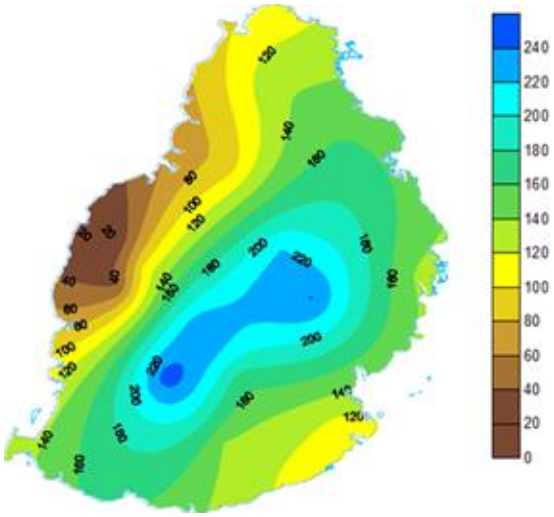
MAURITIUS METEOROLOGICAL SERVICES

CLIMATE BULLETIN MARCH 2019

Introduction

March 2019 was mostly warm and dry. Slightly warm ENSO conditions prevailed with anomalies above 0.5 ^{0}C. The Indian Ocean Dipole was in the neutral phase. During the first week, the Madden Julian Oscillation (MJO) induced a wet phase over the South West Indian Ocean. Consequently, a tropical storm developed and was named HALEH. During the second week, the convective activity was strong in the Mozambique Channel and another storm was named IDAI. At the same time, as the effect of the MJO moved to the Australian region, a tropical storm was named SAVANNAH which later entered the South West Indian Ocean Tropical Cyclone Basin. By the second fortnight, a fourth storm evolved near the Inter Tropical Convergence Zone far to the northwest of Rodriguesand was named JOANINHA. All the four storm peaked to Intense Tropical Cyclone intensity.

1. Rainfall



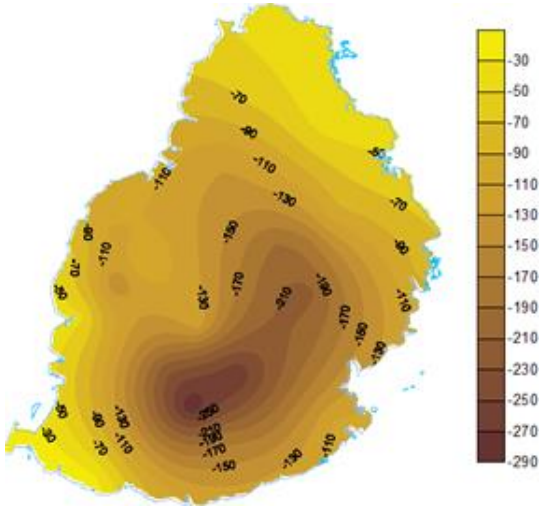
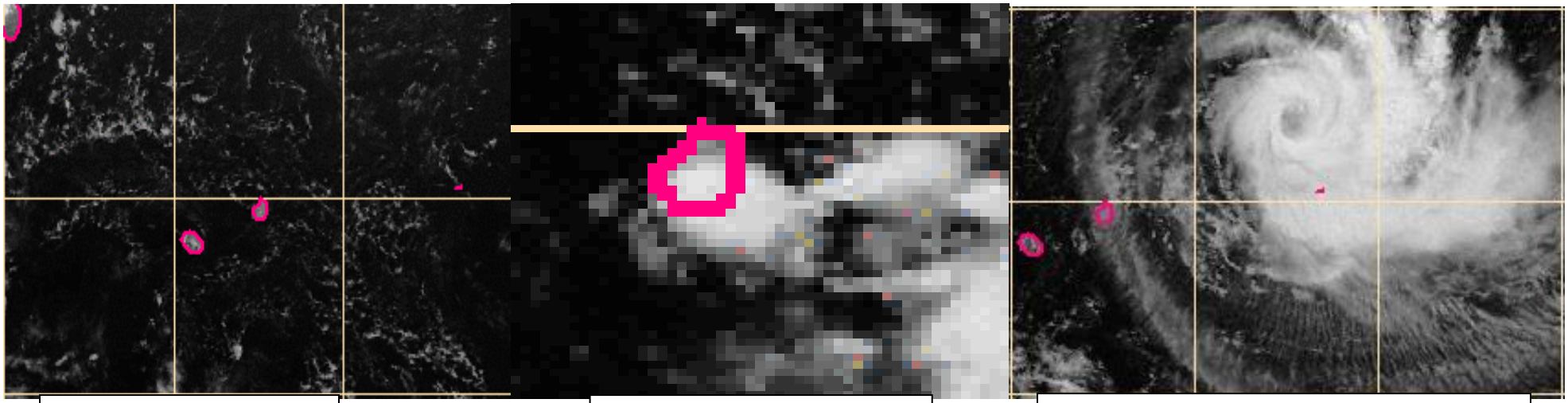


Fig. 1: (a) Observed rainfall (mm) (b) rainfall anomaly (mm)

	W	N	S	E	CP	Island
LTM (1981-2010) Rainfall (mm)	138	190	327	338	343	267
Actual Mean rainfall (mm)	43	123	156	192	196	144

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

March 2019 was dry with below normal rainfall amounting to 144mm, representing 55% of the long term mean for the period. Rainfall was mainly associated with clouds in the easterlies or afternoon localised showers. Moderate to locally heavy showers were observed on 7 to 10 and on 15 to18. Additionally, outer clouds associated with intense tropical cyclone JOANINHA influenced weather on 24 to 25. Rainfall was deficient in all regions over the island. Deficit in rainfall of more up to 290 mm was observed in the Southern region and the Central Plateau.



(a) Cloud free weather on 01

(b) Sea breeze development on 17

(c) Unstable weather induced by ITC JOANINHA on 25

Fig 3: Weather systems during March 2019

2. Surface Temperature

March 2019 is the warmest March on record since 1971 (based on mean maximum temperature recorded at Plaisance)

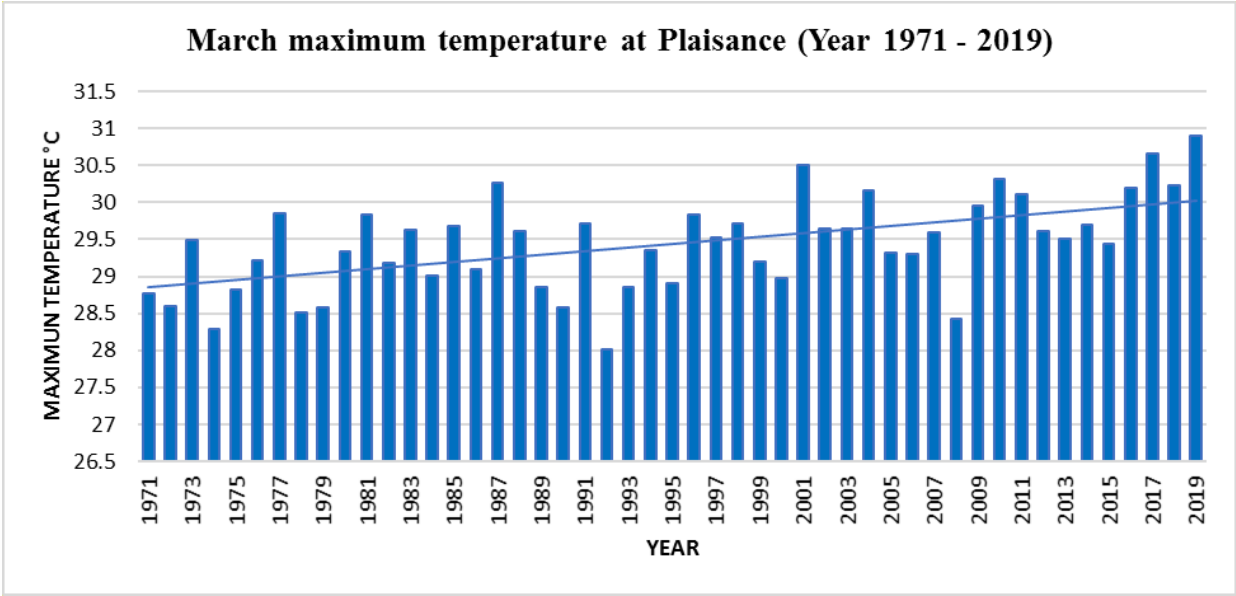


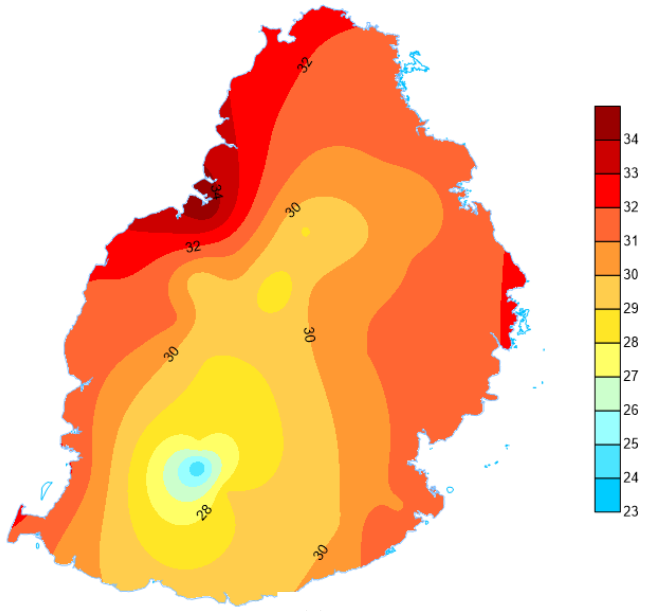
Fig. 4: Maximum temperature trend during March from 1971-2019

The warm summer trend continued even during March 2019. Sunshine hours were on average above normal (Fig 10) which resulted in more heating, leading to above normal daytime temperatures on most of the days. This also contributed to make the average March 2019 temperature for Plaisance as the warmest since year 1971 (Fig 4).

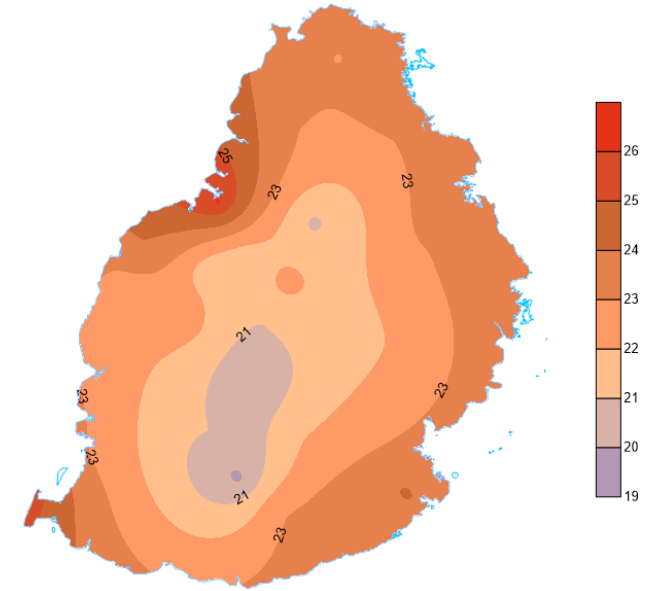
Across the island, most stations recorded maximum temperature anomalies of 1.5 °C and more. In certain localities such anomalies persisted for more than three weeks or almost month, for instance, Union Park MSIRI had 27 such days. The maximum temperature anomaly reached 3 to 4 °C locally. The highest anomaly of 5.2 °C was recorded at Nouvelle Decouverte on the 13. Higher temperature anomalies were observed over the eastern part of the island (Fig 6(a)).

The highest temperature recorded was 35 °C at Medine on the 23. Several stations had new records of extreme maximum temperature for the month. These include, Mon Loisir Sugar Estate with 33.6°C (previous 33.1°C), Belle Mare with 33.5°C (previous 33.4°C), Queen Victoria with 32.9°C (previous 32.5°C), Albion with 34.9°C (previous 34°C), Medine with 35°C (previous 34°C), Gros Cailloux with 34.°C (previous 33.5°C), Providence with 31.8°C (previous 31.6°C), and Mon Desert Mon Tresor 34°C (previous 33.5°C) respectively.

The night time temperature was near normal or slightly above normal. However, during the second week, under the influence of light wind conditions and clear sky at night, the minimum temperature dropped by 2 °C compared to the normal. This was also enhanced by the advection of relatively cold air due to the presence of a southerly airstream. On the 14, a drop of 2.5°C was observed in the nocturnal temperature at Mon Loisir Sugar Estate with a new record in low minimum of 20.5°C (previous 22.7°C).



(a)

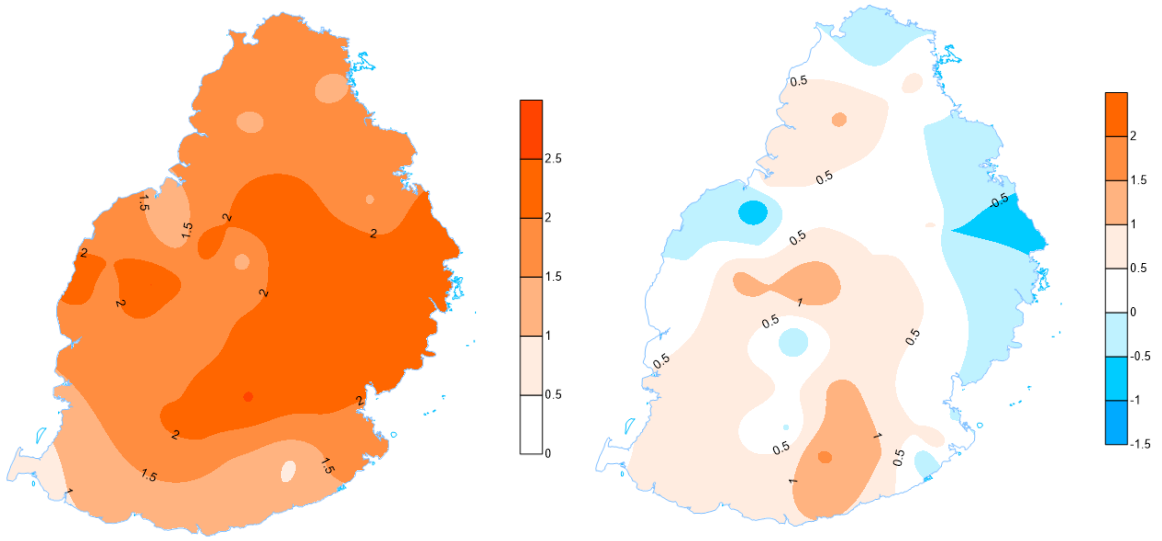


(b)

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

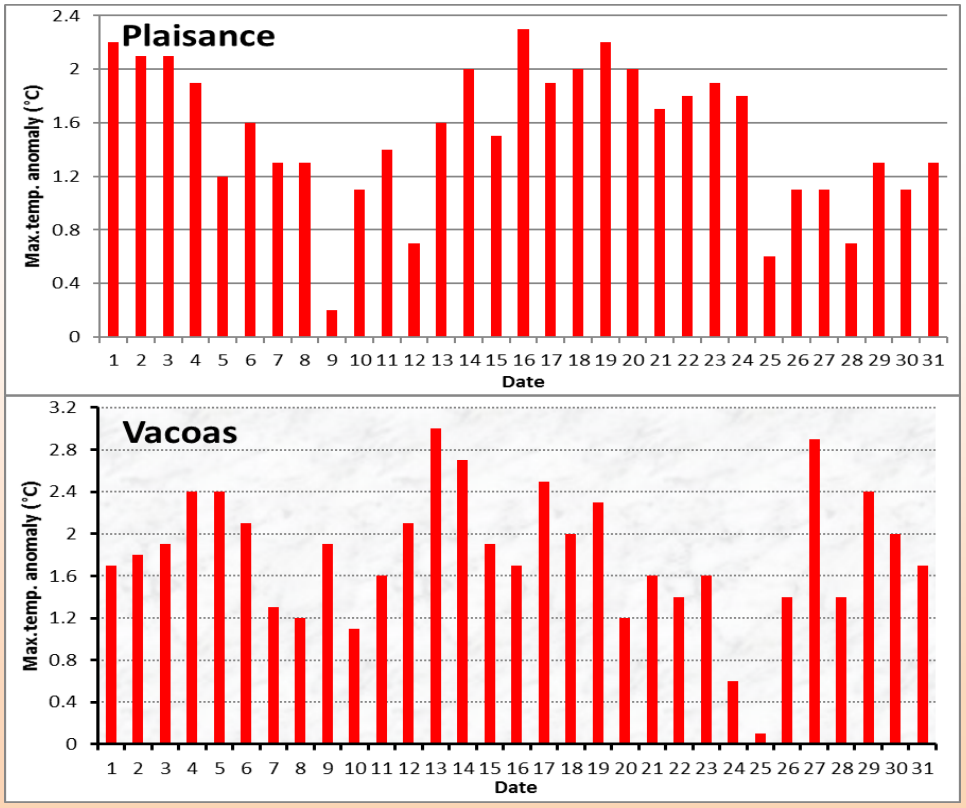
Some stations had up to 27 warm days;
(maximum temperature anomaly (anomax) >2°C).

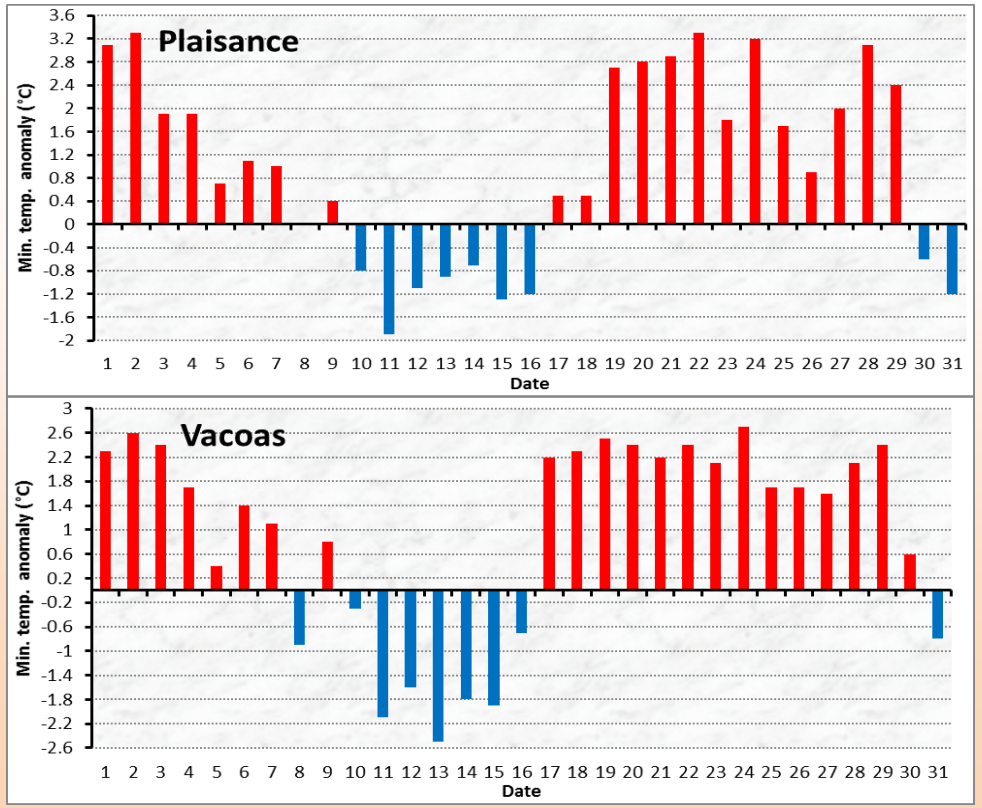
Stations	Highest anomax (°C)	Number of warm days.
Union Park MSIRI	3.9	27
Quatre-Bornes	3.8	24
Queen Victoria	3.7	22
Mon Desert Alma	3.8	22
Belle Mare	3.4	20
Sans Souci	3.2	20
Bois Cheri	4.0	19
Gros Cailloux	3.6	18
Belle Rive (MSIRI)	3.4	18
Mon Bois	3.7	18
Medine	4.4	17
N. Decouverte	5.2	17
Beau Songes	3.3	16
Arnaud	3.4	16



(a) (b)

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





3. Sunshine and Humidity

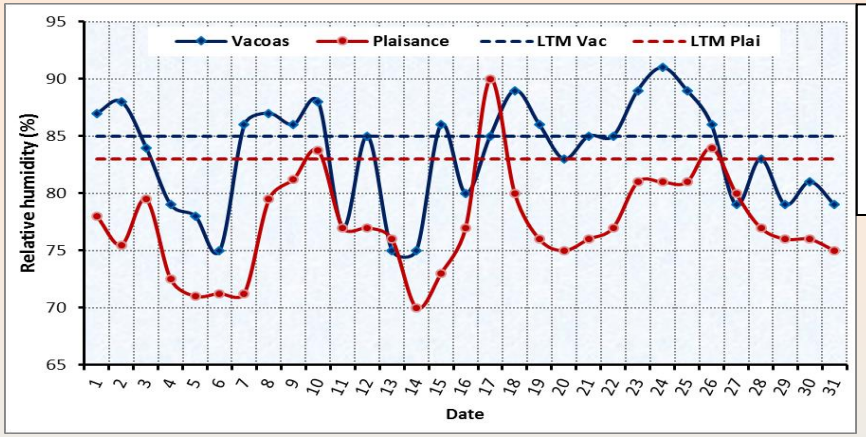


Fig. 9: Daily Relative Humidity: Vacoas (blue) and Plaisance (red)

The relative humidity (RH) showed a lot of fluctuations for both Vacoas and Plaisance. Since March was a dry month, the average monthly RH was below the normal for both Vacoas and Plaisance. The highest humidity was recorded on the 17 for Plaisance with 90 % and on the 24 for Vacoas with 91 % (Fig 9). The lowest RH at Plaisance was recorded on the 14 and was 70 %.

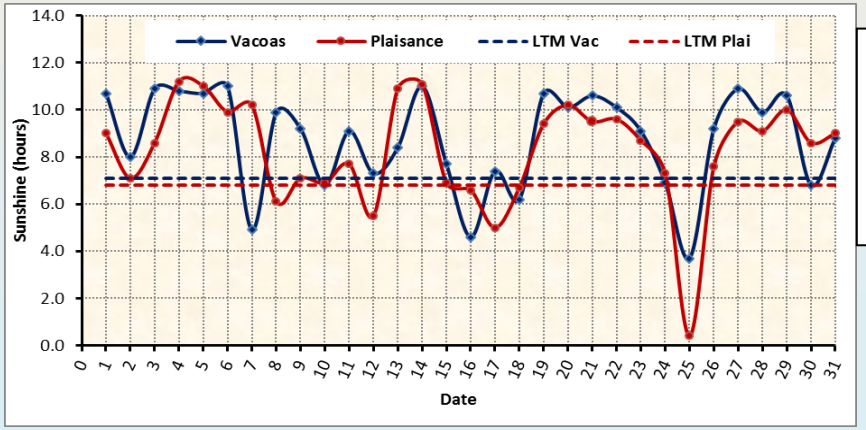


Fig. 10: Daily sunshine hours: Vacoas (blue) and Plaisance (red)

Monthly mean sunshine hours were above the long term mean by 1.7 hours at Vacoas and 1.5 hours at Plaisance. In fact, for most of the month, both Plaisance and Vacoas had daily sunshine hours which were above normal by 2 hours. On the 25, the sunshine hours were almost nil for Plaisance under the influenced of clouds induced by ITC JOANINHA (Fig 3 (c)).

4. Winds

Most of the time during the month of March 2019, a light wind prevailed over Mauritius, Fig 11. The prevailing wind direction was from the eastern to southern sector. On many occasions the wind direction was from the northwestern sector during the night at Plaisance. This was due to the land breeze especially during the second week and by the end of the month.

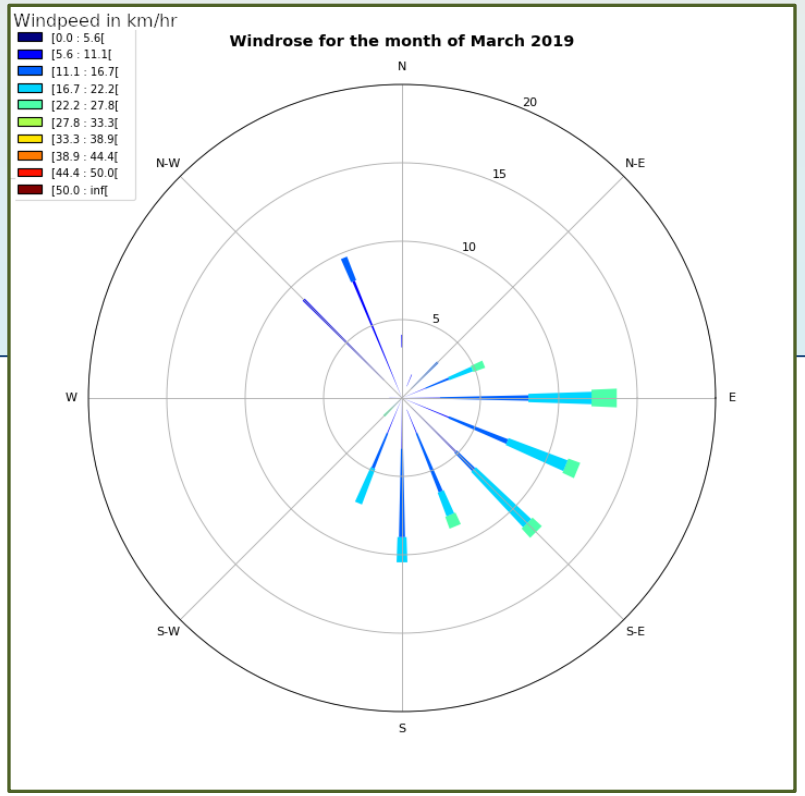


Fig. 11: Wind frequency at Plaisance

FORECAST FOR APRIL - MAY - JUNE (AMJ)

There are indications that the central and eastern equatorial Pacific will remain warmer than normal for AMJ with characteristics of a weak El Nino event. This weak El Nino event is expected to weaken to a neutral positive phase towards the end of the forecast period. In the Indian Ocean, the SIOD index is neutral. In the previous MAM statistical run above normal rainfall was predicted, however, using empirical method an optimum forecast was worked out and March was forecasted to be below normal with 139 mm and this was close to the recorded rainfall of 144 mm.

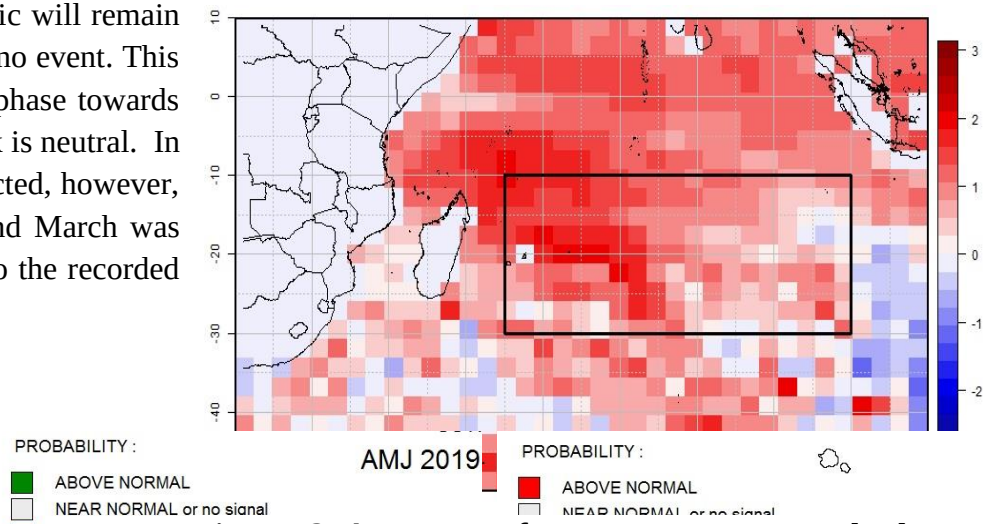


Figure 12: AMJ sea surface temperature anomaly chart

Consensus forecast for Mauritius

- Statistical model is expecting above normal rainfall for AMJ (Fig. 14(a)). In view of the expected evolution of large and regional scale atmospheric-oceanic circulations, the monthly forecast is expected to be as follows: April (above normal ~310mm), May (slightly above normal (~165mm) and normal for June (~110mm)

- Day time maximum temperature will continue to remain above normal at most places due to above normal sea surface temperature and high humidity over the Mascarene region.

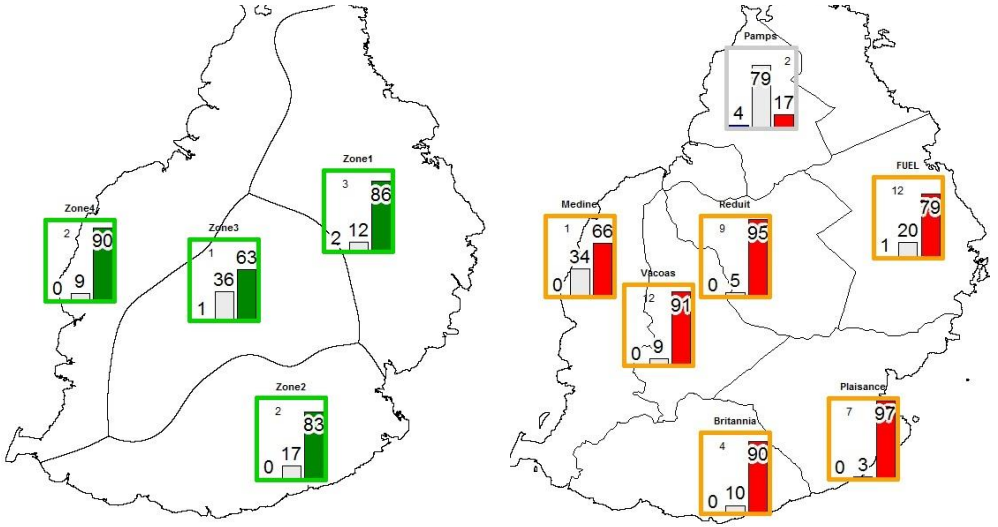


Fig. 13: Statistical Model Forecast of (a) rainfall and (b) temperature

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