



The Whispering Trades



National Weather Service | San Juan, Puerto Rico



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From the Corner of the MIC

2015 Synopsis



Once again we dodged the bullet during the 2015 hurricane season as no hurricanes affected the eastern Caribbean. Nevertheless, it was not a quiet season as the islands were directly impacted by two weak tropical cyclones. Both, the U.S. Virgin Islands and Puerto Rico were affected by the remnants of tropical cyclone Danny, which dissipated after achieving the status of the first major hurricane of the season. Although its impacts were minor, the potential of being affected by a major hurricane created a great deal of anxiety and fear among the residents of the islands. Three days

later, from August 27-28, the islands were being threatened and impacted by another tropical cyclone; Tropical Storm Erika. Even though Erika was a weak storm, its impacts would be remembered for quite some time afterward. Excessive rainfall associated with this storm caused catastrophic mudslides, flooding and tens of deaths across several Leeward Islands, but especially Dominica. The storm produced strong gusty winds across the U.S. Virgin Islands and Puerto Rico leaving approximately 200,000 people without electricity in addition to damages to homes and businesses across the highlands of Puerto Rico. This demonstrates again that it does not have to be a full-fledged hurricane to cause damage and loss of life across our area. We should always get prepared and be ready to

face these threats even when a season is forecast to be below normal. We must remember, it only takes one. Now the hurricane season has ended. We move into the cooler and drier part of the year; Winter in the Northern Hemisphere. It is the season when thousands of tourists arrive to the Eastern Caribbean to enjoy the still warm waters and pleasant climate, as well as, the Holiday festivities. It is also the season of large northerly swells, high surf and deadly rip currents. In the past, rip currents and rough marine conditions have claimed the lives of at least 30 people annually. The National Weather Service Forecast Office in San Juan takes this very seriously. As part of our effort to achieve our mission to save life and property, we issue a number of products to alert residents and visitors whenever

hazardous conditions are expected. We want you to enjoy our climate, beaches and our festivities and we want you to do it responsibly. We want to encourage you, as you go through your daily activities, to keep aware of any changing weather conditions and be ready to act accordingly.



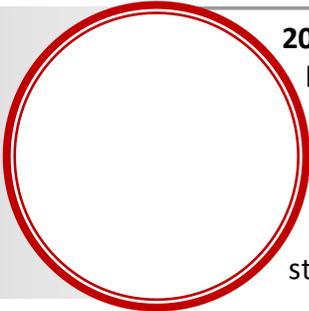
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2015 Climate Review for Puerto Rico and the U.S. Virgin Islands

By: Odalys Martínez-Sánchez



2015 can be described as a dry and warm to hot year across Puerto Rico (PR) and the U.S. Virgin Islands (USVI).

Below normal sea surface temperatures across the tropical Atlantic waters due to strong trades resulted in limited rainfall activity

March through at least May. Dry conditions continued May through early August as moderate El Niño conditions established. Although El Niño conditions persisted during the autumn, the local weather regime shifted around mid August as Tropical Storm Erika, the remnants of Danny and former Tropical Storm Grace moved across the eastern Caribbean. Wetting rains associated with these features were beneficial, but not enough.

Atmospheric conditions favorable for shower and thunderstorm development were finally observed the second half of October with showers and thunderstorms every day. Widespread showers and thunderstorms associated with an upper level trough were observed during the weekend of October 24-25th. Rainfall accumulations associated with this feature fluctuated between 4 and 5 inches across the eastern interior of PR.

“During the last drought we experienced this year, I considered it as a new experience, even when we experience it every year. I found out how much we need to create a "savings water culture" among our people in Puerto Rico. It was necessary to implement an Administrative Order to make sure the people conserved water, in particular in those municipalities that were most affected by the drought.. Also, as a

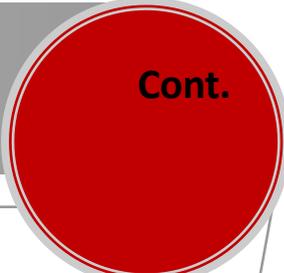
new experience, we can mention the Cloud Seeding project, where we are waiting for a final report that shows its effectiveness. I believe we are taking important steps to prepare better for this event that we will be expecting every year. This will be a challenge that we, as a nation, must seriously face from now on.”

Ruben Vega- Engineer, MBA AAA

Rainfall Deficit and Forecast

RAINFALL DEFICIT AND FORECAST

- ✓ 35 consecutive weekly briefings since the drought emergency was declared in June 2015 and counting.
- ✓ Frequent climate/drought briefings have been performed since summer 2014.
- ✓ WFO SJU briefings directly impacted 13 local & federal agencies.



Extreme drought conditions (D3) improved to severe drought (D2) across these areas as catchment basins began to respond ([click here for United States Drought Monitor \(USDM\) definitions and PR drought evolution](#)).

November and December have been near normal with passing showers observed along windward areas in the morning, followed by locally induced showers and thunderstorms in the afternoon. This pattern has been enhanced as trofiness establishes across the area from time to time. The highest rainfall totals during November and December were focused over and north of the Cordillera Central and Sierra de Cayey.

An average rainfall total of 48.36 inches was measured across PR (Fig 1)(data till Nov 30), which is 12.04 inches below normal. Across the San Juan Area, 2015 currently ranks as the 5th warmest and the 6th driest year (Fig 2) on record in nearly 117 years of record.

A final and complete version of 2015 Climate Review for Puerto Rico and the U.S. Virgin Islands as well as The 2014-15 Puerto Rico and U.S. Virgin Islands Preliminary Drought Report will be available January 2016 at www.shr.noaa.gov/sju

Mainland PR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
OBSERVED	3.58	4.15	2.71	3.33	4.15	2.39	2.35	6.00	5.92	7.47	6.31	---
NORMAL	3.41	2.66	2.94	4.85	7.21	4.68	5.13	6.22	8.12	8.30	6.88	---
%PON PER MONTH	105	156	92	69	58	51	46	96	73	90	92	---
ACCUMULATED	3.58	7.73	10.44	13.77	17.92	20.31	22.66	28.66	34.58	42.05	48.36	---
NORMAL	3.41	6.07	9.01	13.86	21.07	25.75	30.88	37.10	45.22	53.52	60.40	---
% PON ACCUMULATED	105	127	116	99	85	79	73	77	76	79	80	---

These data are preliminary and have not undergone final quality control by the National Centers for Environmental Information / NCEI/. Therefore, these data are subject to revision. Final and certified climate data can be accessed at www.ncdc.noaa.gov. Normal values based on active COOP stations.

Fig 1. Rainfall Accumulation across Puerto Rico (inches)

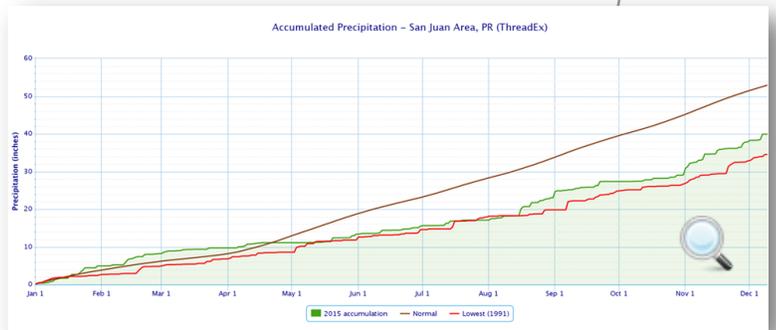


Fig 2. Rainfall Accumulation - San Juan Area



Fig 3. Rainfall Accumulation - Henry E. Rohlsen Airport in Saint Croix (black diamonds represent missing values)

IDSS- WFO SAN JUAN

By: Jose Alamo with contribution from Odalys Martínez

Heavy rain and flash flooding is an all too common event in Puerto Rico. You may have seen pictures of

roads completely washed out, flooded homes or even people kayaking on the flood waters in the heart of the city. Normally, this is what makes the news in Puerto Rico, rain and more rain with the occasional strong thunderstorm or tropical cyclone, which of course brings more rain. For most of the year, 2015 was different, especially for the eastern half of Puerto Rico.

This year we went through a doozy of a drought (to put it mildly), in fact, according to the U.S. Drought Monitor, 86.19% of Puerto Rico was at least “Abnormally Dry” and most of eastern Puerto Rico reached the level of “D3” or excessive drought, making it the first time Puerto Rico has had an area classified as “D3” by the U.S. Drought since started in 2000.

This drought had a terrible effect on the local economy, agriculture, plant and wildlife, and of course it affected some of the citizens of Puerto Rico in many ways.



In June 2015 a drought emergency was declared by the local government, a total of 13 local and federal agencies got together and activated the “Puerto Rico Drought Task Force”; the NWS San Juan Weather Forecast Office (WFO) played a key role in said Task Force.

Ever since the drought emergency was declared in Puerto Rico, Ms. Odalys Martínez (Lead Forecaster) and I, José J. Álamo (General Forecaster) put together weekly briefings which were electronically sent to the members of the Puerto Rico Drought Task Force as well as presented the briefings in person. In some cases, when either Odalys or I were unable to present in person, we could always count on some of our other staff members to go through the briefings and help us provide the Decision Support Services. The San Juan WFO has a very dedicated and committed staff, and it showed.

These briefings included an overview of the latest observed and expected weather, it also included maps with the latest 7 and 30-day estimated rainfall over Puerto Rico (using GIS) highlighting the areas and basins of most concern. There were also images of the rainfall deficit, images of model guidance and the precipitation outlooks from the Caribbean Regional Climate Forum (CariCOF), and the classifications from the U.S. Drought Monitor over the local area.



Many questions were always asked and answered, many things were discussed and talked about in detail regarding the local weather and decisions that needed to be made. After all, some of the decisions that needed to be made were rather tough, such as when it was decided that the water rationing would be every other day, or when it got to the point where the residents of a particular area would only have water service for two days out of an entire week.

The combination of the knowledge of the local climate and weather, GIS proficiency, good relationship with CariCOF, and the dedication and passion for serving others proved to be invaluable as we were able to provide detailed and easy to understand Decision Support Services. The whole experience benefitted everyone, the San Juan WFO staff members, the members of the other local and federal agencies, the local media and our customers. Everyone was well informed and on the same page, everyone knew what to expect, everyone was aware of the situation, everyone worked together. It also brought awareness to other important aspects such as the fact that not only mainland Puerto Rico was affected by this drought, but also the islands of Vieques and Culebra as well as the U.S. Virgin Islands. Until recently, the U.S. Drought Monitor did not provide classifications for the island of Culebra or the U.S. Virgin Islands. However, with the increased awareness of the drought situation and with the help and expertise of Althea Austin-Smith (Service Hydrologist), the U.S. Drought Monitor recently included the Island of Culebra into the monitor and the U.S. Virgin Islands will be included in 2016. This is just another way of showing how committed the San Juan WFO is to its community.



Former MIC Dr. Colón

By: Felix Castro



Photo courtesy Primera Hora

It was with great sadness that the San Juan Office of the National Weather Service announced the passing of Dr. José A Colón-Pérez in July 2015. Not only was Dr. Colón, the first Puerto Rican to obtain a PhD in Meteorology, he was also the first Puerto Rican to be named Meteorologist-in-Charge (MIC) or Director of the Weather Forecast Office San Juan; a position that he held for more than two decades - from 1964 until his retirement in 1986.

Dr. Colon was a noted author of the book "Climatología de Puerto Rico", as well as numerous articles and papers widely published in scientific journals. He was a Tropical Meteorology instructor and lecturer in India for many years, prior to working for the National Weather Service.

Former MIC Dr. Colón Passes
Away July 2015

Dr. Colon was born in Coamo, Puerto Rico in 1922 and he is survived by his wife and children.

The San Juan office of the National Weather Service extends condolences to the family, and offers up prayers for his eternal rest. Rest in peace, Dr. Colón, your work and dedication to save lives and property in Puerto Rico and the U.S. Virgin Islands continues to beat in the hearts and minds of the dedicated staff of the National Weather Service Forecast Office, San Juan. Your legacy lives on.

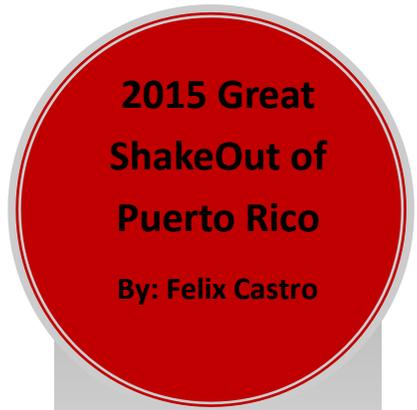


Photo courtesy Primera Hora

On October 15th at 10:15 am, WFO San Juan participated in the 2015 Great ShakeOut. In coordination with the Puerto Rico Seismic Network, the Federal and State Emergency Management Agencies and the Broadcasters Association activated the Emergency Alert System as part of the earthquake drill for Puerto Rico ShakeOut 2015.



Our Weather Forecast Office used a live message to activate the **NOAA Weather Radio** All Hazards and the Emergency Alert System. Over half a million people participated in this drill islandwide.



*"Agacharse,
Cubrirse y
Agarrarse"*

**Mr. Francisco Rexach-Padilla
Cooperative Weather Observer Receives the Holm Award**
By: Rosalina Vazquez-Torres

Each year, up to 25 cooperative observers, out of hundreds nominations, around the Nation, are honored with the John Campanius Holm Award for outstanding public service, in the provision of daily observations in support of the climate and weather programs of the National Weather Service.

Mr. Francisco Rexach-Padilla has been a very responsible and consistent cooperative weather observer since 1971. He started taking observations while working in Sugar Mill at Canóvanas. In 1971. He decided to take the rain gauge to his home, the present location, so he could keep taking the observations. Since then, he has been the cooperative observer for that area.

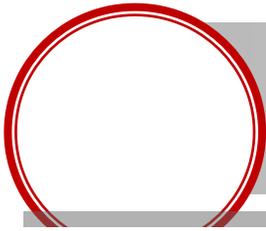
Our forecast office is honored to have him as part of our family. In spite of adversity, he has kept the responsibility of punctually reporting the observations on a daily basis. His reports are exemplary and his discipline is praiseworthy. Mr. Rexach-Padilla has been very diligent, attentive and communicative through all these years. Due to his humbleness and dedication, Mr. Rexach-Padilla was a recipient of the Holm award this year. Mr. Rexach has decided to retire as a cooperative weather observer this December. We are very thankful for his collaboration throughout the years.



*Recipient of a John
Campanius Holm
Award*

Roberto García, WFO San Juan MIC, and Rosalina Vázquez-Torres, HMT, performed a small ceremony at his home, to honor this humble and dedicated observer. His wife and daughter were part of this ceremony.

Thanks, Mr. Rexach for your commitment and voluntary dedication during these last 44 years!



WFO-SJU Marine Products: *An overview*

By: Carlos M. Anselmi-Molina

The Atlantic Swell season already started and beach enthusiasts need to be ready for it. The swell season, climatologically speaking, extends from November through March. This results in the arrival of northerly long period swells which may also lead to high breaking waves, rip currents, coastal flooding and erosion. These marine weather phenomenon can endanger life and properties along the coastlines. Your Weather Forecast Office-San Juan (WFO-SJU) issues several marine products to provide weather and public forecasts and advisories for the protection of life and property. Therefore, we want to briefly explain each one of the routine and non-routine marine products.

The main routine Marine Product is the Coastal Water Forecast (**CWF**), issued four times per day at WFO SJU around 4:30 and 10:30 am & pm. A tool for planning purposes to support and promote safe transportation across the local waters and passages of Puerto Rico and the U.S. Virgin Islands. Users will find in the body of the text product, a synopsis with concise information about the trend and movement of each major weather system. In addition, for each one of the Marine Zones (Figure 1) information about wave heights, wave periods, winds, weather conditions and headlines with tropical information (if there is a tropical cyclone threat) and with precautionary statements and advisories for small craft operators. Precautionary statements and headlines will be added in case one or either of

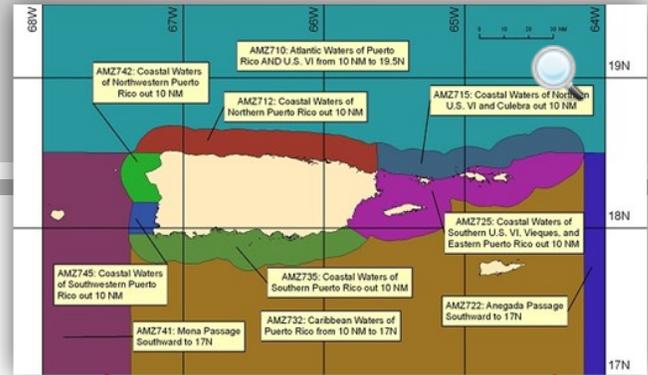


Figure 1. WFO-SJU Marine Zones.

the following conditions is expected across the local marine zones: 6 foot seas or winds between 18 and 21 knots. When those conditions are met, the mariners will see the following headline: "SMALL CRAFT SHOULD EXERCISE CAUTION". However, if seas are equal or greater than 7 foot and/or winds between 22 and 33 knots are expected they will see: "SMALL CRAFT ADVISORY IN EFFECT". Another routine product is the Surf Zone Forecast (**SRF**). It is used to provide valuable and life-saving information pertaining to hazards in the surf zone, to the beachfront community, the general public, and providers of beachfront safety services; such as lifeguards.



Figure 2. Rip Currents, the purple ink is showing the route of the rip current. If caught in a rip current, do not fight against the current, do not panic, swim sideway or parallel to the beach. If you can't escape, float and call or wave for assistance.

This product provides information about the rip currents risk, breaking wave heights and weather conditions. A rip current is a channel of water flowing quickly away from shore, which occurs more frequently in the surf zone and in the vicinity of manmade structures such as piers and jetties (Figure 2). The SRF is issued once per day around 4:30 am local time, but updated when necessary.

Last but not least is the Hazardous Weather Outlook (**HWO**); a daily routine product issued to provide the public, media and emergency managers with a one-stop-shop source of

Cont.

information regarding expected hazardous weather throughout the seven day forecast period. The user will find information about the following marine threats: coastal flooding, high surf and rip current risk.

The Non-Routine Products are issued to provide the marine community information regarding hazardous marine weather conditions which have the potential to threaten life or property. These text products are the Marine Weather Message (**MWW**), Marine Weather Statement (**MWS**), Special Marine Warning (**SMW**), Coastal Hazard Message (**CFW**) and Short Term Forecast (**NOW**). The MWW is used to provide users 12 to 48 hours advance notice of hazardous events. Our WFO issues a MWW when the conditions are favorable for small craft advisory (previously explained), tropical storm and hurricane watches and warnings to provide enough lead time for marine planning (see Table 1 for issuance criteria). The Marine Weather Statement is used to describe non-severe but potentially hazardous conditions and information not included in warnings or routine forecasts.

The **SMW** is a warning product issued to provide specific details for potentially hazardous conditions, usually of short duration, producing sustained winds or associated gusts of 34 knots or greater, hail or waterspouts. The **CFW** is issued to provide the public with detailed information about significant coastal events,

Marine Watch Product Name	Issuance Criteria
Gale Watch	Conditions are favorable for a gale force wind event to meet the Warning criteria of sustained winds or frequent gusts* of 34 knots to 47 knots in the next 12 to 60 hours.
Storm Watch	Conditions are favorable for a storm force wind event to meet Storm Warning criteria of sustained winds or frequent gusts* of 48 knots to 63 knots in the next 12 to 60 hours.
Hurricane Force Wind Watch	Conditions are favorable for a hurricane force wind event to meet or exceed Hurricane Force Wind Warning criteria of sustained winds or frequent gusts* of 64 knots or greater in the next 12 to 60 hours.
Heavy Freezing Spray Watch	Conditions are favorable for a heavy freezing spray event to meet local Heavy Freezing Spray Warning criteria in the next 12 to 60 hours.
Hazardous Seas Watch	Conditions are favorable for a hazardous seas event to meet or exceed Hazardous Seas Warning criteria in the next 12 to 60 hours.
Tropical Storm Watch	Conditions are possible for a tropical storm event within the specified area within 48 hours.
Hurricane Watch	Conditions are possible for a hurricane event within the specified area. Because hurricane preparedness activities become difficult once winds reach tropical storm force, the hurricane watch is typically issued 48 hours before the anticipated, initial onset of tropical storm force winds.
Typhoon Watch	Conditions are possible for a typhoon event within the specified area. Because typhoon preparedness activities become difficult once winds reach tropical storm force, the typhoon watch is typically issued 48 hours before the anticipated, initial onset of tropical storm force winds.

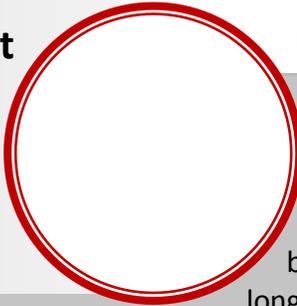
Table 1 Marine Weather Watch Product Table.
*Frequent Gusts: For 2 or more hours during a 12 hour forecast period

which are: high risk of rip current, high surf conditions and coastal flood (**CF**). The condition needed to issue a High Surf Advisory is breaking wave height equal or greater than 10 feet or a High Surf Warning for breaking waves 18 feet or higher. The High Surf Warning is headlined in the **SRF**. The **CF Watch** is issued 12 to 48 hours in advance, for events that will have significant impacts, and is updated at least once every 12 hours, or when there is any change in the expected conditions. On the other hand, **CF Warnings** are issued when coastal flooding represents a serious threat in the next 12 or 24 hours. The **CF Advisory** is issued when minor flooding, such as minor tidal overflow is occurring or is possible within 12 hours. Warnings and Advisories are updated at least once every 6 to 8 hours until the event ends. The Short Term Forecast, or NOWcast, is issued to provide details of events occurring in the first 6 hours of the forecast, but this does not replace any of the previous products.

We hope this overview helps you understand how your WFO-SJU disseminates marine weather information. We encourage reporting any severe marine weather to the National Weather Service (NWS), U.S. Coast Guard or the nearest Law Enforcement Agency. These actions can save lives during a beach or family day, which is why we are encouraging everyone to “Be a Force of Nature by knowing your risk, taking action and being an example in your community”.

New and Improved Beach Forecast for Puerto Rico and the U.S. Virgin Islands

By: Ernesto Rodriguez

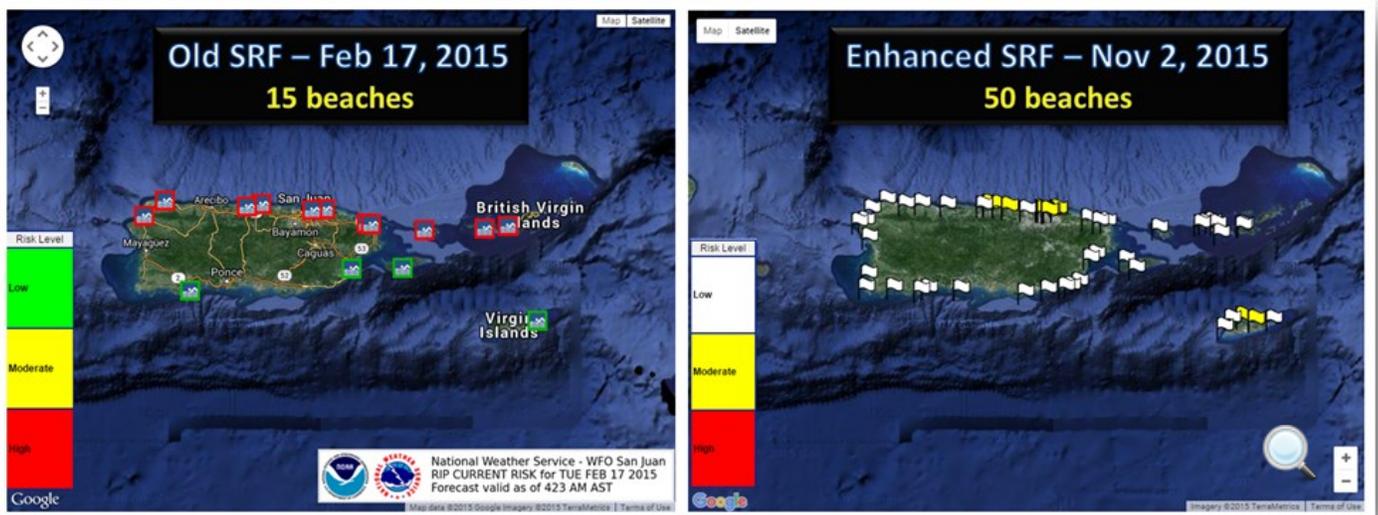


The Swell Season started on November 1st. Long period swells will continue to affect the regional waters from time to time through at least April. Large breaking waves, associated with these long period swells, generate life-threatening rip currents.

In order to achieve our mission of saving lives and also to fulfill our users' needs, the National Weather Service Forecast Office in San Juan has increased the number of forecast locations in the Surf Zone Forecast (SRF) from 15 to 50 beaches. This enhanced Surf Zone Forecast will bring additional information to residents and tourists in Puerto Rico and the U.S. Virgin Islands, with the aim of reducing the rescues and drownings on our beaches.

The Surf Zone Forecast provides valuable and life-saving information, pertaining to hazards in the surf zone, to the beachfront community, including the general public and providers of beachfront safety services; such as lifeguards and emergency managers. The SRF product includes the following information: beach name, breaking wave height, rip current risk and the forecast of wind, weather and temperature. Rip current risk in the SRF uses 3 qualifiers: low risk, moderate risk and high risk.

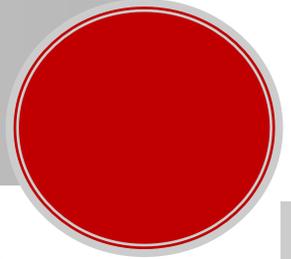
The Surf Zone Forecast is available daily at: <http://go.usa.gov/3eKHe>





What does a Tsunami Focal Point do?

By: Walter L. Snell



It has been decades since a tsunami has threatened Puerto Rico or the U.S. Virgin Islands. So, what does a Weather Forecast Office tsunami focal point do? First, the tsunami focal point works with his or her Regional Focal Point to craft directives specific for their particular station. The local office tsunami focal point works through the Regional Focal point (ours is in Fort Worth, Texas) in concert with the directors of the Tsunami Warning Centers, and the representatives of our national program: The National Tsunami Hazard Mitigation Program (NTHMP) as well as International agencies such as the Intergovernmental Coordination Group for the Tsunami and other Coastal Hazards Warning System for the Caribbean and Adjacent Regions (ICG/CARIBE EWS), and the NOAA Caribbean Tsunami Center.

Together these groups perform hazard assessments, implement and monitor detection systems, create templates for the products to be sent, such as tsunami warnings, watches and advisories. They also design and map out how those products will be disseminated. There are many networks that carry tsunami information. NOAA Weather Radio (NWR), National Warning

System (NAWAS), internet websites, automatic fax transmissions, e-mail and telephone are some of them. They also work with issues regarding preparedness, readiness and resilience.

A tsunami is a very low frequency event but the impact can range from high to catastrophic. Also, because earthquakes and volcanic eruptions are not yet “forecastable”, tsunamis are events that require a rapid response for which there is little time to prepare once the event occurs and is in progress.

The tsunami focal point is responsible to keep the staff of the National Weather Service ready to execute at a moment’s notice, the procedures we will use to keep the public informed of tsunamis in progress, warnings and call-to-actions. We also relay evacuation information issued by the Emergency Management Agencies of Puerto Rico and the U.S. Virgin Islands, and the steps necessary to keep staff and equipment safe in case a tsunami threatens our office. This includes the creation of annual refresher courses, drills or practical exercises and the maintenance of an operations manual and sections in what is called the Emergency Station Duty Manual.

The tsunami focal point is also responsible to coordinate the public preparedness program that our office runs for its local area. This is usually done on a dedicated week of the year and will happen in March of 2016. The tsunami focal point also works with the Warning Coordination Meteorologist (WCM) on station, to coordinate actions or anything that needs to be done for the Tsunami Ready Program.

And lastly the tsunami focal point along with the WCM keeps track of the changes in the tsunami program of the office and relays changes in directives and partners to the staff and management. A good example of this is the upcoming change to the Tsunami Warning Center that will produce our warnings and advisories. Now planned for March of 2016, the Pacific Tsunami Warning Center in Ewa Beach, Hawaii will take over the responsibilities currently carried by the National Tsunami Center in Anchorage, Alaska. This will unify the warning responsibilities of the entire Caribbean under one tsunami warning office. And this will be where everyone will need to go for up-to-the-minute tsunami information for Puerto Rico and the U.S. Virgin Islands.

Tropical Storm Erika

By: Members of WFO San Juan Staff



Tropical Storm Erika late on August 24, 2015 (NASA/EOSDIS).

On Thursday morning, August 27th, Erika had arrived in the Leeward Islands with the center passing between Guadeloupe and Antigua. A NOAA Hurricane Hunter aircraft flying through Erika confirmed that it had strengthened a little with sustained winds of 50 mph but it was encountering wind shear. Consensus of models was for it to strengthen and move northwest, except the GFS and ECMWF still showed it weakening and remaining south of the expected track. The NHC forecast

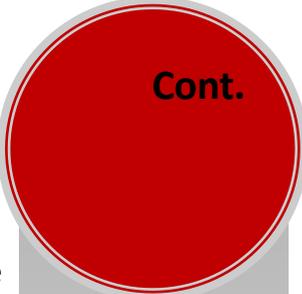
was for Erika to eventually move west-northwest and over Saint Thomas by that evening. A tropical storm watch for the U.S. Virgin Islands and Puerto Rico was issued at 1100 pm AST on Tuesday, August 25th and then upgraded to a tropical storm warning the following morning at 500 am AST.

Due to the shear Erika was experiencing, most of the rain was east of the center which followed onto the Leeward Islands later on Thursday the 27th, when 12.64 inches of rain was recorded on Dominica. At least 20 deaths occurred there according to NBCNews (<http://www.nbcnews.com/news/weather/tropical-storm-erika-deluge-florida-flooding-high-winds-n418631>). The following image shows water rushing down a street in Dominica on this afternoon. A flash flood watch was issued for the U.S. Virgin Islands and Puerto Rico for 4 to 8 inches of rainfall with the risk of 12 inches locally.



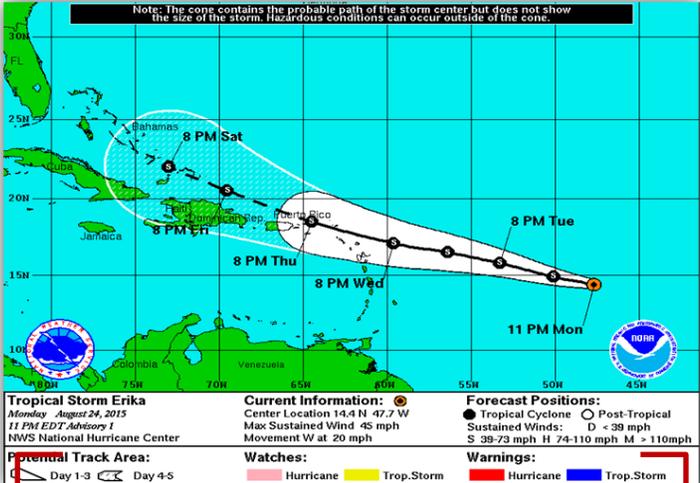
Flash flooding on Dominica (<http://mashable.com/2015/08/27/tropical-storm-erika-dominica/>).

The convective activity trailed well towards the east of the center. Defining a center was difficult for this stage of strongly sheared Erika, making a forecast equally troublesome.

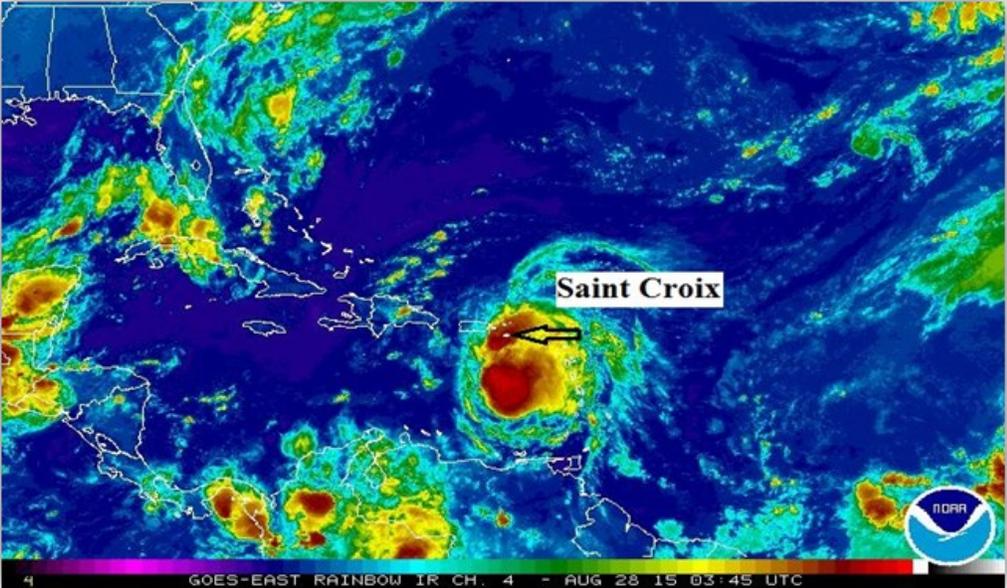


The center of Erika became even more difficult to locate that evening, even as the Hurricane Hunters were flying in the area and was challenging for them to find a center. Swirls were believed to be rotating within a larger gyre (NHC discussion). General west-northwest movement for the center was still expected. Convection

flared north of the main convective area during the evening. The thunderstorms passed over the U.S. Virgin Islands and contributed to some of the highest winds experienced from Erika. The recorded gusts included 48 mph at Cyril E. King Airport on Saint Thomas, with 62 mph 3 hours earlier at Henry E. Rohlson Airport and 66 mph at Sandy Point NWR on Saint Croix. Many wind gusts exceeding 40 mph were also recorded later on Puerto Rico during the night .

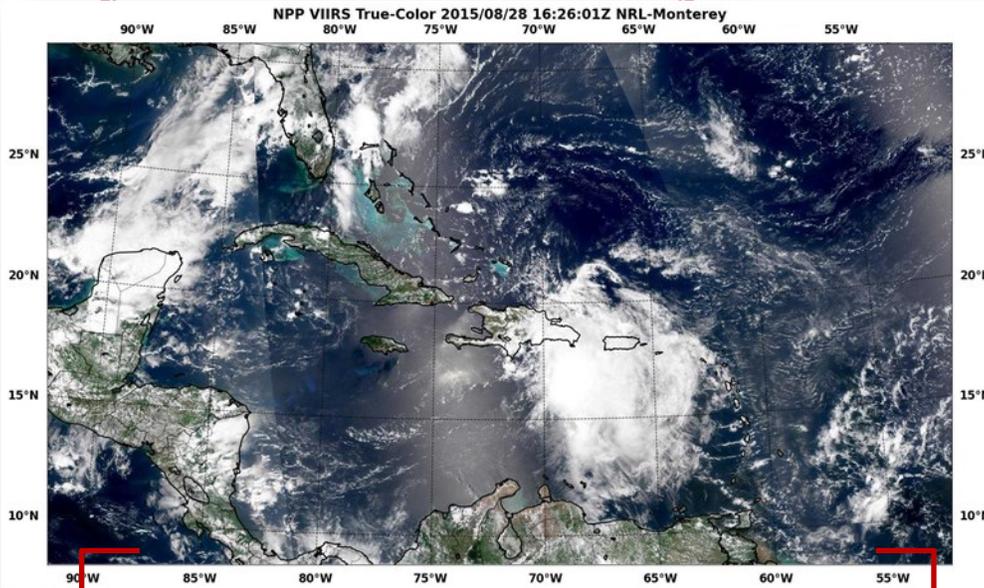


Tropical Storm Erika, Advisory 1 (NHC), 1100 pm AST on August 24, 2015.
In the initial official forecast advisory of Erika, sustained winds were set at 45 mph with gusts to 50 mph.



Infra-red satellite image, August 27 at 1145 pm AST, showing convection flaring up over the U.S. Virgin Islands.

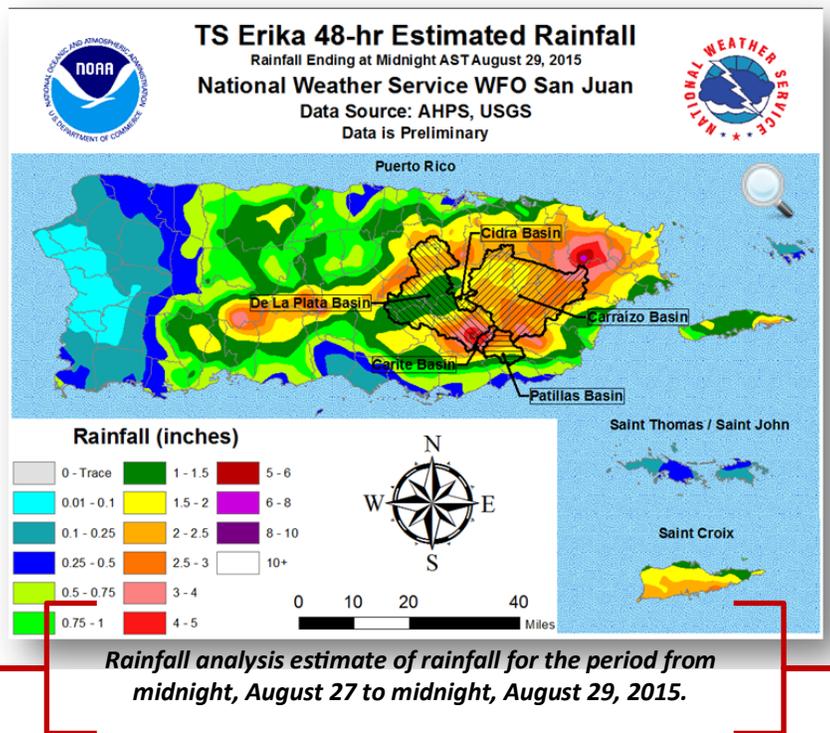
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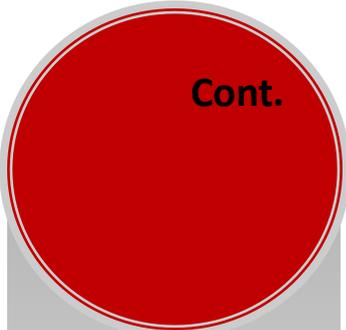
Erika passing southwest of Puerto Rico in the Mona Passage, continuing westward on August 28th at 1226 pm AST.

The highest overall winds were noted on and near St. Croix, mainly as the convection temporarily increased on the north side of the storm. Tropical storm force winds (sustained 39 mph or more) were recorded on all of the major islands for the U.S. Virgin Islands and Puerto Rico, with the strongest across southern portions. In most instances the wind remained at storm force for no more than an hour or two.

Beneficial rainfall with no significant flooding was noted across much of the area including drought stricken areas of eastern and central parts of Puerto Rico, Vieques, and over Saint Croix. An analysis of rainfall amounts showed average values of 2 to 3 inches over De La Plata, Carite, Cidra, Carraizo, and Patillas basins, helping replenish reservoirs there. It was less than the 4 to 8 inches expected as the heavier rains stayed farther south in the Caribbean Sea as Erika refused to move northwest. No river flooding was reported partly due to dry soils that were across the region. While Erika was not expected to be a “drought breaker” it was expected to help. Not as much widespread heavy rain occurred during the storm as was expected, however levels of water in reservoirs on Puerto Rico did begin to recover.



Even heavier rains were a “near miss” with larger and more widespread thunderstorms occurring towards the south over the Caribbean Sea. Winds on Saint Croix caused downed light poles and power outages to approximately 11,000 customers from downed power lines. There were also downed trees and limbs.



Cont.



Broken light pole at Turners Hole and Grass Point on Route #60, St. Croix

Downed trees at Royal Furniture, Centerline Road on Route #70, St. Croix.



Damage to agriculture in Puerto Rico



Broken tree limbs on Christiansted Cemetery wall, St. Croix.

Most damage from Erika in Puerto Rico occurred in the agricultural sector, with more than \$17 million mainly due to losses of plantains, bananas, and coffee. Otherwise the reported wind damage was relatively minor and similar to damage on St. Croix, mainly causing downed trees and power lines from high winds across the islands.

⇒ *Here is WFO San Juan’s complete [“Erika” Report.](#)*

⇒ *Here is the National Hurricane Center’s [“Erika” Review.](#)*

Break the Hydro-Illogical Cycle

By: Althea Austin-Smith, Service Hydrologist

You cannot work with hydrologists and climatologists without at some point “running” into the term “Hydro-Illogical Cycle”. You forget about this funny little cartoon depiction until another drought is imminent and that cartoon pops up again to remind us of the nature of humans.

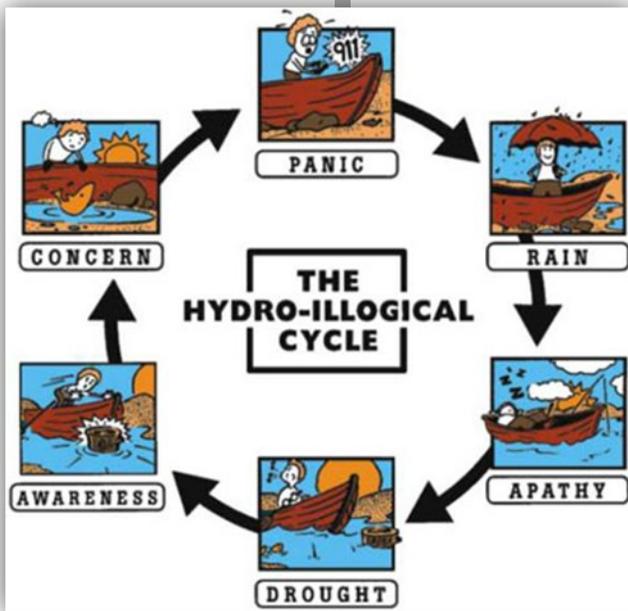


Image courtesy US Drought Monitor

The National Drought Mitigation Center says it clearly when it states, *“When drought ends, people are often glad to forget about it and to resume business as usual. Although people need to appreciate the return to normal, they also need to stop and learn from their experiences. Climatology shows that drought will happen again. What can people learn from one drought that will ease the pain of the next?”*

Illustration by Robert Zimmerman

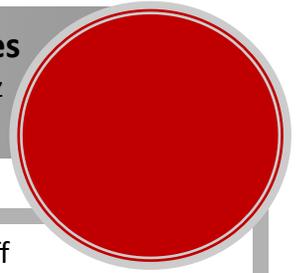
I am sure the many of the residents of Puerto Rico and the U.S. Virgin Islands believe that water once again flowing out of their pipe and cisterns “on command” means that the region is no longer in drought status, and while that is true for a percentage of the region, drought conditions still persist across much of these islands, and in Puerto Rico, the drier areas contain the Carriazo and De La Plata reservoirs and the south coastal aquifers.

Here are some water conservation tips from the Active.com:

1. Turn the water off when you brush your teeth.
2. Take shorter showers.
3. Reuse your towels.
4. Keep a pitcher of water in the refrigerator instead of running the tap till the water's cold.
5. After exercise, use the remaining water in your water bottle to water your plants or pour it in the dog's bowl.
6. Rinse fruits and vegetables in a bowl then pour the water on your lawn or plants.
7. Run your clothes washer and dishwasher only when full.
8. Fix leaky toilets. Put food coloring in your toilet tank. If it seeps into the toilet bowl without flushing, you have a leak.
9. Upgrade older toilets with water-efficient models.
10. Use efficient, water conserving shower

A Closer Look Inside Our Office- WFO San Juan Employees

By: Xiomara Cruz



Towards the end of 2014 and throughout 2015 our staff has witnessed how many employees come and go within our workforce. We are very proud of all of our former employees and the paths they have chosen for their professional lives, although at times, saying farewell isn't the easiest task, but we are extremely content to have been part of each and every one of their lives and wish them all the best.

Promotions/Retirements/New Hires

Krizia Negrón

Promoted to General Forecaster in Key West FL on 11/03/2014

Luis Rosa

Selected as Lead Forecaster at Sterling VA on 05/03/2015

Gary Votaw

SOO Retired on 10/03/2015

Althea Austin-Smith

Selected as the Senior Hydro-Meteorological Analysis and Support (HAS) Forecaster for the West Gulf River Forecast Center in Fort Worth, TX

On another note, we have also had many employees promoted locally to other positions and new employees recently selected to form part of the WFO San Juan Office. Needless to say, we are more than honored to have such successful professionals among us.

David Sanchez

Promoted to General Forecaster on 9/21/2014

Carlos Anselmi

Promoted to General Forecaster on 9/21/2014

Ernesto Rodriguez

Selected as Lead Forecaster on 11/29/2015

Oswald Constable

Selected as Information Technology Officer (ITO) on 6/29/2015

Ian Pagan-Colon

Selected as Meteorology Intern on 11/02/2015

Awards/Special Recognitions

This year various employees received an Isaac M. Cline Award. The **Isaac M. Cline Awards** recognize the excellence of NWS employees in many areas of service. The **awards** are named in honor of one of the most recognized employees in weather service history. Dr. **Cline** made numerous contributions to the mission of the U.S. Weather Bureau. The award has three levels of recognition. Recipients of Cline Awards for their echelon may be considered for the Cline Award in the same category at the next level. The award echelons are: Local, Regional/Office, and National.

2015 Regional Cline Award

Ernesto Rodriguez



Local Cline Awards

Team Work

Carlos Anselmi,
David Sanchez

HMT/Met-Intern Unit

Cotto, J. Estrada,
R. Vazquez

ENSO Translations
(Collaboration)

C Anselmi, J. Alamo, F.
Castro, J. Figueroa,
R. Vazquez

Climate Services

J. Alamo - GIS Precipitation
Maps, A. Austin-Smith -
Hydrology Support,
O. Martinez - Leader

Meteorology

(Collaboration, research,
applications to operations,
excellence)

Ernesto Rodriguez

Administrative Support

Xiomara Cruz

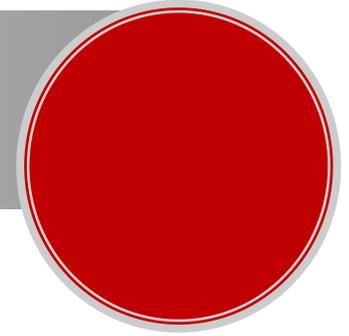
Collaboration, Awareness,
support, and helping to
achieve mission

WFO San Juan

Felix Castro, one of our Lead Forecasters was also selected to participate in the 2016 BLAST (Building Leaders for A Solid Tomorrow) Class. The Southern Region has established a program to invest in, and develop a pool of potential leaders. This program is formulated around the interest of employees to improve their leadership talents. The foundation of BLAST is built around current field and regional leaders sharing progressive leadership knowledge and concepts with BLAST participants.



NWS Learn While Having FUN!



USGS: [Earthquake for kids](#)

Weather Wiz Kids: [Tsunami Education for kids](#)

NWS: [Rip Current information for kids and teens](#)

UCAR: [El Nino and La Nina for kids](#)

WORD SEARCH

- ADVISORY MWS
- CFW MWW
- COASTAL NOW
- CURRENTS RIPCURRENT
- CWF SMW
- HAZARDOUS SRF
- HWO SURFZONE
- MARINE SWELL

Z Z A A I V M J I M V K M B U
 S M V A D A O L P X I S F W I
 M Z U B R V G F F E R U D Z S
 W J Z I T U I R L W W O J K C
 Q D N W C N J S Y W C D X F L
 L E L G S W E E O M M R W F E
 S W G A M O N R D R H A A H C
 G X S E O O Q J R O Y Z H V Z
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 S G Q D U N S U J E H S Y R T
 W O N O Z H H L T W E K L K A
 C U R R E N T S D A K M A C L

Our 6th Edition Newsletter Team

Althea Austin-Smith, Service Hydrologist
Xiomara Cruz, Administrative Support Assistant
Odalys Martínez, Lead Forecaster

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