



# METEOROLOGICAL SERVICES DEPARTMENT

## NEWSLETTER

**ISSUE 6 | 2025**



Minimizing Risk Through Science



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*MSD Newsletter August 2025*

# Director's Remarks

August naturally is the month when the upcoming seasonal rainfall forecast is usually produced, and 2026 is no exception. The MSD team worked exceptionally well on this task producing a forecast which will guide those making decisions related to the Agriculture, Water and other economic sectors which are impacted by the weather and climate information. The same month also includes the Harare Agricultural show, which MSD participates in, showcasing the activities carried out by the Department from meteorology to seismology. The school children are always a delight to have at our stand, and we hope these Weather and climate Ambassadors will continue interacting with us particularly as we push the Early Warning for All agenda.

The month of August has been a busy month and the Department participated in activities which will strengthen weather and climate services. The issue of Indigenous Knowledge Systems (IKS) which has been discussed in different forums has now been taken on board, and work on developing a hybrid forecast is underway. The Department acknowledges that IKS has been used by our communities since time immemorial but work on validating the IKS information against the scientific weather information we provide has just started and we look forward to very interesting results in the future and quite a number of scientific publications. The work involves stakeholders that include traditional leaders and their communities, Government Departments and other interested parties on how the two (IKS and scientific weather and climate information) can best be utilized to contribute to resilience building.

This year the Department prepared the national rainfall forecast prior to the SADC regional meeting to be held in Lusaka, Zambia from 1<sup>st</sup> to 7<sup>th</sup> September 2025, followed by the Thirty-first Southern Africa Regional Climate Outlook Forum (SARCOF-31) from 8 to 11 September 2025. SARCOF strengthens interaction between the climate scientists and the stakeholders from the various sectors such as agriculture, disaster risk management, water resources management, health, energy and tourism in the co-production of sector-specific advisories from the rainfall outlook. The Department appreciates the close collaboration between the Government of Zimbabwe, the SADC Climate Services Centre and the local World Food Programme office in supporting these regional events.

As the country experiences more extreme weather events due to climate variability and change, emergency coordination is being strengthened through simulation training in cities. The simulation exercises allow testing of protocols, enhancing capacities and emergency response in cities. The Department participates in such events providing the Early Warning and weather forecast updates to build the national capacity of disaster management practitioners on how to respond to weather related hazards.

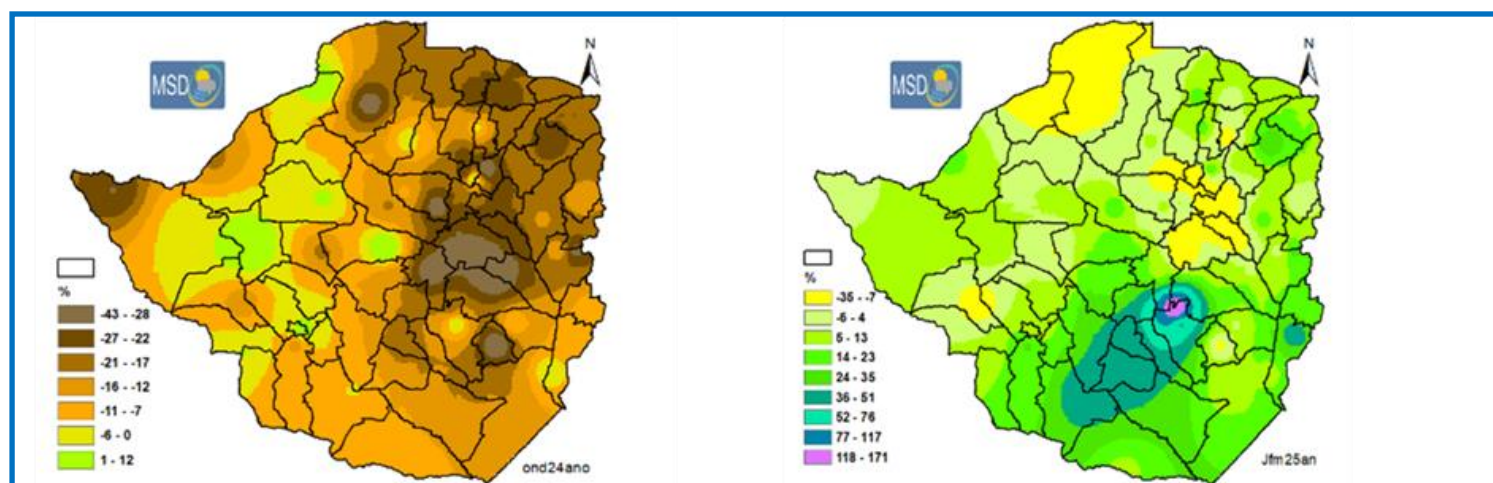
The Department would appreciate feedback from the readers on issues and topics mentioned in this newsletter which will be used to ensure improved future publications.

## August 2025



## Summary Of The 2024-25 Seasonal Rainfall Report: October 1, 2024, To April 30, 2025

The 2024-25 rainfall season in Zimbabwe exhibited significant temporal and spatial variability, characterized by a delayed onset (approximately 1-month delay), and delay in the cessation. Onset occurred around mid-December 2024 rather than the typical mid-November long-term mean. 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. November showed marked improvement, particularly in the northern and eastern regions where monthly totals reached between 87mm and 134mm. December exhibited a west-east disparity, with western regions exceeding 100mm while northeastern areas suffered deficits over 50% below average. 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 Dekenedi, before gradually drying through February-April. April remained anomalously wet with the watershed areas receiving over 100mm.



**Fig1 (a) Rainfall relative anomaly: Oct- Dec 2024**

The first three months of the 2024/2025 season (October-December 2024) did not receive much rainfall. Fig (a) shows that the highest total rainfall exceeded 250mm and was recorded in parts of the country. The bulk of the country recorded rainfall totals between 130mm and 200mm. The October-December outlook predicted normal-to-below rainfall, and 70% accuracy was achieved, correctly anticipating the delayed onset and early dry spells.

**Fig1 (b) Rainfall relative anomaly: Jan- March 2025**

January to March 2025 saw very wet conditions across the country. Most places received 3-month rainfall accumulation above 400mm with districts in the eastern parts of the country recording rainfall over 800mm (Fig (b)). The bulk of the country received above normal rainfall in comparison to the long-term average (Fig (b)). The forecast issued for the period January to March was for normal to above normal conditions across the country. The forecast was on point in more than 80% of the country.

April 2025 was wetter than normal, and this was beneficial for many sectors such as water, wildlife and agriculture. The 2024-25 season underscored Zimbabwe's rainfall vulnerability to synoptic-scale drivers. Onset dynamics highlighted increasing variability in the initiation of the setting in of the climate drivers.

## The Zimbabwe Agricultural Show 2025 (ZAS): Bridging Agriculture, Industry, and Communities



***MSD personnel posing for a photo with their Director Mrs. Manzou, and Deputy Director Eng. Mazhara at their Exhibition stand***

The Zimbabwe Agricultural Show (ZAS) remains one of the country's most highly anticipated annual events, bringing together farmers, industries, innovators, and service providers on a unified platform. This year, ZAS ran under the theme, "Building Bridges: Connecting Agriculture, Industries, and Communities." The Meteorological Services Department (MSD) took center stage at the event, showcasing its critical role in supporting agriculture, industry, disaster preparedness, and climate resilience.

The show was officially opened by His Excellency, President Cyril Ramaphosa of South Africa. Prior to the official opening, President Mnangagwa and his South African counterpart toured the exhibition stands, guided by the Minister of Lands, Agriculture, Fisheries, Water, and Rural Development, Dr. Anxious Masuka. Speaking to the media after the tour, President Ramaphosa remarked, "I have learned a great deal. Zimbabwe has been able to focus on agriculture in a superlative way, particularly in empowering rural farmers and driving industrialization through agriculture."

At the MSD exhibition stand, visitors were greeted by vibrant displays of weather charts, meteorological instruments, and seismic monitoring equipment. Farmers, schoolchildren, and other attendees gathered with curiosity, eager to understand how meteorology directly impacts their lives and livelihoods. MSD officers patiently explained the importance of timely rainfall forecasts, early warnings for droughts, floods, and storms, and how this information helps farmers make informed decisions about planting, irrigation, and harvesting.

One of the highlights of the exhibition was a visit from the Minister of Environment, Climate, and Wildlife, Honourable Dr. E. Ndlovu, to the MSD stand. The department distributed brochures and seasonal weather outlooks in local languages, ensuring accessibility for both small-scale and commercial farmers. A recurring theme throughout the exhibition was the emphasis on climate-smart agriculture, leveraging meteorological data to select resilient crops, conserve water, and mitigate climate-related risks.

The MSD stand also captured the imaginations of young students, who were inspired by the science of weather forecasting. Many expressed an interest in pursuing careers in meteorology and related sciences after learning about the critical role forecasting plays in saving lives, protecting communities, and bolstering national food security.

By the close of the show, it was evident that the Meteorological Services Department's exhibition was about more than just displaying weather data, it was about connecting science to the everyday lives of Zimbabweans. MSD's participation at ZAS reaffirmed its mission: to provide timely, reliable, and accessible weather and climate services that empower communities, enhance agricultural productivity, and foster resilience in the face of climate change.



## MSD @ The Zimbabwe Agricultural Show (ZAS) 2025





## CARL 2 Wraps Up with Review Workshop in Bulawayo

The Climate Adaptation for Rural Livelihoods in Zimbabwe (CARL 2) project, which has been running since September 2022, held its end of project review workshop at Rainbow Hotel in Bulawayo from 4–8 August 2025. Coordinated by Oxfam and funded by Sida, CARL 2 set out to reduce the vulnerability of rural households to climate change. Over 36 months, it supported 20,000 households across four districts, focusing on food security, gender equity, and sustainable rural livelihoods. The project was implemented in collaboration with local partners including the Meteorological Services Department (MSD), ZINWA, the University of Zimbabwe, and community-based organisations.

### Workshop Highlights

At the workshop, partners shared success stories, lessons learned, and recommendations for future initiatives. For the MSD, CARL 2 was a game changer. The department received vital equipment such as tablets, desktops, scanners, a server, and rain gauges, while staff also benefitted from training and international exchange visits to the Swedish Meteorological and Hydrological Institute (SMHI). MSD recommended greater involvement in climate-sensitive decision-making, more automated weather stations, continuous staff training, and improved dissemination of weather information through SMS alerts and mobile apps.

### Success Story: Mberengwa Farmers Gain Access to Weather Information

For years, Mberengwa district faced serious network challenges that left farmers in remote wards 30 and 31 cut off from reliable weather information. Many were forced to rely on outdated forecasts or indigenous knowledge, putting their farming decisions at risk. CARL 2 stepped in to close this gap. Working with SMHI, MSD, and LID Agency, the project introduced alternative ways of reaching farmers, including Farmer Field Schools, Field Days, Agricultural Shows, and the Lead Farmer approach. By the project's second year, early warnings and advisory messages on El Niño were reaching the community. Farmers were guided to adopt drought-tolerant crops under the Pfumvudza concept in response to forecasts of normal to below-normal rainfall. This shift enabled farmers to prepare better and reduce their vulnerability.

CARL 2 has left a strong legacy. By strengthening institutions and equipping rural communities, the project has laid the foundation for lasting climate resilience. As discussions on a potential CARL 3 begin, partners agree that safeguarding gains and scaling up successful approaches will be key to supporting Zimbabwe's rural communities in line with the National Development Strategy 1 and Vision 2030.



**OXFAM**



### CARL 2 at a Glance

**Country:** Zimbabwe

**Duration:** September 2022 – August 2025

**Target:** 20,000 households across four districts

**Partners:** Oxfam SAF, MSD, ZINWA, University of Zimbabwe, and local organisations

**Funder:** Swedish International Development Cooperation Agency (Sida)



## Integrated Early Warning Systems: How Simulation and Flood Mapping Are Building Resilience in Zimbabwe

Zimbabwe's concerted effort to strengthen its resilience against flooding has evolved into a cohesive national strategy, integrating simulation, mapping, and technological innovation into a unified shield against disaster. This continuous endeavor, driven by collaboration between government departments, academia, non governmental organisations, international partners, and local communities, marks a significant shift from reactive response to proactive, data-driven risk management. The journey began with foundational Simulation Exercises (SIMEX) that tested response mechanisms and has since advanced to sophisticated pre-emptive planning, with the Meteorological Services Department (MSD) emerging as a critical linchpin in this life-saving ecosystem.

The November 2024 SIMEX in Chipinge's Chibuwe area, by the Food and Agriculture Organization (FAO), served as a crucial test of rural flood response protocols. In this exercise, the Meteorological Services Department was not a passive participant but played its real-world role as the nation's primary source of early warning. The department actively interpreted real-time and predictive weather models, simulating the issuance of detailed heavy rainfall alert specifically for the Chipinge district. This process was vital for testing the crucial link between national forecasts and their local impact, ensuring that targeted, actionable warnings could be effectively delivered from the MSD to the Civil Protection Unit at the provincial and district levels, and subsequently relayed to communities through Zimbabwe Red Cross Society volunteers, local leaders and media. The exercise validated these communication channels, ensuring a warning triggers an immediate cascade of prepared action rather than getting lost in transition.



***SIMEX participants posing for a group photo***

Building on the lessons of these simulations, the focus then shifted to pre-emptive planning with a landmark flood drone mapping initiative in Gweru in May 2025. This project aimed to create a detailed flood hazard drone map of the densely populated Gweru Ascot area and was a powerful demonstration of inter-departmental and local authority of Gweru collaboration. The Civil Protection Unit spearheaded the effort, which relied on the specialized capabilities of several agencies. The Zimbabwe National Geospatial and Space Agency (ZINGSA) provided high-

## Integrated Early Warning Systems: How Simulation and Flood Mapping Are Building Resilience in Zimbabwe

resolution satellite imagery and topographical data to accurately model the terrain, while the Meteorological Services Department contributed the essential climatic component by analysing historical rainfall data to model "what if" scenarios of extreme storm events. By synthesizing this data with input from the local municipality and the Zimbabwe National Water Authority (ZINWA), the CEMA team are producing a comprehensive map delineating high, medium, and low-risk flood zones. This map will serve as an indispensable blueprint for urban plan-

The return to Kadoma in July 2025 symbolised the culmination of this process, where the lessons from the SIMEX and the techniques from Gweru were fused into a pilot project for advanced urban flood monitoring. Here, the role of the Meteorological Services Department has been fundamentally elevated and refined. The MSD is now integral to a new monitoring framework that leverages hyper-localized weather data from a densified network of automatic stations within the city, capturing micro-scale variations in storm intensity that are critical for accurate urban forecasting. This real-time rainfall data is the essential fuel that powers hydrological models developed by ZINWA and ZINGSA, allowing them to predict how water will move across paved surfaces and through drainage systems. Ultimately, this allows the MSD to move beyond generic forecasts and pioneer Impact-Based Forecasting. By using the flood maps, their warnings can now specify which urban corridors face the highest risk, transforming meteorological data into actionable intelligence that enables precise emergency response and saves lives. This continuous, multi-year effort illustrates a powerful and replicable model of resilience-building.



**Flood drone mapping exercise in Ascot Gweru**

The thread connecting Chipinge, Gweru, and Kadoma is the seamless integration of expertise, where the MSD provides the critical climatic trigger, ZINGSA provides the spatial context, and the CPU orchestrates the human response, all supported by NGOs and international partners. By placing accurate, timely meteorological data at the core of a system that encompasses simulation, mapping, and monitoring, Zimbabwe is constructing a smarter, more informed defence against disasters, ultimately safeguarding lives, livelihoods, and economic stability across the nation.

## Over 500 Delegates Converge for ESARBICA 2025 in Victoria Falls

More than 500 archivists, researchers, policymakers, and cultural practitioners from 16 African countries gathered at Elephant Hills Hotel, Victoria Falls, from 16–20 June 2025 for the 28th Eastern and Southern Africa Regional Branch of the International Council on Archives (ESARBICA) Conference. Hosted by Zimbabwe’s Ministry of Home Affairs and Cultural Heritage through the National Archives of Zimbabwe, in partnership with the International Council of Archives (ICA), the conference ran under the theme “Archives Are Accessible – Archives for Everyone.”

### Presidential Keynote

Opening the conference, President Emmerson Mnangagwa urged Africa to reclaim its right to tell its own story. He called for the repatriation of archives and artefacts taken during colonial times, linking cultural sovereignty to independence in the digital era. “Africa has a duty to tell its story, recount our history, and preserve our own culture ourselves,” he said.

### Conference Highlights

Sessions covered artificial intelligence in archives, cloud-based digital preservation, community participation, and sustainable archiving methods. Technology experts showcased how automation and digitisation can modernise archival practices, while scholars debated ethical issues around AI in heritage management. A key feature was the training of young archivists from across Africa. Led by Dr. Thatayaone Segatsho of the University of Botswana, the workshops focused on disaster risk management, emergency planning, and rapid response techniques. Inspired by the 2021 fire at the University of Cape Town’s Jagger Library, participants developed practical disaster management plans to protect collections in their home institutions.

The 28th ESARBICA Conference was not only a professional gathering but also a call to action. With climate change, disasters, and digital challenges threatening Africa’s heritage, archivists and policymakers agreed that innovation, collaboration, and investment in skills are critical to safeguard the continent’s memory for future generations. The dialogue at the workshop advised organizations to accelerate digitisation of records, implement Electronic Document and Records Management Systems (EDRMS), Develop clear archival policies on access, use, and strengthen staff training and capacity building.



**Ms. Pendu and Mr. Makombo in attendance**

### ESARBICA Conference Snapshot

**Event:** 28th ESARBICA Conference

**Theme:** Archives Are Accessible – Archives for Everyone

**Venue:** Elephant Hills Hotel, Victoria Falls, Zimbabwe

**Dates:** 16–20 June 2025

**Delegates:** 500+ participants

**Countries:** 16 African nations

**Host:** National Archives of Zimbabwe, Ministry of Home Affairs & Cultural Heritage

**Partner:** International Council on Archives (ICA)



# Zimbabwe Pushes for Hybrid Weather Forecasting Through Indigenous Knowledge Integration

## Masvingo, Zimbabwe — August 2025

Zimbabwe has taken a bold step towards strengthening climate resilience by integrating Indigenous Knowledge Systems (IKS) into national weather forecasting. A three-day workshop, held from 19–21 August at Hotel Flamboyant in Masvingo, brought together traditional leaders, government representatives, scientists, and development partners to chart a roadmap for hybrid forecasting. The initiative, spearheaded by the Meteorological Services Department (MSD), seeks to combine scientific models with centuries-old community-based forecasting practices such as plant phenology, animal behavior, and astronomical observations. Pilot projects conducted in eight districts revealed that local knowledge and scientific forecasts are not competing but complementary. Traditional leaders shared indicators alongside scientists, showing how lived experience can enhance scientific models. **“We are moving from parallel systems to a harmonized approach. By blending science with lived experience, we can produce forecasts that are more accurate, locally relevant, and trusted,”** said one facilitator.



Mr. Munyira Matabeleland South Provincial Chief (standing) attending to questions at the IKS workshop

## Framework for Hybrid Forecasting

MSD unveiled a framework to standardize IKS in forecasting, including: Training local IKS forecasters, documenting area-specific indicators, defining thresholds and validation processes and conducting Participatory Scenario Planning (PSP) meetings where communities and experts co-produce forecasts. Teams matched indigenous indicators (such as bird migration or tree flowering) with scientific parameters like rainfall onset and temperature shifts. A hybrid seasonal forecast format was also showcased, combining both streams into a visual, farmer-friendly product. Key recommendations from the workshop included: <sup>1</sup>Establish an MSD task force on IKS. <sup>2</sup>Pilot hybrid forecasts in selected districts. <sup>3</sup>Create a national database of IKS indicators. <sup>4</sup>Revise communication strategies for farmer accessibility. <sup>5</sup>Document indigenous practices at district level.

## Zimbabwe Pushes for Hybrid Weather Forecasting Through Indigenous Knowledge Integration

### Linking Climate Resilience to Development

Integrating IKS is both a scientific advancement and a development strategy, aligned with Vision 2030 and NDS1. By producing localized and trusted forecasts, farmers can make informed planting decisions, strengthen food security, and reduce disaster risks. The participatory nature of hybrid forecasting also promotes inclusivity and social cohesion, ensuring rural communities, often most vulnerable to climate change, are active partners in resilience building. The next steps include briefing MSD management, finalizing the IKS integration workplan, and engaging partners such as UNDP for technical and financial support. Zimbabwe aims to transform MSD into the hub of a national climate innovation ecosystem, critical for achieving a climate-resilient economy and food-secure society by 2030.



**Mr. Mwale Masvingo Provincial Chief (holding mic) speaking at the IKS workshop**

## Pre-SARCOF Workshop Sets Stage for 2025–2026 Rainfall Forecast

### Harare, Zimbabwe — August 2025

The Meteorological Services Department (MSD) hosted the Pre-Southern Africa Climate Outlook Forum (Pre-SARCOF) from 18–22 August, laying the groundwork for SARCOF-31 in Zambia. Using the Python Climate Prediction Tool (pyCPT) and the SADC CSC Climate Forecasting Tool (CFT), participants validated the previous season’s rainfall forecasts and assessed model skill. The week culminated in the successful forecast of the 2025–2026 rainfall season, which will soon be shared with the public. Despite poor internet connectivity posing a major hurdle, the team managed to find innovative ways forward. However, the challenge underscored a broader issue: the need for stronger digital infrastructure and more automated tools.

*“We must adapt these open-source tools to our operational realities, for seamless and time efficient work”*

### Key Takeaways

The seasonal outlook for 2025–2026 is now ready for dissemination, marking a key achievement of this year’s pre-SARCOF workshop. At the same time, important gaps were identified chief among them the need to automate the Python Climate Prediction Tool (pyCPT), which currently requires manual parameter adjustments for every sub-season. The workshop also underscored the critical role of infrastructure: without reliable internet connectivity, accessing datasets and running climate tools can quickly grind to a halt. Looking ahead, investment in better technologies such as Wi-Fi 6 routers and mesh networks will be essential to ensure smoother operations. Overall, this year’s pre-SARCOF was a success. Zimbabwe’s forecasting capacity continues to grow stronger, but meeting the technological demands of modern climate science will be vital to deliver timely, trusted information to the public.



## #Minimizing Risk Through Science

### Pre-SARCOF 2025 Snapshot

**Event:** Pre-Southern Africa Climate Outlook Forum (Pre-SARCOF)

**Dates:** 18–22 August 2025

**Venue:** Meteorological Services Department, Harare

**Focus:** Preparing inputs for SARCOF-31 (Zambia)

**Tools Used:** Python Climate Prediction Tool (pyCPT), SADC CSC Climate Forecasting Tool (CFT)

**Main Activities:** Validated previous season’s rainfall forecast, Produced the 2025–2026 rainfall outlook

**Key Challenge:** Poor internet connectivity

**Needs:** Automation of pyCPT, Investment in reliable high-speed internet

**Outcome:** Seasonal rainfall forecast ready for dissemination



**SADC to host the 31st Southern Africa Climate Outlook Forum, the 31st Climate Experts Meeting and the Multi-Hazard Early Warning System meetings**



# 31<sup>st</sup> Climate Experts Meeting

1 - 7 September 2025 (physical)

## Validation of Multi-Hazard Early Warning System

8 September 2025 (hybrid)

## 31<sup>st</sup> Southern Africa Climate Outlook Forum

8 - 11 September 2025 (hybrid)



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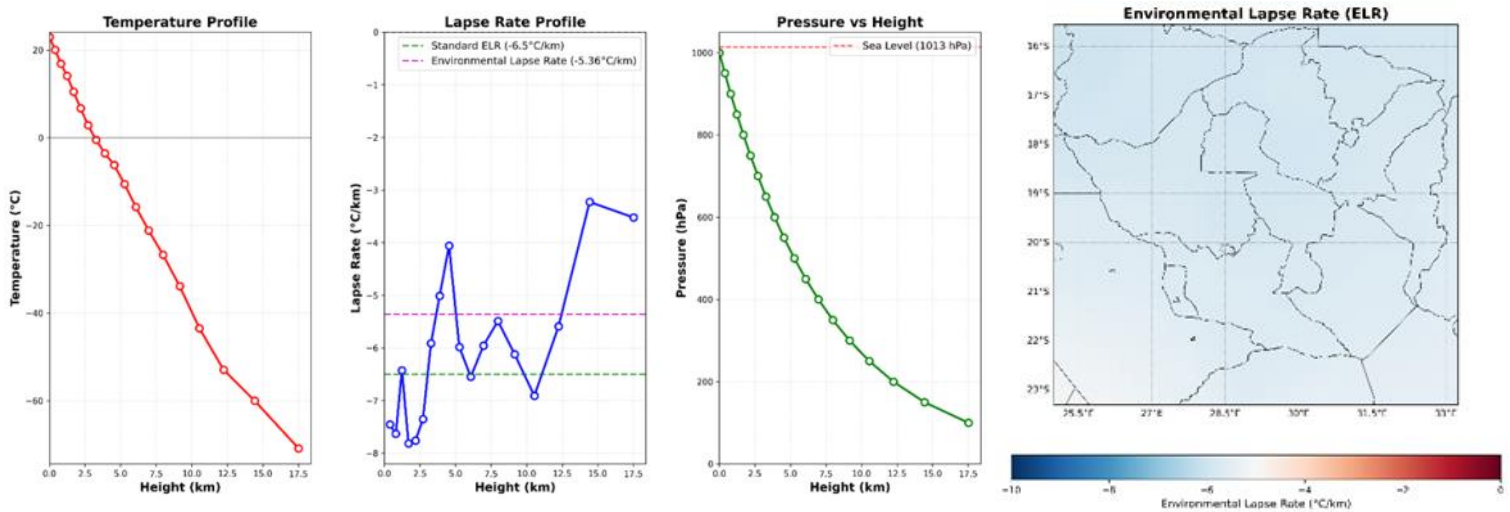
The Southern African Development Community (SADC), in collaboration with the Government of the Republic of Zambia and with financial support from the European Union (EU) under the Intra-ACP Climate Services and related Applications (ClimSA) Programme, will convene the 31st Southern Africa Climate Outlook Forum (SARCOF-31), the Climate Experts Meeting (CEM), and the Validation Workshop of the SADC Multi-Hazard Early Warning System from 1 to 11 September 2025 in Lusaka, Republic of Zambia.

Aligned with the Global Framework for Climate Services (GFCs) and the SADC Regional Indicative Strategic Development Plan (RISDP) 2020–2030, which emphasise environmental sustainability, the engagements will focus on strategies to strengthen climate services for poverty reduction, food security, and disaster preparedness.

The theme of SARCOF-31 is **“Closing the Early Warning Gap Together within the SADC Region,”** echoing the 2025 World Meteorological Day theme: **“Closing the Early Warning Gap Together.”** The Forum also provides a platform for dialogue and technical exchanges on advances in climate science and technology, with emphasis on emerging applications, disaster risk reduction, and anticipatory action.

## The Higher You Go The Cooler It Becomes: Understanding the Environmental Lapse Rate

“The higher you go, the cooler it becomes,” is a very common phrase in high school geography. Have you ever questioned if this is true, or wondered why nature behaves that way? If you have never thought about it, today is the day you do so. To prove the existence of the Environmental Lapse Rate (ELR), temperature data recorded at 19 pressure levels from 100 to 1000 hectopascals was downloaded from the ECWMF’s Climate Data Store and overlaid. Using the Hypsometric Equation geometric height between the pressure levels was calculated followed by determining the temperature change between all the pixels in the same path on the vertical axis. After the temperature differences were determined, they were averaged revealing an Environmental Lapse Rate of  $-5.36^{\circ}\text{C}$ .



As you might have known, the standard ELR is  $-6.5^{\circ}\text{C}$  across the entire globe. Because of this  $1^{\circ}\text{C}$  discrepancy, does that mean there is something strange about Zimbabwe? No? Here’s what’s going on: The ELR changes across different days, months, seasons and so on. The Standard ELR happens to be an average across all these different temporal resolutions, therefore a difference was already bound to be there. The data used for this short study was for a single day at 10 PM on 07 August 2025 which hints that ELR can also vary across different hours of the day. The plots on the image above, show the temperature profile through a single point, and it shows the inverse relationship between temperature and vertical distance. The Lapse rate profile shows that the ELR is not uniform across the different layers of the atmosphere. When the ELR was calculated for the entire bounding box of the images the map shown below was produced. The entirety of Zimbabwe had the sky-blue colour which corresponds to values around  $-5^{\circ}\text{C}$  on the key and the single coordinate profile.

### Quick Quiz: How Cool Is the Sky?

**Q1.** What does the Environmental Lapse Rate (ELR) describe?

- a) The decrease in air pressure with altitude
- b) The rate at which temperature decreases with height
- c) The change in rainfall across seasons
- d) The movement of winds in the upper atmosphere

**Q2.** What was the ELR value calculated over Zimbabwe on 7 August 2025 at 10 PM?

- a)  $-6.5^{\circ}\text{C}$
- b)  $-5.36^{\circ}\text{C}$
- c)  $-4.0^{\circ}\text{C}$
- d)  $-7.0^{\circ}\text{C}$

**Q3.** What is the globally accepted *standard* Environmental Lapse Rate?

- a)  $-5.0^{\circ}\text{C}$
- b)  $-6.5^{\circ}\text{C}$
- c)  $-7.5^{\circ}\text{C}$
- d)  $-8.0^{\circ}\text{C}$

**Q4.** Why was the ELR over Zimbabwe different from the standard value?

- a) Zimbabwe has unusual weather systems
- b) The calculation was done for just one day and time, while the standard is a long-term average
- c) The instruments were faulty
- d) The altitude of Zimbabwe is lower than most regions

**Q5.** Which equation was used to calculate geometric height between pressure levels in the study?

- a) Ideal Gas Law
- b) Hypsometric Equation
- c) Clausius-Clapeyron Equation
- d) Newton’s Law of Cooling



## A hailstorm in winter: The case of Chinyamukwakwa, Chipinge

Crop Damage on 06 August 2025







METEOROLOGICAL SERVICES DEPARTMENT

*'Where Science Meets The Sky'*



## Vision

A world class provider of meteorological, climatological and seismological products and services by 2025.



## Mission Statement

To provide customer and stakeholder driven quality seismological, weather and climate services for socio economic development.



## Core Values

- **Teamwork:** We value unity of purpose
- **Equality:** We offer equal status, rights and opportunities to all
- **Customer focus:** We prioritize and address customer needs.
- **Transparency:** We are open to scrutiny
- **Integrity:** We have strong moral principles
- **Creativity:** We focus on innovation and continuous improvement.
- **Accountability:** We take responsibility for one's own actions.



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