

NEWSLETTER



In this Issue

Executive Director's Desk	2
Governance Issues	3
Stakeholder Engagement Outlook	9
International Partnerships and Projects	13
Research and Capacity Development	16
Staff Wellness Update	24



Executive Director's Desk



Dr Budzanani Tacheba
Interim Executive Director

Dear Readers,

As the first quarter of 2025 comes to an end, SASSCAL continues to implement its plans in accordance with the mandate. Key milestones include the successful implementation of visibility initiatives across member countries, and those contributing to solutions for climate change challenges. In this issue, we are happy to share some of these achievements with you. Each story shows our continued effort and is meant to inform, inspire, and keep our readers and partners connected to our journey.

The SASSCAL participation in the SADC Sustainable Energy Week from 24 to 28 February in Gaborone, Botswana did set the tone for the year. This event received the blessing of the current President of the Republic of Botswana, His Excellency Advocate Duma Boko, who, as the official dignitary of the event, delivered a keynote address emphasising the urgency for sustainable energy development across the region. The President of Botswana, together with the Minister of Minerals and Energy, Hon. Bogolo Joy Kenewendo, paid a visit to the SASSCAL booth where they were briefed on SASSCAL programmes, most importantly on green hydrogen and renewable energy, including the H2ATLAS and capacity development programmes.

Also in February, the SASSCAL Governing Board held their first meeting of the year and took the opportunity to visit

the SGSP-IWRM Programme at the Namibia University of Science and Technology, where the programme is based, to see its progress first-hand.

During the oversight visit, the Governing Board Chairperson, Professor Gabriel Luis Miguel reaffirmed SASSCAL's commitment to empowering the youth in Water Resource Management Studies and recognised the programme as a key pillar of sustainable development and beacon of hope for the region.

On the 4th of March, the Zambian Government signed the SASSCAL Treaty Ratification Instrument. The signing was done by the then Acting Minister of Technology and Science, Honourable Chipoka Mulenga, (MP). The signing of this treaty is a key stepping stone to SASSCAL's journey towards an international organisation status.

Another significant milestone was the Memorandum of Understanding (MoU), which was signed and entered into by SASSCAL and the Zambian Water Resources Management Authority (WARMA) with the aim of working together in tackling issues pertaining to water resources management for the next five years. I, as SASSCAL's Interim Executive Director, signed the agreement together with Mr. Frank Nyoni, the Acting Director General of WARMA from the Zambian side, to unlock opportunities for further collaboration, including in sourcing research funding for common issues under our mandates.

Many other programmes have also produced significant publicity on previous engagements and stakeholder feedback sessions while we are on this first quarter of the year, and of importance is the GMES a& Africa WEMAST Programme's Student Exchange Programme, WeMAST Geoportal Key for Monitoring Wetland Health in Southern Africa and further content dedicated to Earth Day and Wetland Management.

There are more stories and facts to explore in this issue. Plus, readers will enjoy an easy-to-understand analysis of the region's rainfall data for the past quarter as a result of the unique La Niña rainy season. Updates about SASSCAL staff, and many other interesting news items to make your reading even more enjoyable and informative.

GOVERNANCE ISSUES

SASSCAL'S INTERNATIONAL STATUS GAINS MOMENTUM AS ZAMBIA RATIFIES TREATY



Acting Minister of Technology and Science, Hon. Chipoka Mulenga, MP, signing the SASSCAL Treaty Ratification Instrument at the official ceremony in Lusaka, Zambia, on 4th March 2025

The Zambian Government has officially signed and ratified the SASSCAL Treaty, bringing SASSCAL closer to becoming an international organisation. For this to happen, at least three member states must sign.

Zambia's Acting Minister of Technology and Science, Hon. Chipoka Mulenga MP, finalised the process by signing and ratifying the SASSCAL Treaty Instrument on 4 March 2025. This comes after Zambian President H.E. Hakainde Hichilema ratified the treaty last year through Parliament.

"This demonstrates the Government's dedication to strengthening SASSCAL and advancing climate science initiatives," Hon Mulenga said.

Hon. Mulenga said apart from the member states affirming their full commitment and support towards the organisation, the ratification of the Treaty will also enable SASSCAL to be transformed into an international

organisation, which will be registered at the United Nations and accorded all rights and obligations under the international status.

Zambia now joins Namibia as a signatory to the treaty. Namibia ratified the instrument in 2021. Other member states, namely Angola and Botswana, are now at an advanced stage towards the ratification process.

It is envisaged that the treaty will further allow SASSCAL to have more opportunities for resource mobilisation and have access to more international funding. Additionally, SASSCAL will attract more member countries in the southern African region.

The SASSCAL Zambian National Node has implemented various climate-focused initiatives, including the WeNet Automated Weather Stations project, the Green Hydrogen Atlas, Wetlands Monitoring and Assessment, and the SASSCAL 1.0 and 2.0 Research Programmes, among others.

The first research portfolio was funded with Euro 3,799,905, while the current SASSCAL 2.0 is being implemented to the tune of Euro 1,411,222.

Other projects being implemented in Zambia include INTECRES project aimed at improving climate resilience in the Zambian agricultural sector (Euro 153,000.00);

the H2ATLAS, which outlines Green Hydrogen Atlas potential in Africa project (Euro 80,850.00); Wetlands Monitoring and Assessment (WeMAST phase 1 & 2 (Euro 31,398.58); as well as the Automated Weather Station, WeNET project, on which SASSCAL spent Euro 630,799.00.



Acting Minister of Technology and Science, Hon. Chipoka Mulenga, MP (center), alongside SASSCAL Alternate Governing Board Member for Namibia, Ms. Alexandria Angala, SASSCAL Executive Director, Dr. Budzanani Tacheba, the Acting Permanent Secretary of the Ministry of Technology and Science in Zambia, Mr Derrick Saboi and other senior government officials pictured at the signing of the SASSCAL Treaty Ratification Instrument in Zambia



SASSCAL Alternate Governing Board Member for Namibia Ms. Alexandria Angala delivering remarks at the signing event on behalf of the Chairperson of the SASSCAL Governing Board member Prof. Gabriel Luis Miguel

Meanwhile, SASSCAL Alternate Board Member for Namibia Ms. Alexandria Angala, delivered remarks on behalf of Professor Gabriel Luis Miguel, Chairperson of the SASSCAL Governing Board, who applauded Zambia's political will and support towards SASSCAL's activities over the years, including the nomination of officials to serve on SASSCAL Governing Board structure.

"I must also commend you for Zambia's contribution made to date to sustain the operations of SASSCAL. This demonstrates your country's commitment to working alongside other member states in collectively addressing the causes and impact of climate change in the region", he said.

Professor Miguel informed the gathering that SASSCAL is swiftly making progress in the resolutions that were passed by the Council of Ministers meeting in Angola in 2021, during which a key resolution was made to expand SASSCAL to all Southern African countries.

“Expansion of SASSCAL will not only strengthen the institution but will also enhance regional collaboration and support informed decisions in our region”, he said adding that the Council has urged member states to prioritise the Ratification of the SASSCAL treaty. SASSCAL has for the past 13 years made significant

progress with financial support received from its main funding partner, the German Federal Ministry of Education and Research. From 2012 to 2018, SASSCAL funded the first research portfolio in Zambia, comprising 14 projects to the tune of €4 030 446.49. Through the SASSCAL funding, fifty-eight (58) students received scholarships to study towards various degrees at PhD, MSc and diploma levels in various fields including water resources management, agriculture, climate services, biodiversity, woodlands and forest management.



Attendees gathered to witness the signing ceremony

Hon. Mulenga, various Ambassadors from the SASSCAL member countries, Permanent Secretaries, SASSCAL Alternate Board Members for Zambia, Mr. John Lukonde Chongo and for Namibia, Ms. Alexandria Angala, Acting Permanent Secretary of the Zambian

Ministry of Technology and Science, Mr. Derrick Saboi, and SASSCAL Interim Executive Director, Dr. Budzanani Tacheba attended the event. SASSCAL staff, government agencies, academic institutions, and partner organizations were also in attendance.

EMPOWERING SOUTHERN AFRICAN YOUNG SCIENTISTS THROUGH A FULLY FUNDED PHD PROGRAMME IN INTEGRATED WATER RESOURCES MANAGEMENT



SASSCAL Governing Board Members were hosted by the NUST Vice-Chancellor, in the presence of SGSP-IWRM Students, and the Secretariat for a memorable group photo during the Meet and Greet event at NUST

SASSCAL believes the key to sustainable water resource management in Southern Africa is to empower the youth in this field.

Governing Board Chairperson, Professor Gabriel Luis Miguel, reaffirmed SASSCAL's commitment to empowering the youth in Water Resource Management Studies, a key pillar of sustainable development and as a beacon of hope.

He emphasised that SASSCAL has prioritised supporting young scientists and experts to pursue their studies in Integrated Water Resources Management (IWRM) as this approach harmonises ecological sustainability, equitable access, and socio-economic development, ensuring that water becomes a tool for unity rather than division. The remarks were made by Professor Miguel on 7th February 2025, during a brief interaction session with SASSCAL Governing Board Members, the Vice-Chancellor of



SASSCAL Governing Board Chairperson, Prof. Gabriel Luis Miguel, shared some perspectives on Water and regional security at the Meet and Greet event

the Namibia University of Science and Technology (NUST), Professor Eroid Naomab, SGSP-IWRM Students, and the Secretariat.

Professor Miguel further remarked that despite the fundamental importance of water security to the SADC countries, efforts to bring the increasing water scarcity and unsustainable water resources management

issues into a collaborative academic, economic, environmental, political and social platform remain unrewarded.

To bridge this gap, SASSCAL together with NUST are positioning themselves to practically contribute to the strengthening of expertise in the region's water sector.



NUST Vice-Chancellor, Professor Eroid Naomab, welcoming the SASSCAL Board and participants to NUST and the SGSP

During the Session, Vice-Chancellor Professor Eroid Naomab welcomed the SASSCAL Governing Board to the institution and emphasised that this year is extra special because NUST will be celebrating 10 years as a University. "I am delighted to announce that SASSCAL will be right here with us, celebrating the successes and impacts we have achieved together on the ground. From research advancements to student achievements, we will use this milestone as an opportunity to reflect on how far we have come and more importantly where we are headed to."

He also commended the SGSP-IWRM students, stating, "Many of you are reaching the final stretch of your studies, and I know this is both an exciting and challenging time. What you are doing, contributing to water security is huge. It should never be taken lightly. You are not just earning degrees; you are actively shaping the future, solving critical challenges, and making a tangible difference on the ground."

The Vice-Chancellor further reiterated that at NUST, knowledge is not pursued merely for its own sake but must be translated into action. He urged students to guarantee that their work should ensure that communities have access to clean water, that policies are informed by science, and that sustainable water

A Milestone Year for SASSCAL and NUST



SASSCAL's Interim Executive Director, Dr. Budzanani Tacheba, encouraged students to remain in the region (Southern Africa), after completing their studies so as to locally invest their newly acquired technical expertise in water resources amidst the many opportunities available globally.

He further noted that as SASSCAL continues to grow and strengthen its Centres of Excellence across member states, the organisation will seek guidance from its sister organization, the West Africa Science Service Center for Climate Change and Adaptive Land Management (WASCAL), which has successfully established its own Centres of Excellence Graduate Schools.

SASSCAL's Interim Executive Director, Dr. Budzanani Tacheba, pictured while moderating the session



The SASSCAL-supported thirteen PhD students are currently progressing their studies and are expected to graduate this year. A new SGSP cohort is anticipated to commence in 2026.

SASSCAL is also preparing to launch a new regional study Centre of Excellence (CoE) in Agriculture, Food Security and Land Management in Angola during this year.

PhD students are captured attending the event

The event was graced by esteemed members of SASSCAL's Governing Board, including:

- Prof. Gabriel Luis Miguel – Chairperson, representing Angola
- Dr. Tjitunga Elijah Ngurare – Vice-Chairperson, representing Namibia
- Mr. Balisi Gopolang – Board Member, representing Botswana
- Dr. Verena Hebbecker – Alternate Board Member, representing Germany
- Mr. John Lukonde Chongo – Alternate Board Member, representing Zambia , and
- Ms. Alexandria Angala – Alternate Board Member, representing Namibia.

STAKEHOLDER ENGAGEMENT

SASSCAL AT 2024 SADC SUSTAINABLE ENERGY WEEK

SASSCAL (Southern African Science Service Centre for Climate Change and Adaptive Land Management) made a significant impact at the 2024 SADC Sustainable Energy Week. The event, themed “Accelerating Sustainable Energy Solutions for an Energy Secure SADC Region,” from February 24th to 28th in Gaborone, Botswana. Organized by the SADC Centre for Renewable Energy and Energy Efficiency (SACREEE), the Botswana Ministry of Minerals and Energy, and SADC, the event aimed to address sustainable energy challenges and opportunities across the Southern African Development Community (SADC) region.

The SADC Sustainable Energy Week was officially opened by President Advocate Duma Boko, who delivered a keynote address emphasizing the urgent need for sustainable energy development across the region. He called upon the Southern African Development Community (SADC) to prioritize sustainable energy policies in their national development strategies.

The week-long event featured a comprehensive program including high-level presentations, panel discussion, and exhibitions. SASSCAL participated as a key exhibitor, showcasing its pioneering work in climate change mitigation initiatives through the Atlas for Green Hydrogen production potential in Southern Africa, Green Hydrogen pilot projects, capacity building, and other related SASSCAL initiatives towards achieving net zero emissions.

Following the official opening ceremony, high-level dignitaries toured the exhibition stands. Among them, His Excellency, Advocate Duma Gideon Boko, President of Botswana and Minister of Minerals and Energy, Ms Bogolo Kenewendo visited the SASSCAL booth, where they were briefed on SASSCAL’s initiatives in green hydrogen and renewable energy, including the H2Atlas, Green Hydrogen pilot projects and capacity building programs including the Youth for Green Hydrogen Scholarship.



President Advocate Duma Gideon Boko, Minister of Minerals and Energy, Ms Bogolo Kenewendo and high-level dignitaries visits to SASSCAL booth at the 2024 SADC Sustainable Energy Week

SASSCAL also played a key role in a panel discussion focused on "Green Hydrogen: Pathway to a Sustainable and Resilient Energy Future in the SADC Region." Dr. Budzanani Tacheba, Acting Executive Director of SASSCAL, participated as a panellist, emphasizing SASSCAL's commitment to enhancing climate resilience

and sustainable land management in Southern Africa. He highlighted the organization's work in scientific research, policy advocacy, and community-based green hydrogen initiatives to address the challenges of climate change and energy poverty in the region.



Panelists at the "Green Hydrogen: Pathway to a Sustainable and Resilient Energy Future in the SADC Region" session during the SADC Sustainable Energy Week 2024

During the session, Dr. Tacheba outlined the importance of comprehensive policy frameworks, investment in capacity building, and collaborative efforts to drive green hydrogen initiatives. He also emphasized the role of the H2Atlas-Africa online platform in providing data-driven insights to guide decision-making and the impact of pilot projects like the Daures Green Hydrogen Village and Cleanergy Solutions Namibia Pilot Project in demonstrating the feasibility of large-scale hydrogen production.

SASSCAL's presence at the event provided a valuable platform to:

Showcase Research and Online Services: SASSCAL presented its research products and online services

related to green hydrogen, capacity development programs, and pilot projects to key stakeholders, including policymakers, industry leaders, and experts.

Enhance Brand Visibility: The event offered an excellent opportunity to promote and enhance the visibility of the SASSCAL brand, highlighting its sustainable energy initiatives and climate change programs.

Engage with Media and Stakeholders: SASSCAL interacted with media outlets from the SADC region and engaged with high-level authorities, research institutions, students, and interest groups.

Promote Climate Change Mitigation: SASSCAL exhibited its work on climate change mitigation through green hydrogen pilot projects, capacity building, and other related initiatives aimed at achieving net-zero emissions.

The SADC Sustainable Energy Week provided an excellent opportunity for SASSCAL to connect with regional partners, share knowledge, and contribute to the advancement of sustainable energy solutions in the SADC region.



SASSCAL representatives at the SADC Sustainable Energy Week; Mr. Balisi Gopolang, SASSCAL Governing Board Member, Botswana, Dr. Budzanani Tacheba, Acting Executive Director of SASSCAL and a fellow staff member.

SASSCAL HOSTS PRODUCTIVE MEETING WITH TECHNICAL PARTNERS TO FINALIZE WEMAST PROJECT PLANS



SASSCAL's Interim Executive Director

The Southern African Science Service Centre for Climate Change and Adaptive Land Management (SASSCAL) hosted a highly successful virtual meeting with its technical partners on the 14th of March. The meeting aimed at advancing the WeMAST (Wetlands Monitoring and Assessment for Sustainability) project. The meeting's primary objectives were to review and finalize the 2025 Implementation Action Plan and to standardize reporting templates within the GMES and Africa framework.

The meeting marked a crucial step in aligning efforts across the various project partners, ensuring that the project progresses smoothly and that all participants are on the same page moving forward. Dr. Budzanani Tacheba, the Interim Executive Director of SASSCAL, opened the session by emphasizing the importance of assessing the practicality and feasibility of the project's activities within the established timelines.

"We need to evaluate what can be realistically accomplished under each work package, and work with our partners to prioritize tasks and establish clear timelines to ensure the project stays on track," Dr. Tacheba remarked. He stressed that it is vital to monitor progress at the end of each quarter to ensure

the project is meeting its goals and deadlines, highlighting the need for a structured approach to managing the timeline and deliverables.

Dr. Tacheba also reminded the partners that as the project moves into its later stages, key activities will shift. "In Q3 and Q4, we'll be focusing more on administrative, policy, and institutional matters rather than tangible field-related outcomes," he noted, acknowledging the critical transition from implementation to ensuring long-term sustainability through institutional integration.

The technical partners, including representatives from Midlands States University (Zimbabwe), LocatelT (Kenya), University of Western Cape (South Africa), University of Zambia (UNZA), University of Namibia, and University of Botswana, actively participated in the discussion, ensuring that each partner's input was considered in finalizing the implementation plan.

The WeMAST project which is funded by the African Union and European Union under the GMES and Africa program aims to provide critical insights into the sustainability of wetlands across Southern Africa, utilizing Earth observation technologies and data-driven approaches. By leveraging the expertise of each technical partner, the initiative is poised to enhance the region's ability to manage and protect its vital wetland ecosystems.

With the action plan now more refined and timelines aligned, the partners are ready to move forward with the project, ensuring that the next phases are executed effectively, and that all goals are met on time. The collaboration and engagement during the meeting underscored the commitment of SASSCAL and its partners to advancing sustainable environmental management practices in Southern Africa.

INTERNATIONAL PARTNERSHIPS AND PROJECTS

SASSCAL AND WARMA TO COLLABORATE ON WATER RESOURCES



SASSCAL Interim Executive Director, Dr. Budzanani Tacheba, and WARMA Acting Director General, Mr. Frank Nyoni pictured during the signing of the Memorandum of Understanding on 4th March 2025 in Lusaka, Zambia

SASSCAL and the Zambian Water Resources Management Authority (WARMA) have joined forces to tackle issues pertaining to water resources management for the next five years. The collaboration is in keeping with efforts to find solutions to the ever-increasing calamities brought about by climate change. SASSCAL Interim Executive Director, Dr. Budzanani Tacheba, and WARMA Acting Director General, Mr Frank Nyoni signed a Memorandum of Understanding in this regard on Tuesday, 4 March 2025 at WARMA Headquarters in Lusaka, Zambia.



SASSCAL Interim Executive Director, Dr. Budzanani Tacheba, and WARMA Acting Director General, Mr. Frank Nyoni, along with Dr. Chomba Innocent Chomba, Programme Coordinator of the SASSCAL Zambia National Node Office, pictured with officials from SASSCAL and WASCAL at the MoU signing event

The agreement will see SASSCAL and WARMA collaborate in identifying, designing, and implementing projects. It specifically covers supporting innovative and collaborative research in new technologies for improved and effective management of water resources; identifying priority areas of research in water resources management; participating in capacity-building programmes facilitated by SASSCAL; and sharing water-related data and information to enable SASSCAL to effectively generate scientific knowledge products and services for decision-making on climate change and water resources management.

Dr. Tacheba noted that Southern Africa stands at a critical juncture, grappling with escalating climate crises resulting in recurrent droughts and floods,

shifting rainfall patterns that threaten food security, water resources, and economic stability.

Due to this situation, he said the region should over the next five years harness research, innovation, knowledge management, and capacity building, to forge a resilient future.

“It is therefore important that we identify opportunities for collaboration under different mechanisms. SASSCAL remains committed to Regional Cooperation and shall in collaboration with others seek project initiatives aligned to national policies and the SADC Protocol on Environmental Management, fostering trans boundary water management such as the Limpopo River Basin” said Dr Tacheba.



The Acting Heads of SASSCAL and WARMA shake hands following the MoU signing at WARMA headquarters

In this agreement, SASSCAL will further provide WARMA with scientific services including research assignments, capacity development initiatives, services and data products to enable WARMA to sustainably manage its portfolio.

Additionally, SASSCAL will support the water authority

in adding value to their outcomes and in disseminating regionally relevant information, knowledge and technologies within the SASSCAL region and other countries.

Also speaking during the signing ceremony, Mr. Nyoni said WARMA values SASSCAL as a key strategic partner

in strengthening capacity building, research, and innovation in water resources management.

“This Mou plays a foundation for collaboration in research and innovation, institutional capacity development and data sharing in water resources

management. WARMA is eager to work with SASSCAL in identifying, designing, and implementing projects that align with the priorities of both institutions, including supporting research in innovative technologies to enhance water resources management,” he added.



Officials from both institutions pictured following the MoU signing at WARMA headquarters

He further said that WARMA looks forward to leveraging SASSCAL’s expertise in capacity building to enhance research in the field of water resources management.

“Through this partnership, we aim to develop solutions that benefit not only our institution but also other interested stakeholders and the broader water sector,” the acting Director General said.

The MoU will enhance knowledge-sharing and capacity-building, ultimately resulting in sustainable solutions that foster water security and climate resilience.

WARMA is responsible for conserving, preserving, and protecting the environment, including wetlands, quarries, dambos, marshlands, and headwaters. The Zambian water authority also identifies and

safeguards potential freshwater sources, conducts water resource planning through allocation and catchment management plans, assesses water quality and quantity, and establishes standards and guidelines for water users in Zambia.

SASSCAL’s mission on the other hand is to strengthen the regional capacity to generate and use scientific knowledge products and services for decision-making on climate change and adaptive land management through research management, human capital development and service provision.

Apart from the acting Heads of the two organisations (SASSCAL and WARMA), Dr. Chomba Innocent Chomba, Programme Coordinator for the SASSCAL Zambian National Node office, and other SASSCAL and WARMA senior officials witnessed the signing event.

RESEARCH AND CAPACITY DEVELOPMENT

SASSCAL COMMENCES RESTORATION OF AUTOMATED WEATHER STATIONS ACROSS BOTSWANA



SASSCAL, Central Technical Services, Aridus, and the Department of Meteorological Services engineering teams during a courtesy visit to the Botswana Department of Meteorological Services (DMS) management ahead of the WeatherNet upgrade rollout

SASSCAL has commenced the upgrade of the WeatherNet in Botswana. The WeatherNet a SASSCAL sponsored network of automated weather station was set up in 2013-2016, covering approximately 160 stations in the region. Of these 20 were in Botswana. Over the years, due to a variety of reasons these stations had degraded. In view of the deterioration SASSCAL has received funding from BMBF to repair and replace non repairable stations.

On 31st March the team comprising SASSCAL staff, Central Technical Services (CTS) staff, Aridus Staff and the Department of Meteorological Services Engineering team paid a courtesy call on the Botswana's Department

of Meteorological Services (DMS) management to kick start the work. Central Technical Services is the company contracted to perform the maintenance and installation, while Aridus is a local company that has been subcontracted by CTS. The Management of BDMS expressed delight at the start of this long-awaited maintenance and promised to support the team to complete this project.

The project expected to last 3 weeks will replace 6 stations and repair 9, a total of 15 out of the original 20. Work has already commenced with servicing of the station at Baines Drift complete and base tower already set at Ramotswa Station.

BUILDING CAPACITY FOR WETLAND CONSERVATION: THE WEMAST PROJECT'S IMPACT



A file picture of classroom training on Earth Observation Data Validation in Zambia

Wetlands, often overshadowed by other ecosystems in environmental conservation efforts, are the unsung heroes of the natural world. These vital ecosystems provide essential services to local communities and play an indispensable role in combating climate change. Yet, they remain underappreciated in many parts of the world, particularly in Africa. In recent years, however, wetlands have gained increased recognition as critical components of sustainable resource management, thanks in part to the WeMAST (Wetlands Monitoring and Assessment) project, which is helping to elevate their importance.

Launched under the Global Monitoring for Environment and Security (GMES) Africa Support Program, the WeMAST project is a collaborative initiative between the African Union (AU), the European Union, and a network of academic and governmental partners across Southern Africa. Its core mission is to enhance the capacity of institutions and individuals to manage and

conserve wetlands through the use of advanced Earth observation technologies. With its focus on capacity building and practical applications, the WeMAST project is transforming the way stakeholders approach wetland conservation.

Empowering Stakeholders through Training

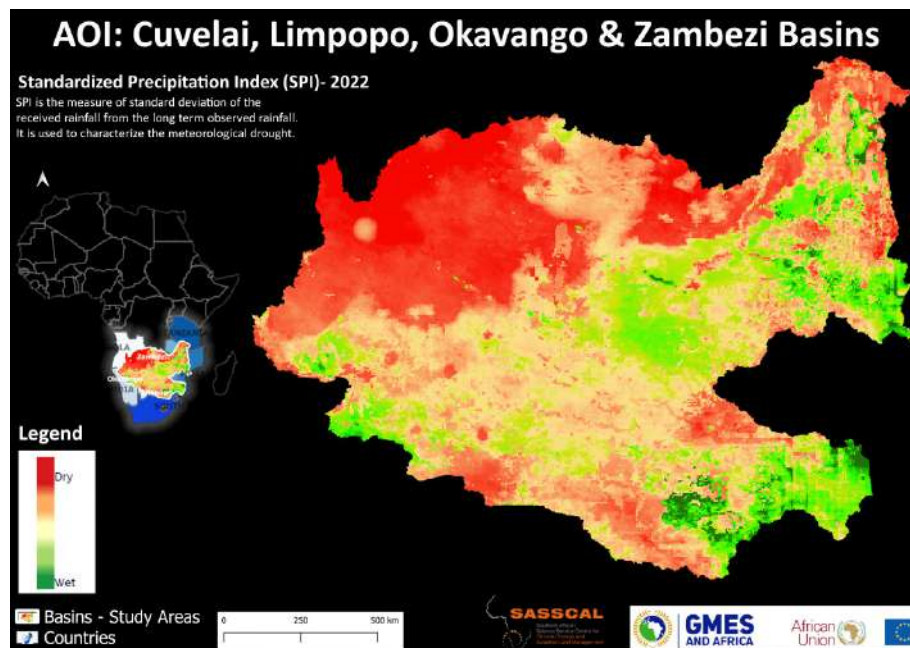
One of the project's most significant achievements has been its comprehensive training initiatives. SASSCAL (Southern African Science Service Centre for Climate Change and Adaptive Land Management), which coordinates the project, has conducted a series of training sessions aimed at equipping a diverse group of stakeholders with the skills needed to effectively monitor and manage wetlands. These stakeholders include government officials from relevant ministries, national water and environmental authorities, representatives from research and academic institutions, NGOs, community-based organizations, and local communities. Notably, women in natural resources and water management have also been actively included, ensuring that gender-inclusive approaches are part of the conservation efforts.

During these sessions, experts and stakeholders are trained to harness the power of satellite technologies and data analytics to support wetland conservation. The training covers the use of the WeMAST 2.0 geoportal, mobile applications, and QGIS plugins, empowering participants to collect, validate, and analyze field data in real-time. This approach is designed to strengthen wetland monitoring efforts and enable timely decision-making to safeguard these ecosystems.



Aerial shot of the Cuvelai river basin in the Northern part of Namibia

WEMAST GEOPORTAL KEY FOR MONITORING WETLAND HEALTH IN SOUTHERN AFRICA: BUILDING RESILIENCE FOR THE FUTURE



A file picture of classroom training on Earth Observation Data Validation in Zambia

In a world increasingly being shaped by climate change, understanding the state of our natural ecosystems has never been more urgent. Wetlands, in particular, play a crucial role in maintaining ecological balance, offering essential services such as water filtration, carbon storage, and flood mitigation. But as climate change accelerates, these vital ecosystems are under threat.

It is against this background that SASSCAL through its WeMAST project developed a WeMAST Geoportal to safeguard the wetlands health and ensure sustainable management in southern African region. The WeMAST Geoportal which was conceptualized during the project's Phase I and operationalized as well as enhanced in this current Phase II, is characterized with advanced technologies that provides comprehensive support for wetland management across several key areas such as field data collection and validation; Monitoring Services; and Policy Support.

Moreover, the Geoportal is a platform distinguished by its ability to develop a comprehensive digital tool for wetland monitoring; bridging the gap for policymakers and non-experts; and empowering the concept of 'From Data to action'. Designed for the main four river basins in SADC, the WeMAST Geoportal is a positive step towards building resilience across southern Africa in the face of Climate Change. Below is a breakdown

of how the WeMAST Geoportal is a key aspect for monitoring wetland health in southern Africa and building resilience for the Future in the face of climate change.

A Digital Platform for Wetland Monitoring

The project, at its core, seeks to develop a comprehensive digital tool for wetland health assessment, leveraging data from Earth observation and ground-truthing methods. This ambitious initiative is centered around a user-friendly portal that allows stakeholders to visualize and query environmental data to understand wetland conditions across the region. The platform consolidates critical datasets such as soil moisture, rainfall, land use, water quality, and flood susceptibility—into a single, accessible location.

According to the presentations made during the WeMAST Phase II End User Training workshop held online in November, 2024; as the project evolves, these datasets will be integrated into a robust database, enabling users to query data by year and season, offering insights into long-term trends. This will be instrumental in understanding changes in wetland health over time and identifying areas at risk due to environmental stresses, such as droughts, floods, and land degradation.



WeMAST geoportal on a mobile app, picture taken during the Zamcom stakeholder engagement and training on EO data capturing the field

Bridging the Gap for Policymakers and Non-Experts

A significant challenge in environmental monitoring is ensuring that complex data is accessible to non-technical audiences. To address this, the platform includes summary documents and intuitive visualizations designed for policymakers, local communities, and other stakeholders who may not be familiar with geospatial data. These tools aim to present the information in an easily digestible format, helping users make informed decisions about wetland conservation and management.

Moreover, the portal includes an innovative QGIS plugin, which serves as a powerful tool for both professionals and researchers to visualize and validate environmental data in real time. This plugin is part of a broader effort to create a validated platform—one that not only presents accurate, up-to-date information but also offers tools for users to validate environmental conditions using their own field-collected data.

From Data to Action: The Role of Ground Truthing

One of the key features of this project is the incorporation of ground truthing, a method where data collected in the field is used to validate and refine remotely sensed data. Through a mobile application developed as part of the initiative, users can easily collect field data and upload it to the platform for analysis. This integration of in-situ data with satellite imagery and remote sensing

datasets will ensure the accuracy and reliability of the environmental information presented on the platform. Field workers, researchers, and even local communities across southern Africa can use the mobile app to monitor specific wetland features and report findings, which are then visualized on the platform. This direct link between field observations and digital data helps validate environmental conditions in a way that strengthens the platform's credibility and usefulness.

A Focus on Southern Africa's Transboundary Basins

The platform's focus is on the four transboundary basins in the SADC region: Zambezi, Kuvelai, Okavango, and Limpopo. These areas are critical for regional water resources and the livelihoods of millions of people. By monitoring wetland health in these basins, the platform aims to assess vulnerability to climate change and identify opportunities for building resilience.

In particular, the platform uses a set of key indicators—such as exposure, sensitivity, and resilience indicators—to measure the impacts of climate-related changes in the wetlands. Exposure indicators monitor the extent of environmental changes, while sensitivity indicators assess the vulnerability of the wetlands to those changes. Resilience indicators, on the other hand, help evaluate the capacity of these wetlands to recover from disturbances.

A Step Toward Building Resilience

The overarching goal of this project is to build resilience in the face of climate change. By understanding how wetlands are affected by shifting weather patterns, land use changes, and water management practices, the platform provides critical data for informed decision-making. This, in turn, will guide efforts to manage wetlands sustainably, ensuring that they continue to provide essential ecosystem services for future generations.

In the face of increasingly scarce natural resources and climate shocks, the ability to monitor and assess wetland health is crucial. Wetlands are not just environmental assets; they are also integral to the livelihoods of communities in the SADC region, providing water, food, and protection from natural disasters. By tracking their health, we can better understand how to manage these resources and ensure they remain viable for years to come.

The Road Ahead

As the platform continues to evolve, the team behind this initiative is committed to expanding its functionality and outreach. The development of training materials, manuals, and user guides will empower even more users—whether field researchers or government officials—to effectively use the platform and contribute to wetland conservation efforts.

Through continued collaboration, innovation, and engagement with local communities, the project hopes to set a standard for wetland monitoring and environmental assessment across the southern African region. By harnessing the power of Earth observation and ground-truthing, it is possible to better understand our wetlands, protect them from the impacts of climate change, and build a more resilient future for all.

A Rainfall Season of Extremes

After a prolonged drought that already started during the 2022/23 rainfall year, the 2024/25 rainfall year that started in October 2024 was highly anticipated by the water and the agricultural sectors of most of southern Africa. In particular in Angola, Botswana, Namibia and Zimbabwe, where the prolonged drought had the greatest impact.

According to reliefweb, in 2023/24, southern Africa experienced its worst drought in over 100 years. The severe drought was believed to be a consequence of the impacts of the El Niño event, and a climate-driven crisis.

An analysis of the quarterly rainfall totals of the 2024/25 rainfall year to date was conducted using CHC CHIRPS 3.0 satellite-based precipitation data.

Figure 1 represents the Standardised Precipitation Index (SPI) maps of the October-November-December (OND) 2024 rainfall quarter and the January-February-March (JFM) 2025 rainfall quarter. The WMO (World Meteorological Organisation) recommends that the SPI be used by all National Meteorological and Hydrological Services to characterise meteorological droughts (WMO 2012). A drought starts when the SPI has a value of -1 or less. The drought duration ends when the SPI becomes positive. Accordingly, it can be derived that large parts of Angola, Botswana, Namibia, Zambia and South Africa remained plagued by the prolonged drought until the end of December 2024.

In the second quarter of the 2024/25 rainfall year, Botswana, Namibia and southern Zimbabwe received much needed relief from the drought, with the SPI showing normal to wet conditions. In Angola, Zambia and the northern parts of Zimbabwe, the SPI suggests normal to dry conditions, with parts of north-eastern Zambia showing extremely dry conditions. Notably, the SPI was negative for large parts for most of Angola and Zambia, and large parts of northern Zimbabwe and southern and central South Africa.

Figure 2 represents the percentage of the average quarterly rainfall total of the OND 2024 rainfall quarter and the JFM 2025 rainfall quarter. It can be noted that parts of Botswana, Namibia and South Africa received more than double the rainfall total expected for the JFM rainfall quarter.

Figure 3 represents the graphs of the quarterly average rainfall total for the OND 2024 and JFM 2025 rainfall quarters. In particular Namibia, South Africa and Zambia had below average rainfall for the OND quarter. For the JFM quarter, Angola and Zambia had below average rainfall, while Botswana, Namibia and South Africa had above average rainfall.

The 2024/25 rainfall period only officially ends at the end of September 2025. The rainfall season generally ends at the end of April.

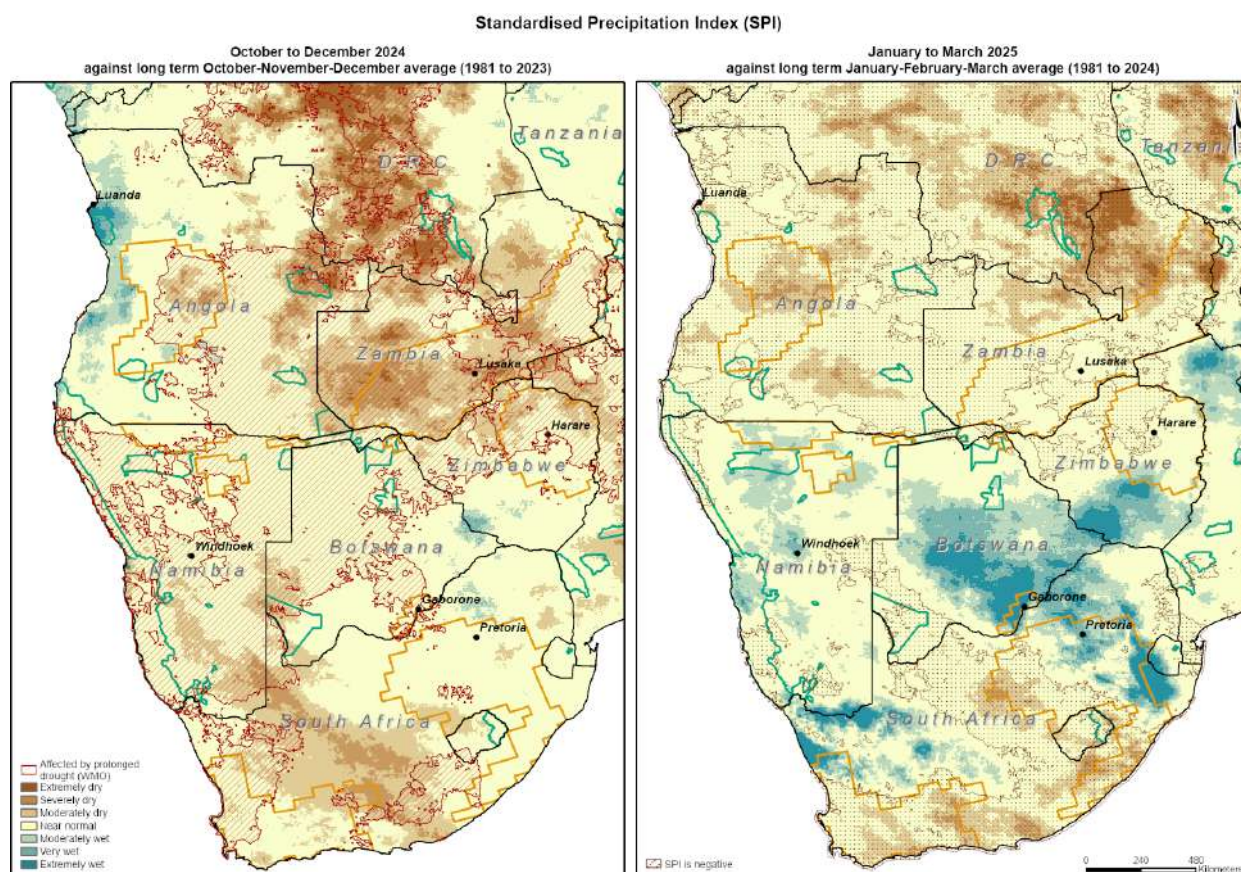


Figure: The Standardised Precipitation Index (SPI) maps of the October-November-December (OND) 2024 rainfall quarter and the January-February-March (JFM) 2025 rainfall quarter.

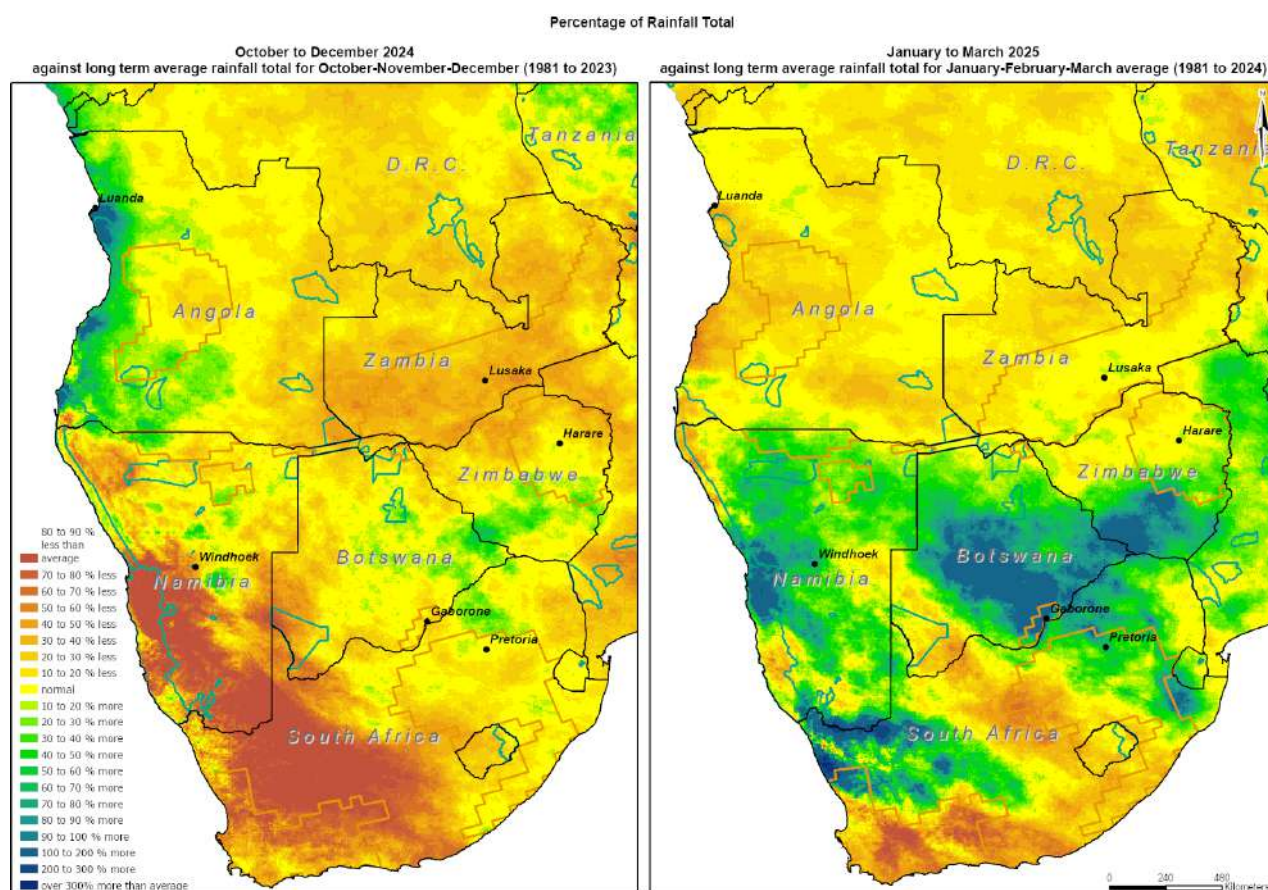
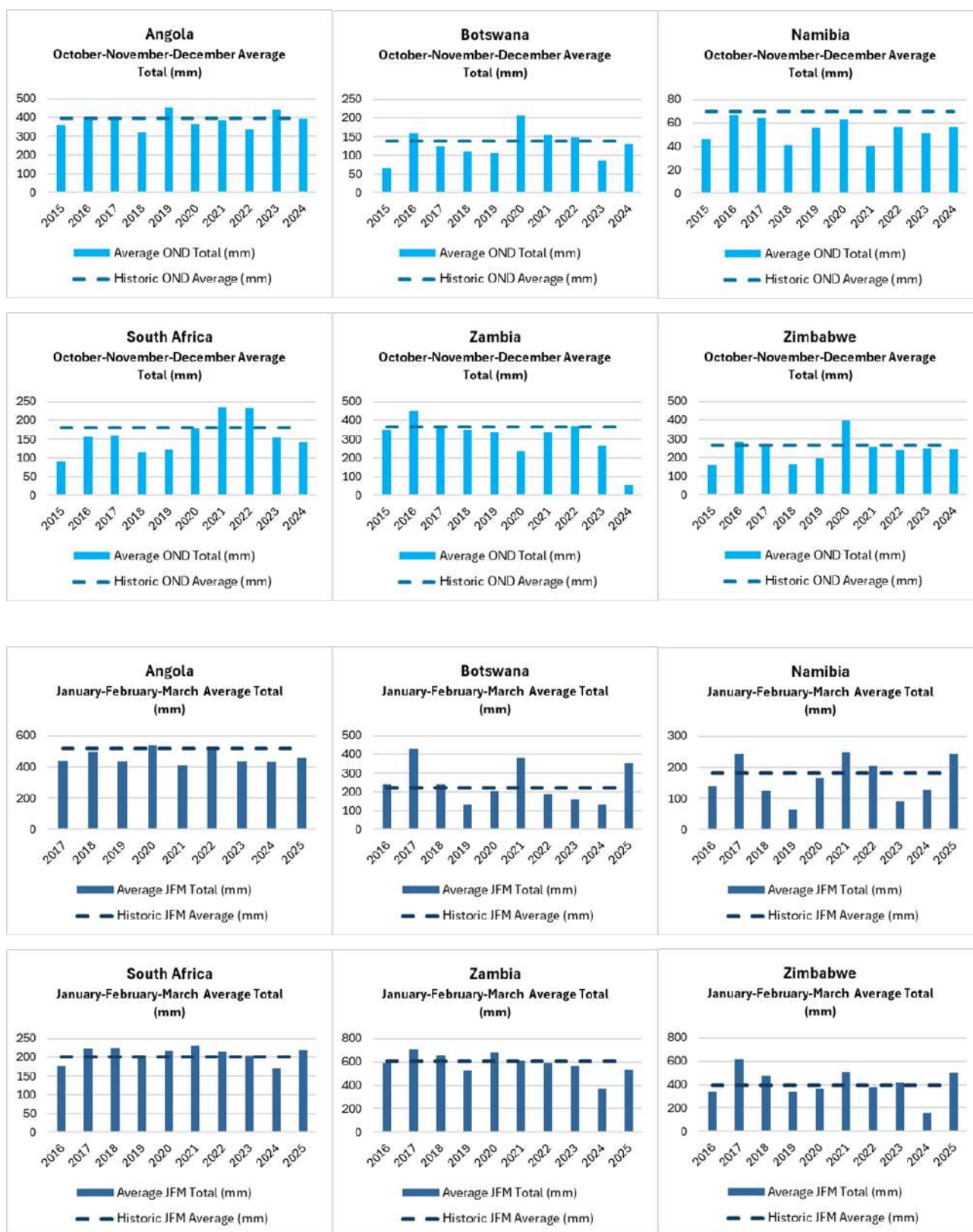


Figure 2: The Percentage of the Rainfall Total maps of the October-November-December (OND) 2024 rainfall quarter and the January-February-March (JFM) 2025 rainfall quarter.



References:

1. Funk, C., Peterson, P., Landsfeld, M. et al. The climate hazards infrared precipitation with stations—a new environmental record for monitoring extremes. Sci Data 2, 150066 (2015). <https://doi.org/10.1038/sdata.2015.66>
2. WMO. 2012. Standardized Precipitation Index User Guide
3. Reliefweb. 2024. Southern Africa: El Niño Regional Humanitarian Overview, September 2024.

Data Source: CHC CHIRPS 2.0 precipitation data from 1981 to September 2024

STAFF WELLNESS UPDATES

DR. CHOMBA TO LEAD THE SASSCAL ZAMBIA NODE AS ITS NATIONAL PROGRAMME



The Dr. Chomba Innocent Chomba is the new National Programme Coordinator for SASSCAL Zambia Node as of 1st January 2025. He is an internationally experienced water resources, environmental and climate change expert with more than Eleven (11) years' work experience as a scientist, researcher, consultant, and lecturer.

He brings to SASSCAL extensive experience, strong research and academic background, a diverse project monitoring and management skill set. A strong believer in Education, Dr. Chomba Innocent Chomba holds a PhD in Integrated Water Resources Management; MSc in Environmental and Natural Resources Management; Master of Arts in Business Management (MBA); Bachelor of Arts Degree and a Diploma in Project Management.

Prior to his new assignment, he worked as Scientific Officer for SASSCAL and spearheaded the production and publication of SASSCAL's first ever policy briefs. He worked as a researcher on the Wide Fund for Nature (WWF) & The University of Zambia (UNZA) Wetland Hydrology and Ecosystem Service Provision Project (WASP) under WWF Upper Zambezi Floodplain Ecology and Fisheries Programme, under its auspice he developed the flow Hydrological Model for the Upper Zambezi Basin and the Framework on coupling Spatially Distributed Hydrologic-Hydrodynamic Model for the Barotse Floodplain.

He has worked as a lecturer at The University of Zambia in the School of Natural Sciences, Department of Geography and Environmental Sciences. Furthermore, he has worked as a District Water Resources Development Officer, in the Department of Water Resources Development – Ministry of Water Resources Development and Sanitation. In addition to his academic qualifications and professional experience, Dr. Chomba Innocent Chomba has authored and published peer reviewed papers in indexed journals and he has a google scholar H-Index of 6. He is a peer reviewer for an indexed Journal of Flood Risk Management. And He is a member of the International Association of Hydrological Sciences (IAHS).

Dr. Anacleto Marito Diogo Obtains his Doctoral Degree in Environmental Systems Analysis and Modelling



SASSCAL congratulates Dr. Anacleto Marito Diogo, a Scientific Officer at the Angolan National Node, on achieving his Doctoral Degree in Environmental Systems Analysis and Modelling from the Federal University of Minas Gerais (UFMG) in Brazil.

His research, titled "Environmental Variables and the Spatio-Temporal Dynamics of COVID-19 in Minas Gerais, Brazil," focused on understanding how environmental factors influenced the spread of COVID-19. His findings provide useful information for public health policy and sustainable territorial planning.

Dr. Diogo began his studies in September 2020 and successfully completed them in February 2025. He plans to continue his research in environmental data modelling, remote sensing, and meteorology. As a Scientific Officer at

SASSCAL, he expressed his commitment to using his expertise to support scientific research and development in Angola and across Africa. His achievement is an example of how scientific research can contribute to solving global challenges, including public health and environmental issues. SASSCAL celebrates his achievements and wishes him continued success in his career.



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