons from various regional urban poor sectors
May 15 to 18	Updates on operational River Basin related topics	2nd River Basin Flood Forecasting & Warning Center Conference-Workshop / White Rock, Subic	49 persons from various river basin centers of PAGASA
May 18	Hydromet Hazards Awareness and Mitigation	1-day DRRM training sponsored by OCD-3 for Senior Citizens sector / Fontana, Clark	47 persons from various senior citizens sectors in the region
June 01	Climate Outlook (Jun-Nov 2018)	2nd Quarterly Meeting of Pampanga PDRRMC / Max Restaurant	27 PDRRMC members
July 03	Flood Forecasting & Warning in the PRB	Orientation of PAGASA MTC Trainees	37 trainees
July 12	Climate Outlook from July to Dec 2018 and Status update of the Pampanga River Basin	1-day orientation of newly elected Barangay Captains and SK Chairmen of the Municipality of Guagua / Guagua Municipal Hall	54 newly elected Bgy. Captains & SK Chairmen of Guagua Town
July 19	Understanding Hydromet Hazards	Inter-Agency IEC on Angat Dam Bgy. Sto. Cristo, Angat	132 barangay community attendees
July 20	Understanding Hydromet Hazards	Inter-Agency IEC on Angat Dam / Bgy. Matictic, Norzagaray	80 barangay community attendees



(L to R from top to bottom) PAGASA MTC trainees 2018 at PRFFWC (July 03); Orientation of newly elected Bgy. Captains and SK Chairmen of Guagua Municipality (July 12); DRRM Orientation to Farmers and Rural Worker Sectors (July 23); PRFFWC-based Optimization personnel discusses EWS to residents of Bgy. San Juan, San Luis, Pampanga (August 31); Hydromet Hazards presentation to Formal Labor & Migrant Workers of CSJDM (September 20)

July 23	Hydromet Hazards Awareness & Mitigation	DRRM training sponsored by OCD-3 for Farmers and Rural Workers in Reg. 3 / King's Royale, Bacolor	37 persons from various farmers and rural workers sectors in Reg. 3
July 26	Climate Outlook for July to December 2018	RDRRMC-3 Joint Council Meeting	67 RDRRMC-3 agency members present
July 30	Hydromet Hazards Awareness & Mitigation	DRRM training sponsored by OCD-3 for Media in Reg. 3 / Hotel Venezia, Subic	37 media practitioners in Reg. 3
August 06	Status of PRB during the enhanced SW related flooding in the PRB	Bulacan PDRRMO-Rescue evaluation meeting on the recently concluded flooding in the province of Bulacan / Bulacan PDRRMO office, Malolos	13 PDRRMO-Rescue personnel
August 07	Presentation on the results of the 2nd Counterpart Training in Japan	6th Joint Coordination Committee (JCC) for Project for Strengthening Capacity of Integrated Data Management of FFW / Amihan Conf. Rm., Science Garden, Q.C.	26 persons from various JCC agency members
August 29	Latest Climate Outlook	Tarlac-PDRRMC meeting / Tarlac Provincial Capitol	109 PDRRMC members
August 31	Early Warning Orientation	San Luis MDRRMC orientation to barangay residents of Bgy. San Juan, San Luis, Pampanga / Bgy. Hall, Bgy. San Juan, San Luis, Pampanga	93 residents of Bgy. San Juan
September 12	Possible effects of TC Mangkhut in the PRB	Pampanga-PDRRMC PDRA / Pampanga Capitol	47 PDRRMC members
September 12	Possible effects of TC Mangkhut in the PRB	RDRRMC-3 3rd Q meeting cum PDRA / SACOP Ephatha Center, CSFP	68 RDRRMC-3 members form 41 regional agencies/ LGUs
September 17	Hydromet Hazards Awareness and Mitigation	DRRM training for Mabalacat City Water District Personnel organized by OCD-3 / Azurro hotel, Angeles City	38 personnel of Mabalacat City Water District
September 20	Hydromet Hazards Awareness and Mitigation	DRRM training for Formal Labor and Migrant Workers of CSJDM organized by OCD-3	43 persons attended representing Formal Labor and Migrant Workers sectors
September 27	SHINE Activities Orientation	School Hydrological Information Network Program with Bulacan-PDRRMO / Obando Fisheries School	40 Secondary students and 5 advisers/teachers
September 28	Hydromet Hazards	DRRM Summit of Angeles City DRRMC / Lewis Grand Hotel, Angeles City	133 persons from various DRRM member-sectors of Angeles City



(L to R) Pampanga-PDRRMC officials being updated on the effects of TC Mangkhut in the PDRA called for by the Vice-Governor of Pampanga (September 12); MOA signing between officials of Bulacan-PDRRMO, Obando MDRRMO, Obando Fisheries School and PRFFWC as per SHINE program in the said school (September 27)

October 03	Hydromet Hazards	DRRM training for Informal Sectors and Cooperatives organized by OCD3 / Hotel Venezia, Subic	23 persons from Informal Sectors and Cooperatives attended
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October 10	Weather-Climate & Hydromet Hazards	Meeting of Nueva Ecija Association of DRRM Officers (NEADRRMO) / Gapan City Hall	58 LDRRMOs of Nueva Ecija
October 18	Flood Forecasting & Warning in the PRB	Orientation of PAGASA MTTC Trainees	26 trainees
October 19	Latest Climate Outlook	4th Quarter Meeting of Pampanga PDRRMC / Max Restaurant	31 PDRRMC members
October 22-25	PRFFWC Project Update	2018 NCR-PRSD CMO Conference / Traveller's Hotel, Subic	24 personnel of NCR-PRSD
October 29	Updates on T.C. Rosita and its possible effects to Region 3	PDRA called for by RDRRMC-3	24 RDRRMC-3 agency members



(L to R) NCR-PRSD CMO conference (October 22-25); Briefing of RDRRMC-3 member agencies on updates of T.C. Rosita as per PDRA called for by RDRRMC-3 Chairman (October 29)

November 09	Hydromet Hazards Awareness & Mitigation	DRRM Summit for Barangay & SK of City of San Fernando organized by said DRRM LGU / Heroes Hall, CSFP	155 Barangay & SK of CSFP
November 23	Flood Forecasting & Warning System	Disaster Preparedness Workshop on Hydromet Hazards in the Municipality of Obando, Bulacan / Obando Municipal Bldg.	138 persons from various sectors of Obando
December 12	Hydromet Hazards & Awareness	RDRRMC-3 through OCD-3 School-Based Resilience Caravan at Baliti Integrated School, CSFP	295 elementary & secondary students
December 18	School Hydrological Information Network	RDRRMC-3 year-end Summit	95 RDRRMC member agencies & LGUs

2.2 Public information and Briefings (Multi-media)

There were quite a number of media (radio and TV) interactions with live and prerecorded interviews that were accommodated in 2018.

- Two prerecorded interviews by CLTV-36 (reporter Alexa Ignacio) on latest Climate Outlook and Weather updates for Central Luzon (Feb. 13 & 14)
- Pre-recorded interview by CLTV-36 (reporter L.M. Nuñez) on the status of Central Luzon Dams (Feb. 26)
- Documentary file interview by CLTV-36 (Mr. Paulo Santos) regarding the PRB and PRFFWC for a TV program in the said network (Jun 26)
- Pre-recorded TV interview by ABS-CBN Pampanga (reporter Gracie Rutao) on the status of PRB as an update to the passing of TC Henry and Inday enhanced SW monsoon over the basin (Jul. 19);
- Radio interviews by GVAM 792 khz (Manay Gina) on updates on TC Henry and Inday (Jul. 19)
- Pre-recorded interview by UNTV (field reporter Leslie) on the present status of Pampanga River (July 30)
- Radio (live and Phone-patch) interviews re: enhanced SW over PRB; GVAM 792 khz by Host Manay Gina (2x); by RW 95.5 Radio host Perry Pangan and Jodi Mercado (3x); Prerecorded interviews by ABS-CBN Pampanga with John Mark Guda (2x) (Aug. 13)

- Ty. Ompong event information coordination on live radio interviews with RW 95.5 host Perry Pangan (Sept. 10, 12, 13, 14, 15, and 17 (2x); GVAM 792 khz with host Manay Gina (Sept. 12, 13)
- Prerecorded TV interviews by CLTV-36 (field reporter Reiniel Pawid) on updates on Ty. Ompong (Sept. 12, 14, 15 and 17 (live interview)
- ABS-CBN Pampanga interviews (reporter Gracie Rutao and Trisha) on updates on Ty. Ompong (Sept. 12, 16, 17)
- UNTV prerecorded interview (reporter Leslie) on possible effects of Ty. Ompong (Sept. 12)



(L to R top) with CLTV-36 reporter Alexa Ignacio (1st & 2nd pics) (Feb. 13 & 14); with CLTV-36 reporter L. Nuñez (Feb. 26); (bottom from L to R) with CLTV-36 interviewer Paulo Santos (Jun. 26); ABS-CBN reporter Gracie Rutao (Jul. 19); and with UNTV field reporter Leslie on July 30.

III. Participation in various events, occasions & other undertakings (meetings, seminars, workshops, conferences, etc.)

There were also quite a number of participation by the PRFFWC in regional-based activities pertaining mainly to the PRB and DRRM issues. Joint undertakings with local, regional agencies and LGUs has always been a priority by the center as part of strengthening its rapport with these partner entities. Providing technical expertise has also benefitted quite a number of LGUs in their DRRM project undertakings. The various activities, gatherings and extra-social curricular activities attended and participated by the PRFFWC for the year were as follows:

- Attended and participated in the consultative meeting of various DMGC agencies on the drafting of rules and regulations in the DMGC area (Jan. 08; DOST-3 Conference Room)
- Attended and participated in the Contingency Planning for Flood hazards which was organized by RDRRMC-3 (Feb. 02; OCD-3 conference room)
- Attended and participated in the Contingency Planning workshop on Hydromet Hazards of Region 3 which was organized by RDRRMC-3 (Feb. 07; OCD-3 Conference room)
- Attended and participated as a council member in the 1st Quarter PDRRMC Sectoral meeting of PDRRMC-Pampanga (Feb, 23; Max Resto, CSFP)
- Attended and participated in the TWG meeting on reformulation / updating of Central Luzon Preparedness Plan and Contingency Plan as member of the RDRRMC-3 (March 01; Ephata Center, CSFP)
- Field test and demonstration on the Radar Profiler and Redback Current Meter with Cleanworld supplier at Arayat station (March 05)
- Meeting with Cabiao MDRRMO on possible set-up of hydrological monitoring stations within the said municipality (March 06)
- Assisted NCR-PRSD Central Office personnel in the coordination meeting with Bataan-PDRRMO on the possible lot allocation for a synoptic station within Bataan Province. (March 08, 1Bataan Opcen, Orani, Bataan)
- Meeting with ICHARM at Calumpit re: Flood Risk Diagnosis for Barangays in Calumpit Municipality research study (March 12; Calumpit Municipal Hall)
- Attended and participated in the meeting called for by RDRRMC-3 re: Public Validation of Central Luzon Plans (March 15; DILG Conference room)

- Coordination meeting with Engr. Lita Manalo of DPWH MPE-PMO in Region 3 re: status of Mexico Telemetry station (March 15; Mexico station)
- Two center personnel attended and participated in the unified flag raising ceremony of DMGC offices led by DILG-3 (March 19; NEDA-3 Basketball Court)
- One center personnel attended the 1st Quarter CY 2018 RDRRMC3 Full Council Meeting (March 21; Bliss Hotel, CSFP)



(L to R) Field test demonstration of the newly acquired Redback current meter (Mar. 05); meeting with Calumpit municipal officials together with ICHARM (Mar. 12); participated in the celebration of WMO day in Science Garden, Q.C. together with MTC P8-A class loyalty awardees (March 23); meeting with Bataan Provincial Administrator regarding PAGASA's request for a lot for a Synoptic station in the province (April 23)

- Attended and participated in the Celebration of World Meteorological day (March 23; Science Garden, Q.C.)
- Attended and participated in the PDRA re: T.C. Caloy, called for by RDRRMC-3 (March 28; OCD-3 Conf. room)



Field testing of the RP30 Radar Profiler

- Participated in two consecutive workshops entitled: Write shop on Calibration and Profiling of Technical Competencies and Workshop on Succession Planning (April 09-14; CAD Conf. room, WFFC, Q.C.)
- One center personnel participated in the 2nd Quarter Instructor's Meeting organized by OCD-3 (April 10, SACOP, CSFP)
- One center personnel participated in the Regional Gawad Kalasag 2018 Field Validation sponsored by Pampanga-PDRRMO (April 12; Pampanga Capitol Bldg, CSFP)
- Coordination meeting with Bataan Provincial Government on request for a lot for the proposed synoptic station in the province; met with the Provincial Administrator (April 23; Bataan Provincial Capitol)
- Ocular survey of proposed lot/s for synop station in the province of Bataan (April 23; Mariveles, Bataan)
- Participated as member of RDRRMC-3 validating team on the request of Gen. Tinio Municipality, N.E. on the survey of Minalungao National Park related natural area hazards (May 03); Courtesy visits to Palayan City DRRMO and N.E. PDRRMO (May 03)
- Meeting and center orientation to visiting JICA and Hokkaido University Professor (May 18)
- Participated in the 2nd Quarter Full Council of RDRRMC-3 (June 18; King's Royale, Bacolor, Pampanga)



(L to R) With members of the Pampanga-PDRRMO during the Gawad Kalasag 2018 field validation (April 12); Coordination meeting with Palayan City Mayor with OCD-3 officials (May 03); Center visit by Prof. Shimizu of Hokkaido University and DPWH JICA expert Mr. Nakui on discussions for participation in the iRIC training (May 18)

- Met with DPWH MPE-PMO (at DPWH Reg. 3) regarding status of Mexico station; was provided with checklist and requirements for the station's possible transfer (June 26)
- Actively participated, as member of the PDRRMC-Pampanga, during the National Kalasag 2018 field validation for the said council (July 02 & 04; Provincial Capitol, CSFP)
- Coordination meeting with BPSU officials with regards to request of lot for a Synoptic Station and ocular survey for possible lot in BPSU Abucay Campus. (July 11; Balanga and Abucay, Bataan)
- Attended and participated in PDRA called for by RDRRMC-3 re: SW monsoon (July 22; OCD-3 conference rm.)

- Attended and participated in the PWG-Group C meeting under the Project for Strengthening Capacity of Integrated Data Management of FFW (August 07; WFFC, Q.C.)
- Meeting with resident JICA expert (Mr. Motoki) re: PWG-A Action plans (August 14; WFFC compound)
- Oriented CSC-3 personnel on the 3-day weather outlook within the region (August 10; 2 CSC personnel)
- Coordination meeting with MGB-3 officials on possible collaborative activity on river stage – flood extent and Coordination meeting with Bulacan-PDRRMO on proposed SHINE activities for the year 2018 (August)
- During Ompong event - Communications / interactions with Governor of Bulacan – 12 times; Pampanga PDRRMO – 4 times; Bulacan – PDRRMO - 7 times; interaction with RDRRMC-3 Chairman - Sept 13, 14 and 15
- Attended and participated in the 118th Philippine Civil Service Anniversary (PCSA) Celebration (Sept. 03; NEDA Covered Court, CSFP)
- 2 center personnel participated in the river trekking and survey of affected barangays along the river channels surrounding and crossing through the municipality of Calumpit together with Calumpit MDRRMO and Bulacan PDRRMO personnel (Sept. 07)
- Attended and participated in the PDRA called for by RDRRMC-3 re: Effects of TC Mangkhut (Sept. 10; OCD-3 conf. room); (Sept. 13 during teleconferencing with NDRRMC / with PRRD; OCD-3 Conf. room)
- Attended and participated in the Pampanga PDRRMC Contingency Planning for Hydromet Hazards Workshop (Sept. 11-14; Orchids Hotel, CSFP);
- One center personnel participated in the 2018 Administrator's Cup Bowling Tournament (Sept. 4, 11, 18)
- One center personnel and 2 Optimization project personnel attended and participated in the 1st Optimization Project Quarterly Meeting & National Summit (Sept. 24-27; Iloilo City)
- Meeting with Google Cap team on the improvement / enhancement of flood advisory / flood bulletin issuance program suite for PRFFWC (Oct. 03)
- Coordination meeting with Jaen MDRRM officials re: Set-up of EWS in the municipality as per request by the said municipality (Oct. 04)
- Coordination meeting with DOST-3 and Provincial DOST officers on the status and report of the recently concluded Optimization Summit in Iloilo City last Sept. 2018 (Oct. 04; DOST-3 conf. room)
- Coordination meeting with Bataan-PSTO and Mariveles DRRMO re: request for FEWS in their area and maintenance of AWS at AFAB area as per Optimization project (Oct. 05)
- Participated in the Bulacan SHINE year-end activity program on review of presentations of Investigatory Projects of various SHINE school groups in Bulacan. (Nov. 6 to 8; various schools within Bulacan Province)
- Attended and participated as guest speaker, active organizer / coordinator in the 9th Bulacan SHINE Annual Conference (Nov. 15; Klir waterpark resort, Guiguinto, Bulacan)
- Attended and participated with a latest accomplishments presentation in the 2nd Quarter meeting for the Optimization Project (Nov. 21-22, Laoag, I.N.; 1 center personnel, 2 Opti personnel & 1 JO)
- Attended and actively participated in the 4th Quarter RDRRMC-3 meeting (Nov. 22; Orchids Garden, CSFP)
- Coordination meeting with DPWH-3 as per issues relating to relocation of Arayat Telemetry station through the coordinated efforts of OCD-3 (Nov. 26)
- Attended and participated in the 3rd Seminar for the JICA-TCP "Strengthening Capacity of Integrated Data Management of Flood Forecasting & Warning" (Nov. 28, Amihan Conf. Rm, Q.C.)
- Attended the meeting of PWG-A for FFWS for Flood Management (Planning Group) (Nov. 28; WFFC, Q.C.)
- On-site meeting and assessment with DPWH-3 re: possible relocation of Arayat Telemetry station as per Bridge program of DPWH (Nov. 29)
- Attended the meeting of PWG-A for FFWS for Flood Management (Planning Group) (Nov. 28; WFFC, Q.C.)
- Coordination meeting with Bataan-PDRRMO re: technical assistance in the set-up of hydrological monitoring system (Dec. 04)
- Field survey of Mexico station together with JICA expert assigned at DPWH-3 for the Special Assistance to PHUMP-Phase II in the Pasac-Guagua Sub Basin of PRB (Dec. 10)
- Meeting with DOST-3 and PSTC-Pampanga personnel re: Optimization Project in Reg. 3 (Nov. 10)
- Attended the Internet Governance Roadshow organized by DICT Luzon Cluster 2 (Dec. 11; Club Royale, Malolos, Bulacan)
- Attended and participated as member of examination panel (as per invitation by Dean of Dept. Of Mathematics, BulSU) to B.S. Mathematics students defending their Thesis Title "Water Level Forecasting in the PRB: A Guide to Early Warning" (Dec. 11; BulSU, Malolos, Bulacan)
- Coordination meeting with OCD-3 officials re: SHINE program for Region 3 (Dec. 12; OCD-3 meeting room)



(L-R) PRFFWC personnel as members of the review panel of Investigatory Projects of Bulacan SHINE schools together with Bulacan-PDRRMO and DepEd officials as part of the program's year-end activity (Nov. 6-8); active participation in the 9th Bulacan SHINE Conference with OCD-3, Bulacan PDRRMC, and DepEd officials (Nov. 15); as members of the examination panel to the initial defense of the thesis of B.S. Mathematics students of BulSU entitled "Water Level Forecasting in the PRB: A Guide to Early Warning" (Dec. 11)

IV. Trainings

There were not much trainings offered nor applied for by the personnel of PRFFWC in 2018:

- One center personnel participated and attended overseas training on data management conducted by JICA (June 24 to July 6, Tokyo, Japan)
- One center personnel attended the 2-day Network Configuration, Maintenance and Troubleshooting Training conducted by DICT-Pampanga (June 26-27; DICT LC2 PFO, Mabalacat, Pampanga)
- One center personnel attended and participated in the HEC-GeoHMS Training (July 02-06; Training Room, Science Garden, Q.C.)
- One center personnel attended and participated in the PDRF (Philippine Disaster Resiliency Foundation) initiated training entitled "Weather Training" (July 05, 2018; Clark, Pampanga)
- One center personnel attended and participated in the Rapid Damage Assessment and Needs Analysis (RDANA) Training for Pampanga-PDRRMC members (August 08-10; Orchid Garden Resort, CSFP)
- One center personnel attended the Southeastern Asia-Oceania Flash Flood Guidance System (SAOFFGS). (Sept. 13-14; Amihan, Science Garden, QC)
- One center personnel attended and participated in the Workshop on Hydraulic Analysis and Flood Simulation Method with iRIC Software organized by DPWH-JICA-iRIC group (Dec. 5-7; DPWH-FCMC-FCSEC, Pasig City)



(L-R) Participants in the Southeastern Asia-Oceania Flash Flood Guidance System (SAOFFGS) (Sept. 13-14); Participants in The Hydraulic Analysis and Flood Simulation Method with iRIC Software workshop attended by 1 center personnel (Dec. 5-7)

A regular program of the PRFFWC is to host On-the-Job (OJT) trainees from various universities and colleges within the region and the short Immersion program for Senior High School students. The PRFFWC program included the usual office functions such as encoding, scanning and e-filing of center's telemetry records. Orientation on field activities such as river cross-sectioning and field validation surveys are sometimes provided whenever possible.

For year 2018, a total of 5 Information Technology (IT) students from Don Honorio Ventura Technological State University (DHVTSU) and 2 Information Technology students from Saint Nicholas College of Business and Technology were accommodated by the PRFFWC for the school year 2017-18 finishing their OJT program last March 2018. Mid-year of 2018, 4 hopeful B.S. in Mathematics with Specialization in Applied Statistics students from Bulacan State University (BulSU) completed their 200 hours OJT in the center by doing a special project activity. The first immersion tie-up program with Senior High School came in on the last quarter of the year with 4 Senior High school students from Masantol High School rendering and completing their 120-hours of the center's office function immersion activities.



(Top L-R) Information Technology OJTs from DHVTSU and Saint Nicholas CBT together with PRFFWC personnel in their last day in the PRFFWC; Hopeful B.S. in Mathematics with specialization on Applied Statistics OJTs from BulSU together with their adviser and some PRFFWC personnel ; (Bottom R) Senior High School Students of Masantol High School together with their Immersion adviser and PRFFWC personnel pose in front of the center building.



V. Reports (In-house), features and other hydrological-related materials



Only one report was prepared last year: “Proposed Local Flood Monitoring and Warning System for the Municipality of Jaen, Nueva Ecija (May 2018)”. Said report was a result of the request of the Municipality of Jaen for a technical assistance in their flood monitoring and early warning activities in their municipality. Picture on the right shows PRFFWC personnel with Jaen MDRRMO officials & Cleanworld representative.

VI. Recognitions for 2018

The PRFFWC was given the GAWAD PAGASA “Best Flood Forecasting and Warning Sub-Center” of the National Capital Region PAGASA Regional Services Division for 2018. Quite obvious inasmuch as PRFFWC is the only river center in NCR-PRSD. Two other personnel of the PRFFWC received GAWAD Best Hydrologist for NCR-PRSD and Outstanding Regional Services Division (PRSD Group Employee), and Best Hydrological Aide of NCR-PRSD all for 2018, respectively.

There were several certificates of appreciation for the PRFFWC and some of the center personnel given by partner agencies and LGUs, many of which, for providing lectures and presentations to various gatherings relating to Hydrometeorological Hazards and DRRM issues.





PRFFWC with BulSU OJT 2018

PRFFWC production 2018-19

Previous annual reports available at the following link:

<http://prffwc.synthasite.com/annual-reports.php>

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