

# **Flood Event for Puerto Rico and the U.S. Virgin Islands July 2010**

## **Weather Summary**

The tropical wave that moved across Puerto Rico and the U.S. Virgin Islands the week of July 19<sup>th</sup> through July 23<sup>rd</sup> generated numerous showers and isolated thunderstorms, some with very heavy rain. The wave itself maintained a broad area of disturbed weather, aided in part by an upper level low pressure system just north northwest of the local area. As a result, the shower and thunderstorm formation across sections of Puerto Rico and the U.S. Virgin Islands persisted; resulting in several days of widespread rainfall.

Drier air finally filtered across the local islands from the east on Saturday July 24, but not before several days of heavy rainfall contributed to the 8.22 inches of rainfall that accumulated in San Juan by the end of the 23<sup>rd</sup> of the month, adding to an already [record wet year](#) observed across much of the northeastern Caribbean. Across the U.S. Virgin Islands, precipitation was also well above normal, with the wettest July on record recorded at the Cyril E. King Airport on Saint Thomas.

The highest 24-hour precipitation total across Puerto Rico for the month of July was 9.03", which fell in Ceiba over the 24 hour period ending at 8 am July 20<sup>th</sup>. The highest weekly rainfall across Puerto Rico occurred in San Lorenzo for the second month in a row, where 13.18" of rain accumulated the week ending July 23<sup>rd</sup>. Across the U.S. Virgin Islands, the highest 24-hour precipitation total fell at East End on Saint John, where a record 4.55" fell over the 24 hour period ending at 8 am on July 20<sup>th</sup>. For the week ending July 23<sup>rd</sup>, 10.58" of rain fell at Coral Bay on Saint John, representing the highest weekly rainfall across the U.S. Virgin Islands for the month of July.

## **Hydrologic Summary**

The river responses were as expected with the heavy rainfall; with the highest response and greater reports of flooding in Eastern Puerto Rico. The smaller basins in the East and Northeast that experienced flooding were the Rio Fajardo, Rio Blanco, Rio Naguabo and Rio Gurabo. The larger basins that experienced flooding from this event were the Rio Grande de Loiza and Rio de la Plata. Except for Ceiba, San Lorenzo and the extreme Northeast, the majority of rainfall was spread over numerous days, and although the flooding caused some impressive damage, it was not the typical river responses that one expects with flood damage in Puerto Rico. The damage was from high fluctuating flows over a few days as opposed to one extreme flash flood event. In the U.S. Virgin Islands; flooding resulted from swollen guts in addition to urban flooding in Havensight and Brookman Road in St. Thomas and at the Marketplace shopping center in Cruz Bay, St. John. In St. Croix where a trained observer reported 2.14 inches of rain in one hour, flooding was reported from swollen guts and in Christiansted and Teague's Bay.

Flood warnings were issued for river Rio Grande de Loiza which included the smaller contributing basins of Caguas, Gurabo, Juncos, San Lorenzo and Trujillo Alto. In addition, several flash flood

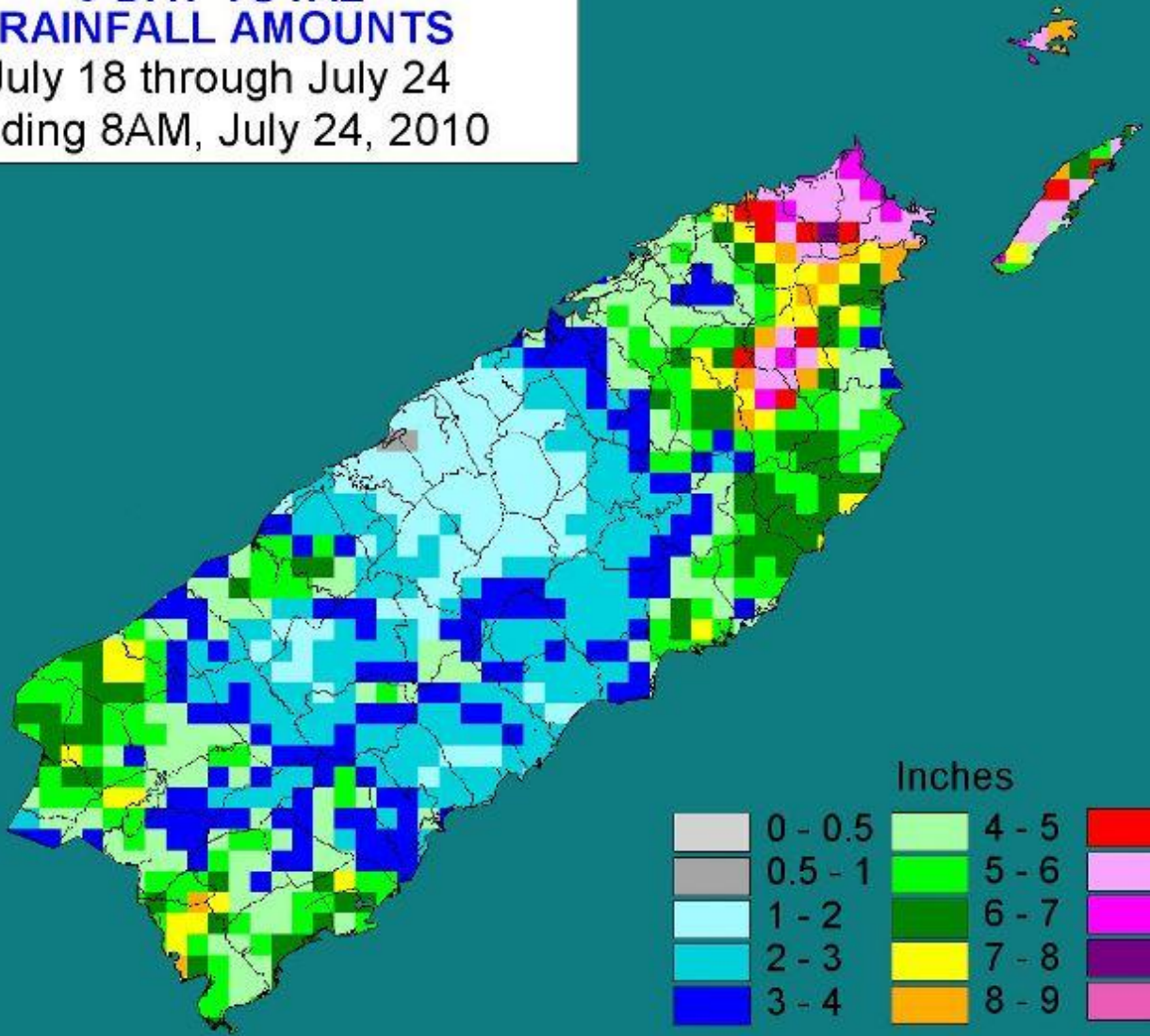
warnings were also issued to cover small streams and creeks in Luquillo, Naguabo, Ceiba, Fajardo and Rio Grande. Flash flood warnings were also issued for the U.S. Virgin Islands.

**Rainfall Totals of 6 inches or greater  
Reminder...these totals are from 8am to 8am**

Location	STATE	07/19	07/20	07/21	07/22	07/23	07/24	Total
R GR D LOIZA/SAN LOR	PR	0.07	7.31	2.22	2.09	1.23	0.25	13.18
R ICACOS NR NAGUABO	PR	0.59	4.46	2.37	1.25	0.67	1.28	10.63
NSSR/CEIBA 3SE	PR	0.11	9.03	0.67	0.62	-	-	10.43
QUEB BLANC/SAN LOREN	PR	0.06	3.03	2.36	2.19	2.38	0.33	10.36
R CAYAGUAS@CERRO GOR	PR	0.08	4.38	1.71	0.90	1.90	0.56	9.54
R ESPIRITU SANTO-R G	PR	0.35	5.32	1.56	0.87	0.94	0.49	9.53
FAJARDO 5SW	PR	0.58	5.32	1.22	0.62	0.76	-	8.51
ISABEL SEGUNDA 2SE	PR	1.18	4.07	1.73	1.35	0.10	0.02	8.46
R CAGUITAS@V BLANCA	PR	0.31	1.71	1.79	1.94	1.91	0.07	7.74
R HUMACAO@L PIEDRAS	PR	0.26	3.70	0.31	0.89	0.85	0.93	6.94
R LOIZA @ CAGUAS	PR	0.08	1.68	1.78	1.73	1.47	0.11	6.86
VAQUERIA EL NIMO	PR	0.39	1.59	2.36	1.37	0.86	0.14	6.72
CANAL DE PATILLAS	PR	0.12	1.06	0.91	0.95	3.48	0.11	6.64
RIO GR DE PATILLAS	PR	0.14	1.00	0.73	2.30	2.13	0.18	6.49
BAIROA ARRIBA PCPN	PR	0.23	1.21	2.50	1.35	0.97	0.15	6.42
R CANAS @ RIO CANAS	PR	0.50	1.01	1.81	1.69	1.36	-	6.38
LG REGULADOR/ISABELA	PR	0.08	0.01	0.90	0.34	2.79	2.12	6.24
GUAYAMA, PR	PR	0.19	1.24	-	1.17	3.39	0.08	6.07
BO MARIN/PATILLAS 4N	PR	0.38	0.76	0.88	1.37	2.49	0.17	6.06

# Rainfall Accumulations for July 19-23, 2010

**6-DAY TOTAL  
RAINFALL AMOUNTS**  
July 18 through July 24  
Ending 8AM, July 24, 2010



**PRELIMINARY LOCAL STORM REPORT  
NATIONAL WEATHER SERVICE SAN JUAN PR**

747 PM AST MON JUL 19 2010

..TIME...	...EVENT...	...CITY LOCATION...	...LAT.LON...
..DATE...	....MAG....	..COUNTY LOCATION..ST..	...SOURCE....
		..REMARKS..	

0719 PM	FLOOD	FAJARDO	18.33N 65.66W
07/19/2010		FAJARDO	PR EMERGENCY MNGR

A HOUSE WAS REPORTED FLOODED IN URB BEBE CALZADA, BEHIND  
JF MONTALVO SUPERMARKET.

0719 PM	FLOOD	FAJARDO	18.33N 65.66W
07/19/2010		FAJARDO	PR EMERGENCY MNGR

HOUSES AND ROAD WERE REPORTED FLOODED AT URB BARALT.

1020 AM	FLOOD	RIO GRANDE	18.38N 65.84W
07/19/2010		RIO GRANDE	PR EMERGENCY MNGR

A HOUSE WAS REPORTED FLOODED AT VILLAS DE RIO GRANDE.

1020 AM	FLOOD	RIO GRANDE	18.38N 65.84W
07/19/2010		RIO GRANDE	PR EMERGENCY MNGR

A STREET WAS FLOODED AT URB LOS MAESTROS.

1020 AM	FLOOD	SAN LORENZO	18.19N 65.97W
07/19/2010		SAN LORENZO	PR EMERGENCY MNGR

A HOUSE WAS REPORTED FLOODED AT BO QUEMADOS, ARIL SECTOR.  
ROAD 181 KM 1.0

1020 AM	FLOOD	SAN LORENZO	18.19N 65.97W
07/19/2010		SAN LORENZO	PR EMERGENCY MNGR

ROAD WAS REPORTED FLOODED AT BO QUEMADOS, ARIL SECTOR.

1039 PM	FLASH FLOOD	FAJARDO	18.33N 65.66W
07/20/2010		FAJARDO	PR EMERGENCY MNGR

EMERGENCY MANAGEMENT OFFICIAL REPORTED THAT  
THE RIO FAJARDO WAS OUT OF ITS BANKS AT THE INTERSECTION  
OF ROAD 3 AND HIGHWAY 53 BETWEEN FAJARDO AND CEIBA. THE

ROAD 3 WAS CLOSED DUE TO FLOODING.

Individual River Stage Report	FLOOD STAGE  (Feet)	ABOVE FLOOD STAGES		CREST	
		(Dates)		STAGE  (Feet)	DATE
		FROM	TO		
RIO BLANCO NR FLORIDA, PR (NGKP4)	16.0	20 Jul 08:09	20 Jul 08:31	16.65	20 Jul 08:15
RIO CERRILLOS ABV LAGO CERRILLOS, PR (PCEP4)	6.0	23 Jul 18:48	23 Jul 19:08	6.71	23 Jul 18:50
RIO CULEBRINAS AT MARGARITA DAM, PR (MODP4) ...numerous fluctuations to crest...	15.0	24 Jul 04:30	24 Jul 05:30	15.00	24 Jul 05:00
RIO DE LA PLATA AT COMERIO, PR (COMP4)	11.0	23 Jul 02:57	23 Jul 05:20	11.84	23 Jul 03:45
RIO FAJARDO AT PARAISO NR FAJARDO, PR (FAEP4)	8.0	19 Jul 17:06	19 Jul 19:28	9.94	19 Jul 18:30
	8.0	20 Jul 07:17	20 Jul 09:41	9.89	20 Jul 08:00
RIO GRANDE DE ARECIBO ABV UTUADO, PR (UTUP4)	10.0	23 Jul 19:50	23 Jul 20:15	10.18	23 Jul 19:51
RIO GRANDE DE LOIZA BASIN QUEBRAD GRANDE AT BO. DOS BOCAS, PR (TRJP4)	11.0	27 Jul 17:31	27 Jul 19:01	14.94	27 Jul 18:00

RIO GRANDE DE LOIZA AT HWY 183, PR (SLNP4)	14.0	19 Jul 16:31	19 Jul 17:38	15.21	19 Jul 17:00
RIO GRANDE DE LOIZA AT CAGUAS, PR (CAGP4)	16.0	19 Jul 16:44	19 Jul 18:30	17.20	19 Jul 17:45
RIO GRANDE DE LOIZA - BLW DAM, PR (TRUP4)	22.0	19 Jul 16:56	19 Jul 19:57	25.45	19 Jul 18:15
	22.0	21 Jul 04:59	21 Jul 06:24	22.23	21 Jul 05:45
RIO GRANDE DE LOIZA BASIN - RIO GURABO AT GURABO, PR (GURP4)	18.0	19 Jul 18:41	19 Jul 21:12	19.51	19 Jul 20:00