



MAURITIUS METEOROLOGICAL SERVICES



CLIMATE JANUARY 2019

Introduction

January 2019 was in general warm and dry for most part of the month. However, the rain recorded at the end of the month was significant enough to bring the mean monthly rainfall recorded islandwide to 259 mm which is 99 % of the normal. ENSO conditions and the Indian Ocean Dipole were neutral. The Madden Julian Oscillation was not active over the South West Indian Ocean during the whole month. On the other hand, the African Monsoon was active which induced the formation of two tropical lows in the Mozambique Channel. The two systems reached the Moderate Tropical Storm intensity and were named DESMOND and EKETSANG.

1. Rainfall

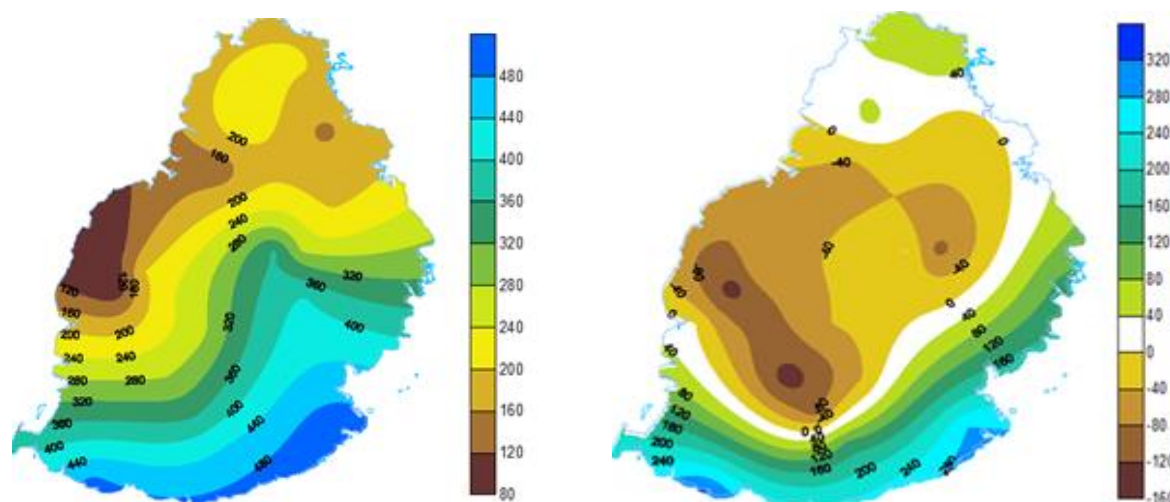


Fig. 1: (a) Observed rainfall

(b) rainfall anomaly (mm)

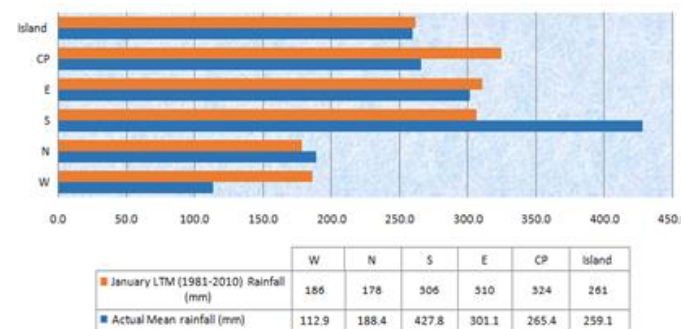
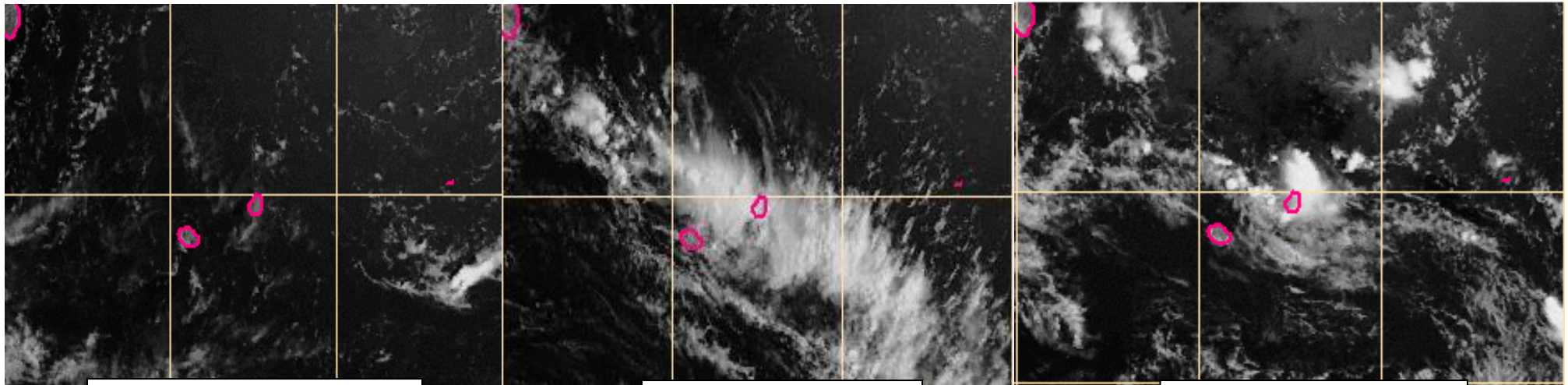


Fig. 2: Regional rainfall distribution (based on 23 stations)

The first fortnight of January was rather dry with a mean of 39 mm which represented only 35 % of the long term mean. However, very wet conditions prevailed over the island as from 25 till the end of the month representing 64 % of the long term mean. During the first 20 days rainfall was rather localised but on the last few days, a zone of instability gave widespread showers. A heavy rain warning was issued on 27 to 29 and a torrential rain warning was issued on 30. Heaviest rainfall was concentrated to the South; about 400 mm of precipitation was recorded in 24 hours at Plaisance from 29 to 30 January. An excess rainfall of over 280 mm more than normal was recorded to the South, whereas to the West and over the Central Plateau it was locally deficient by up to 140 mm. The highest rainfall intensity was observed at Belle Mare on 25 where 84 mm was recorded within one hour.



(a) Cloud free weather on 04

(b) Unstable weather on 28

(c) Unstable weather on 30

Fig 3: Weather systems during January 2019

2. Surface Temperature

January 2019 is the seventh warmest January on record since 1969 (based on maximum temperature recorded at Plaisance)

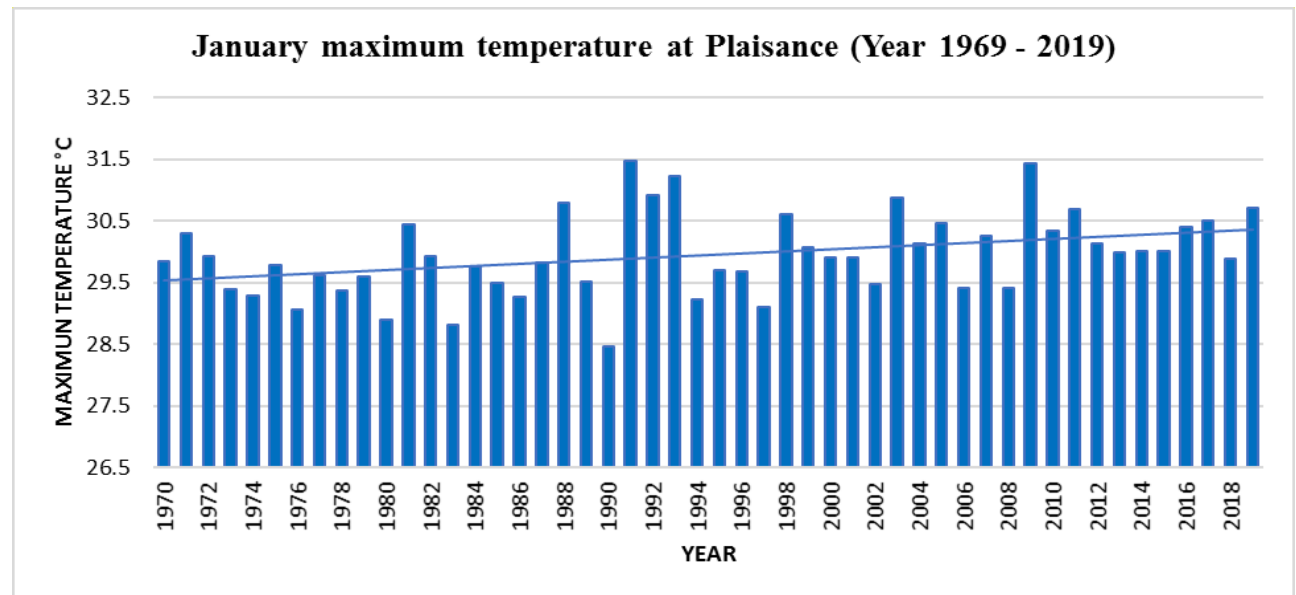


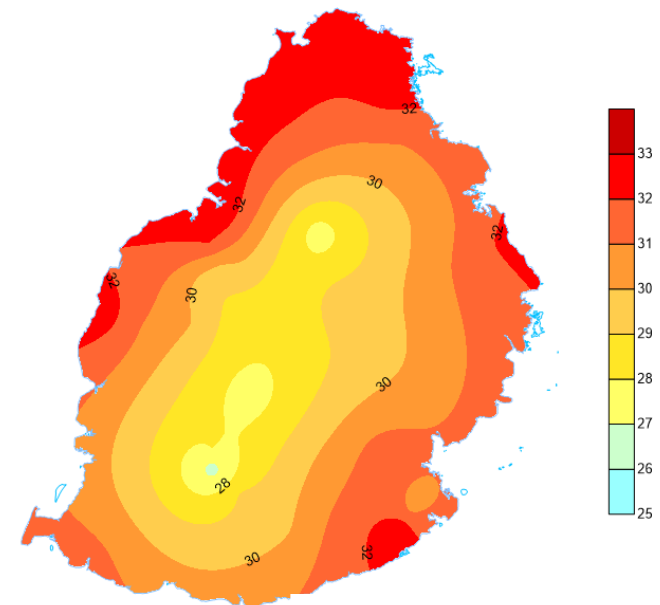
Fig. 4: Maximum temperature trend for January from 1969-2019

The warm trend for summer 2018-2019 continued during January 2019. Across the island, several stations recorded maximum temperature anomalies of 2.0 °C. In certain localities such anomalies persisted for more than half of the month, for instance Riche en Eau had 24 such days. The maximum temperature anomaly even locally reached 3 to 4 °C. The highest anomaly of 5.3 °C was recorded at Choisy Estate on the 08 and at Bois Cheri on the 05. Under the influence of the northerly wind throughout some days, higher temperature anomalies were observed to the south-eastern part of the island whereas the northern part had relatively lower maximum temperature anomalies (Fig 6(a)).

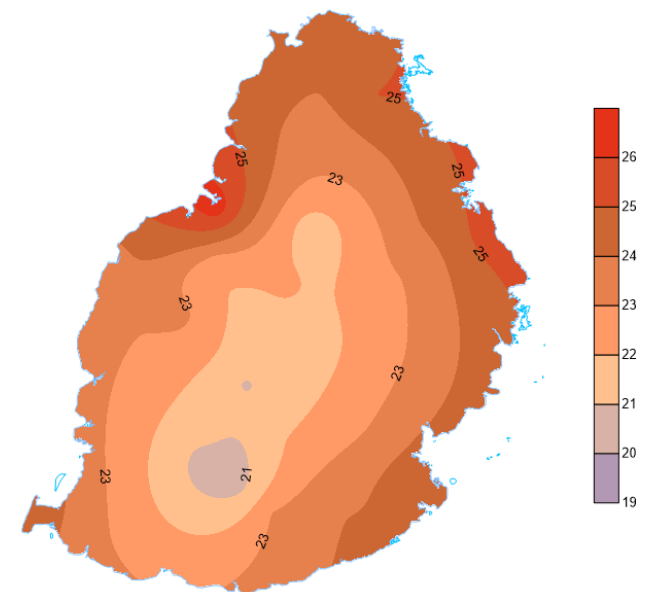
The highest temperature recorded was 35.4 °C at Choisy Estate on the 08. From the 24 to 26, the following stations had new records of extreme maximum temperature for the month, Mon Desert Mon Tresor with 35°C (previous 33°C), Union Park MSIRI with 32°C (previous 31.7°C), Gros Cailloux with 33.9 °C (previous 33.5°C), Britannia with 32.1 °C (previous 32°C) and 34.4 °C (previous 34.1°C) on 24 at La Baraque.

During the wet phase at the end of the month, the prevailing cloudiness caused the maximum temperature to plummet to 3.8 °C with respect to the LTM at Grand Bassin on the 30.

The night time temperature was above the average by more than 1 °C and on some day by more than 2 °C. On average night temperature was close to normal except to the north and part of the central plateau and locally to the south. On the 16, light wind conditions and clear sky caused the minimum temperature to plummet by more than 2 °C compared to the long term mean and new record in low minimum was recorded at Mon Desert Alma.



(a)



(b)

Fig. 5: (a) Maximum (b) Minimum temperature distribution

Some stations had up to 24 warm days
(maximum temperature anomaly (anomax) >2°C).

Stations	Highest anomax (°C)	Number of warm days.
Riche en Eau	3.4	24
Bois Cheri	5.3	22
Mon Desert MT	4.9	22
ML Rouillard	3.1	21
Union Park MSIRI	4.5	21
Providence	3.5	19
Grand Bassin	3.8	17
Medine	3.9	14
La Baraque	4.4	14
Belle Mare	3.5	13
Mon Desert Alma	2.8	13
Gros Cailloux	3.5	12
Quatre-Bornes	3.4	12
Sans Souci	3.0	12

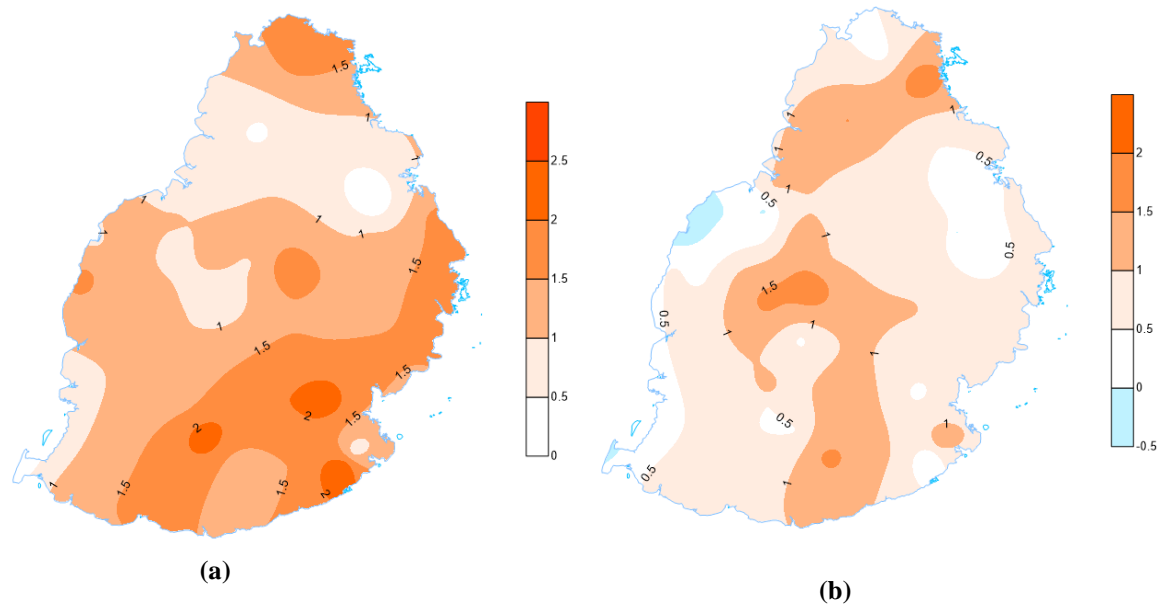
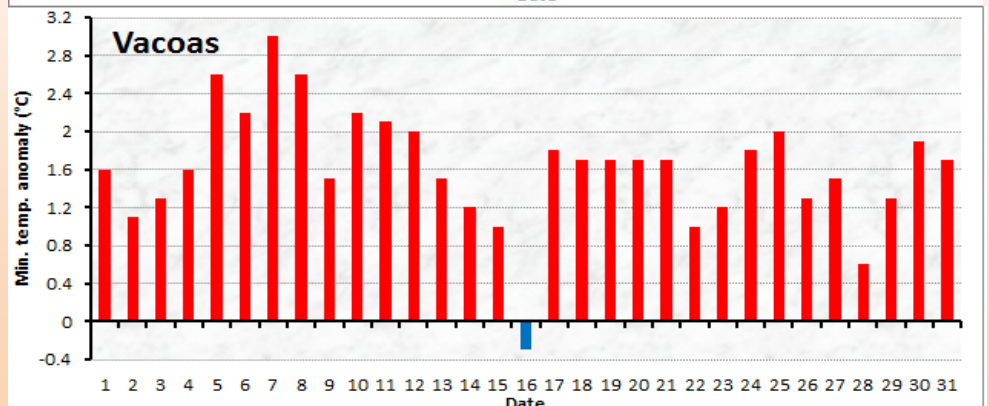
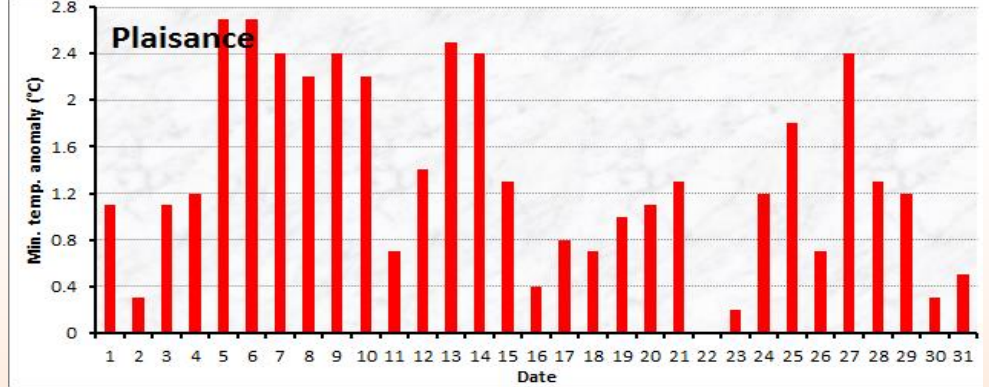
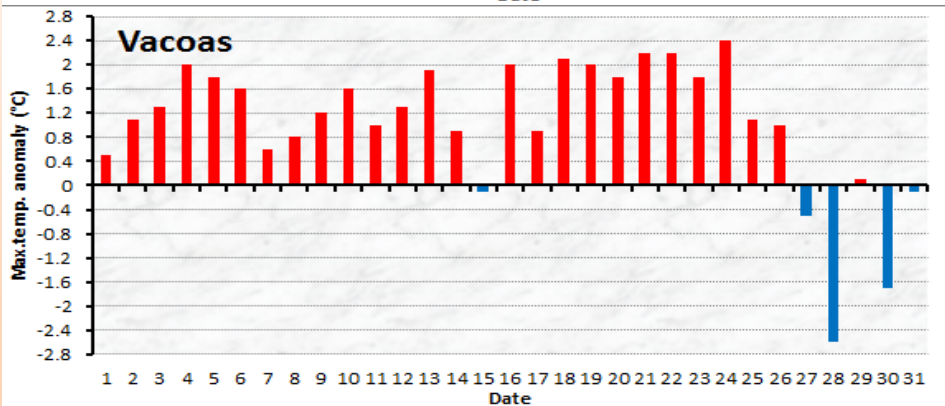
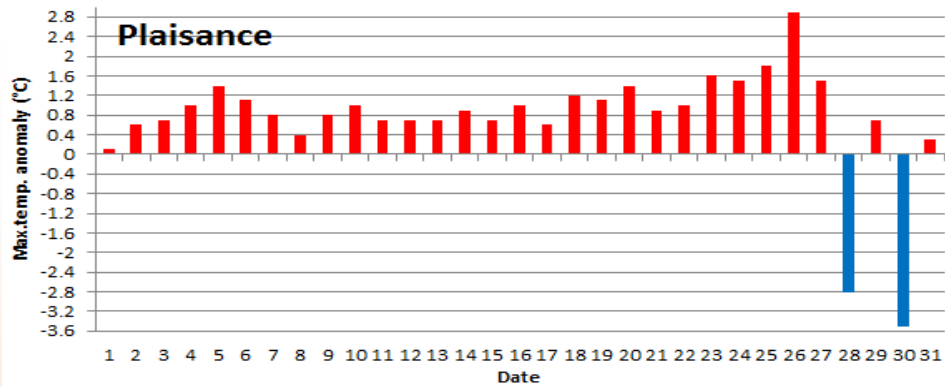


Fig. 6: (a) Maximum (b) Minimum temperature anomaly



3. Sunshine and Humidity

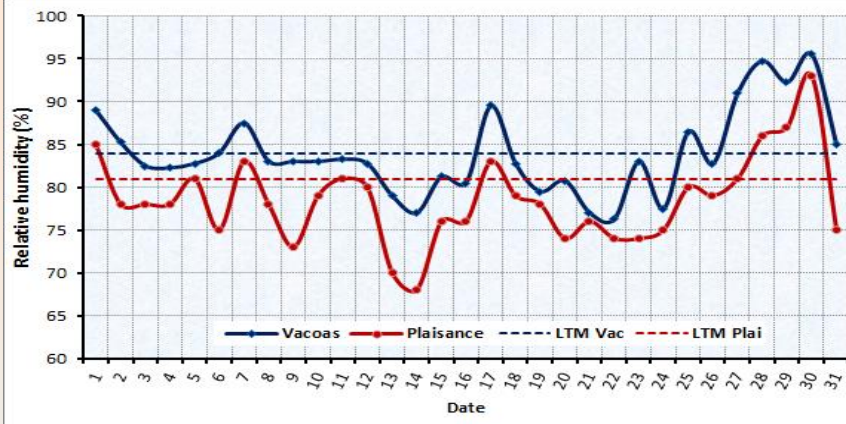


Fig. 9: Daily Relative Humidity: Vacoas (blue) and Plaisance (red)

The relative humidity (RH) for January was on average close to normal for both Vacoas and Plaisance. However, by the end of the month, it was above normal (Fig 9). On the 27 to 30, under the influence of an influx of moisture associated with an instability zone the RH remained above 90 % under the influence of a zone of instability whereby even the sunshine hours were mainly zero.

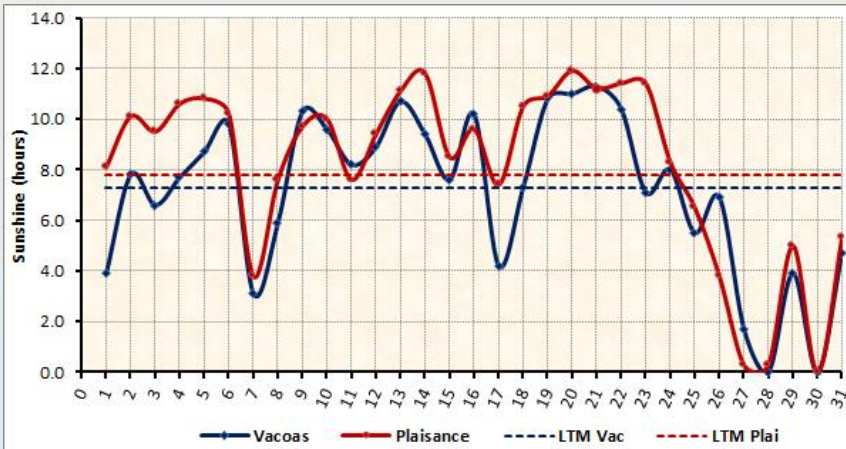


Fig. 10: Daily sunshine hours: Vacoas (blue) and Plaisance (red)

Daily mean sunshine hours were slightly below by 0.2 hours at Vacoas (7.3 hours) and at Plaisance, it was above by 0.3 hours (7.8 hours). For the 07 the sunshine hours were 3.1 at Vacoas and 3.8 at Plaisance. During the end of the month, the drop in sunshine hours was due to cloud cover associated with the instability zone which crossed the island. On 28 and 30, both stations had nil sunshine hours.

4. Winds

An east north easterly airstream influenced the region most of the time. The wind regime was mainly light to moderate for most of the month of January 2019. Nevertheless, during the second week, with the passage of a fairly strong anticyclone to the south of the Mascarenes, the wind was moderate over the region.

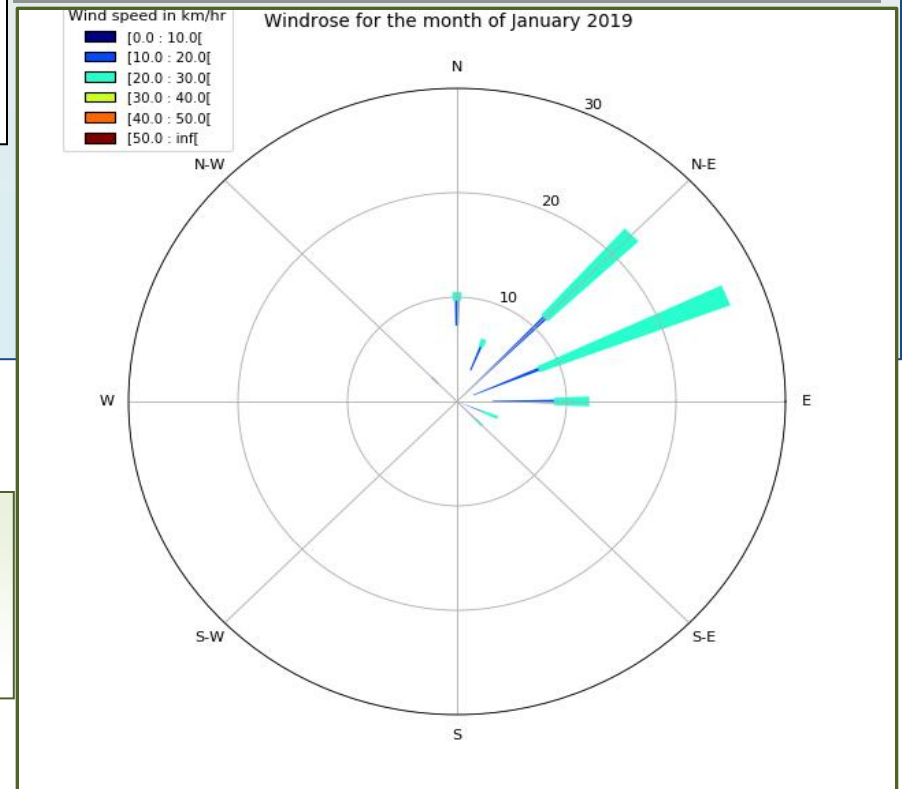


Fig. 11: Wind frequency at Plaisance

5 Heavy rainfall event

During the last week, the interaction of rather cold air emanating from the anticyclone to the south-west of the Mascarenes and warm air coming from equatorial region enhance the instability of the atmosphere over our region. As from the 29, active clouds developed over the Mascarenes region and these started to influence weather over Mauritius as from the evening. Showery weather prevailed to the South and East and the showers gradually spread in the other sectors. The showers were locally moderate to heavy at times with isolated thunderstorms. This warranted a heavy rain warning in the evening of 29 which was waived at night. However, the rain resumed during the second part of the night and a torrential rain warning was issued early morning on 30. This warning was waived later at night when chances of having heavy showers gradually decreased over the region.

During the rainfall event of 29 to 30, the rainfall was mostly concentrated in the southern and eastern part of the island as shown in Fig 12 (a) and (b). The north and western parts remained rather dry with rainfall varying less than 10 mm.

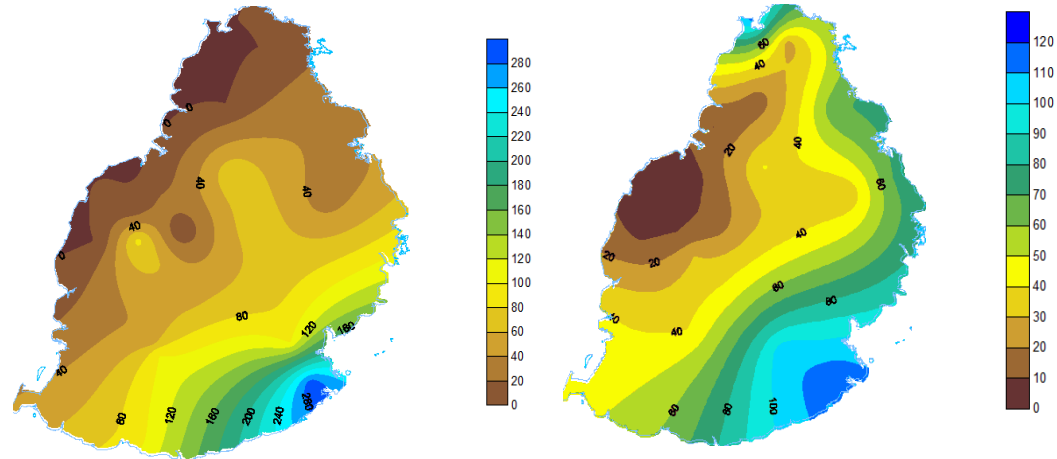


Fig 12(a)

Fig 12(b)

Figure 4(a) and (b): Rainfall distribution for 29 and 30 January 2019 respectively

On the 30 January 2019, 402 mm of rainfall was recorded at Plaisance over 24 hours and the highest intensity of 57 mm was recorded during the night of 29 between 00h00 and 01h00. The previous record for Plaisance was 296 mm on 18 March 1958.

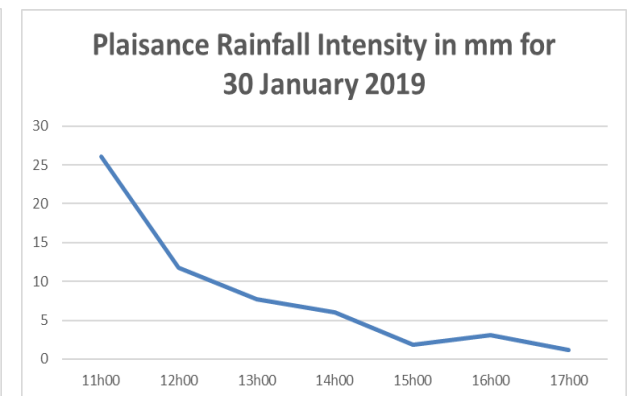
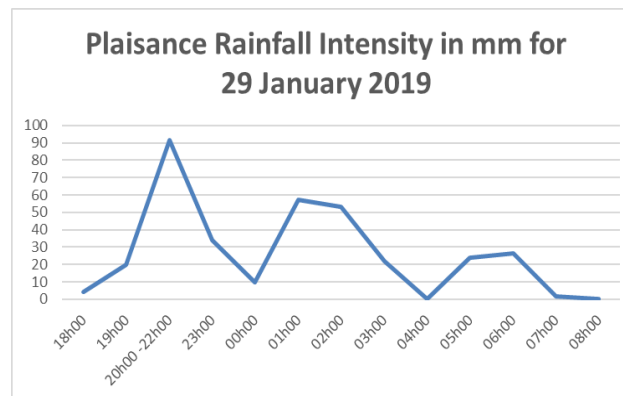


Fig 13(a)

Fig 13(b)

Figure 13(a) and (b): Rainfall intensities for 29 and 30 January 2019 respectively

FORECAST FOR FEBRUARY – MARCH - APRIL (FMA)

The central and eastern equatorial Pacific will remain warmer than normal for FMA with characteristics of a weak El Nino event. In the Indian Ocean, the month of January had been under the influence of a moderate SIOD index which was not predicted in the beginning of the summer season. The influence of the SIOD (Fig 14) is to cause significant intra-seasonal variability in cyclone formation and rainfall amount over the south west Indian Ocean.

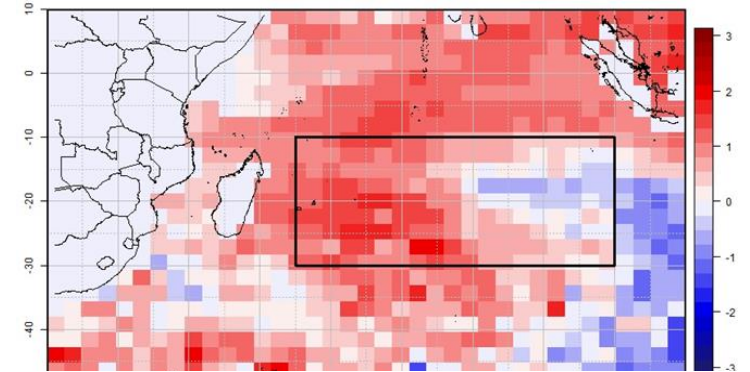


Figure 14: JFM sea surface temperature anomaly chart

Consensus forecast for Mauritius

- Rainfall amount is expected to be slightly above normal for FMA. February rainfall will be close to normal (285mm), March is expected to be above normal with (~320mm) and April is expected to be normal with (~210mm)
- Day time maximum temperature will continue to remain above normal at most places due to above normal sea surface temperature and high humidity.

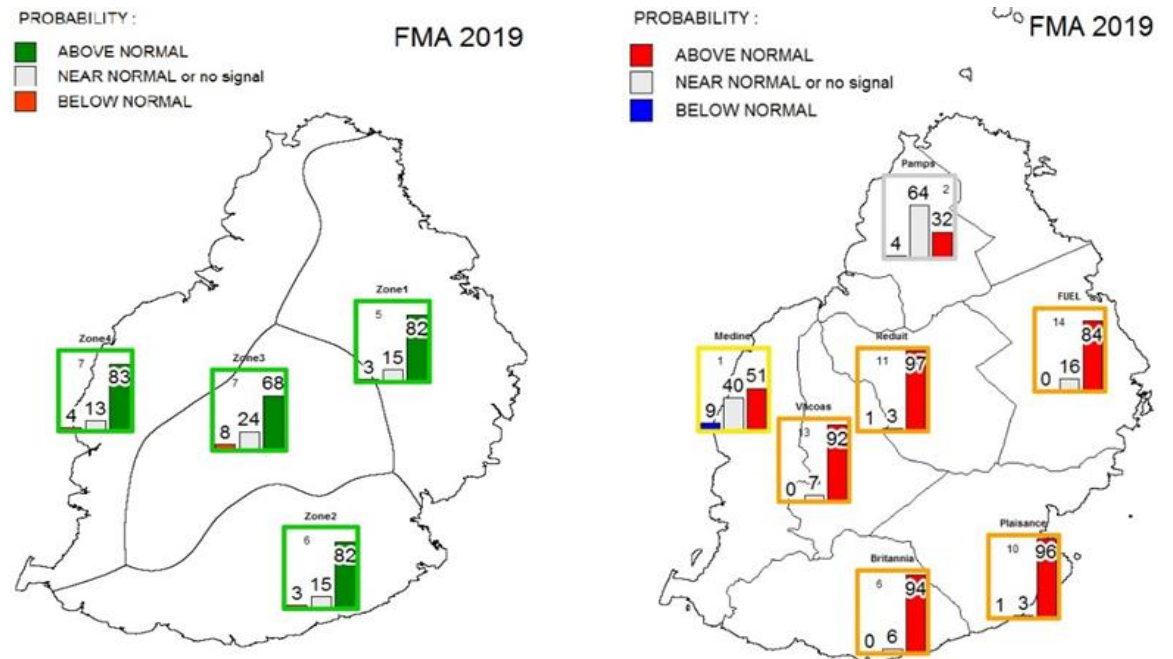


Fig. 15: Statistical Model Forecast of (a) rainfall and (b) temperature

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