



REPUBLIC OF ZIMBABWE

MINISTRY OF ENVIRONMENT, CLIMATE AND WILDLIFE

MTEOROLOGICAL SERVICES DEPARTMENT

2024-25 SEASONAL RAINFALL REPORT:

OCTOBER 1, 2024 TO APRIL 30, 2025

EXECUTIVE SUMMARY

The 2024-25 rainfall season in Zimbabwe exhibited significant temporal and spatial variability, characterized by a delayed onset, and delay in the cessation. The season's effective start was delayed by approximately one month, with most areas satisfying the onset criteria by mid-December 2024 rather than the typical mid-November long-term mean. This delay was compounded by false starts in November, where early rainfall was followed by a prolonged mid-December dry spell exceeding 10 days, disrupting critical early-season moisture availability. The delayed onset had cascading effects on agricultural planning and water resource management across the country.

Monthly rainfall performance revealed distinct hydroclimatic phases throughout the season. October 2024 recorded below-average nationwide rainfall under high-pressure dominance, with totals remaining below 60mm except for isolated late-month convective events. November showed marked improvement, particularly in northern and eastern regions where accumulations reached 87-134mm, though spatial anomalies varied widely from 50% below to 50% above climatological averages. December exhibited a west-east disparity, with western regions exceeding 100mm while northeastern areas suffered deficits over 50% below average due to persistent mid-level ridging. The season peaked in January 2025 with rainfall exceeding 350mm in eastern and northern areas, driven by the position of the InterTropical Convergence Zone (ITCZ) and tropical systems such as Cyclone Dekeledi, before gradually drying through February-April. April remained anomalously wet with the watershed areas receiving over 100mm.

The season's progression was shaped by evolving atmospheric drivers across three distinct phases. Early season suppression of convection under dominant high-pressure systems created initial dry conditions and delayed onset. Mid-season recovery was facilitated by the interaction of westerly cloud bands with tropical moisture sources, including Tropical Depression Chido in December, which enhanced rainfall intensity across western districts. Paradoxically, the late season saw Mozambique Channel cyclones such as Honde in March creating moisture draws that intensified dryness, particularly in southern and eastern districts, despite being typically wet months.

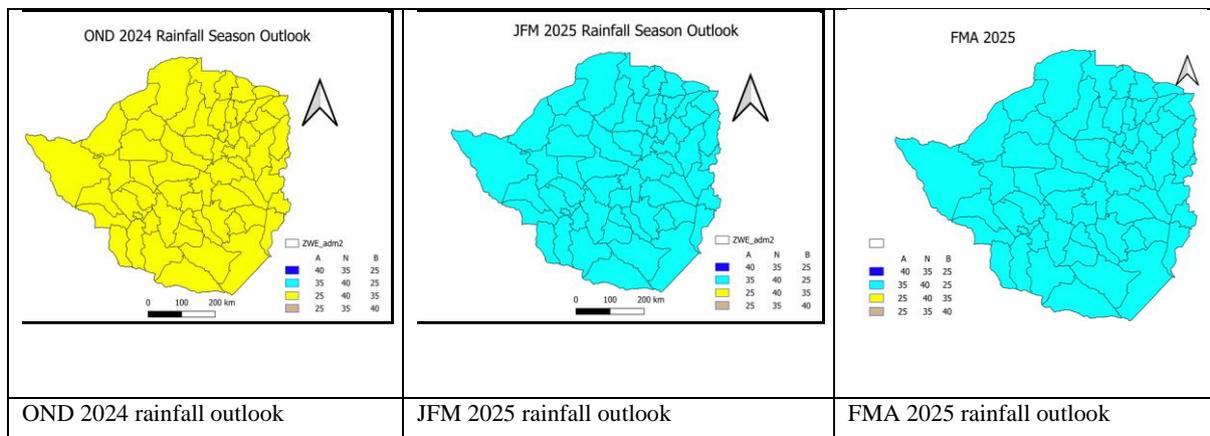
Forecast verification showed mixed performance across the season. The October-December outlook predicting normal-to-below rainfall achieved 70% accuracy, correctly anticipating the delayed onset and early dry spells. The January-March normal-to-above forecast performed even better, matching observations in over 80% of the places, particularly for the exceptional January rainfall. However, localized misses occurred in northern areas during February-April where predicted above-normal rains failed to materialize. These results highlight both the improving skill of seasonal forecasts for broad patterns and the ongoing challenges in predicting localized rainfall anomalies, emphasizing the need for continued model refinement to support climate adaptation strategies.

INTRODUCTION

This report provides an analysis of the 2024/25 rainfall season in Zimbabwe, assessing its distribution, impacts, and implications for key sectors. The analysis is based on data from Meteorological Weather Stations, Volunteer Rainfall Stations and satellite estimates for both rainfall and temperatures. The report aims to evaluate rainfall performance against historical averages, assess impacts on agriculture, water resources, and livelihoods and provide recommendations for adaptation and preparedness. This season was influenced by both El Niño and weak La Niña conditions, contributing to drier than normal condition during the first three months of the season (October to December 2024) and a wetter than normal conditions during the remaining part of the season. The summer season in Zimbabwe starts in October and ends in April. However, the rainfall season varies within that period with a normal start in mid-November and ends around mid-March. The effective rainfall season onset, length and cessation vary from season to season.

THE 2024-25 RAINFALL SEASON OUTLOOK.

OCTOBER 2024 TO APRIL 2025:



PERFORMANCE OF THE SEASON

THE START OF SEASON:

The official start of season in Zimbabwe is 1 October and ends in March of the following year. However, the effective rainfall season varies in onset from one season to another. The start for the 2024-25 season was delayed by almost a month for most parts of the country. The maps below show the long term mean onset of the rainfall season (Fig 2a) compared to the actual onset of the season during the 2024-25 season (Fig 2b).

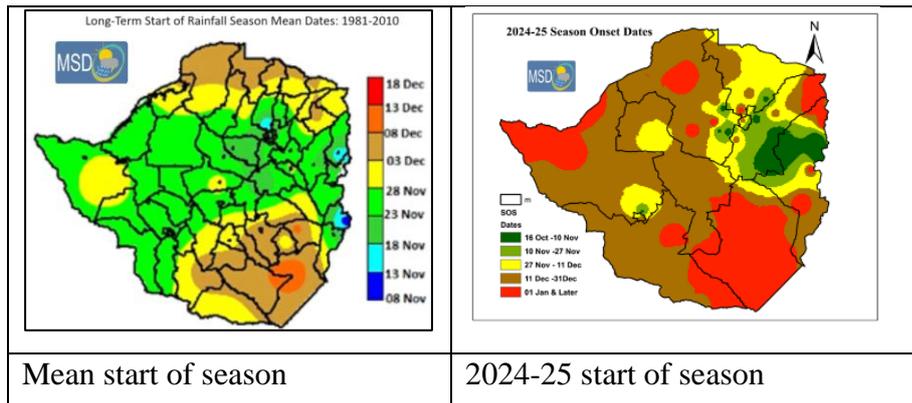


Fig 2 a) Mean start of the season, (b) 2024-2025 start of the season

The start of season is the first day that a place receives rainfall accumulation of 20mm or more in one or two consecutive days that should not be followed by a dry spell of more than ten days for the next thirty days.

False start of season is when some of the conditions for the start are not satisfied.

Dry day is a day that a place receives rainfall accumulation of less than 2.95mm. Consecutive number of dry days makes a dry spell.

The bulk of the country recorded a delayed start to the season although much rainfall was received in November, the dry spell that affected the country during the first and second dekad of the month of December led to most places recording a false start of the season during the month of November 2024. These places had their onset in December 2024.

MONTHLY PERFORMANCE:

A monthly analysis covers the rainfall measured for the month, the actual rainfall compared to the long-term average and the relative anomaly indicating how much the rainfall deviates from the long-term average. The maps in the analysis refer to the (a) monthly total (b) the percentage of normal and (c) relative anomaly.

OCTOBER 2024:

RAINFALL PERFORMANCE:

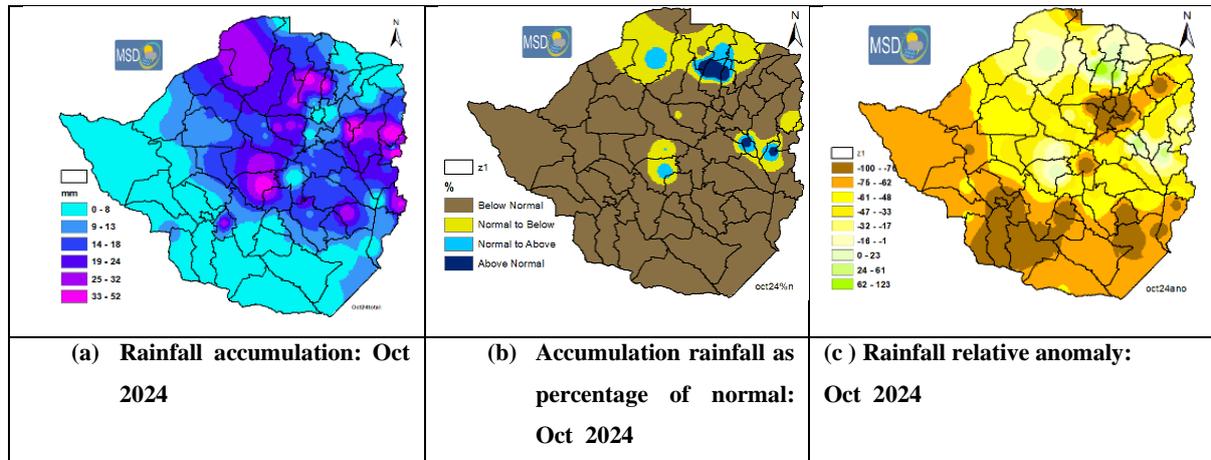


Fig 3 a) October 2024 monthly total, (b) Percentage of normal, (c) relative anomaly

The northeastern regions of the country received higher monthly amounts, while the southern and western areas recorded the least (Fig 3a). Notably, cumulative rainfall was subdued nationwide, with no location exceeding 60mm for the entire month.

Comparative analysis against the long-term average indicates below-average rainfall across the country, as depicted by the dominant brown and yellow shading in Fig 3b. Severe rainfall deficits were particularly pronounced in districts such as Gwanda, Matopos, Umzingwane, Bulawayo, Mangwe, Chiredzi, Zaka, Harare, Seke, and Mhondoro. Provinces including Matabeleland North, Matabeleland South, Bulawayo, southern Midlands, southern Masvingo, Harare Metropolitan, and portions of Mashonaland East registered extreme negative anomalies, reaching up to 100% below the climatological average (Fig 3c).

Conversely, isolated regions—particularly Mashonaland West, Mashonaland Central, central Manicaland, and sections of Midlands—experienced near-normal to above-normal rainfall, highlighted in green (Fig 3c). Some of these areas even recorded positive anomalies surpassing 50% above the long-term average.

DOMINANT WEATHER SYSTEMS DURING OCTOBER 2024:

October's climatic conditions were predominantly influenced by mid-atmospheric high-pressure systems, which inhibited convective weather development. Surface analyses further confirmed the persistence of robust high-pressure systems. Elevated temperatures prevailed due to atmospheric compression and predominantly clear skies. Nevertheless, intermittent

rainfall events occurred, triggered by eastward-moving troughs that intermittently affected the country.

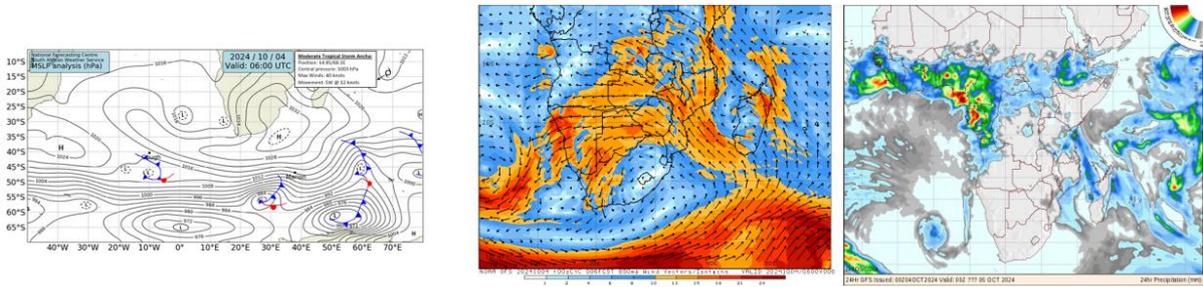


Fig 4

During the period spanning the first week of October through mid-month, dry conditions prevailed across the country. Despite the development of high-pressure systems over the subcontinent, which introduced an influx of cool, moist southeasterly airflow, precipitation remained low, limited to trace amounts. Daytime temperatures were elevated, while nights were mild to warm, as the majority of the period was dominated by cloudless skies.

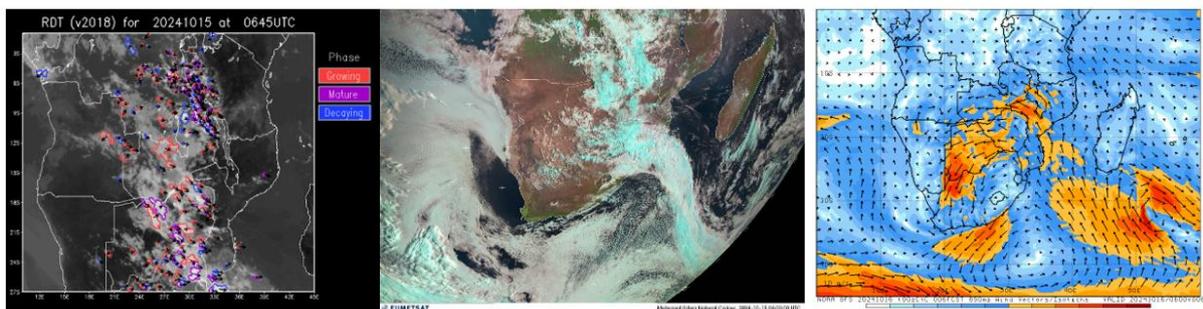


Fig 5

A pronounced westerly cloud band traversed the country during the week ending 18 October 2024, interacting with a high-pressure system to induce atmospheric convergence. This synoptic configuration triggered widespread thunderstorm activity nationwide. Notable precipitation accumulations were recorded at several stations, with Odzi registering the highest total (47 mm), followed by Wedza (45 mm), Bindura University (30 mm), Makuti (18 mm), Mukandi and Mvurwi both received (16mm) and Goromonzi and Zvimba recorded 15 mm.

The week following the dissipation of this cloud system was marked by exceptionally dry conditions, as illustrated in the accompanying analysis. A quasi-stationary mid-level high-pressure system dominated the atmosphere, effectively suppressing convective processes and cloud development. Consequently, the period was characterized by predominantly clear skies, with mild night temperatures and elevated daytime maxima.

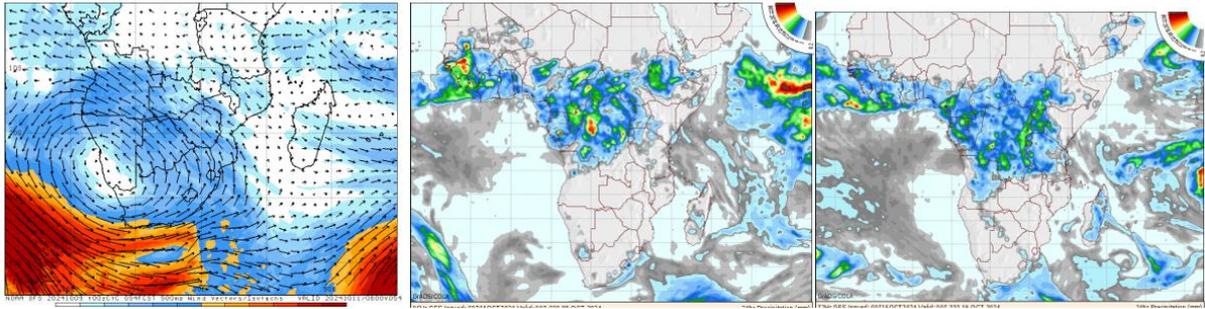


Fig 6

Nevertheless, in the latter part of October, another extensive cloud band advanced into the country from the west, causing widespread convective activity and subsequent rainfall across most of the country. The final five days of the month were marked by frequent thunderstorm occurrences, affecting areas of the country.

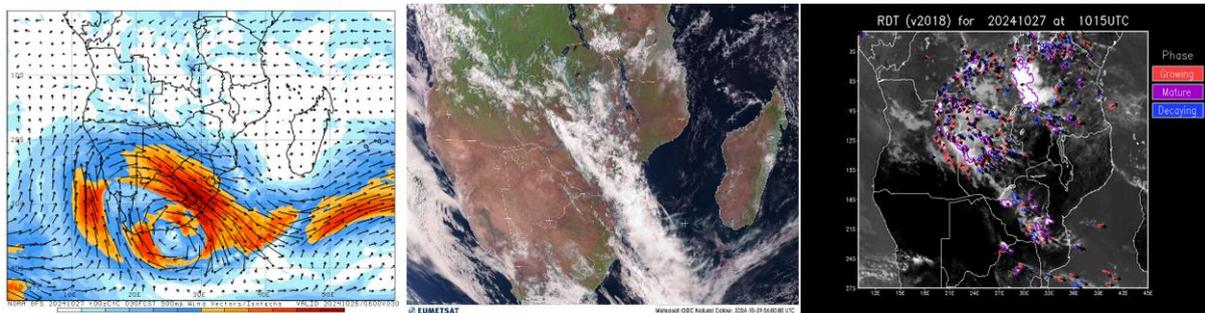


Fig 7

An analysis of mid-level atmospheric circulation revealed the presence of pronounced troughs, which served as the primary drivers for these thunderstorm events and associated precipitation. Notably, several stations recorded considerable rainfall accumulations during this period, including Tsholotsho (51 mm), Nyanga (44 mm), Lupane (38 mm), and Chibero (30 mm).

NOVEMBER 2024

RAINFALL PERFORMANCE:

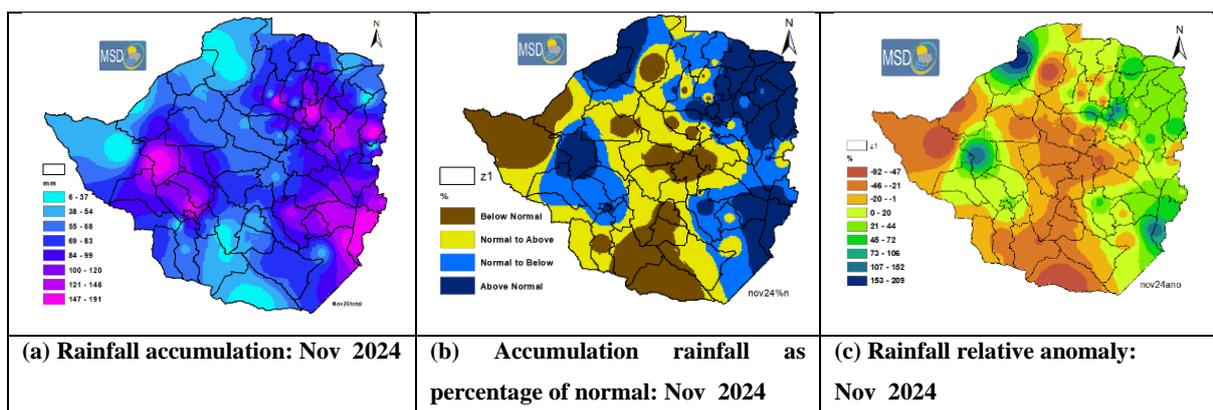


Fig 8

November recorded more rainfall in comparison to October. The most substantial rainfall accumulations were recorded across Manicaland Province, parts of Matabeleland North, portions of Mashonaland East, and the Harare Metropolitan Province, as indicated by the purple shading on the left-hand map, with monthly totals ranging from 87mm to 134mm. Conversely, the lowest precipitation amounts (below 50mm) were observed in southern Matabeleland South, the extreme western parts of the country and northwestern of Mashonaland West province.

Spatial analysis of ground station data revealed considerable variability relative to climatological averages for November. While the central and southwestern parts of the country received near-normal rainfall accumulations, these figures were slightly below historical averages, as evidenced by yellow-shaded areas on Fig 2b. Significant dry conditions prevailed across central and southern districts, where precipitation totals fell substantially below long-term means.

Notable positive anomalies were observed throughout most of Manicaland, parts of Masvingo, the majority of Mashonaland East and Central, Harare Metropolitan Province, westernmost Mashonaland West, and Bulawayo Metropolitan Province - including Lupane district in Matabeleland North. Most stations within these areas recorded rainfall amounts exceeding 50% of their long-term average, represented by the green-to-blue colours in Fig 8c.

In contrast, significant precipitation deficits (reaching up to 50% below normal) were concentrated throughout most of Matabeleland South, central parts of the country, and northern Matabeleland North, as shown by the orange in Fig 8c.

DOMINANT WEATHER SYSTEMS DURING NOVEMBER 2024:

The month of November was dominated by successive westerly cloud bands traversing through Botswana, which propagated across the country, generating substantial precipitation events. Several weather stations recorded significant 24-hour rainfall totals during these systems, including:

- Kariba: 109mm (1 November)
- Lupane: 99mm (2 November)
- Tsholotsho: 51mm (1 November)
- Crowborough: 74mm

These measurements were associated with the initial cloud band that affected the country during the first week of November.

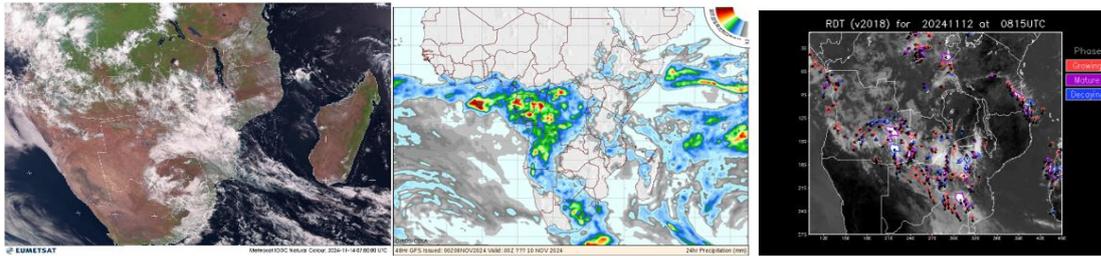
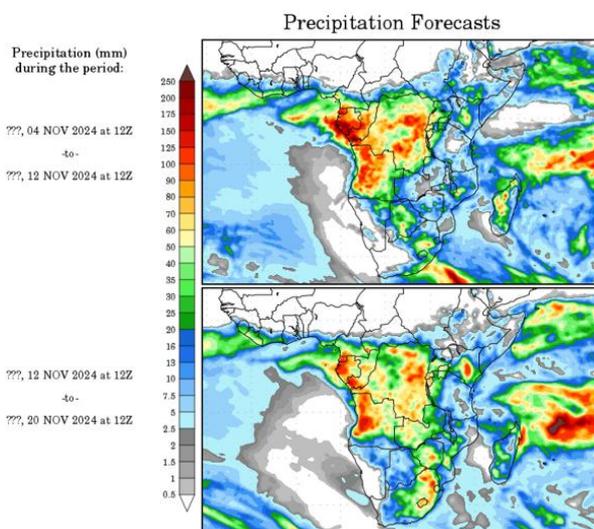


Fig 9: Cloud system during the first week of November 2024

NOVEMBER 4 – 20 CLOUD BANDS.

The Global Forecast System (GFS) projections for this period accurately predicted a wet phase



characterized by multiple westerly cloud systems, which indeed triggered widespread thunderstorm activity nationwide. Meteorological observations confirmed the arrival of a cloud system that produced substantial precipitation during the week ending 15 November.

The forecast issued for 12 November correctly anticipated extensive

Fig 10: GFS

thunderstorm coverage with localized heavy downpours. Verification data revealed numerous stations recording more than 50mm rainfall accumulations in 24 hours:

- Chisumbanje: 94mm
- Dotito: 74mm
- Nyanga: 73mm
- Harare Kutsaga: 72mm
- Nyanyadzi: 55mm
- Chimanimani: 53mm
- Bulawayo: 51mm
- Chatworth & Concession: 50mm

Notably, Bulawayo Airport (JMN) recorded the week's maximum 24-hour accumulation of 105mm, while Kariba's 109mm measurement stood as the monthly extreme rainfall event. Several other stations reported below 50mm accumulations during this period, demonstrating the spatial variability of precipitation distribution. November exhibited an average of 4 rain-days (defined as days with ≥ 2.95 mm precipitation accumulation), with maximum of 9 days recorded at Macheke, Marondera, and Nyanga stations. 46.4% of rainfall stations reported rain-days exceeding the monthly mean, while the remaining stations recorded below-average occurrences.

DECEMBER 2024

RAINFALL PERFORMANCE:

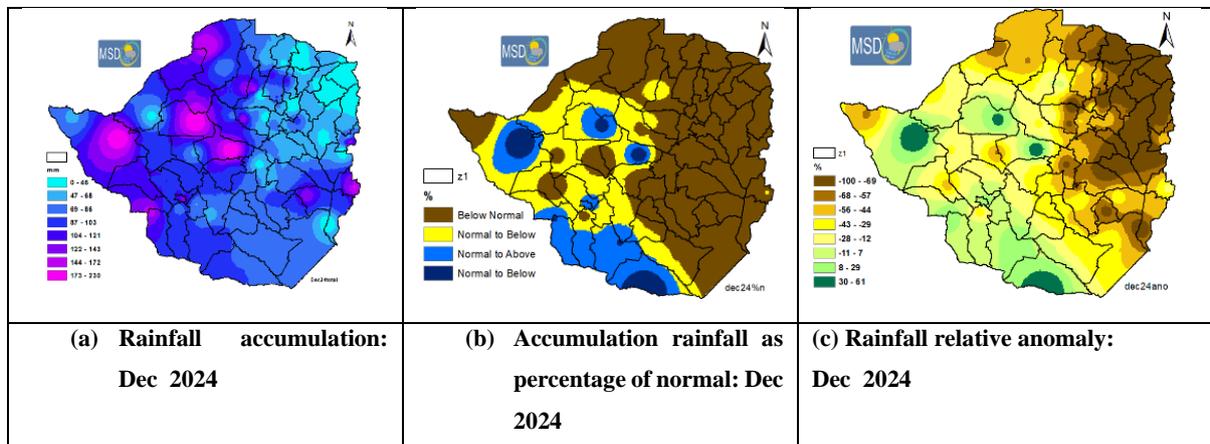


Fig 11

The spatial distribution of December's rainfall is illustrated in Fig 11a, which reveals pronounced precipitation gradients across the country. Higher rainfall accumulations were concentrated in western regions, as indicated by purple shading, while the northeastern parts received the lowest amounts. Several western districts – including Hwange, Gokwe, and Hurungwe – recorded monthly totals exceeding 100 mm, with Chimanimani in the Eastern Highlands similarly measuring above this threshold.

Fig 11b presents monthly precipitation anomalies relative to climatological average. The eastern regions exhibited the most significant departures, with below-average rainfall depicted in brown, while the yellow colour indicates accumulations at the lower within the long-term averages. Isolated areas of positive anomaly are represented in blue.

The relative anomaly map (Fig 11c) quantifies the magnitude of rainfall deviations from long-term means. The most severe rainfall deficits of more than 50% below normal were observed across northern and eastern parts, encompassing Manicaland, all Mashonaland provinces, most

of Masvingo, and parts of Matabeleland North. Conversely, Matabeleland South, Bulawayo Metropolitan, and localized areas within Midlands displayed above-average precipitation, as denoted by the green colour.

DOMINANT WEATHER SYSTEMS DURING DECEMBER 2024:

The first days of December were dominated by persistent mid-tropospheric high-pressure systems, which contributed to an extended dry spell that spanned the first 20 days of the month in most parts of the country (Fig 12) The most pronounced dry conditions occurred during the first dekad, which saw exceptionally parched conditions nationwide. Meteorological observations confirmed absence of measurable precipitation across all the rainfall stations during most of this period.

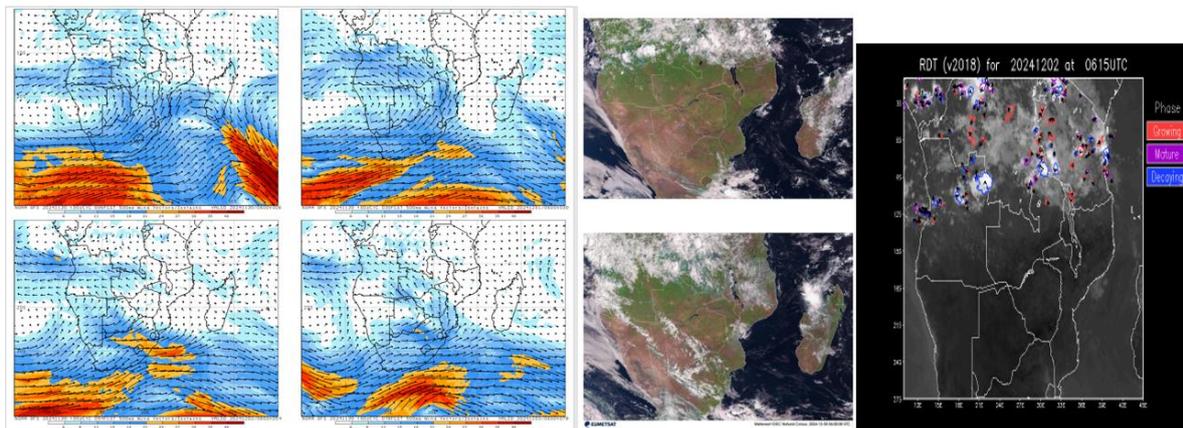


Fig 12: Persistent middle level high pressure system attributed the dry conditions during the first dekad of December 2024

Isolated convective activity on 9 December 2024 generated measurable precipitation across select locations. Fifteen meteorological stations registered rainfall sufficient to disrupt the prolonged dry spell that had persisted since the beginning of the month. Notable daily totals included:

- Chimhanda: 47 mm
- Gwangwava (Rushinga): 42 mm
- Mukandi (Mutasa District): 29 mm
- Mvurwi: 22 mm
- Chibero and Marondera: 19 mm
- Muzarabani (Centenary): 15 mm
- Kezi: 13 mm
- Selous: 12 mm

Additional stations recorded marginal precipitation between 2.95 mm and 10 mm. However, the majority of the places remained unaffected by these localized showers, with persistent dry conditions continuing.

Cyclone advisory

WARNING NR	NR10 04 11/12/2024 0700 UTC
SYSTEM	TROPICAL CYCLONE
NAME	CHIDO
POSITION	~10° S S - 58° E 11/12/2024 0600 UTC
ESTIMATED MINIMUM CENTRAL PRESSURE	968 HPA
MAXIMUM AVERAGE WIND (10 min) NEAR THE CENTRE	75 KT (140 KM/H)
MAXIMUM SUSTAINED WIND (1 min) NEAR THE CENTRE	83 KT (160 KM/H)
GUST MAXI	105 KT (195 KM/H)
CI NUMBER (DVORAK SCALE)	CI 5.0-
MOVEMENT OVER THE PAST 06 HOURS	W/WNW 05 KT (09 KM/H)
OTHER INFORMATION	INCREASING

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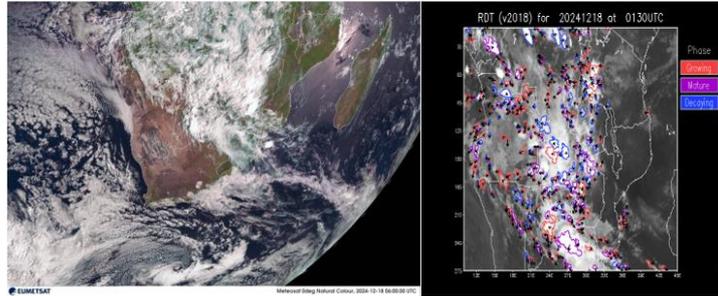


Fig 13: The effects of the ruminants of Tropical Cyclone Chido and a westerly cloudy during the second dekad of December 2024

The period spanning 14 to 20 December witnessed enhanced precipitation activity attributable to the interaction between a weak cloud band and the remnants of Tropical Depression Chido, which had undergone significant moisture depletion during its trajectory across Malawi and Mozambique. The influence of these systems—evident in the accompanying satellite imagery from 18 December 2024—significantly augmented rainfall intensity across Zimbabwe (Fig 13). The depression's residual circulation facilitated advection of additional moisture from northern countries, thereby amplifying convective processes.

Notable 24-hour precipitation accumulations exceeding 20 mm were recorded at multiple stations, including:

- Beitbridge: 75 mm
- Plumtree: 64 mm
- Nyanyadzi: 58 mm
- West Nicholson (Gwanda): 44 mm
- Harare Kutsaga: 45 mm
- Kwekwe: 46 mm
- Shamva: 38 mm
- Lupane: 34 mm
- Guruve: 34 mm
- Goromonzi: 33 mm
- Bulawayo: 30 mm
- Mvurwi: 30 mm

Following the dissipation of Tropical Cyclone Chido, a marked reduction in precipitation activity was observed across most regions of the country.

However, a resurgence of significant rainfall occurred during the final pentad of the month, culminating in exceptional 24-hour accumulation records at multiple stations:

- Gokwe: 124 mm (monthly maximum)
- Masvingo: 120 mm
- Chinhoyi: 104 mm
- Banket: 87 mm
- Murambinda: 79 mm
- Hwange: 51 mm

This rainfall episode was mainly due to the cloud bands and the Intertropical Convergence Zone. The whole country experienced intense rainfall activities accompanied by thunderstorms.

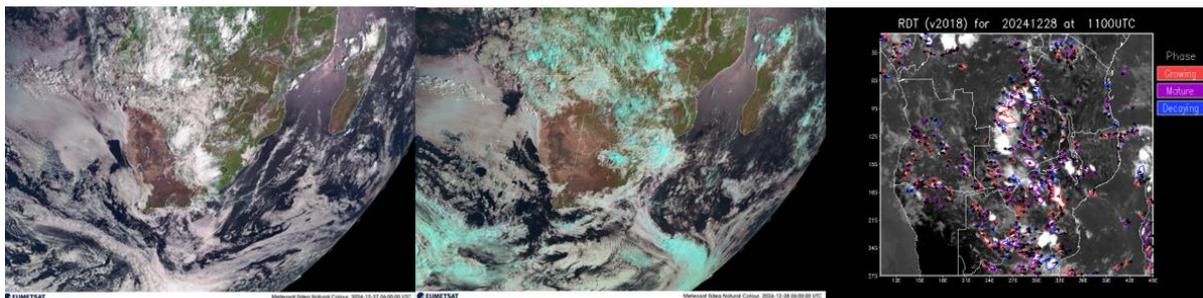


Fig 14: Cloud system during the last dekad of December 2024

Analysis of December's precipitation showed that Kwekwe Meteorological Office recorded the maximum observed rain-days of 11, while the national mean stood at 5 days. 53.6% of the rainfall stations recorded rain days exceeding this monthly average, demonstrating significant spatial variability in precipitation frequency across the country.

JANUARY 2025

RAINFALL PERFORMANCE:

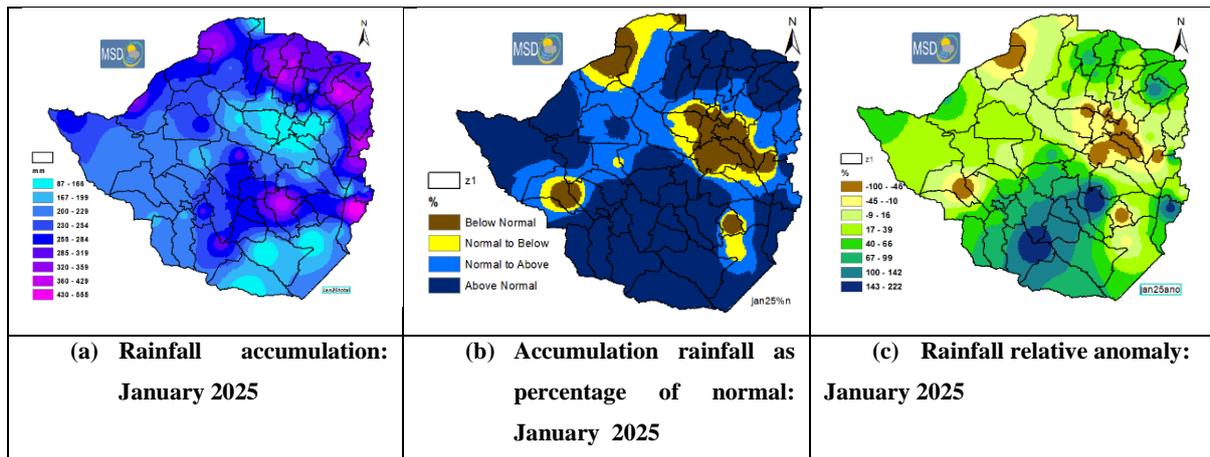


Fig 15

January 2025 also exhibited a pronounced spatial precipitation gradient, with markedly higher rainfall accumulations concentrated across eastern and northern regions—particularly throughout Manicaland, the Mashonaland provinces, and some parts of Masvingo, as demarcated by purple colour in Fig 15a. These areas recorded substantial monthly totals exceeding 350 mm. Conversely, the southern periphery and central parts of the country experienced comparatively reduced precipitation, with accumulations below 200 mm.

Compared to the climatological averages the bulk of the country recorded above normal rainfall except for isolated places that are in brown and yellow which reported below normal conditions (Fig 15b).

Relative anomaly shows that the highest positive rainfall anomalies were recorded in Matabeleland South, Masvingo, Bulawayo Metropolitan, southern Midlands, and the northern regions of Mashonaland East, Mashonaland Central, as well as Chipinge district. Conversely, rainfall deficits were observed in select areas, with districts such as Seke, Wedza, Chikomba, Gutu, and parts of Kariba experiencing deficits exceeding 50% below the long-term average.

DOMINANT WEATHER SYSTEMS DURING JANUARY 2025:

January 2025 was characterized by significant rainfall activity, primarily comprising thunderstorms and prolonged precipitation. This was predominantly influenced by the positioning of the Intertropical Convergence Zone (ITCZ) and successive westerly cloud bands, establishing January as the peak of the 2024–25 rainy season. It was the wettest of all the months during the 2024–25 rainfall season with a mean number of rain-days of 13 and a maximum of 20 recorded at Mvurwi. 45 of 84 rainfall stations recorded rain days exceeding the mean with the remaining recording below the mean.



Capriv Low pressure

Fig 16: The influence of the ITCZ and series of cloud bands during January 2025

The satellite images showing the cloud systems during the month of January. The Capriv low pressure system remained active for quite some time enhancing the rainfall activity over the country.

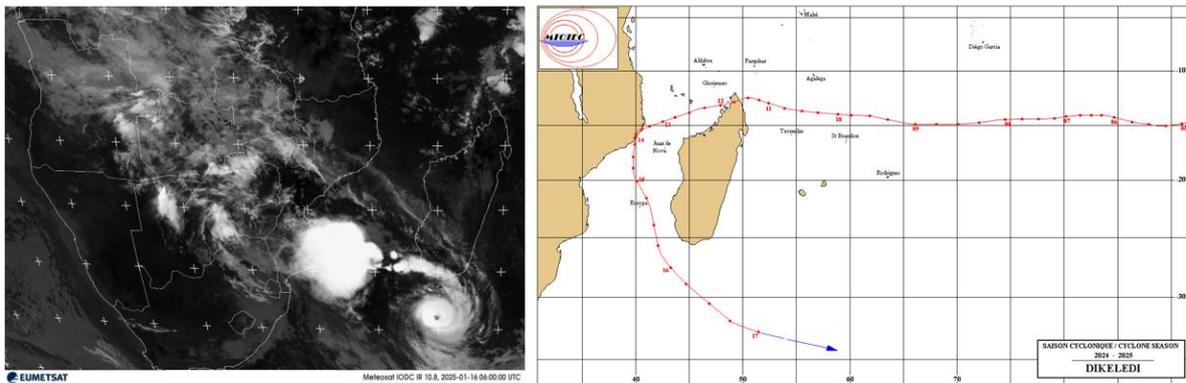
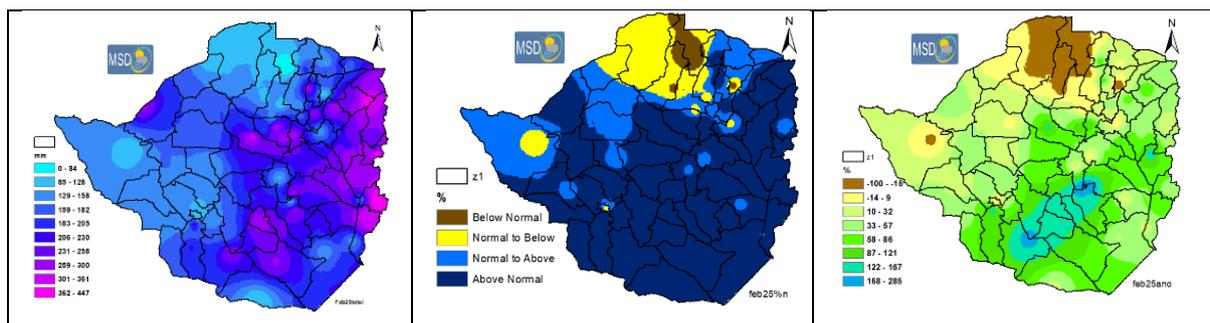


Fig 17: Trajectory of cyclone Dikeledi and the quasi-stationery intense low-pressure system in the Mozambique Channel

The trajectory of tropical cyclone Dikeledi and its position on the 16th of January 2025 (Fig 17). The effect of these systems; the tropical cyclone and low pressure system that had formed in the Mozambique channel, on Zimbabwe was a reduction in rainfall activity in the southern and eastern districts of the country.

FEBRUARY 2025.

RAINFALL PERFORMANCE:



(a) Rainfall accumulation: February 2025	(b) Accumulation rainfall as percentage of normal: February 2025	(c) Rainfall relative anomaly: Feb 2025
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Fig 18

February 2025 saw widespread wet conditions across the country, though rainfall totals were lower than those recorded in January. The rainfall distribution shows that the eastern parts of the country were the wettest with total monthly rainfall ranging above 300mm (Fig 18a). The extreme north received monthly rainfall totals below 150mm.

For the bulk of the country, monthly rainfall amounts compared to the climatological averages, were above except for the extreme northern parts of the country in districts such as Kariba, Hurungwe, Makonde, Guruve which recorded below average rainfall (in yellow and brown) (Fig 18b).

The northern parts of the country, which cover Mashonaland West, recorded a rainfall deficit, which was more than 50% below the climatological averages. The rest of the country had positive relative anomaly, highest was recorded in Matabeleland South, southern parts of Midlands, and some parts of Masvingo where more than 100% of the long-term average was recorded. These areas were wetter in comparison to the normal with some parts receiving twice their monthly average.

DOMINANT WEATHER SYSTEMS DURING FEBRUARY 2025:

The first seven days of the month of February were characterised by dry conditions with the exception of only three stations that recorded rainfall, Kotwa 14mm, Goromonzi 4.5mm Acturus 3.5mm. The atmosphere was dominated by anti cyclonic circulation in the middle level which suppressed cloud activity (Fig 19).

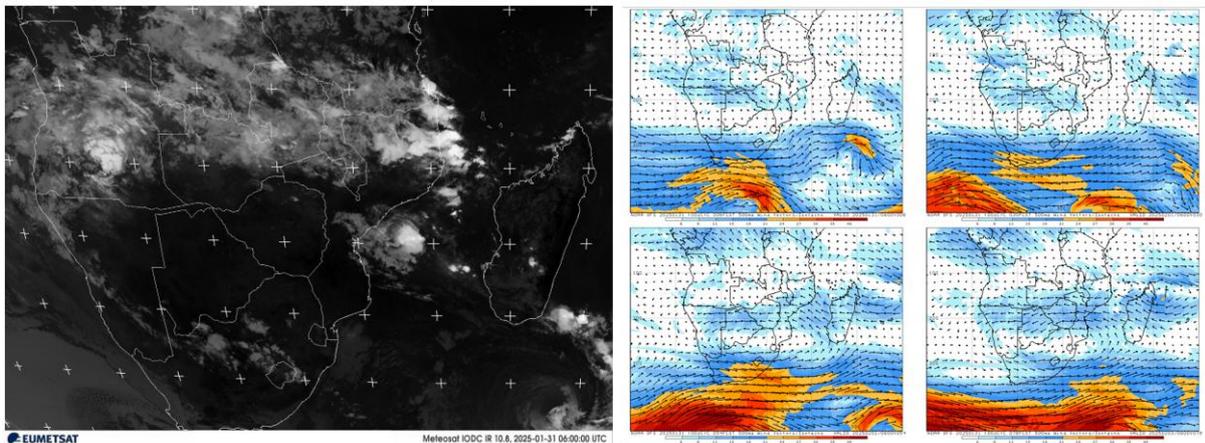


Fig 19: The drying effects of the middle level atmospheric circulation during the first ten days of February 2025

Two cyclone advisories were issued for tropical cyclone Vince and tropical disturbance Faida on the 3rd of February 2025 (Fig 20). These systems were in the Indian Ocean far away from reaching Zimbabwe.

Cyclone advisory

WARNING NR	NR01/08 04/02/2025 0100 UTC	NR27/07 03/02/2025 1900 UTC
SYSTEM	TROPICAL CYCLONE	TROPICAL DISTURBANCE
NAME	VINCE	FAIDA
POSITION	~17° 2 S - 91° 0 E 04/02/2025 0000 UTC	~18° 8 S - 51° 6 E 03/02/2025 1800 UTC
ESTIMATED MINIMUM CENTRAL PRESSURE	970 HPA	1000 HPA
MAXIMUM AVERAGE WIND (10 mn) NEAR THE CENTRE	75 KT (140 KM/H)	25 KT (45 KM/H)
MAXIMUM SUSTAINED WIND (1 mn) NEAR THE CENTRE	85 KT (160 KM/H)	30 KT (55 KM/H)
GUST MAXI	105 KT (195 KM/H)	35 KT (65 KM/H)
CI NUMBER (DVORAK SCALE)	CI 4.5	CI 1.5
MOVEMENT OVER THE PAST 06 HOURS	WSW 13 KT (25 KM/H)	SW 05/06 KT (10 KM/H)
OTHER INFORMATION	THE SYSTEM SHOULD CROSS THE 90°E AND ENTER IN OUR AREA	SHEAR PATTERN WEAKENING. FINAL WARNING UNLESS REGENERATION

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Fig 20: cyclone advisories

Rainfall activity started from the beginning of the second dekad of the month onwards which led to significant rainfall being recorded again in the bulk of the country. The wet spell persisted until the end of the month. Extreme rainfall amounts were recorded in various stations during this period.



Fig 21: The effect of the ITCZ in February 2025

Highest rainfall extremes above 80mm in 24 hours include Nyakomba 175mm, Nyamaropa 142mm, Makoholi 107mm, Chimanimani town 104mm, Chisengu 102mm, Gweru 99mm, Kotwa and Mwenezi 98mm, Murambinda and Zvishavane 96mm, Odzi 98mm, and Masvingo 93mm. Several incidents of rainfall amount above 50mm were reported during the month of February 2025.

These rainfall extremes were also picked by the local models as indicated below (Fig 22).

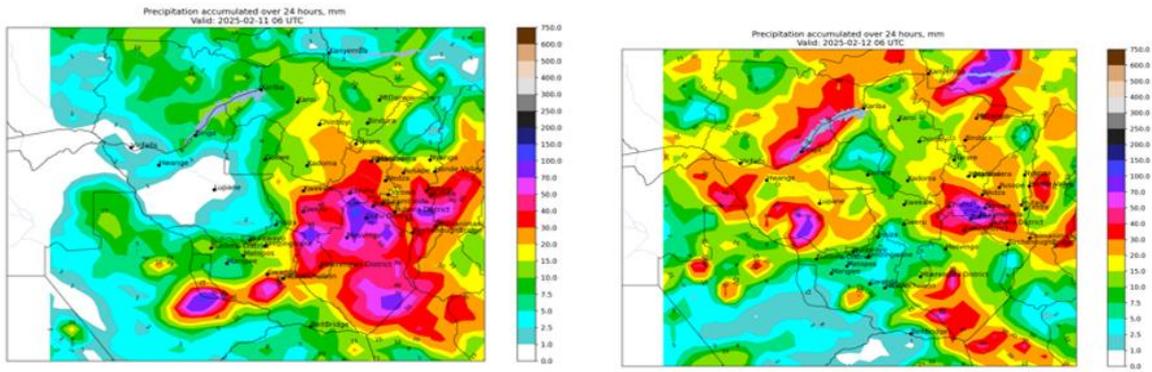


Fig 22: The MSD local models picking the wet spell during the month of February 2025

Rain days

February had a mean of 9 days with a maximum of 15 days that was recorded at Chipinge, Chisengu and Acturus. At least 46 stations recorded rain days above the mean while the rest recorded rain days below the mean.

MARCH 2025.

RAINFALL PERFORMANCE:

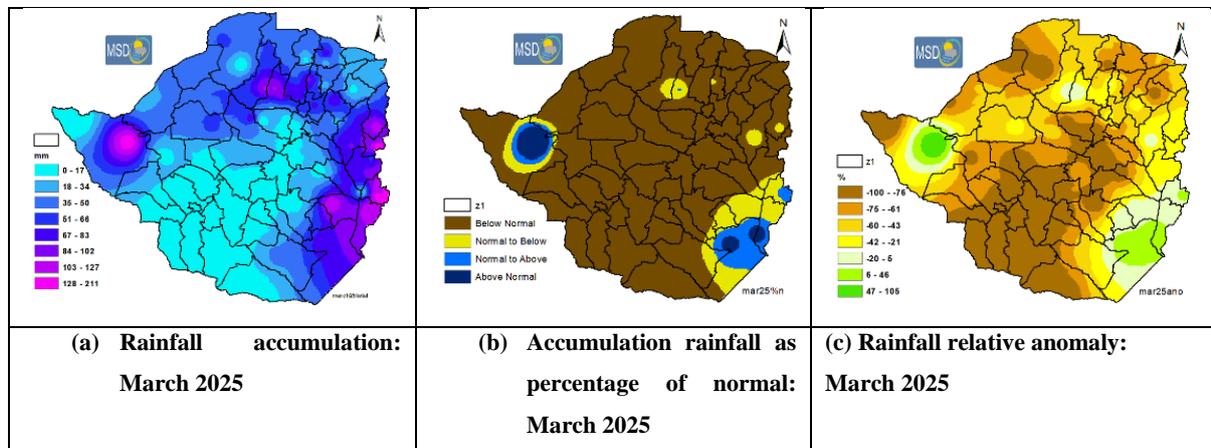


Fig 23

The month of March saw a significant decrease in the rainfall amounts which was measured. Monthly accumulation as indicated by Fig 23a shows that the highest rainfall amounts were recorded in the eastern parts of the country mainly Manicaland, some parts of Masvingo, some parts of Matabeleland North, and Mashonaland central provinces. The highest rainfall amounts ranged between 100mm-200mm. Matabeleland South, northern parts of Masvingo, southern parts of Midlands and Mashonaland North and Bulawayo Metropolitan provinces received the least rainfall amounts ranging below 20mm.

Dry conditions prevailed across much of the country for the month, with rainfall falling significantly below monthly climatological averages. The bulk of the country recorded below average rainfall indicated by the brown and yellow colours in Fig 23b.

The most severe deficits, exceeding 75% below average, occurred in Matabeleland South, Bulawayo Metropolitan, large portions of Midlands, northern Mashonaland West, and the western parts of the country. Isolated pockets such as parts of Chiredzi and Hwange recorded rainfall amounts above long-term averages. Some of these places include Chiredzi, and Hwange.

DOMINANT WEATHER SYSTEMS DURING MARCH 2025:

Cyclone advisory

WARNING NR	NR20/10 01/03/2025 0100 UTC	NR20/11 01/03/2025 0100 UTC
SYSTEM	SEVERE TROPICAL STORM	TROPICAL CYCLONE
NAME	GARANCE	HONDE
POSITION	~25° 9 S - 54° 7 E 01/03/2025 0000 UTC	~26° 6 S - 44° 8 E 01/03/2025 0000 UTC
ESTIMATED MINIMUM CENTRAL PRESSURE	984 HPA	970 HPA
MAXIMUM AVERAGE WIND (10 mn) NEAR THE CENTRE	55 KT (100 KM/H)	65 KT (120 KM/H)
MAXIMUM SUSTAINED WIND (1 mn) NEAR THE CENTRE	60 KT (110 KM/H)	70 KT (130 KM/H)
GUST MAXI	75 KT (140 KM/H)	90 KT (165 KM/H)
CI NUMBER (DVORAK SCALE)	CI 4.0-	CI 4.5
MOVEMENT OVER THE PAST 06 HOURS	S/SSW 16 KT (30 KM/H)	E 02 KT (04 KM/H)
OTHER INFORMATION	--	--

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Fig 24: Cyclone advisory

The two cyclones were active in the Indian Ocean early March (Fig 24). Cyclone Garance was active in the eastern parts of Madagascar while cyclone Honde was in the Mozambique channel. Garance did not have any effect on Zimbabwe but cyclone Honde did. The latter contributed to the dryness experience during March as it drew moisture away from the country.

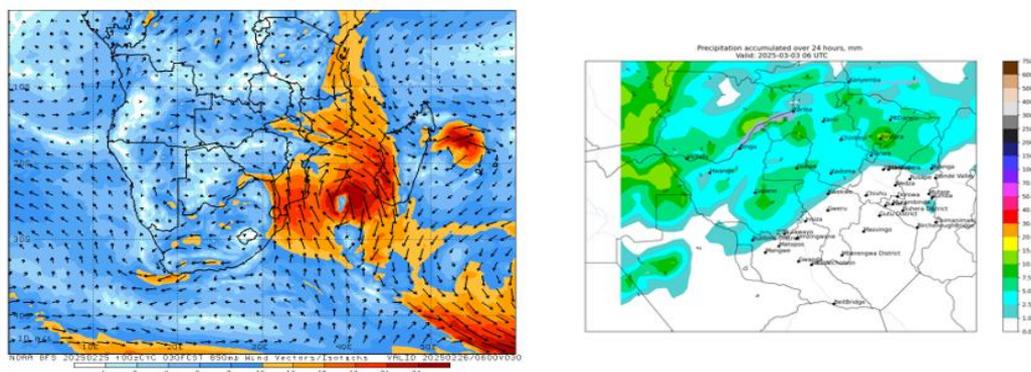


Fig 25: The position of Cyclone Honde and its drying effect over the country early March 2025

The effects of Cyclone Honde can be seen on the rainfall forecast showing that the bulk of the southern parts were clear and would experience dry conditions from March 3 going forward (Fig 25). This effect persisted until the middle of the month. On 11 March due to the cyclone's position some rainfall activity was experienced in the eastern parts of the country. However, this did not last long as the system returned to the Mozambique Channel and the dry conditions resumed affecting much of the country. Clear skies were forecast for the period from the local model and the observed satellite image (Fig 26).

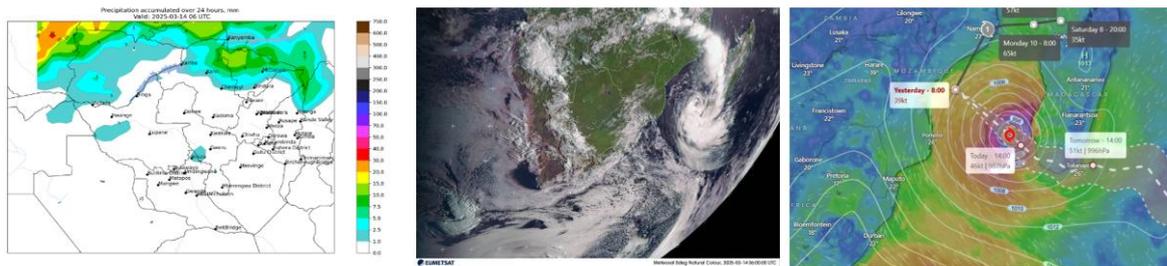


Fig 26

The forecast of clear skies across much of the country indicating the drying effect of tropical cyclone Honde which was positioned in the Mozambique Channel. This had significant effect of very reduced rainfall activity during the month of March 2025.

Rain days

The mean number of rain days were 3, with a maximum of 10. Rainfall extremes recorded during the month of March 2025 were minimal. The highest rainfall received in 24 hour was 69.4mm which was measured at Hwange, 62mm at Nyanga on 12 March, and 58mm at Acturus.

APRIL 2025.

RAINFALL PERFORMANCE:

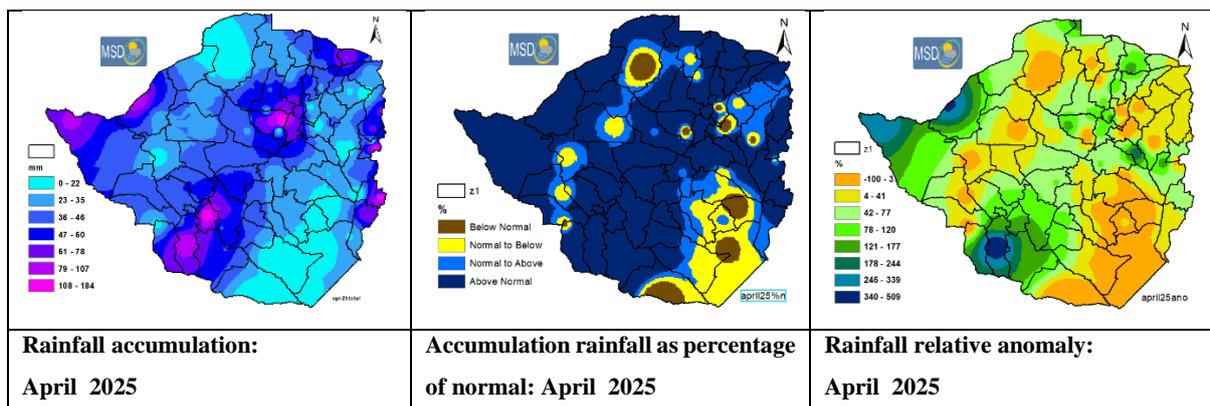


Fig 27

The bulk of the country received rainfall totals above 50mm mainly concentrated along the main watershed, the extreme eastern parts, and the extreme western parts of the country (Fig 27a). These places recorded rainfall amounts as high as above 100mm which is not common during April. Rainfall totals below 25mm were recorded in some places such as Mwenezi, Beitbridge, Chiredzi, Bikita and Hurungwe.

April 2025 was wetter than the long-term average for much of the country as indicated by blue colour except for pockets (places in brown and yellow) which recorded rainfall amounts below climatological average (Fig 27b).

The relative anomaly map shows the deviation of the received rainfall from the long-term average. (Fig 27c). Relative anomaly exceeded 40% above the climatological average in the bulk of the country as indicated by green colour showing better rainfall performance in these areas compared to the norm. Rainfall deficits were observed in most of Chiredzi, Mwenezi, Beitbridge, Zaka, Bikita, Masingo, Gutu and Hurungwe.

DOMINANT WEATHER SYSTEMS DURING APRIL 2025:

Rainfall activity was more confined to the northern parts of the country and the southern parts were mostly under clear skies except when there were guti weather conditions that resulted in drizzle and rain conditions during the first ten days of April. The main rainfall bearing system, the ITCZ, had moved further north.

However, during the second dekad of the month, a series of cloud bands moved into the country that led to a prolonged wet spell during the month. These troughs drew systems from the north southward.

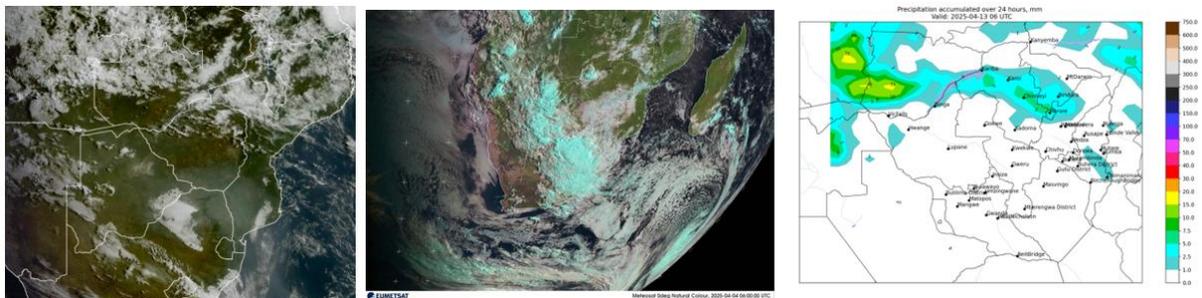


Fig 28

The satellite below show mass of cloud systems that resulted in wetter than normal conditions that were experienced cross much of the country (Fig 29). Local models were also picking the widespread rainfall activities that were being anticipated.

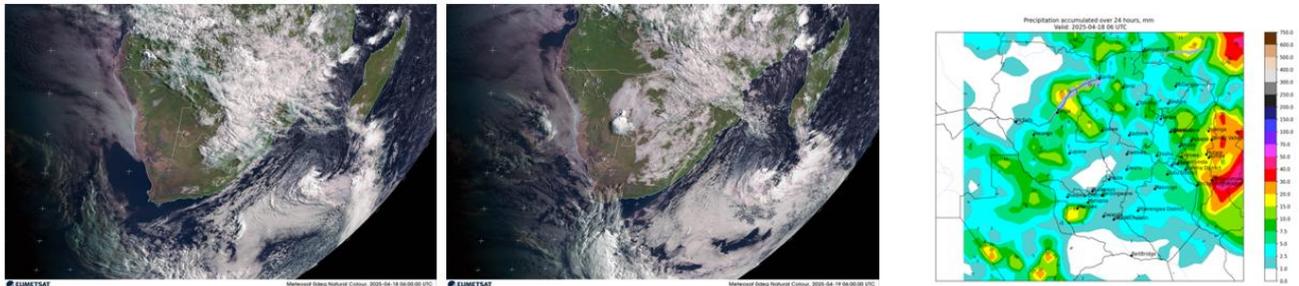


Fig 29

SUB-SEASON ANALYSIS

OCTOBER-NOVEMBER-DECEMBER 2024

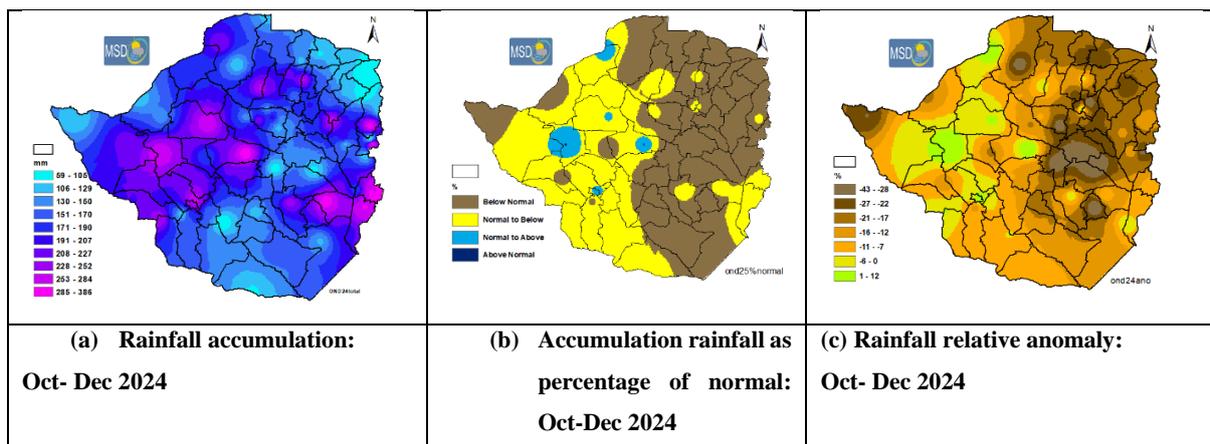


Fig 30

The first three months of the 2024/2025 season (October-November-December 2024) did not receive much rainfall. Fig 30a shows that the highest total rainfall exceeded 250mm and was recorded in parts of the country as indicated by the purple colour. The bulk of the country recorded rainfall totals exceeding 130mm but below 200mm.

Compared to the long term average, the bulk of the country recorded below average rainfall (Fig 30b). The most affected being the eastern half of the country. The forecast which was issued in August 2024, which projected normal to below normal conditions for the October to December period, performed very well in comparison to the observed rainfall for the period. It achieved a hit in areas in yellow and a half hit in areas in brown. A half miss was reported in those places in blue.

Relative anomalies (Fig 30c) shows that districts to the eastern parts recorded the highest magnitude of rainfall deficit (areas in brown). Areas in orange to green experienced the least magnitude of rainfall deficit.

NOVEMBER-DECEMBER-JANUARY 2024/25

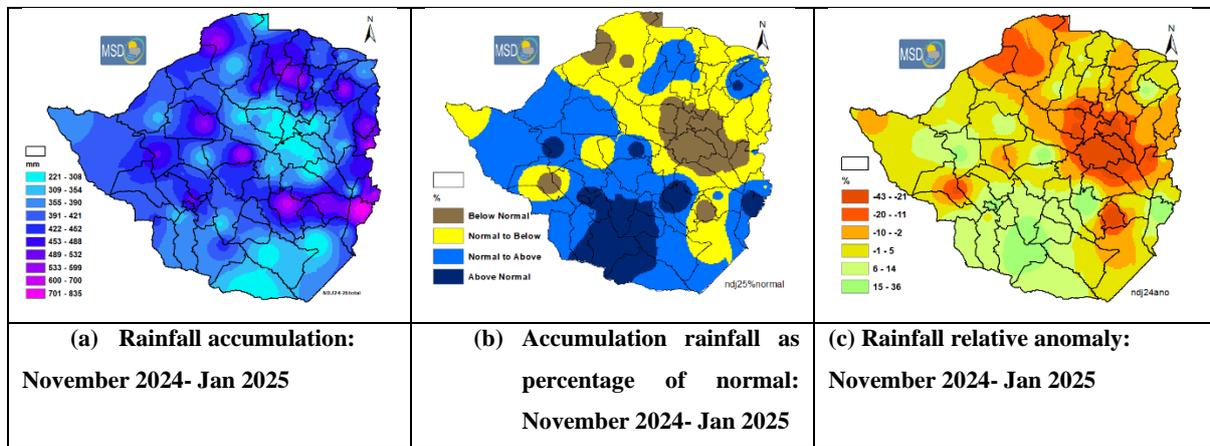


Fig 31

For the November 2024 to January period there was a significant increase in rainfall performance. Much of the country recorded three-month rainfall totals above 350mm, with the highest amount being in the 600mm to 850mm range (Fig 31a). January, which was the wettest month of the season contributed the most.

Rainfall accumulation compared to the long-term average shows that almost more than half of the country recorded above normal rainfall (Fig 31b). Areas that wetter compared to their long-term average were mostly in the southern half of the country. The remainder of the country recorded rainfall below the long-term average.

The forecast performance shows that areas in blue recorded a hit while areas in yellow showed a half miss, and a total miss was recorded in areas in brown. The forecast issued for the same period in August was normal to above normal conditions.

In the relative anomaly map red indicates negative anomaly while light oranges to green indicates positive relative anomaly showing the severity of the anomalies as a percentage (Fig 31c). For the three month-period, drier conditions prevailed associated with the December rainfall deficits.

DECEMBER-JANUARY-FEBRUARY 2024/25

December 2024 to February 2025 period was the wettest part of the season (Fig 32a). January and February being the most contributing months. Most of the country recorded rainfall above 500mm with a few places exceeding 1000mm during the period.

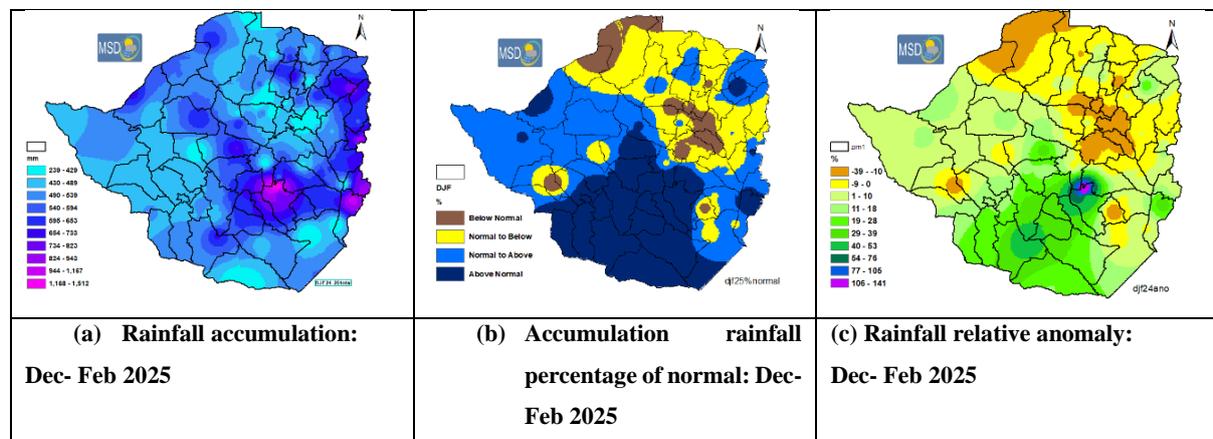


Fig 32

The greater part of the country recorded rainfall above the long-term average while the rest recorded below average (Fig 32b). The forecast issued in August 2024 for the period was normal to above normal conditions. Consequently, the forecast performed fairly well. Areas in blue indicates that the forecast achieved a hit while areas in yellow there was a half miss. A total miss was recorded in areas in brown.

A positive anomaly was shown in much of the country (Fig 32c). Wettest conditions were recorded in the southern parts of the country with relative anomaly above 40% of the long-term average.

JANUARY-FEBRUARY-MARCH 2025

The January to March 2025 period had very wet conditions across the country. Most places received 3-month rainfall accumulation above 400mm with some districts recording rainfall over 800mm (Fig 33a). Highest rainfall totals were recorded in the eastern parts of the country mainly Manicaland, Masvingo, and Mashonaland provinces.

The bulk of the country received above normal rainfall in comparison to the long term average (Fig 33b). The forecast issued for the period January to March in August 2024 was for normal to above normal conditions across the country. Hence a hit was achieved in the areas in blue while a half miss was recorded in areas in yellow. A total miss was recorded in areas in brown. Therefore, the forecast was on point in more than 80% of the country.

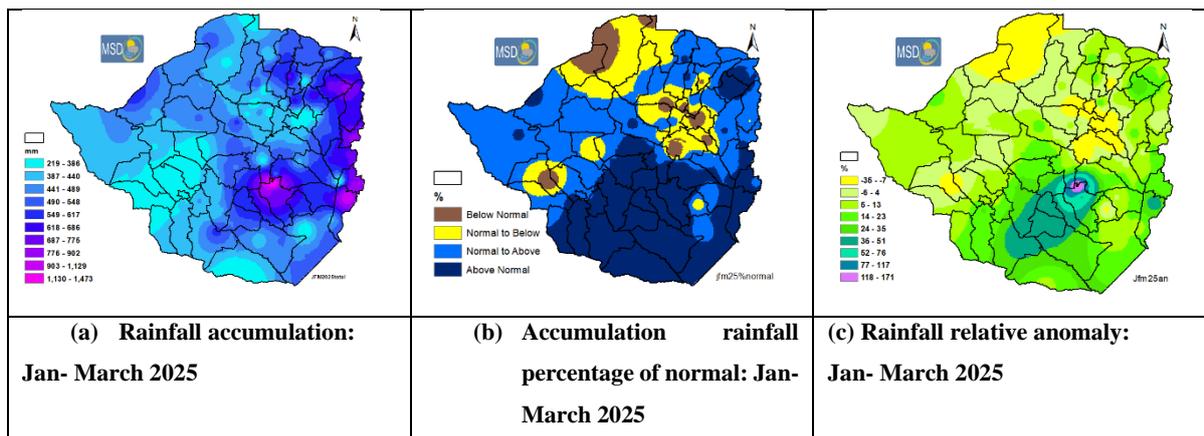


Fig 33

Based on the relative anomaly map most places recorded relative anomalies of 20% or more above the climatological average (Fig 33c). Only few places like Hurungwe, Marondera, Harare, Chikomba, Seke and some parts of Zvimba, recorded rainfall deficit.

FEBRUARY-MARCH-APRIL 2025.

Rainfall performance for the last part of the season (February to April 2025) indicates that most of the places received significant rainfall amounts. The bulk of the country recorded rainfall totals above 250mm (Fig 34a). The eastern part of the country received the most while isolated districts did not perform very well. Districts such as Hurungwe, Guruve, northern parts of Makonde, Bulawayo, Umguza, Tsholotsho, Bubi, Bulilima, and Beitbridge received rainfall totals below 200mm for the three months.

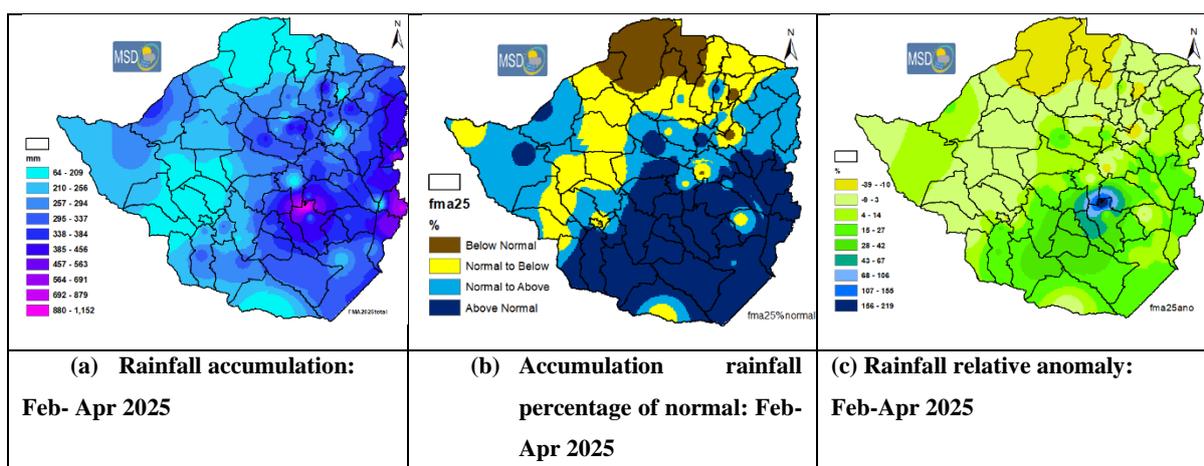


Fig 34

The accumulated rainfall as a percentage of the long-term average indicates that more than 75% of the country recorded rainfall above. Fig 34b show areas that recorded above normal rainfall while yellow areas are that that recorded rainfall within normal with a bias towards

below average. Brown means below average rainfall was mostly in the extreme northern parts (Kariba, Hurungwe, Mbire).

The forecast issued in January 2025 for the last part of the season February to April 2025 projected normal to above normal rainfall across the country. This therefore means the forecast performed very well. The forecast achieved a hit in the blue areas, which covers more than 75% of the forecast areas. In areas shown on yellow and brown, below normal rainfall was recorded instead of the forecast of above normal conditions. There was a half miss in yellow areas and a total miss in the brown coloured areas.

Positive anomalies were observed in most parts of the country except in nearly 25% of the country as indicated in Fig 34c.

ANALYSIS OF THE OVERALL RAINFALL SEASON (OCTOBER 2024 TO APRIL 2025)

The bulk of the country recorded seasonal rainfall total exceeding 550mm with some isolated places recorded as high as over 1000mm (Fig 35a).

However, when compared to the long-term average almost half of the country recorded rainfall above the climatological mean whilst the rest recorded rainfall below the climatological mean though lying within the normal range indicated by the yellow colour (Fig 35b). A small portion of the country recorded rainfall below the climatological mean and outside the normal range shown by brown coloured areas.

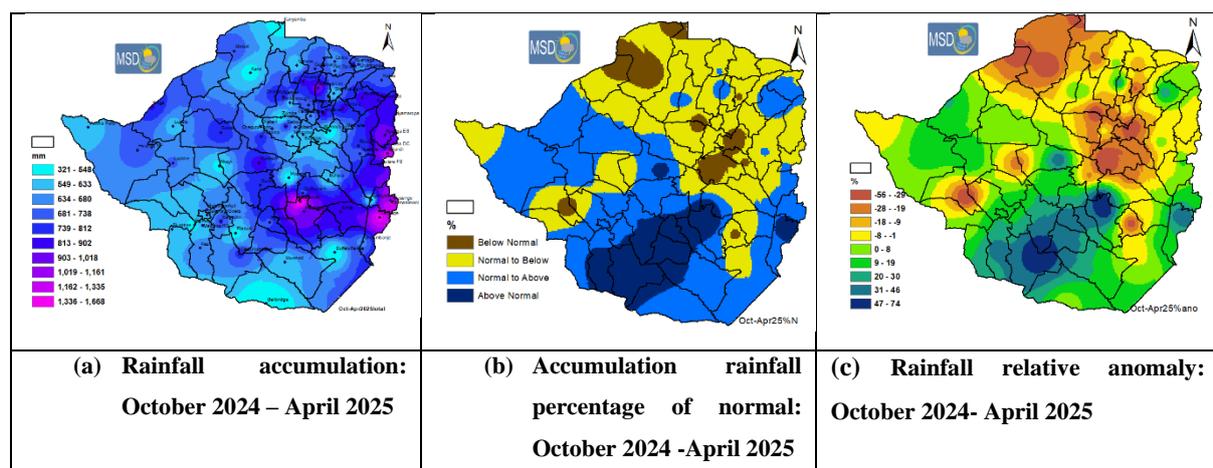


Fig 35

The highest rainfall deficit was observed in the areas in the extreme north of the country and central eastern parts of the country. Matabeleland South, Masvingo and southern parts of the Midlands provinces recorded the highest positive anomalies, which shows that these areas were generally wetter compared to their long-term average.

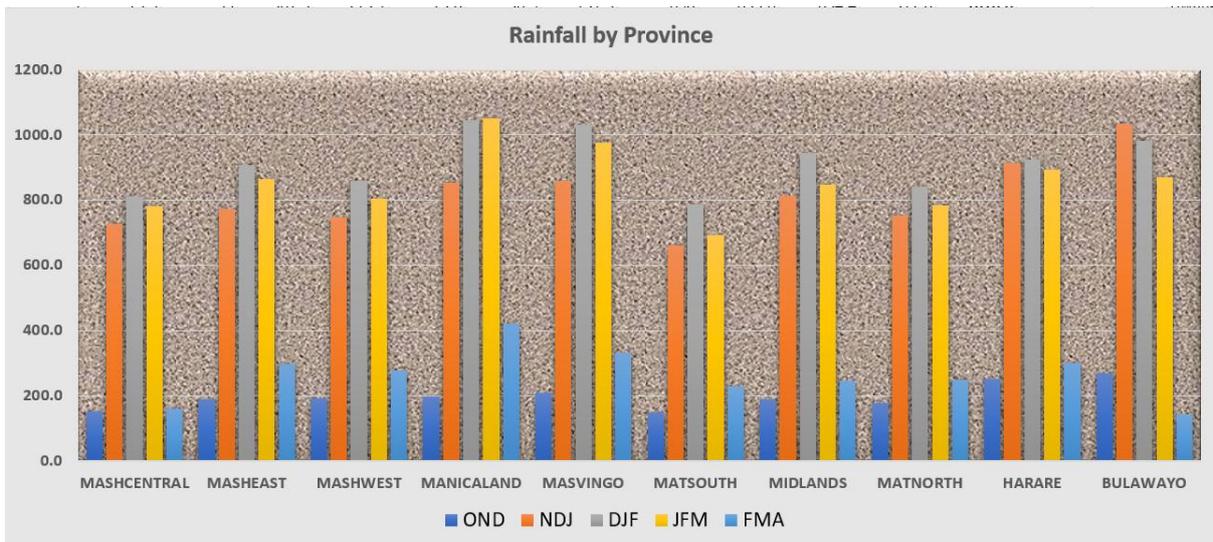


Fig 36: Performance of the rainfall season by province

END OF SEASON:

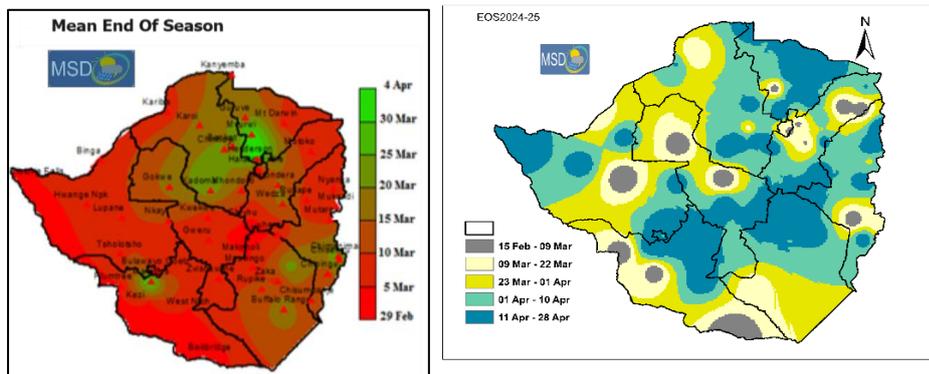


Fig 37 (a) mean end of the season, (b) end of the season dates for 2024/2025 season

The end of the 2024-25 rainfall season was delayed in most parts of the country. This was attributed to the wet April which in a normal season is relatively dry. Fig 37a shows the long term mean end of season whilst Fig 37b shows what transpired during the 2024-25 season. Most places recorded the end of season in April compared to early March shown in Fig 37a.

CONCLUSION:

The 2024-25 season underscored Zimbabwe's rainfall vulnerability to synoptic-scale drivers. Onset dynamics where the one-month delay highlighted increasing variability in the initiation

of the setting in of the climate drivers, linked to the Indian Ocean Dipole or ENSO teleconnections, while early dry spells significantly disrupted agricultural planning and emphasized the need for more dynamic onset criteria.

Moisture extremes were particularly notable, with record 24-hour totals such as 124mm at Gokwe (date) and prolonged wet spells (January's 20 rain-days at Mvurwi) suggesting intensifying rainfall regimes that align with climate change projections for southern Africa. These patterns exhibited stark spatial disparities as evidenced by opposing anomalies between Eastern Highlands (>100%) and Matabeleland South (-75%), revealing critical microclimate sensitivities to both topography and tropical system trajectories.

The seasonal forecasting models successfully captured broad trends. However persistent forecasting challenges remained apparent through localized misses (e.g., northern deficits in February-April 2025) that indicated significant gaps in resolving mesoscale interactions and highlight the need for improved high-resolution modelling to better predict Zimbabwe's increasingly variable rainfall patterns under changing climatic conditions.