Namibia Seasonal Monitor

Number 1, April 2021

NAMIBIA METEOROLOGICAL SERVICE

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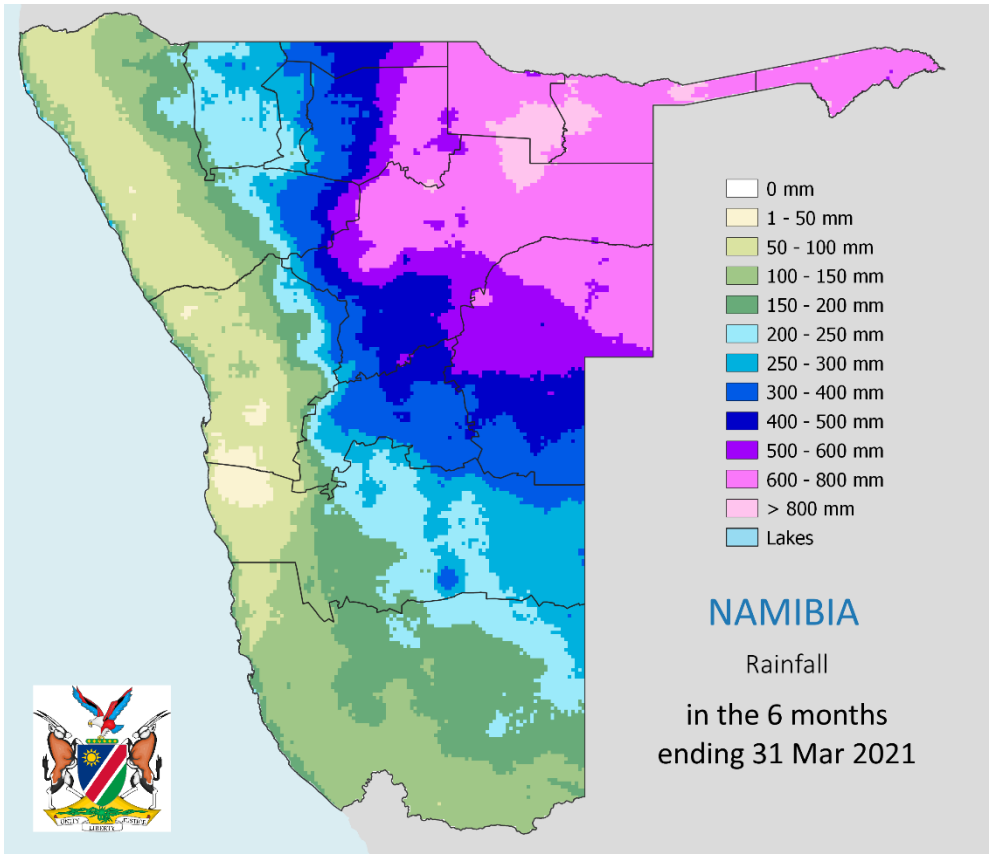
1. Highlights

- The 2020-21 rainfall season in Namibia shows some contrasting performances across the country. In the northwest of Namibia (Kunene and Omusati regions) rainfall was below average with particularly dry conditions in northern Kunene.
- In contrast, southern regions received exceptionally high rains, whereas some areas received two or three times the usual rainfall amounts. In the northeast (Kavango West and Kavango East, Zambezi), rainfall was average to above average throughout the bulk of the season.
- The season started off quite dry for most parts of the country (except northeast) but heavy rains in December and January brought improved conditions for crop development and grazing for livestock except in north-western regions.
- Vegetation and soil moisture conditions were favourable in Namibia, except in the northwest, in response to the favourable rainfall pattern. Good water availability for livestock is expected.
- The Kunene region is flagged as an area of major concern, due to the intense and persistent rainfall deficits throughout the full length of the season. Satellite data indicates very sparse vegetation cover and very low soil moisture in this region, in particular its northern areas close to the border with Angola.

2. Seasonal Overview



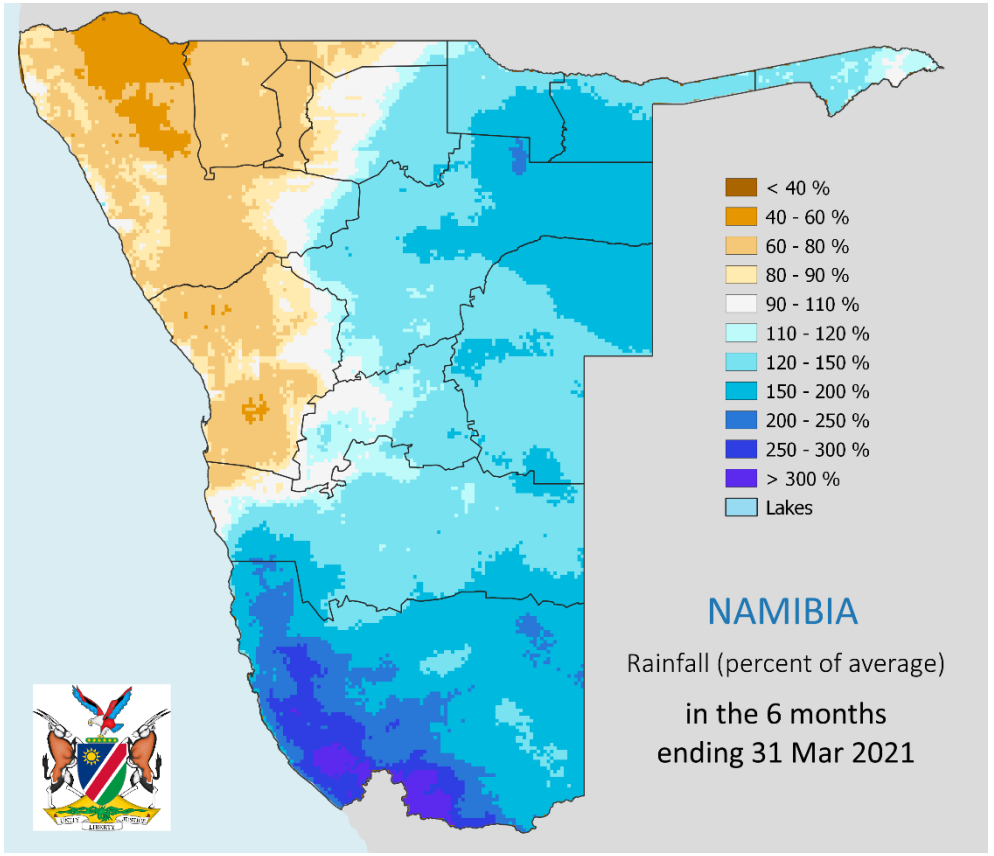


Figure 1 – 6 months rainfall amount until the end of March 2021 (left) and the same as a fraction of the long term average (right). In the map to the right, blue shades represent above average conditions, orange shades represent below average conditions.

The Seasonal Overview

The overall performance of the rainfall season shows the bulk of the rains (500mm – >800mm) were received over the north-eastern sector of the country which corresponds to the climatology of the country. However, the south-western parts of the Karas region received above normal rainfall while the remainder of the interior was mostly in normal range.

The most significant point is the dryness in the northwest of the country as those regions did not have a good season in over 5 years, implying a threat to livelihood of the people and survival of the animals.

3. Main Features of the Rainfall Season

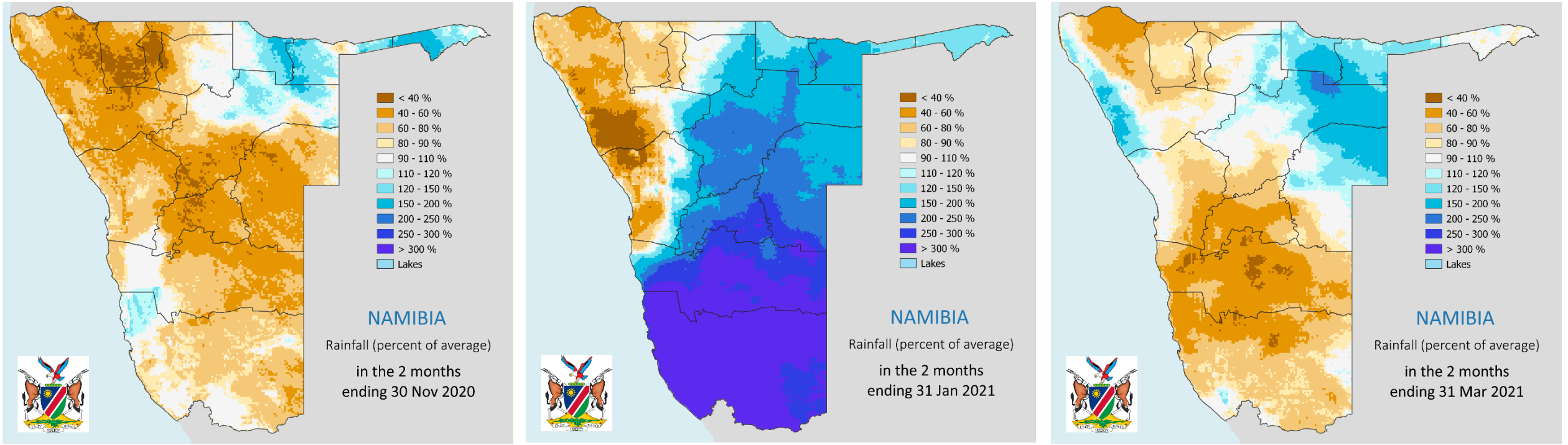


Figure 2: 2 month rainfall amounts in Oct-Nov (left), Dec-Jan (middle) and Feb-Mar (right) as a fraction of the long term average. Blue shades for wetter than average conditions, orange shades for drier than average conditions.

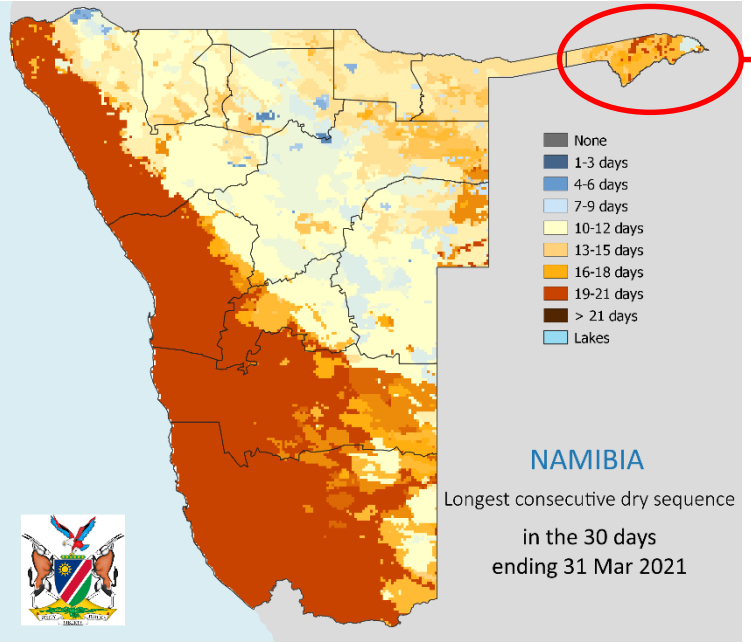
The way the season evolved

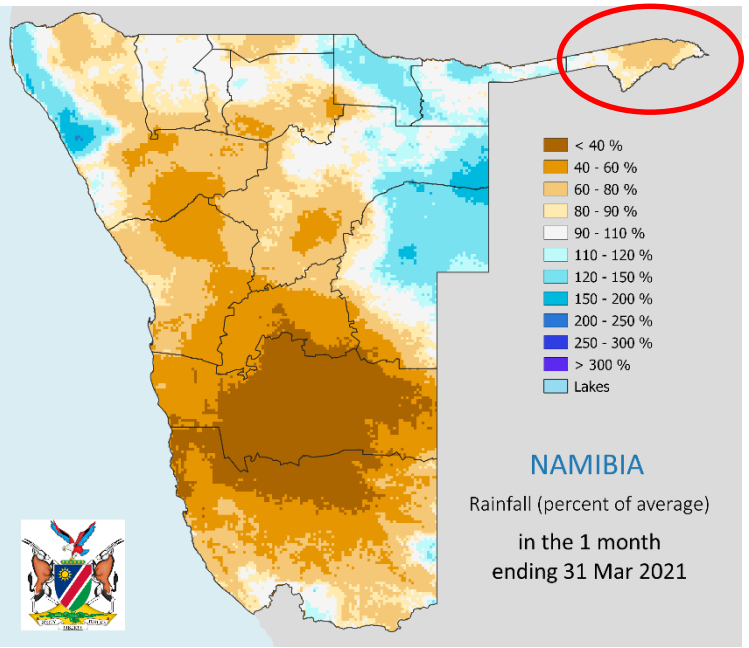
The season started off quite dry for most parts of the country except the Zambezi, Kavango East & West, eastern Otjozondjupa and a spot in the Namib.

December and January brought about showers which improved the seasonal performance for most part of the country except the extreme northwest.

Below average rainfall was again experienced as the rains reduced in February and March, however, spots along coast, the Kavango East and West, eastern Otjozondjupa and Omaheke regions received above normal rains.

4. Focus on the Late Season





The Late Season

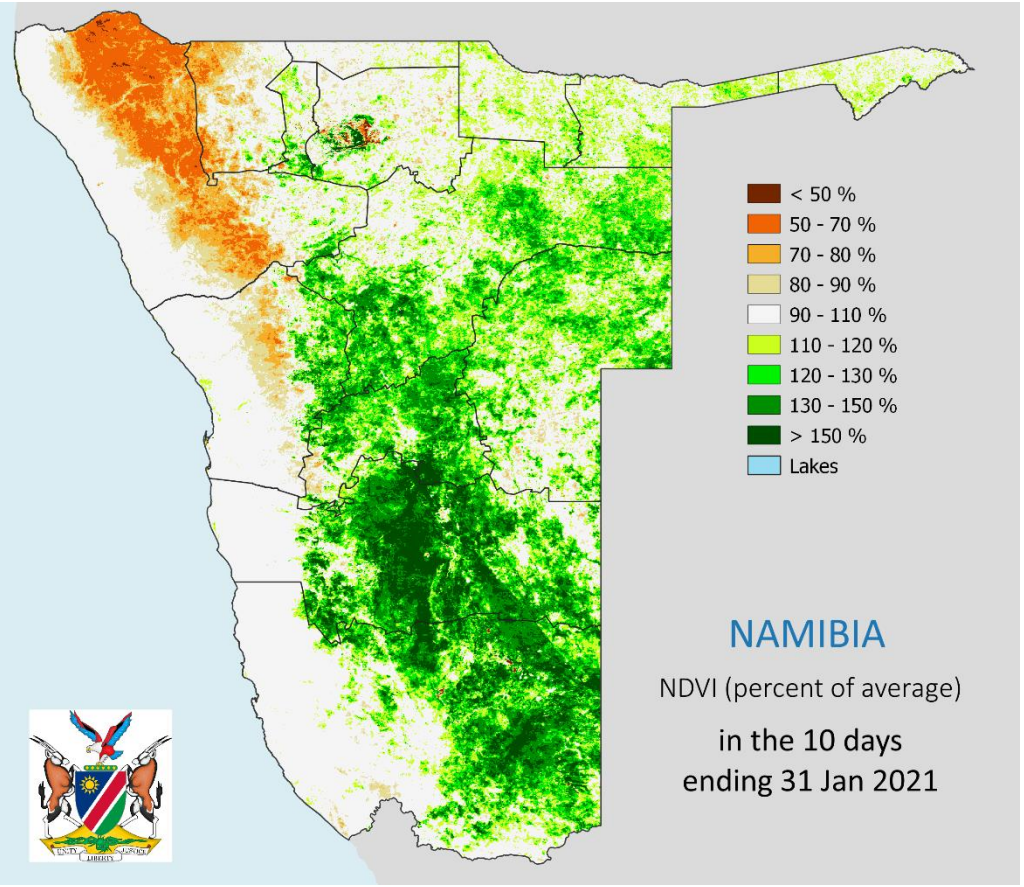
For the month of March, satellite data indicated that the northeast of the country was affected by dry spells ranging from 2 to 3 weeks with little to no rain in most places. Dryness in the western sector is typical of these regions for the time of the year.

Verification of raingauge data shows that effectively longer than usual dry sequences affected the Zambezi region in particular. These dry sequences led to a monthly deficit of rainfall of around 30%.

Late planted crops, in particular maize, that might have been still in flowering or early grain formation by early March, would have been hit by the dry conditions, leading to reduction in yields. Crops with normal planting time most likely escaped serious consequences.

Figure 3 – Top: longest consecutive dry sequence (dry spell) during March 2021. Warm shades for longer dry sequences. Bottom: March 2021 rainfall as a proportion of the long term average. Blue shades for wetter than average conditions, orange shades for drier than average conditions.

5. Vegetation



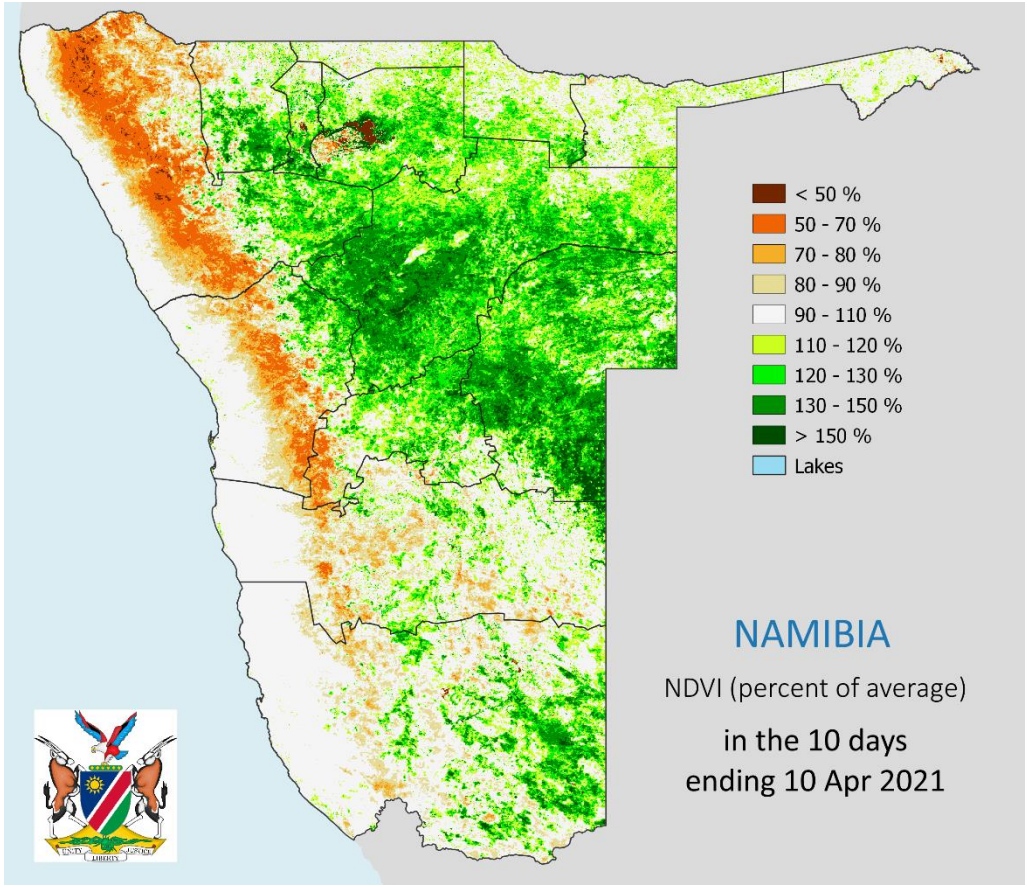


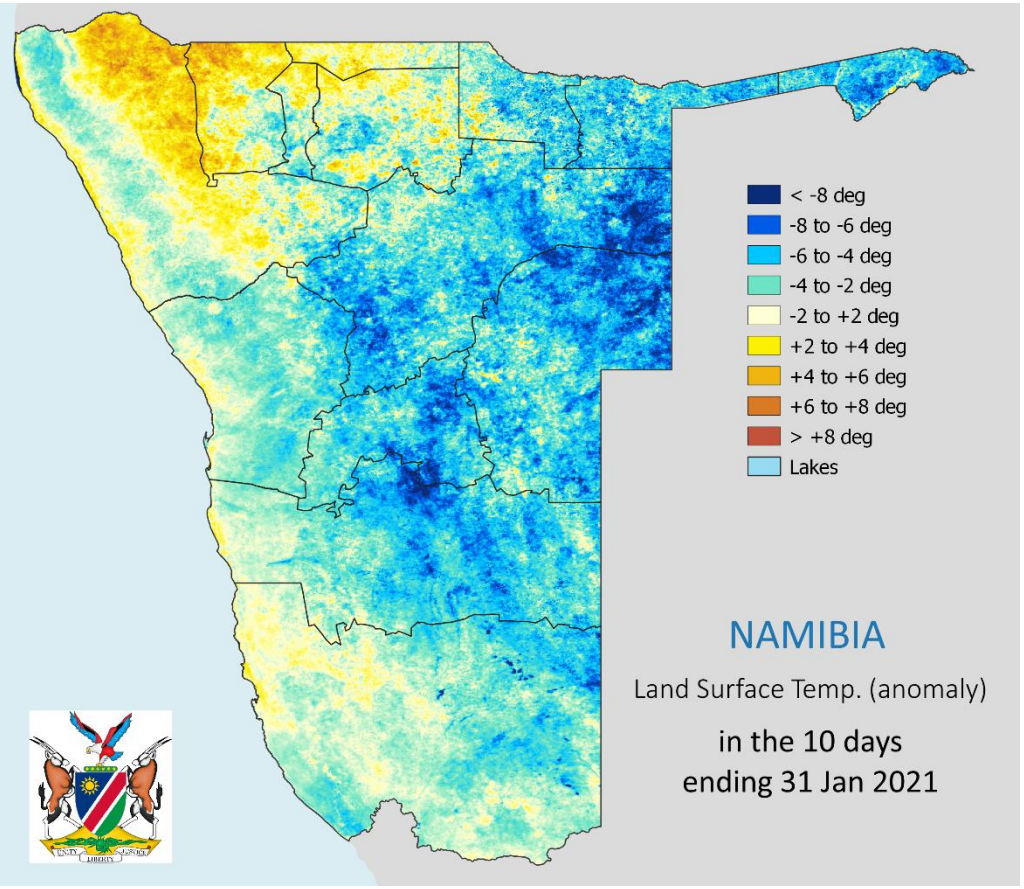
Figure 4 – Normalized Difference Vegetation Index as a proportion of the average, by end of January 2021 (left) and by early April 2021 (right). Green shades for above average conditions, orange shades for below average conditions.

Impacts on vegetation cover

North-western regions (Kunene and Omusati) show much sparser than usual vegetation cover which is due to the strong rainfall deficit that affected these regions from the beginning of the season. Poor conditions extended southwards in Erongo region along the escarpment.

Some recovery of conditions took place in Omusati towards later stages of the season. In contrast, much above average rainfall in the southern regions led to exceptional vegetation growth, as it responds quickly and intensely to excess rainfall. In the northeast (Kavango East and West and Zambezi), vegetation development proceeded favourably in response to consistently on or above average rainfall.

5. Land Surface Temperature



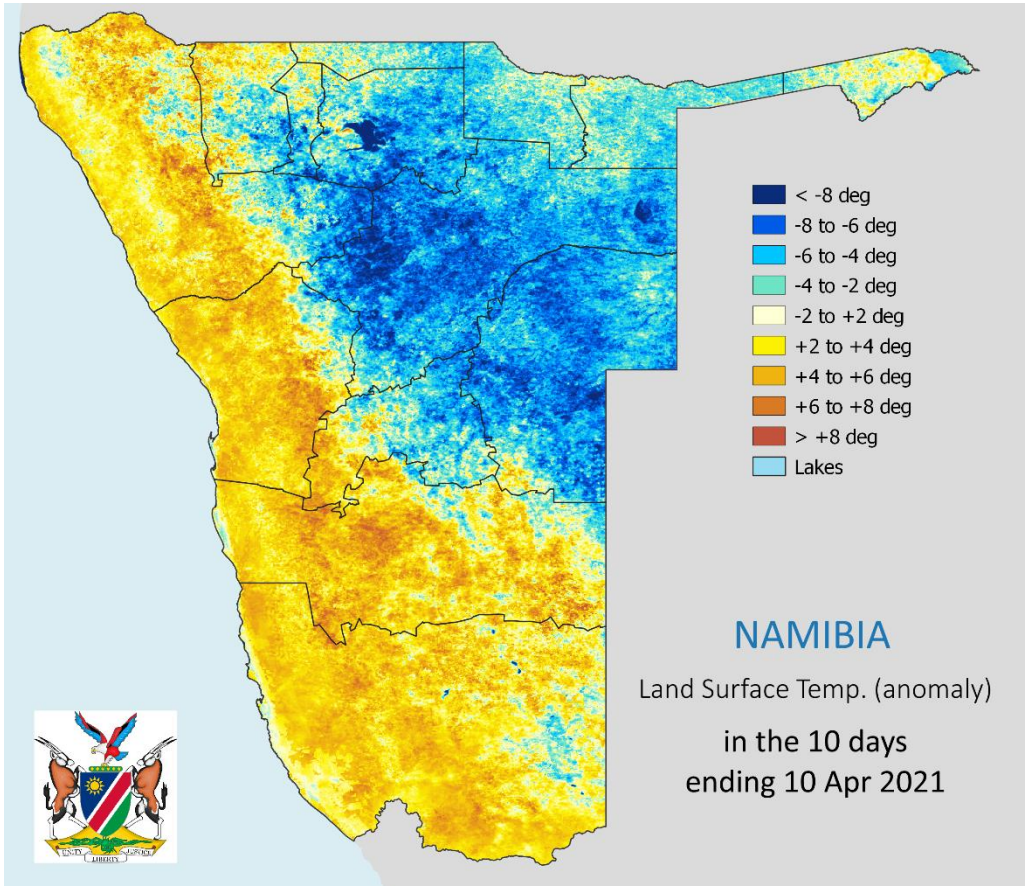


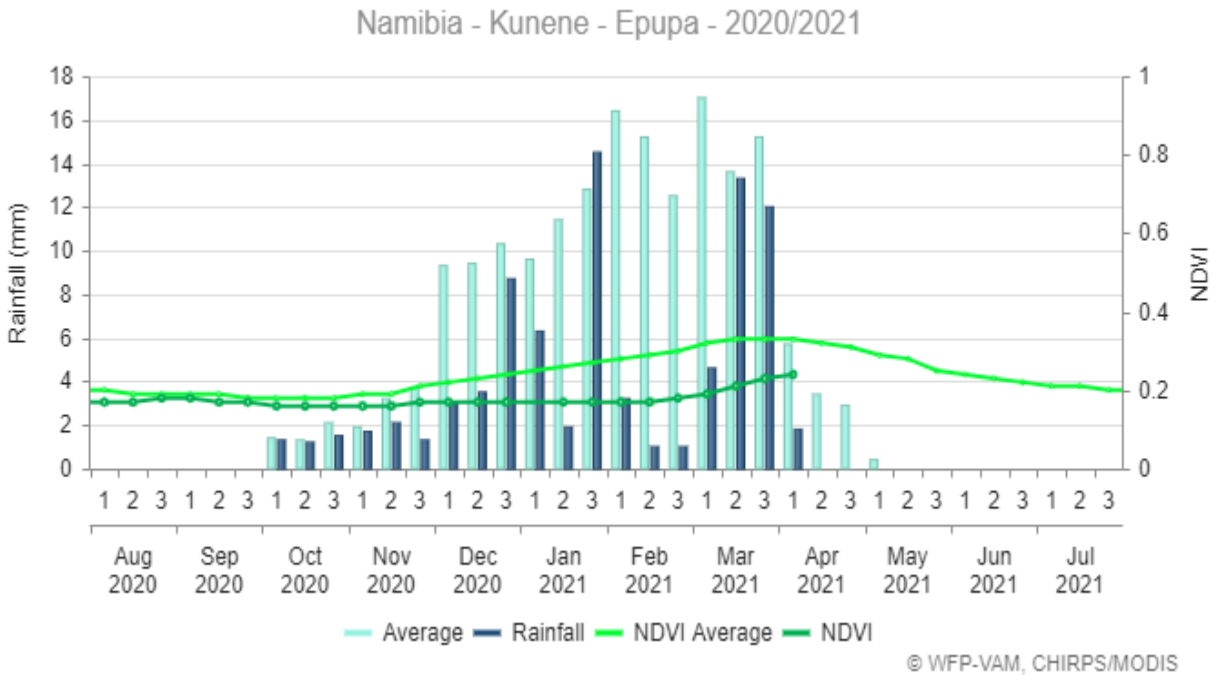
Figure 5 – Land Surface Temperature as a difference from average, by end of January 2021 (left) and by early April 2021 (right). Blue shades for cooler than average conditions, orange shades for warmer than average conditions.

Impacts on land surface temperature

Surface temperature were cooler than average due to the fact that the rains have a cooling effect on the ground surface as well as the vegetation. However, the northwest area had warmer temperatures due to poor rainfall and low soil moisture during the season.

In the absence of rainfall the ground temperature became warmer over the west and the south, while the remainder of the interior had cooler temperatures and soil moisture due to the persisting rainfall over the region. We notice the warmer than usual ground conditions in Zambezi region as a result of the late season rainfall deficits and dry spells (see slide 5).

6. Areas of concern



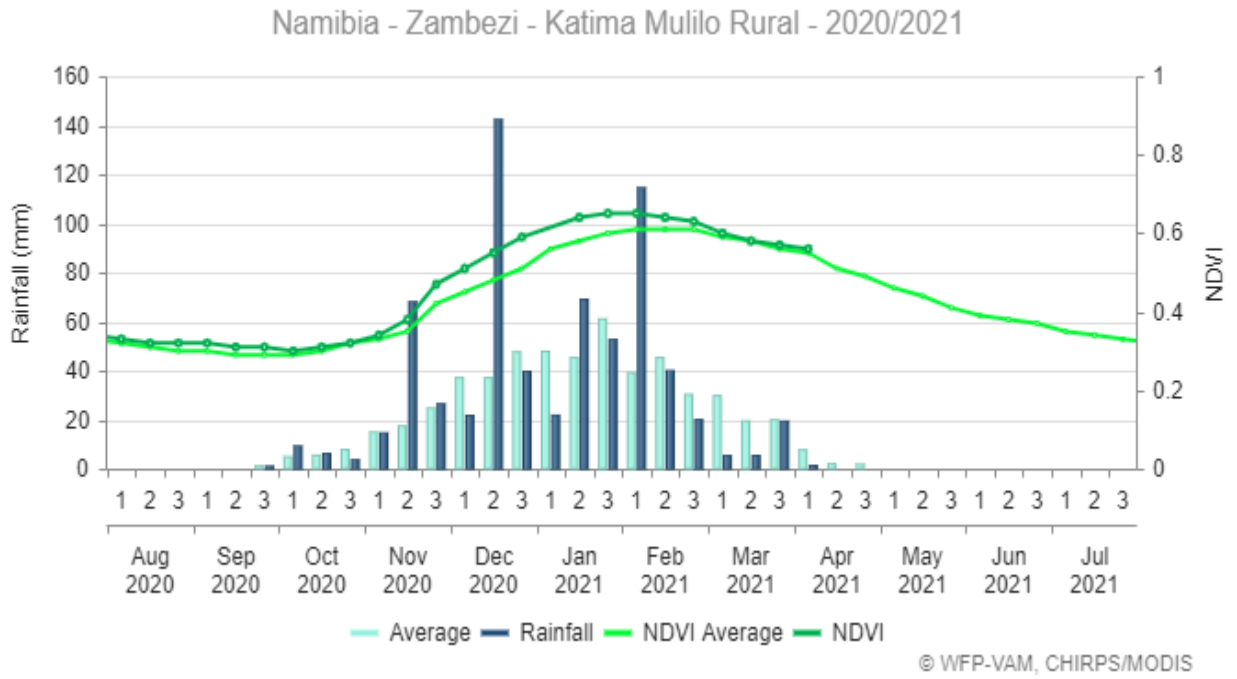


Figure 6 – Seasonal rainfall and vegetation index charts for Epupa (Kunene) on he left and Katima Rural (Zambezi) on the right. Rainfall as blue bars (dark for current season, light for long term average), Vegetation Index as lines (dark green for current season and light green for long term average.

Areas of Concern

Kunene (especially north): High Concern – Conditions here (chart above left) are characterized by very strong rainfall deficits and very sparse vegetation cover. These must have led to very poor pasture and water resources for livestock. Crop development in the region although not a major livelihood resource will likely have very poor outcomes.

Zambezi: Possible concern – Drier than average conditions since late February and long dry spells in March may have caused damage to late planted crops. Although the NDVI does not present much evidence of impact, land surface temperature does indicate lower than average soil moisture.

About the Seasonal Monitor

- This monthly bulletin is produced by the Namibia Meteorological Service with the support of both local and international organizations.
- Focus of the Bulletin: seasonal monitoring and early warning when necessary, highlight areas of concern.
- World Food Program (WFP) assisting in the incorporation of satellite data to observations to address the concern of coverage of the area of interest.

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