Climatological Summary

2017

&

~ Hurricane Season Review ~

St. Maarten experienced catastrophic damage during the passage of Hurricane Irma on September 6th 2017.

METEOROLOGICAL DEPARTMENT ST. MAARTEN

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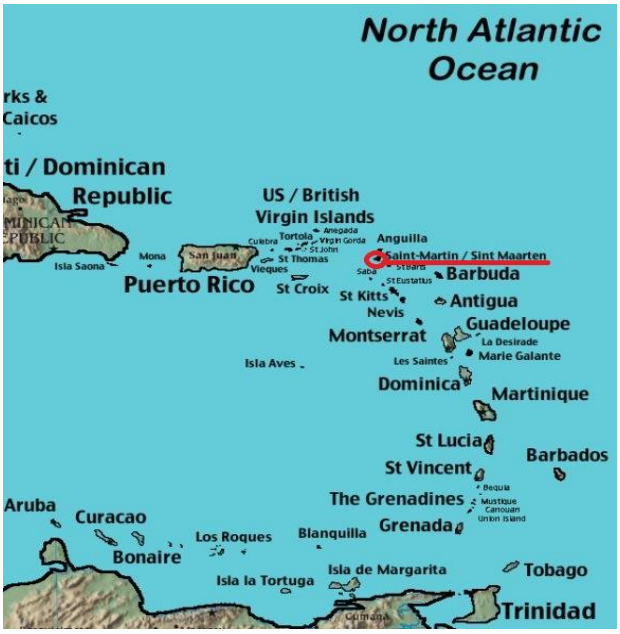
Introduction

The country of St Maarten is located in the extreme northeast section of the Eastern Caribbean. It is part of an island which is approximately 37 square miles shared by two countries: French St. Martin to the north and Dutch St. Maarten to the south, which occupies 16 square miles. The island is relatively flat but has a central range with various peaks. Pic Paradise on the French side is the highest point (1400ft) on the island.



The Princess Juliana International Airport (PJIA) is located on the south western strip of St. Maarten at latitude 18.02º north and longitude 63.06º west.

ISLAND CLIMATOLOGY

Based on records (1981-2010) at Princess Juliana International Airport (PJIA), the normal annual rainfall is approximately 1170mm or 46 inches. Like many other Caribbean islands, the driest months are from January to June while the wettest months are from July to November. December, May and June are considered to be transition-months since they can be either dry or wet.

The driest month on record is March while the wettest is November. On average, there are about 145 rain days a year with April having the least (8 days) and November the most (15 days). Rainfall during December to April is mainly as a result of old frontal boundaries or shear lines, dipping southwards from the northeast coast of the United States while the rainfall during May and June are often associated with upper level trough interactions and from July onwards, rainfall is mostly from tropical cyclones.

The normal daily average temperature is 27 °C or 81 °F, the normal maximum and minimum temperatures are 32 °C and 23 °C respectively. August and September are the warmest months while February is the coolest.

On average St. Maarten receives approximately 250 hours of sunshine monthly and 8 to 10 hours daily. The months with the most sunshine hours are March and April and the least hours are recorded in November.

The Meteorological Department of St. Maarten (MDS) — most commonly referred to as the Met. Office — is a scientific organization that operates 24 hours a day, all year round, monitoring and continuously keeping watch of the weather conditions across the island

Our aim is to protect life and property, by providing reliable meteorological services in support of the social and economic development of the country through monitoring and predicting weather & climate, using up-to-date technology to enable optimal utilization of resources. We issue appropriate weather forecasts and warnings for St. Maarten, its adjacent waters and air space.

The vision of the Meteorological Department of St. Maarten is to achieve excellence in meteorological science, and the provision of quality and accurate weather and climate services.


OUR TASKS
Produce Monthly Climate Outlooks & bulletins
Maintain National, Regional & International Standards/ Policies
Compile & Analyze Meteorological & Climate Data
Monitor weather conditions 24 hours daily/ all year round
Observe, Record & Transmit Surface/ Upper Air Data
Produce Aviation Forecasts & Flight Folders
Produce Public & Marine weather forecasts
Issue Special reports/warnings for tropical storms & other hazardous weather phenomena.

2017 Hurricane Season

This hurricane season can be described as an extremely active one as predicted by the National Hurricane Center (NHC). The 2017 season produced seventeen (17) named storms of which ten (10) became hurricanes with six (6) being major hurricanes (category 3 or higher). This included the first major hurricane to hit St. Maarten in twenty-two (22) years.

2017, was the seventh most active season in the historical record dating to 1851 and was the most active season since 2005. There are various views on the reason for increased activity this year, whether it is the notion of climate change or just a geological cycle we must be cognizant of the facts that we are located in path of hurricanes and the adjustments must be made to protect life and property.

The impacts of Irma and Maria on St. Maarten and the Caribbean region, will remain vivid in our minds however, we cannot be deterred. We need to look at those events and discuss how we can mitigate the impacts of these storms/hurricanes in the future.

As this season has ended officially we must be reminded firstly, that adverse weather conditions are possible even outside of the hurricane season and secondly, in a couple months the 2018 hurricane season will be here. Therefore, preparedness is the key and it is never too early.

Cyclone Statistics for 2017 Season.

	NORMAL	NOAA'S PREDICTION	ACTUAL
NAMED STORMS	12	14-19	17
HURRICANES	6	5-9	10
MAJOR HURRICANES	3	2-5	6

Local Effects

St. Maarten was significantly impact by the devastation of hurricane Irma. Hurricane Irma approached St. Maarten very early on Wednesday September 6th 2017. At 11pm September 5th Irma was located at Latitude 17.4 N… Longitude 61.1 W or about 138 miles southeast of St. Maarten. Maximum sustained winds were 185 mph …295 KM/H and was moving toward WNW or…285 degrees at 15 mph…24 KM/H. Minimum Central Pressure was 916 mb …27.05 inches.

Storm force gusts were being recorded at Princess Juliana near midnight (37 kts…43mph).

Wind gusts continued to increase to 45kts/52 mph about 1:00 am while sustained winds remained under 30 kts….35 mph. with rain.

Communication with our SUTRON Automatic Weather Station (AWS) went down at 2:35 am. The VIASALA system was being used. At this time sustained winds had reached storm force (35 kts…40 mph) with gusts of 49 kts…56 mph with moderate rain. A few minutes after 4:00 am sustained winds increased to 49 kts…56 mph while gusts were about 70 kts…81 mph. At 5 am The center of extremely dangerous hurricane Irma was only 35 miles ESE of St. Maarten and things began going downhill at the Met. Service. Irma was packing winds of 185 mph and was moving near 16mph. A direct hit was imminent.

A few minutes after 5 am, Forecasters/ Observers were standing in pools of water and equipment began to shut down the building was compromised therefore staff was in crisis mood. The eye arrived after 7 am. The second half of the hurricane began about 45 to 60 minutes later and everything was over after 10 am.

According to media reports, total damage on the island was estimated to be around 1.5 billion USD, on the French side of the island with 90% of the structures damaged, 60% of those being considered uninhabitable. Irma's intense winds heavily damaged the marina and ripped trees out of the ground. Total losses were estimated to be near 1 billion USD on the Dutch side of the island. Irma caused severe damage to the airport and damaged or destroyed about 70% of the structures.

According to the Office of Disaster Management on the Dutch Side there were two (2) deaths related to the hurricane.

Summary

Below is a recap of the 2017 Atlantic Hurricane Season and associated effects on St. Maarten.

	Storm Name	Active Dates	Highest Category	Min. Pressure (mbar)	Max. Winds		Local Effects	Observed Rainfall (mm)	Observed Winds Gusts	
					Kt.	Mph			Kt.	Mph
1	Arlene	Apr. 19-21	TS	990	45	52	None	-	-	-
2	Bret	Jun. 19-20	TS	1007	45	52	None	-	-	-
3	Cindy	Jun. 20-23	TS	991	50	58	None	-	-	-
	TD4	Jul. 5-7	TD	1009	25	32	None	-	-	-
4	Don	Jul. 17-18	TS	1005	45	52	None	-	-	-
5	Emily	Jul. 31-Aug.1	TS	1001	50	58	None	-	-	-
6	Franklin	Aug. 7-10	Hurricane Cat. 1	981	75	86	None	-	-	-
7	Gert	Aug. 13-17	Hurricane Cat. 2	962	95	109	None	-	-	-
8	Harvey	Aug.17 –Sept. 1	MH Cat. 4	937	115	132	None	25.4	34	-
9	Irma	Aug.30-Sept.12	MH Cat 5	914	155	178	Catastrophic	N.A	70	81
10	Jose	Sept. 5–22	MH Cat 4	938	135	155	None	-	-	-
11	Katia	Sept. 5-9	Hurricane Cat. 2	972	90	104	None	-	-	-
12	Lee	Sept. 15-30	Major Hurricane Cat 3	962	100	115	None	-	-	-
13	Maria	Sept.16- 30	MH Cat. 5	908	150	173	Minor	N.A	-	-
14	Nate	Oct. 4-8	Hurricane Cat. 1	981	80	92	None	-	-	-
15	Ophelia	Oct.9-15	MH Cat.	NA	NA	NA	None	-	-	-
16	Philippe	Oct. 28-29	TS	1000	35	40	None	-	-	-
17	Rina	Nov. 6-9	TS	991	50	58	None	-	-	-

Overview of the Storms formed in the 2017 Hurricane Season

Tropical Storm Arlene (Apr. 19th to 21st)

Tropical Storm Arlene was only the second tropical storm on record to form in the month of April (Ana in 2003 being the first). Arlene was short lived and meandered over the central Atlantic Ocean.

Tropical Storm Bret (June 19th to 20th)

Bret formed southeast of Trinidad and affected portions of the southern Windward Islands and the Peninsula of Venezuela before dissipating over the southeastern Caribbean Sea.

Tropical Storm Cindy (Jun.20th to 23rd)

Cindy was a large, sprawling tropical storm that formed in the Gulf of Mexico and made landfall just east of the Louisiana-Texas border. Cindy produced heavy rainfall and river flooding, as well as some coastal flooding, over the northern Gulf coastal region. The storm caused one direct death in Alabama.

Tropical Depression Four (July 5th to 7th)

Tropical Depression Four was a short-lived cyclone which formed from a tropical wave east of the Lesser Antilles and dissipated before it reached those islands.

Tropical Storm Don (July 17th to 18th)

Don was the third short-lived tropical cyclone to form in the deep Tropics early in the 2017 Atlantic hurricane season. It reached an intensity of 45 kt before decaying into a wave as it approached the Windward Islands.

Tropical storm Emily (July 31st to August 1st)

Emily was a short-lived tropical storm that developed unexpectedly near Florida and made landfall just south of Tampa Bay.

Hurricane Franklin (August 6th to 10th)

Franklin made landfall on the east coast of the Yucatan Peninsula of Mexico as a tropical storm, and then made a second landfall in eastern mainland Mexico as a Category 1 hurricane.

Hurricane Gert (August 12th to 17th)

Gert was a high-latitude, category 2 hurricane (on the Saffir-Simpson Hurricane Wind Scale) that remained over the open waters of the western Atlantic Ocean, passing about midway between Bermuda and the southeastern United States.

Hurricane Harvey (August 17th to September 1st)

Harvey started as a typical weak August tropical storm that affected the Lesser Antilles (Barbados) and dissipated over the central Caribbean Sea. However, after re-forming over the Bay of Campeche, Harvey rapidly intensified into a category 4 hurricane before making landfall along the Texas coast. The storm then stalled, with its center over or near the Texas coast for four days, dropping historic amounts of rainfall of more than 60 inches over southeastern Texas. These rains caused catastrophic flooding, and Harvey is the second-most costly hurricane in U.S. history, after accounting for inflation, behind only Katrina (2005). At least 68 people died from the direct effects of the storm in Texas, the largest number of direct deaths from a tropical cyclone in that state since 1919.

Tropical Storm Irma (August 30th to September 12th)

Irma was a long-lived Cape Verde hurricane that reached category 5 intensity on the Saffir-Simpson Hurricane Wind Scale. The catastrophic hurricane made seven landfalls, four of which occurred as a category 5 hurricane across the northern Caribbean Islands. Irma made landfall as a category 4 hurricane in the Florida Keys and struck southwestern Florida at category 3 intensity. Irma caused widespread devastation across the affected areas and was one of the strongest and costliest hurricanes on record in the Atlantic basin.

Tropical Storm Jose (September 5th to 22nd)

Jose was a classic, long-lived Cape Verde hurricane that reached category 4 strength east of the Leeward Islands but fortunately spared the Irma-ravaged islands of the northeastern Caribbean Sea. Jose made a clockwise loop over the southwestern Atlantic, and it then meandered off the coast of New England as a tropical storm for several days. Jose produced tropical-storm-force winds, as well as minor coastal flooding, along portions of the mid-Atlantic and southern New England coastline.

Tropical Storm Katia (September 5th to 9th)

Katia was a category 2 hurricane (on the Saffir-Simpson Hurricane Wind Scale) over the extreme southwestern Gulf of Mexico. It weakened and made landfall near Mexico, as a category 1 hurricane.

Tropical Storm Lee (September 14th to 30th)

Lee was a long-lived cyclone that began as a weak storm over the far eastern tropical Atlantic. It dissipated without much fanfare several days after formation, but regenerated over the subtropical Atlantic as a result of a trough interaction. After becoming trapped under a mid-latitude ridge and performing a sharp cusp, the small storm turned west southwestward, and intensified to a category 3 hurricane before recurving well east of Bermuda.

Major Hurricane Maria (September 16th to 30th)

Maria was a very severe Cape Verde Hurricane that ravaged the island of Dominica at category 5 (on the Saffir-Simpson Hurricane Wind Scale) intensity, and later devastated Puerto Rico as a high-end category 4 hurricane. It also inflicted serious damage on some of the other islands of the northeastern Caribbean Sea. Maria is the third costliest hurricane in United States history.

Hurricane Nate (October 4th to 8th)

Nate crossed northeastern Nicaragua and eastern Honduras as a tropical storm, then made landfall on the northern Gulf Coast as a Category 1 hurricane on the Saffir Simpson Hurricane Wind Scale. Its rains caused significant impacts in Central America.

Hurricane Ophelia (October 9th to 15th)

Ophelia formed over the central Atlantic Ocean on October 9th and became a hurricane two days later. It remained over open water and dissipated on October 15th.

Tropical Storm Philippe (October 28th to 29th)

Philippe was a short-lived tropical storm that in combination with a non-tropical weather system brought gusty winds and locally heavy rainfall to the Cayman Islands, Cuba, portions of southern Florida, and the central and northwestern Bahamas.

Tropical Storm Rina (November 5th to 9th)

Rina was a relatively short-lived late-season tropical storm that moved northward over the central Atlantic Ocean and did not affect land.

2017Atlantic Hurricane Season Storm Track

Map compliments "The Weather Channel"

2017 Climate Data

Rainfall

The total rainfall recorded at the Princess Juliana International Airport, for the year 2017 was **1015.1 mm or 40.0 inches**. Due to the damage caused by hurricane Irma rainfall for the month of September was not available. The normal annual rainfall ranges from about 1026 mm – 1274 mm/40 – 50 inches (1981–2010). It can be concluded that this year's total rainfall within the normal range.

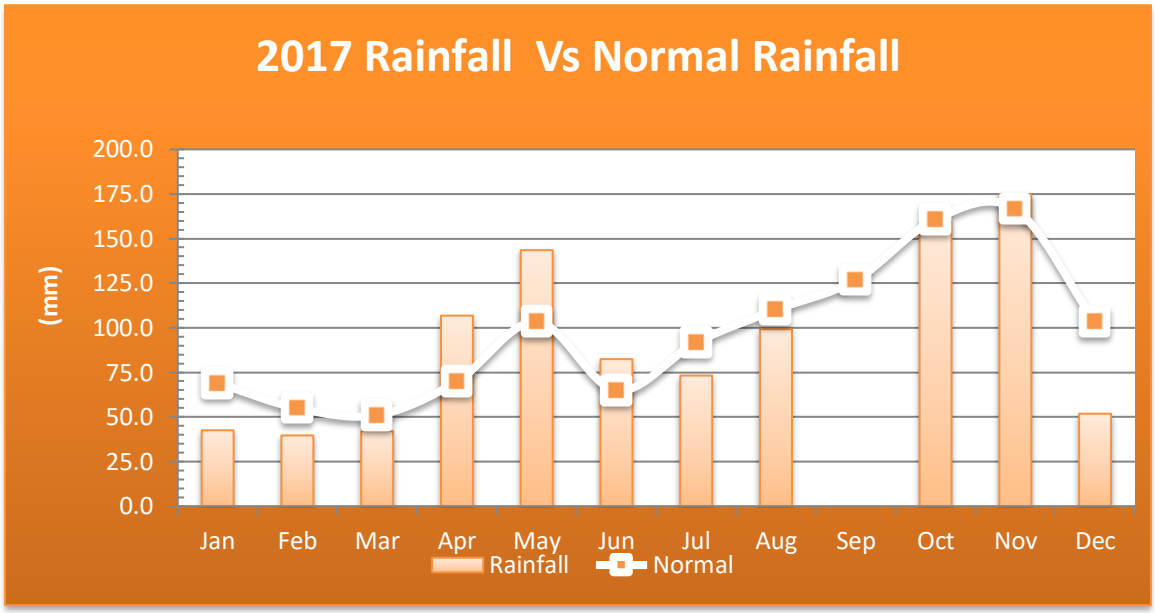


Fig. 1

November was the *wettest month* of the year, with a total of 174.8 mm or 6.9 inches; while the *driest month* was **February** with 39.6 mm or 1.6 inches. The *wettest day* of the year was **April 16th**, when 85.8 mm or 3.4 inches was recorded as a result of instability associated with a frontal boundary across the area.

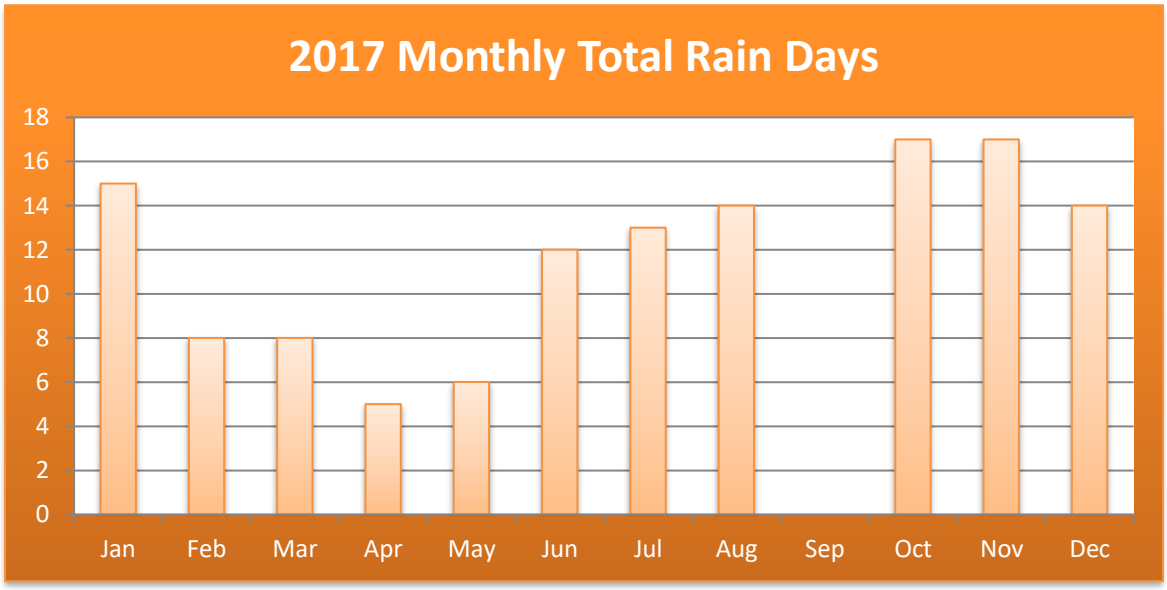
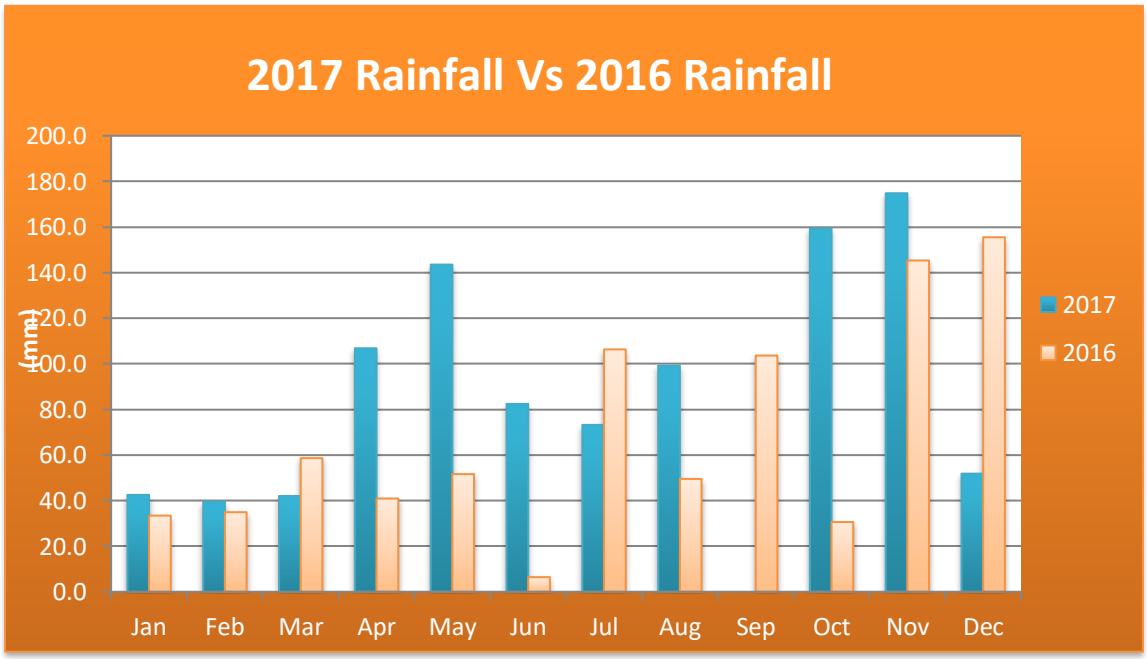


Fig. 2

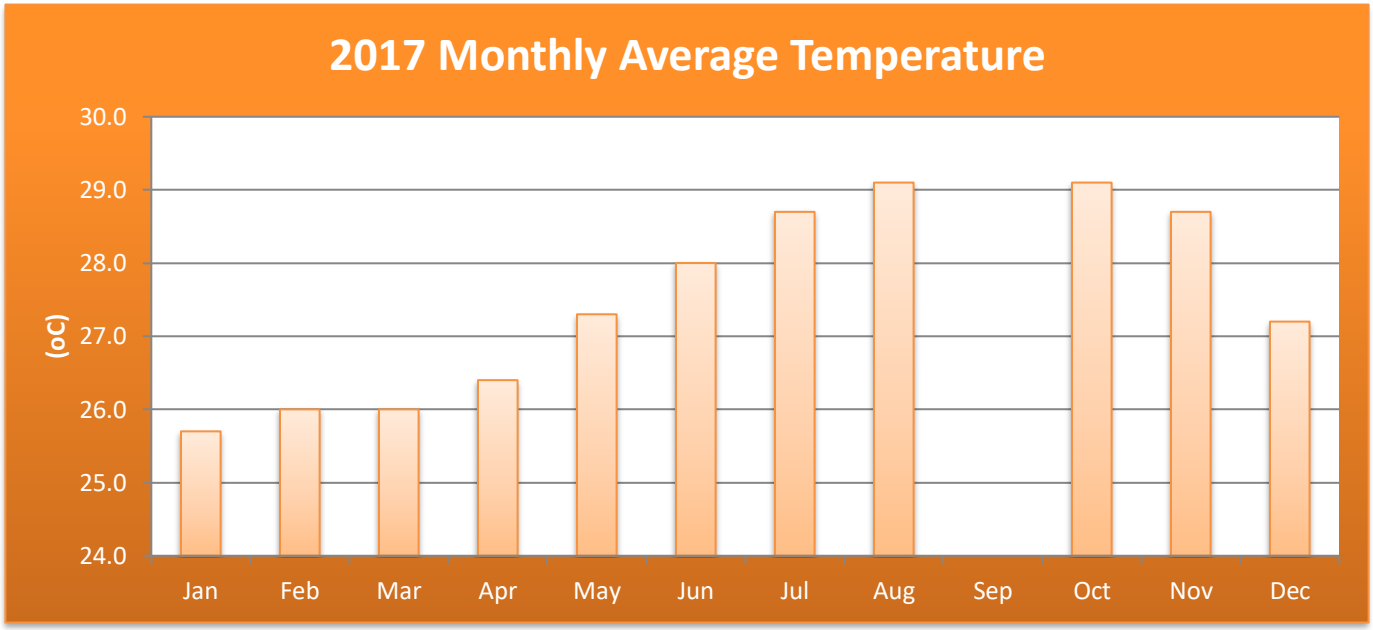
A rain day is considered as any day, which records 1.0 mm or more of rainfall. Normally there are approximately 145 rain days in a year on St. Maarten. For 2017, there were 129 rain days with the months of October and November having the most (17 days) followed by January with fifteen (15) days.

The only record set in 2017 was that April 2017 was the wettest April since 2005.

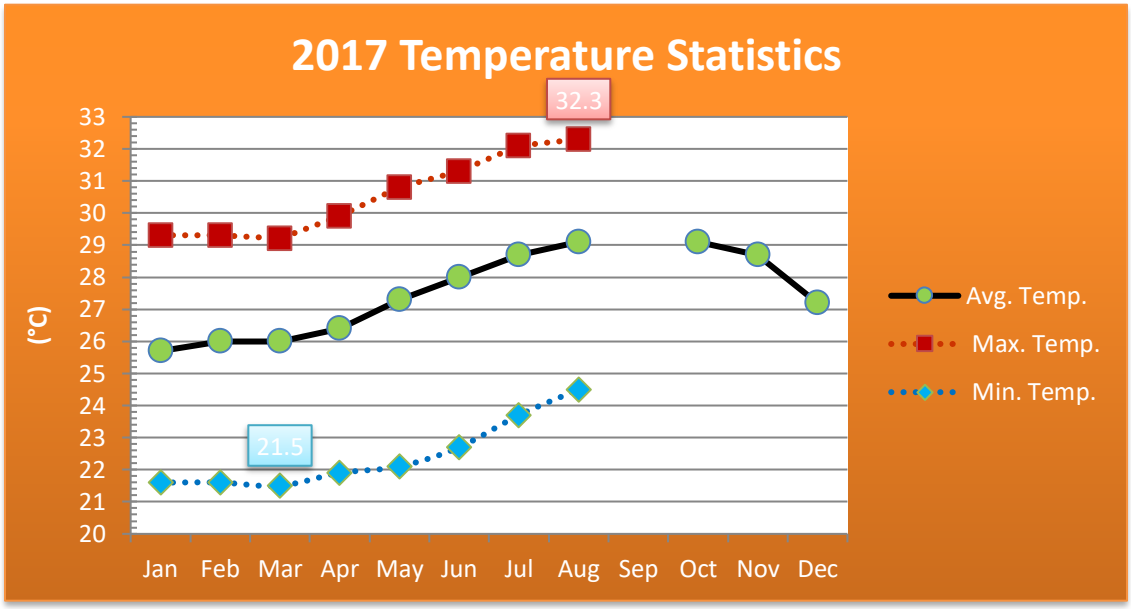


Temperature

The average temperature recorded in 2016 was **27.5° C** (82° F) which was above normal. The 30-year normal (1981–2010) is 27.2° C. **August and October** were the warmest months with an average temperature of 29.1° C (84° F) while **January** was the coolest month with an average temperature of 25.7° C (78° F). There was a variation of about 3.4° C between the warmest and coolest months.



The highest daily *temperature* recorded in 2017 was **32.3° C (90° F)** which was recorded on August 10th, 12th & 25th while the lowest daily *temperature* was recorded on March 7th as **21.5° C (71° F**). The difference between the maximum and minimum temperatures recorded was **10.8° C.**

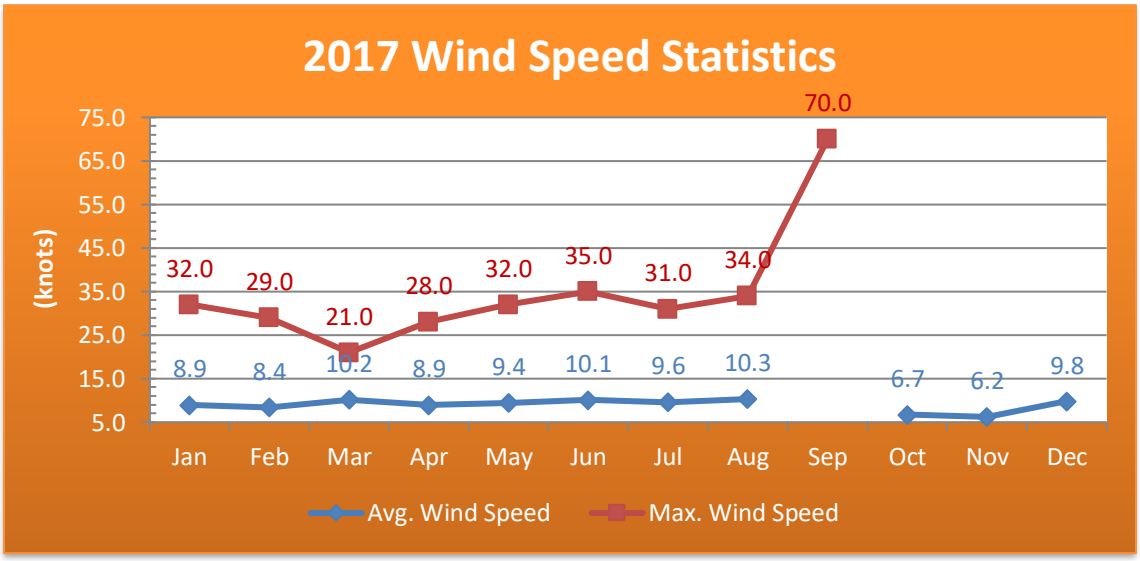


Annual Average temperature for the past 30 years has varied a lot over the years. Temperatures have been near normal to above normal for some years became below normal and has been above normal in the most recent years.

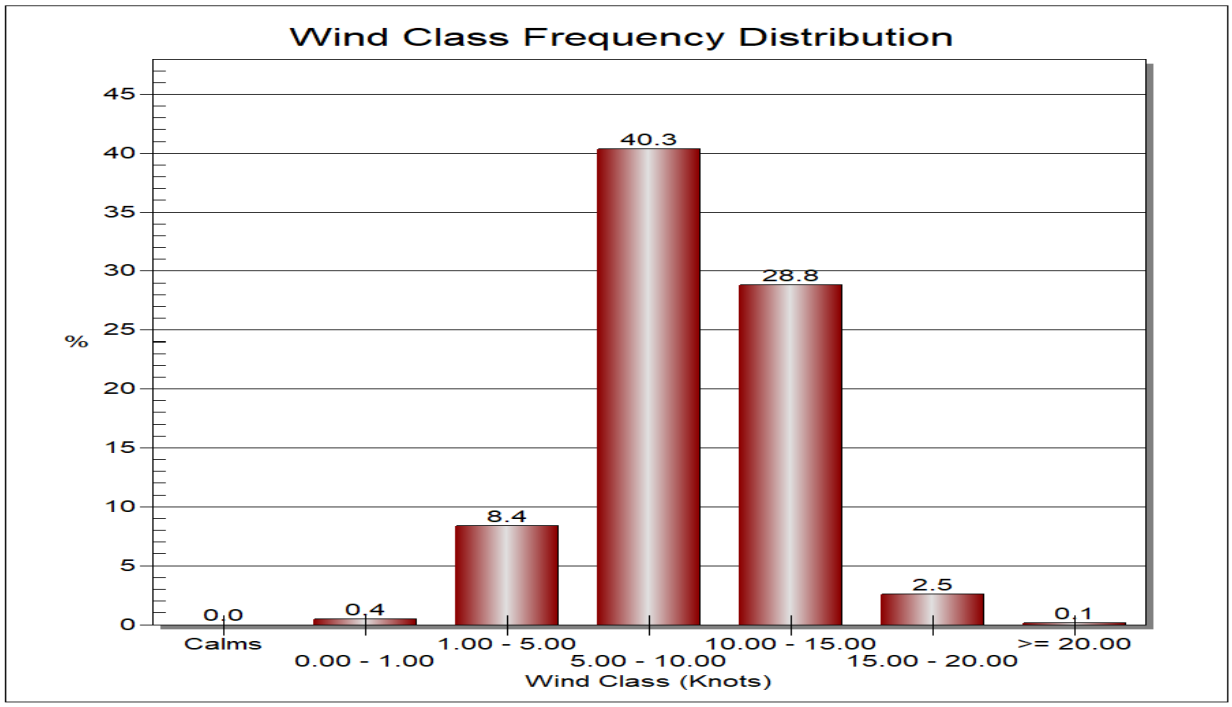
Wind

Surface wind at the Princess Juliana International Airport for 2017 was generally from the east at an average speed of **9.2 knots** (11 mph) which was near normal compared to the 30–year average (1981–2010). The *highest monthly average wind speeds were recorded in* **March, June and August** as 10 knots (12 mph); while **November** had the *lowest monthly average wind speeds* at 6 knots (7 mph).

The *highest wind gust* for the year was recorded just before communication broken down during major hurricane Irma on September 6th as **70 knots (81 mph).**



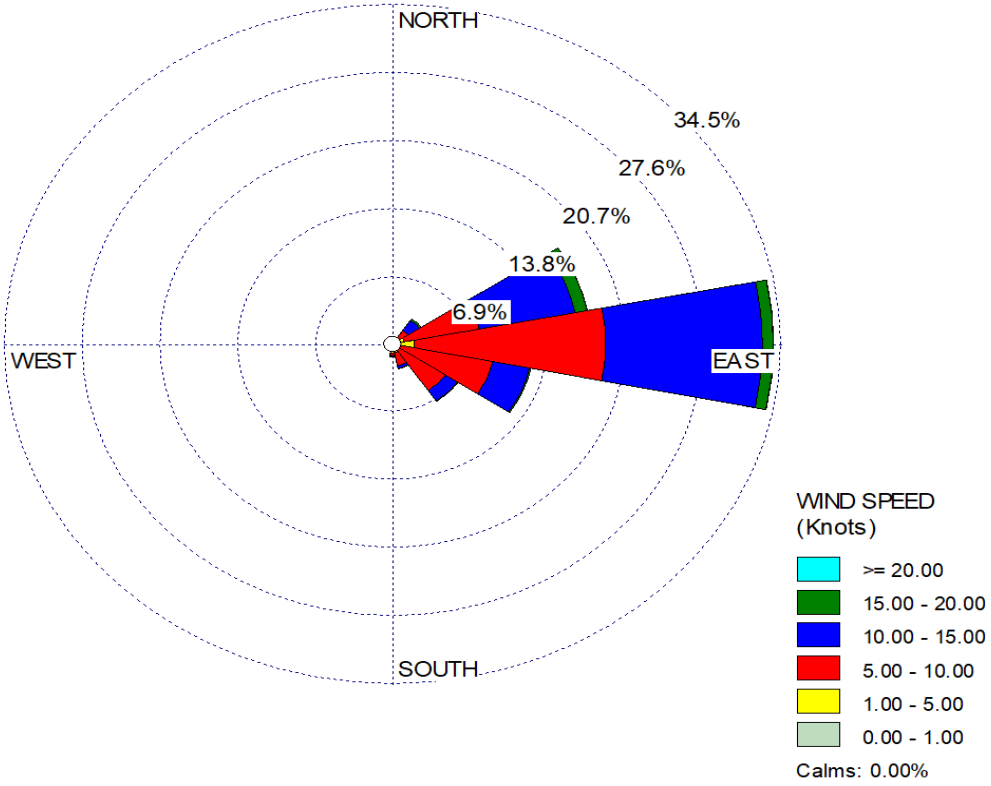
This following wind analysis was obtained, by using the average hourly wind speeds and direction from 1st January to 31st December 2017.



- Approximately 40% of the time, wind speeds at Juliana were between 5 and 10 knots.
- Approximately 29% of the time, wind speeds were between 10 and 15 knots.
- Approximately 8% of the time, wind speeds were between 1 and 5 knots.
- Approximately 3% of the time, wind speeds were between 15 and 20 knots.
- Less than 1% of the time, speeds were greater than 20 knots or less than 1 knot.

Approximately 20% of the wind data for the year is missing due to technical issues or reduced hours of work after the passage of hurricane Irma

2017 Wind Rose



34% of the time winds came from the **East**.

18% of the time winds came from **East-northeast**.

13% of the time winds came from the **East-southeast**.

7% of the time winds came from the **Southeast**.

3% of the time winds came from the **Northeast**.

3% of the time winds came from the **South-southeast**.

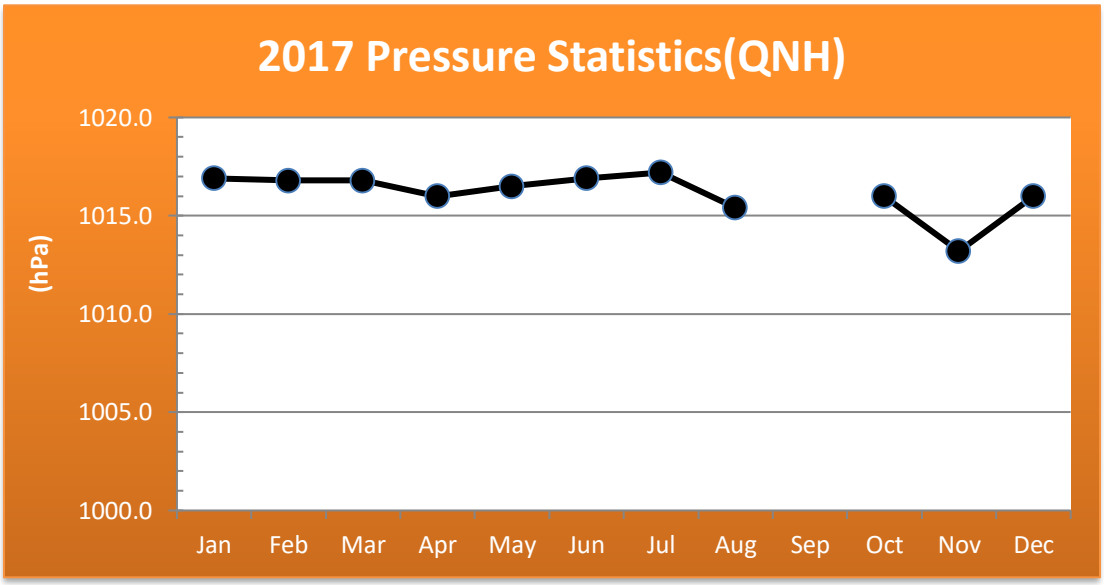
1% of the time winds came from the **South**.

Winds came from other directions 1% or less.

Approximately 20% of the wind data for the year is missing due to technical issues or reduced hours of work after the passage of hurricane Irma

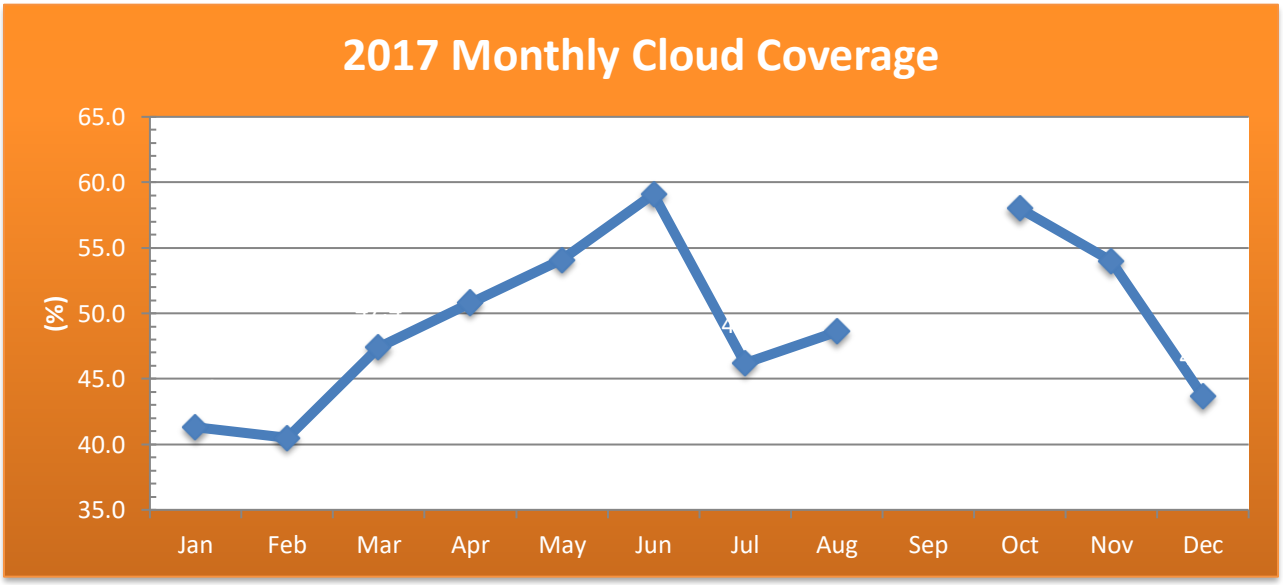
Air Pressure

At the Princess Juliana International Airport, on average the Mean Sea-Level Pressure for 2017 was **1016.2 millibars**. The Highest daily average was recorded on March 8th as 1020.0 mb while the lowest daily average of 1010.0 mb occurred on November 18th. (Data for September during passage of Irma not included)



Cloud Cover

The average cloud cover for St. Maarten over the past year as recorded at the Princess Juliana International Airport was about 49.4%. The *highest monthly average cloud cover* was 59.1% during the month of **June** while **February** had the *lowest value* of 40.5%.

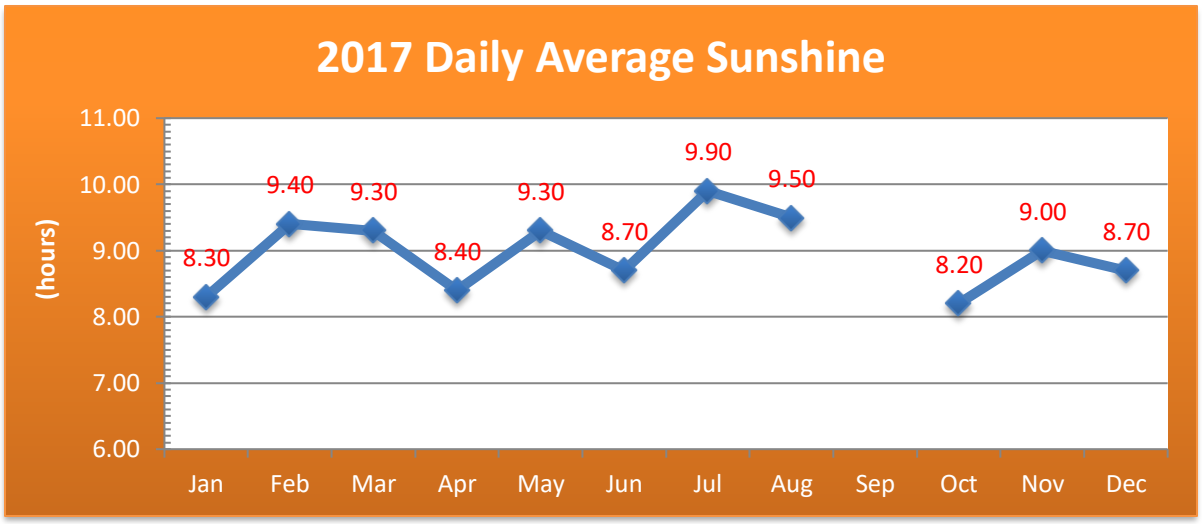


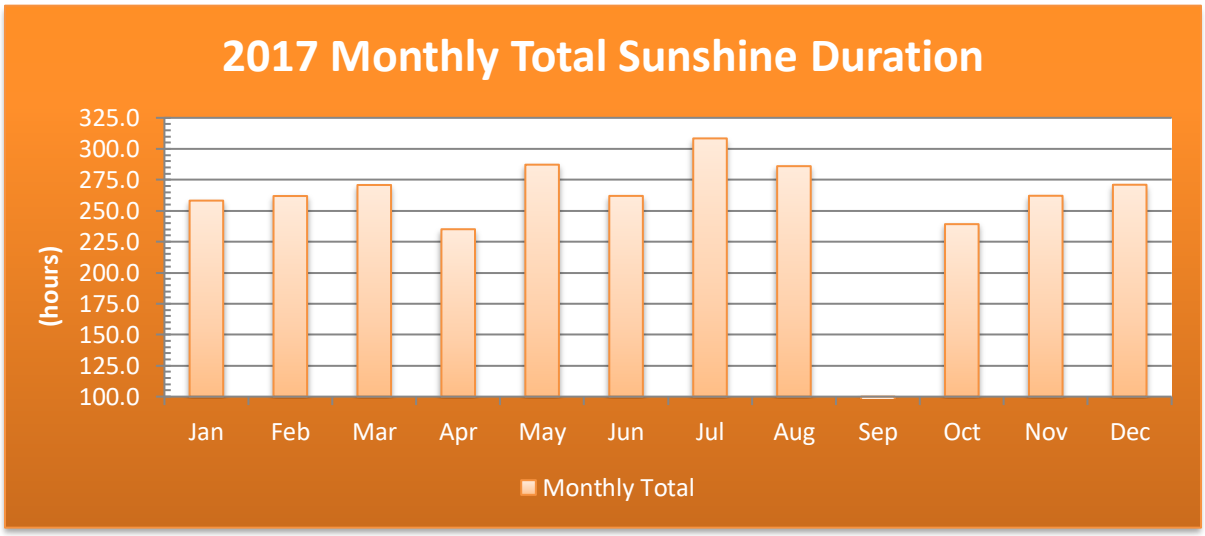
Sunshine Duration

Approximately 66% of possible sunshine was recorded at the surface at the Princess Juliana International Airport, that is, 2941.9 hours out of a possible 4443.1 hours. The *average daily sunshine duration* was **9 hours 00 minutes**.

July received the most hours of sunshine in 2017, while **April** received the least. Daily average sunshine was the highest in the month of **July**; 9 hours and 54 minutes per day; while the lowest daily average was recorded in the month of **October** as 8 hours 12 minutes per day.

Maximum daily sunshine hours was recorded on **June 16th** and **July 30th** as 12 hours 00 mins. There were three (3) days when no sunshine was recorded due to overcast conditions: **June 29th, October 10th** and **15th**.





Statistic Summary

Below is a recap of the 2017 climate data, in terms of averages, extremes, and totals:

Rainfall		
Total Rainfall for the year	1015.1 mm	40.0 inches
Wettest Month	174.8 mm/6.9 in	November
Driest Month	39.6 mm/1.6 in	February
24-hr Maximum Rainfall	85.8 mm/3.4 in	April 16th
Number of Rain Days (with 1.0+ mm)	129 days	
Number of Heavy Rain Days (with 10.0+mm)	24 days	
Temperature		
Average Air Temperature	27.5° C	82° F
Absolute Maximum Temperature	32.3° C/ 90° F	*August 10th, 12th & 25th*
Absolute Minimum Temperature	21.5° C/ 71° F	*March 7th*
Warmest Month	29.1° C/84° F	*August & October*
Coolest Month	25.7° C/78° F	*January*
Average Relative Humidity	76%	
Wind & Pressure		
Average Wind Speed	9.2 knots	10 mph
Average wind Direction	100 degrees	*East*
Maximum Wind Gust	70 knots/81 mph	*September 6th*
Most frequent category speed	5-10 knots	*40%*
Average Air Pressure	1015.7 mb.	
Clouds & Sunshine		
Average Cloud Coverage	49.4%	
Average Daily Sunshine Duration	9 hours : 00 minutes	
Month: Maximum Sunshine	*July*	
Month: Minimum Sunshine	*April*	
Daily Maximum Sunshine	*12 hrs. 00 min.*	*Jun. 16th & Jul. 30th*
Daily Minimum Sunshine	*0 hrs. 00 min.*	*Jun. 29th & Oct. 10th & 15th*

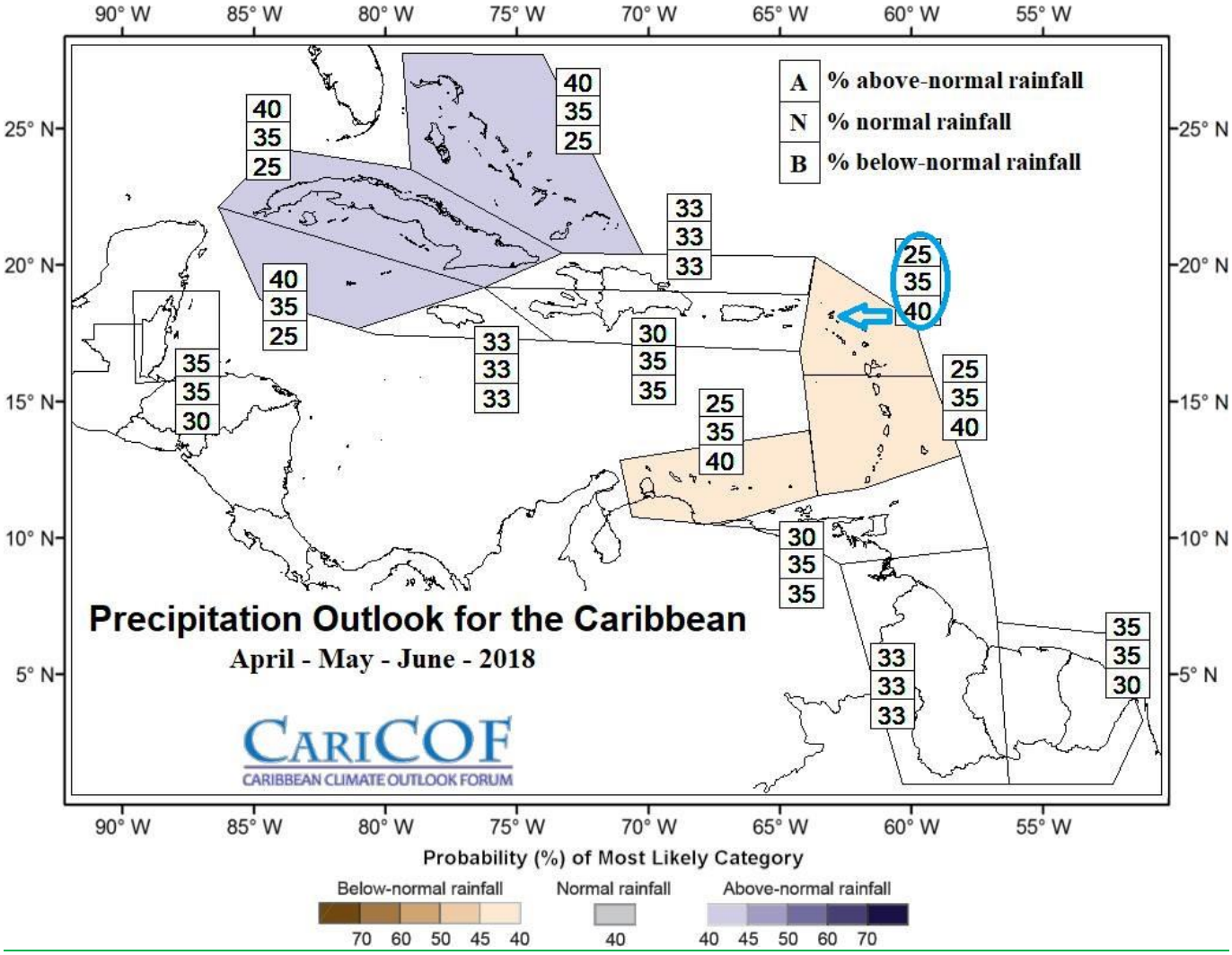
Conclusion

This report provides a summary of all the meteorological data recorded at the Princess Juliana International Airport during the year 2017. The data was collected from various meteorological parameters under regulations stipulated by the World Meteorological Organization (WMO). These elements include rainfall, relative humidity, atmospheric pressure, wind speed and direction, cloud cover and sunshine duration among others.

The Meteorological Department St. Maarten (MDS) records and compiles climatological data for use in research in a number of fields and institutions. Records go as far back as the 1950's in certain parameters. Requests for data must be put in writing through the Department Head.

Outlook for 2018

Rainfall Outlook for Mar—Apr—May 2018



Map compliments: CARICOF; Caribbean Institute for Meteorology & Hydrology

Rainfall for the next three (3) months Apr—May-Jun 2018 is expected to be below normal to near normal for St. Maarten, the ABC Islands and the rest of the eastern Caribbean while above normal rainfall is forecast for the north western Caribbean (Cuba and the Bahamas).

Normal rainfall for this season ranges between 156 mm – 253 mm or 6—10 inches. Based on historical data, the current state of the weather and some subjective input, the rainfall forecast for the next three (3) months in St. Maarten is as follows: a **40%** chance of being **below *Normal*** (less than 156 mm); a ***35%*** chance of being ***Near Normal*** (between 156 mm and 253 mm); and a **25%** chance of being **Above *Normal*** (more than 253 mm).

Note that the blue arrow points St. Maarten and the forecast probabilities are circled in blue on the map above.

List of Tropical Cyclone for the 2018 Atlantic Hurricane Season

- ALBERTO
- BERYL
- CHRIS
- DEBBY
- ERNESTO
- FLORENCE
- GORDON
- HELENE
- ISAAC
- JOYCE
- KIRK
- LESLIE
- MICHAEL
- NADINE
- OSCAR
- PATTY
- RAFAEL
- SARA
- TONY
- VALERIE
- WILLIAM

BE PREPARED!!!

BE ALERT!!!

BE READY!!!

Be reminded that it only takes one storm to impact our island to make it an active season for us. Therefore, Everyone should prepare for every season, regardless of how much activity is predicted.

Appendix

Stages of Tropical Cyclone Development

Below are the decisive factors (criteria) for the various development stages for tropical cyclones:

Stage	Criteria
Tropical disturbance	A discrete system of clouds, showers, and thunderstorms that originates in the tropics and maintains its identity for 24 hours or more.
Tropical wave	A type of trough of low pressure or tropical disturbance that moves generally from east to west, typically embedded in the tropical easterlies. They are also sometimes called easterly waves.
Tropical Depression	A tropical disturbance that has developed a closed circulation (counterclockwise winds blowing around a center of low pressure in the Northern Hemisphere). Tropical depressions contain maximum sustained (1-minute) winds of 38 mph (62 km/h or 33 knots) or less.
Tropical Storm	A well-organized warm-core tropical cyclone that has maximum sustained (1-minute) winds of 39-73 mph (63-118 km/h or 34-63 knots). Once a system reaches tropical storm status, it is given a name by the National Hurricane Center (located in Miami, Florida).
Hurricane	A warm-core tropical cyclone that has maximum sustained (1-minute) winds of at least 74 mph (119 km/h or 64 knots). Hurricanes are categorized by the Saffir-Simpson Scale. (*see next page*)
Extra-tropical Cyclone	A cyclone that is no longer tropical in origin, which usually means the system moves away from the tropics and moves toward the poles. An extra-tropical cyclone has no wind speed criteria and may exceed hurricane force.
Subtropical Cyclone	A closed circulation, low-pressure system that has characteristics of both tropical and extra-tropical cyclones. Subtropical cyclones typically have a radius of maximum winds occurring relatively far from the center (usually more than 60 nautical miles), and generally have a less symmetric wind field and distribution of convection (clouds and thunderstorms).
Post-tropical Cyclone	A former tropical cyclone that no longer possesses sufficient tropical characteristics to be considered a tropical cyclone. Post-tropical cyclones can, however, continue carrying heavy rains and high winds.

Saffir-Simpson Hurricane Scale

The Saffir-Simpson Hurricane Wind Scale is a 1 to 5 rating based on a hurricane's sustained wind speed. This scale estimates potential property damage. Hurricanes reaching Category 3 and higher are considered major hurricanes because of their potential for significant loss of life and damage.

	Category	Max. Sustained Winds			Effects
		mph	km/h	knots	
	1	74 - 95	119 - 153	64 - 82	**Minimal Damage**
	2	96 - 110	154 - 177	83 - 95	**Moderate Damage**
Major	**3**	111 - 129	178 - 208	96 -112	**Extensive Damage**
	4	130 - 156	209 - 251	113 - 136	**Extreme Damage**
	5	157+	252+	137+	**Catastrophic Damage**

Watches & Warnings

Tropical Storm Watch

Issued when tropical storm conditions (sustained winds of 39-73mph, 63-118 km/h, or 34-63 knots) are *possible* within the specified area within the next 48 hours (2 days).

Tropical Storm Warning

Issued when tropical storm conditions (sustained winds of 39-73mph, 63-118 km/h, or 34-63 knots) are *expected* somewhere within the specified area within the next 36 hours (1.5 days).

Hurricane Watch

Issued when hurricane conditions (sustained winds of 74+ mph, 119+ km/h, or 64+ knots) are *possible* within the specified area within the next 48 hours (2 days).

Hurricane Warning

Issued when hurricane conditions (sustained winds of 74+ mph, 119+ km/h, or 64+ knots) are *expected* within the specified area within the next 36 hours (1.5 days).

Note: Hurricane preparedness activities become difficult once winds reach tropical storm force, therefore, hurricane watches & warnings are issued well in advance of the anticipated onset of tropical-storm-force winds.

Hurricane Irma's Destruction

Met. Office Administrative Building

Met. Equipment

Royal Islander Club

Maho Hotel

Cape Bay

Near Sunset Bar

Princess Juliana International Airport

Evacuation

Check-in Area at Princes Juliana International Airport

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