



MAURITIUS METEOROLOGICAL SERVICES



CLIMATE DECEMBER 2020

Introduction

In the southern hemisphere, 21 December marks the summer solstice where the longest daylight is observed. Cold days were felt from 09-15 and 23 when temperatures dropped by 2-4°C. The total rainfall was above normal for the month. Thunder was observed only on 15.

Moderate negative ENSO (Moderate La-Nina) prevailed over the equatorial Central Pacific Ocean. The IOD was neutral in the equatorial Indian Ocean and the Subtropical Indian Ocean Dipole was negative. MJO was not active in the SWIO.

1. Rainfall

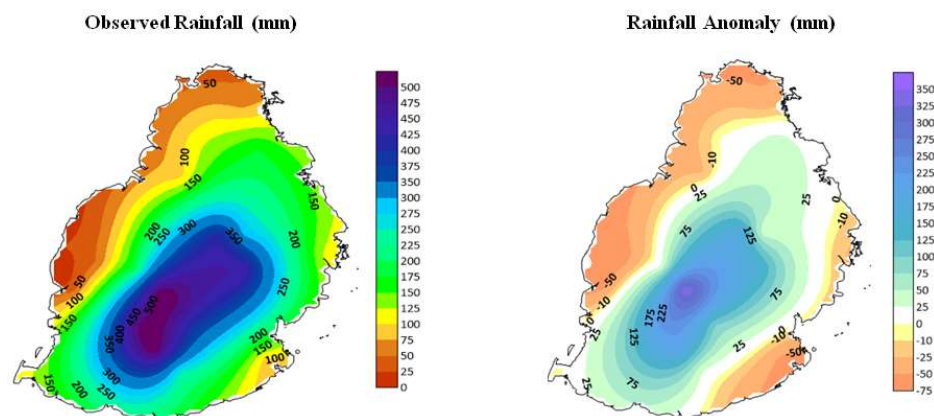


Fig. 1: Spatial rainfall distribution (a) Observed (b) Anomaly (mm)

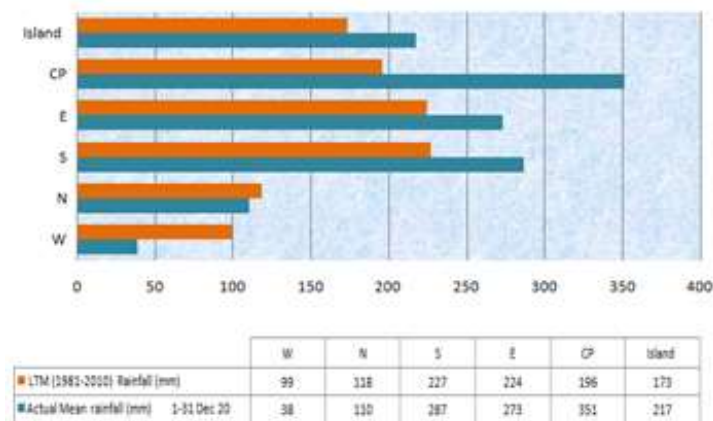
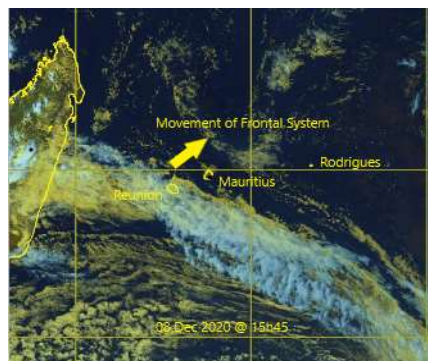
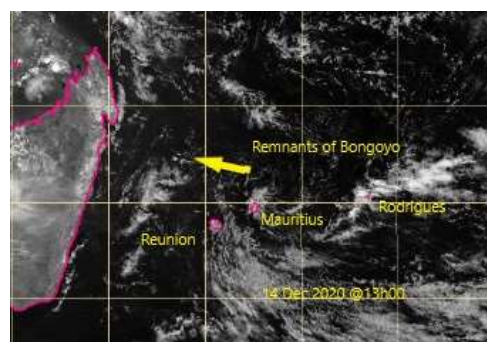


Fig. 2: Regional rainfall distribution

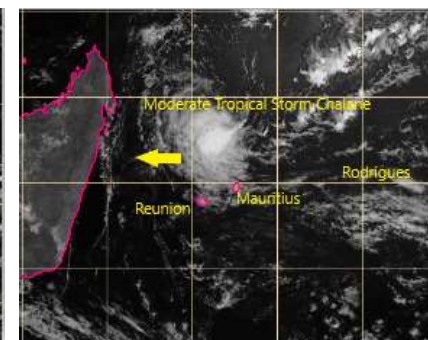
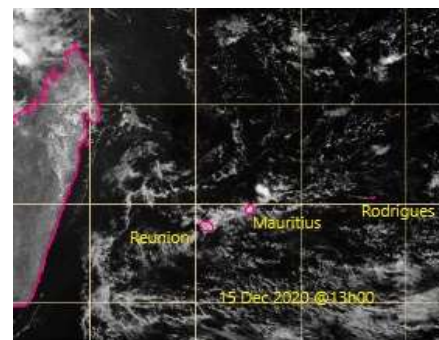
An average of 217mm of rainfall was recorded over the island equivalent to 125% of the long term mean for the month. More rainfall was recorded during the first fortnight with 71% of the monthly mean and 54% during the second fortnight. The highest deficiency was in the extreme West by about 50mm while the region of Mon Bois had an excess of about 360mm of rain. Vacoas recorded 19 rain days (≥ 1 mm of rain). The highest rainfall in 24-hour was 106.5 mm recorded on 09 at Sans Souci. Clouds associated with the remnants of tropical storms Bongoyo and Chalane contributed significantly to the rainfall of the month (Fig 3b & 3c)



(a) Cold front advecting from the South-West in the evening of 08 Dec



(b) Clouds associated with remnants of Bongoyo on 14 and 15 Dec 2020



(c) Clouds associated with MTS Chalane on 25 Dec 2020

Fig. 3: Meteosat 8 satellite pictures

2. Surface Temperature

The monthly mean temperature over the island in December 2020 was 25.9°C which is slightly above the LTM 1981-2010 (+0.7°C).

The mean minimum temperature anomaly was slightly above normal (+0.8°C) and the mean maximum temperature anomaly was close to the normal (+0.1°C).

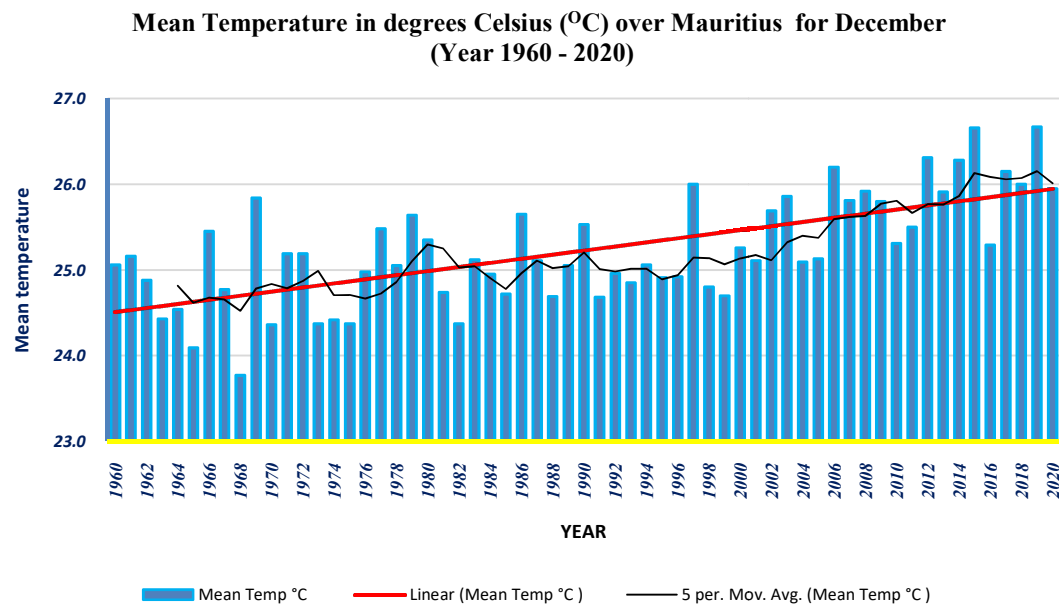


Fig. 4: Mean temperature trend for December from 1960-2020

Temperatures during the month were slightly above normal as most of the time the days and nights were rather warm. However, few cold days were observed during the period of 09-15 and 23 (Fig 3a & 3b) where a drop of about 2-4°C was observed at many stations.

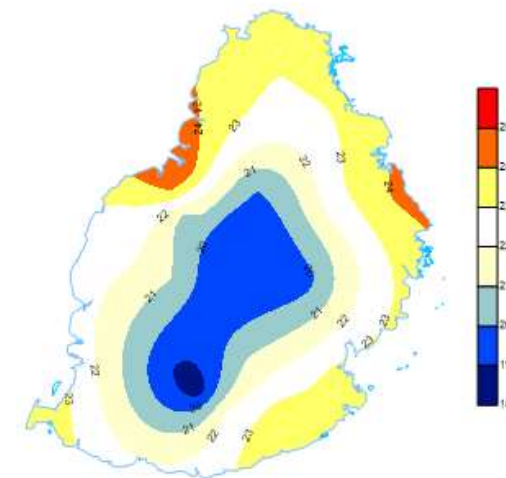
Cold days were observed very locally over the region of Britannia and Belle-Rive (Wooton) (Fig 6(b)). However, the Western and North-eastern parts were warmer. Cold nights were observed very locally over the region of Gros-Cailloux else it was warmer over most part of the island (Fig 6(a)).

Warm days, over most parts of the island, were particularly observed during the first week with maximum temperatures above the normal by 1-3°C; day 03 was the warmest for the month (Fig 7) while day 09 and 10 were the coolest. The lowest maximum for the month was 19.9°C recorded at Grand-Bassin on 09. The highest maximum was 34.5°C recorded at Medine on 21.

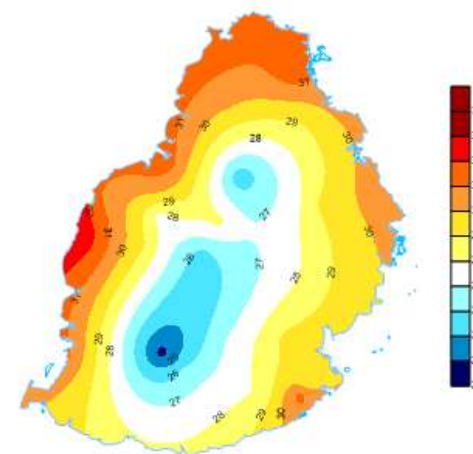
New extreme maximum temperature was recorded at:

Station Location	New extreme maximum in °C	Previous extreme maximum in °C
Albion	34.4	33.7
Beau-Songes	34.0	33.3

The night temperatures (Fig 7) were warmer by 1-3°C in most places during the second fortnight. The lowest minimum recorded was 16.4°C at Grand-Bassin and the highest was 26.5 at La Baraque.



(a)

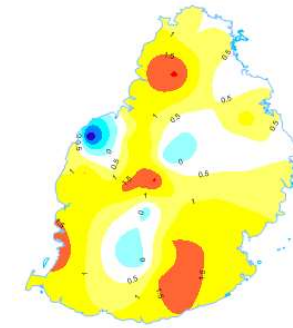


(b)

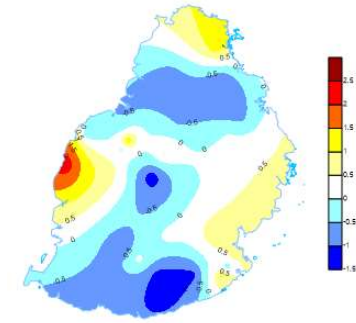
Fig. 5: (a) Mean minimum (b) Mean maximum temperature distribution

Observed warm days (maximum temperature anomaly (anamax > 2°C)) and warm nights (minimum temperature anomaly (anomin > 2°C)).

Stations	Highest anomin (°C)	Number of warm nights	Stations	Highest anamax (°C)	Number of warm days
La Baraque	4.9	9	Medine	4.0	21
Ferret	4.1	23	Albion	3.8	6
Britannia	3.6	9	Moka	3.6	12
Medine	3.7	3	Quatre-Bornes	3.3	8
Beau Songes	3.3	4	Mon Desert Mon Tresor	3.3	8
Moka	3.2	8	Riche en Eau	3.2	7



(a)



(b)

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

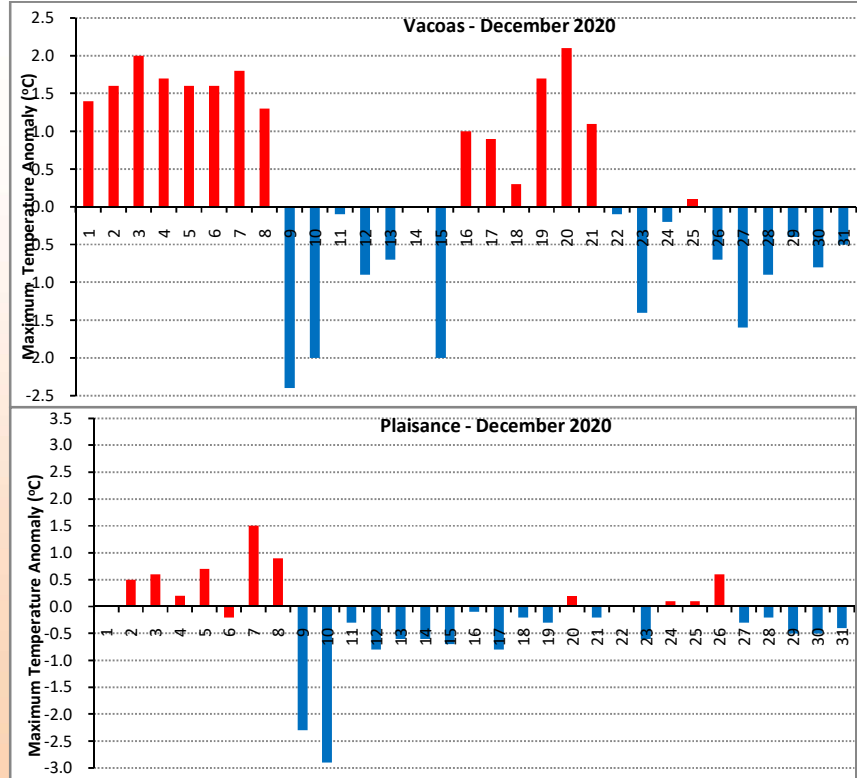
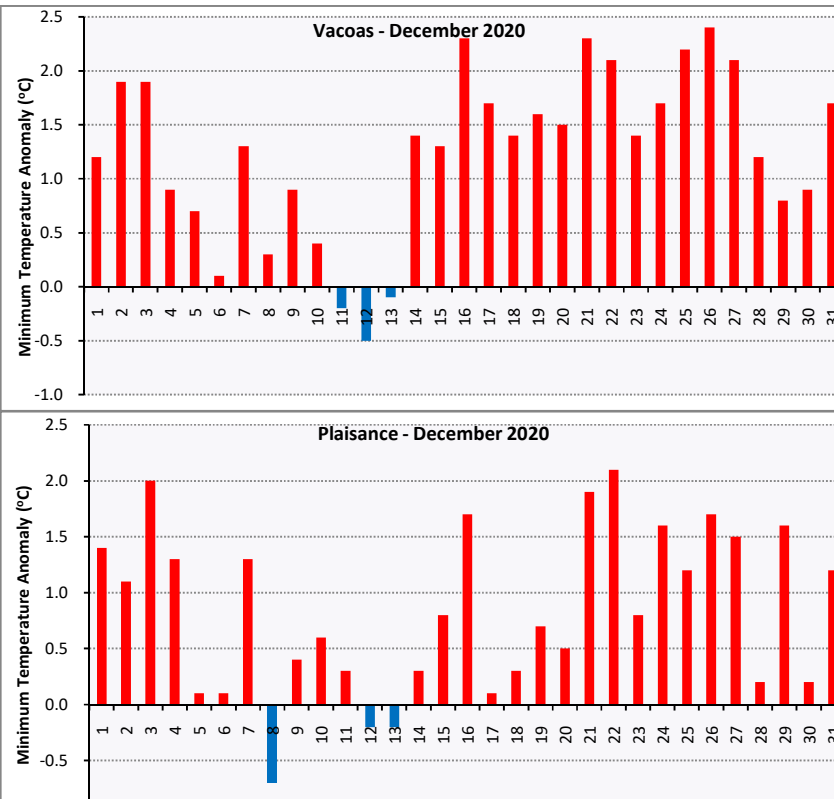


Fig. 7: Daily temperature anomaly at Plaisance and Vacoas: Minimum (left) Maximum (Right)

3. Sunshine and Humidity

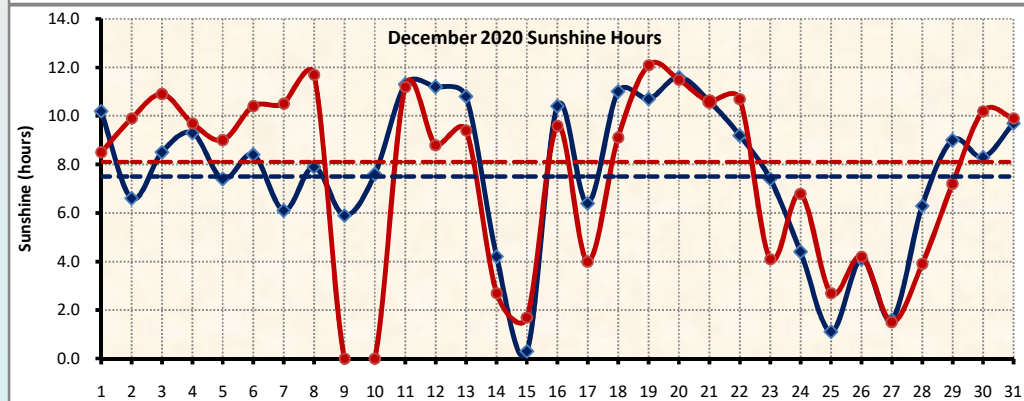
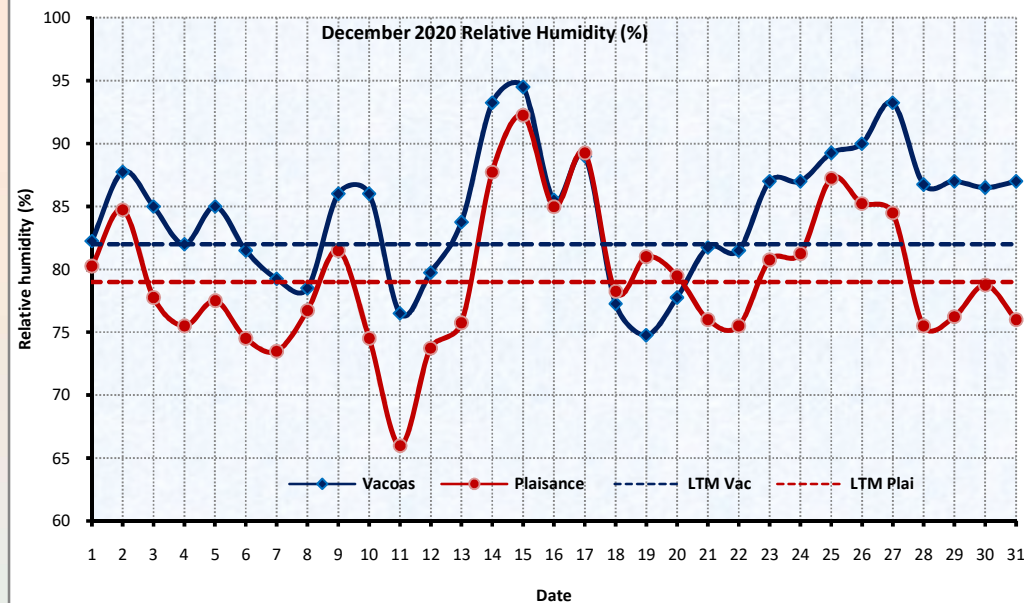


Fig. 8: Daily relative humidity and sunshine

Mostly moderate winds blew from the South-eastern sector instead of the Easterlies normally present for this period of the year. The highest gust recorded over the island was 86 km/h recorded at Domaine les Pailles on 23.

The mean relative humidity was mainly above normal. The low relative humidity values on 11 were due to the relatively cold and dry air following the passage of a cold front (Fig 3a). On very few occasions, during cloudy and rainy conditions, the humidity exceeded 90 % at Vacoas and Plaisance (Fig 8).

The number of daily bright sunshine hours was close to the normal at Vacoas and Plaisance; with a daily mean difference of +0.2 hours and -0.6 hours compared to the LTM recorded at Vacoas and Plaisance respectively. The lowest sunshine hours on 09 and 10 were due to cloudy to overcast conditions that prevailed at Plaisance (Fig 3a). The total number of monthly bright sunshine hours at Vacoas was 237.5 and at Plaisance 232.5.

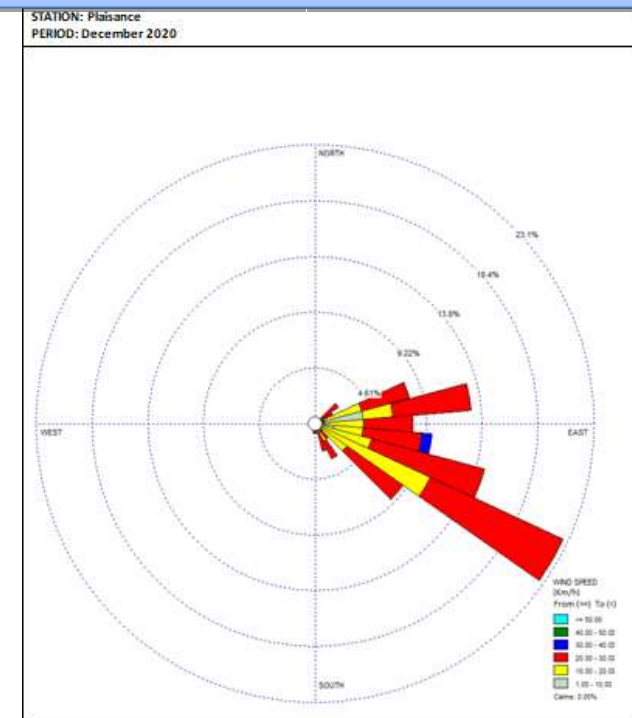


Fig. 9: Wind frequency at Plaisance.

FORECAST FOR JANUARY-FEBRUARY-MARCH (JFM)

Moderate La Nina will continue over the equatorial Pacific Ocean. From Figure 13 (a), in the Indian Ocean, IOD will be neutral whereas in the subtropics negative SIOD has a tendency of becoming neutral from negative (Fig 13(a)).

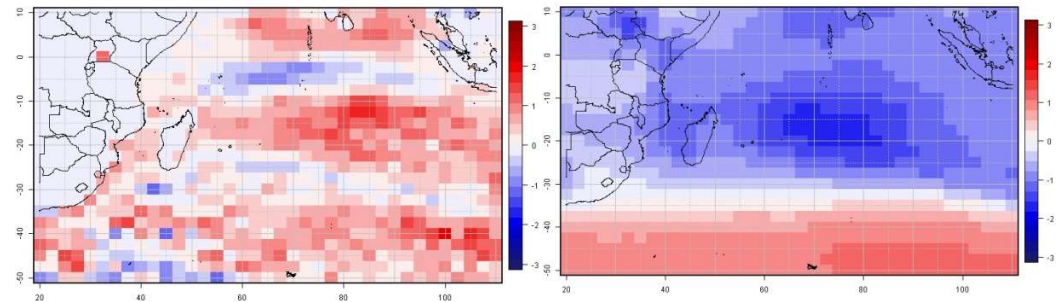


Figure 13: (a) Sea surface temperature and (b) pressure anomaly charts for JFM 2021

Consensus forecast for Mauritius

Statistical analysis is showing more likely normal rainfall for JFM.

However, other indicators are favourable for below normal conditions for January, with a tendency of becoming less dry afterwards

As such cumulative monthly rainfall is as follows:-

- January below normal (~190 mm)
- February slightly below normal (~270 mm),
- March slightly below normal (~215 mm),

Mean temperature is forecasted to be near normal in most places (Fig 14b).

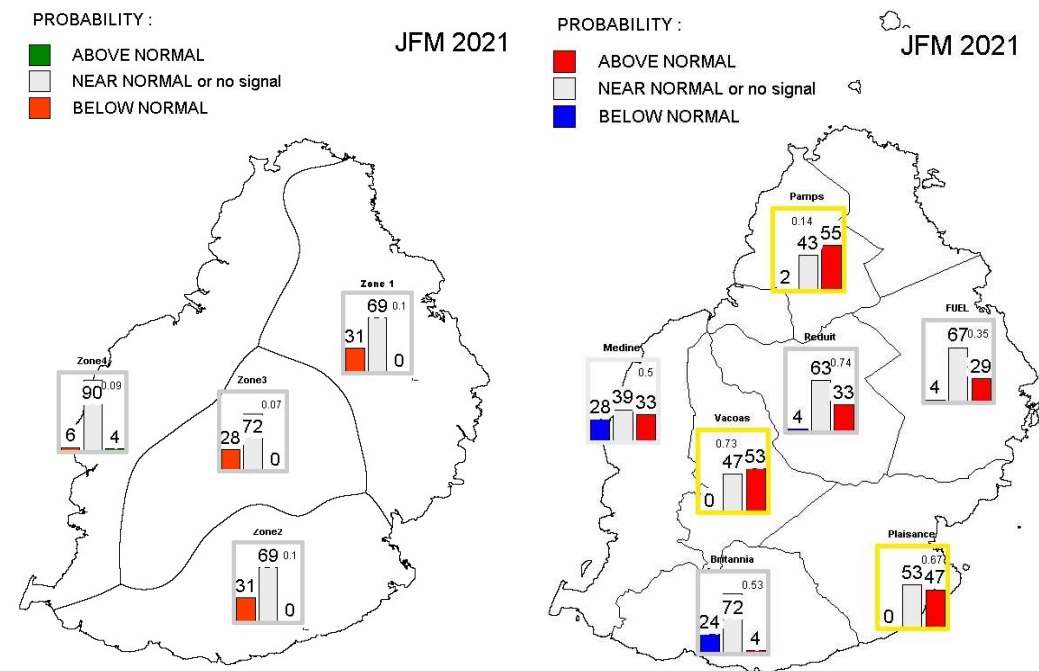


Fig. 14: Statistical Model Forecast of (a) rainfall and (b) temperature

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