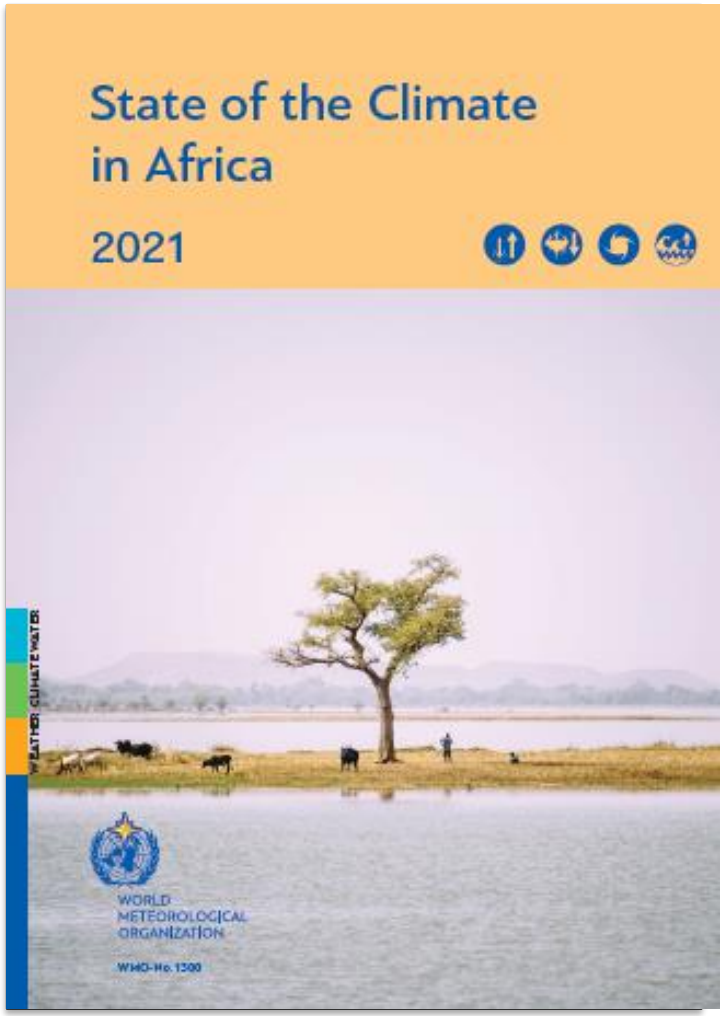
WEATHER CLIMATE WATER
TEMPS CLIMAT EAU

State of the Climate in Africa 2021

WMO Regional Office for Africa
Addis Ababa, Ethiopia

WMO OMM
World Meteorological Organization
Organisation météorologique mondiale

The Report on the State of the Climate in Africa 2021



Collaborative effort

- **26** African NMHSs
- **7** African Regional Climate Centres
- **60+** international and regional experts

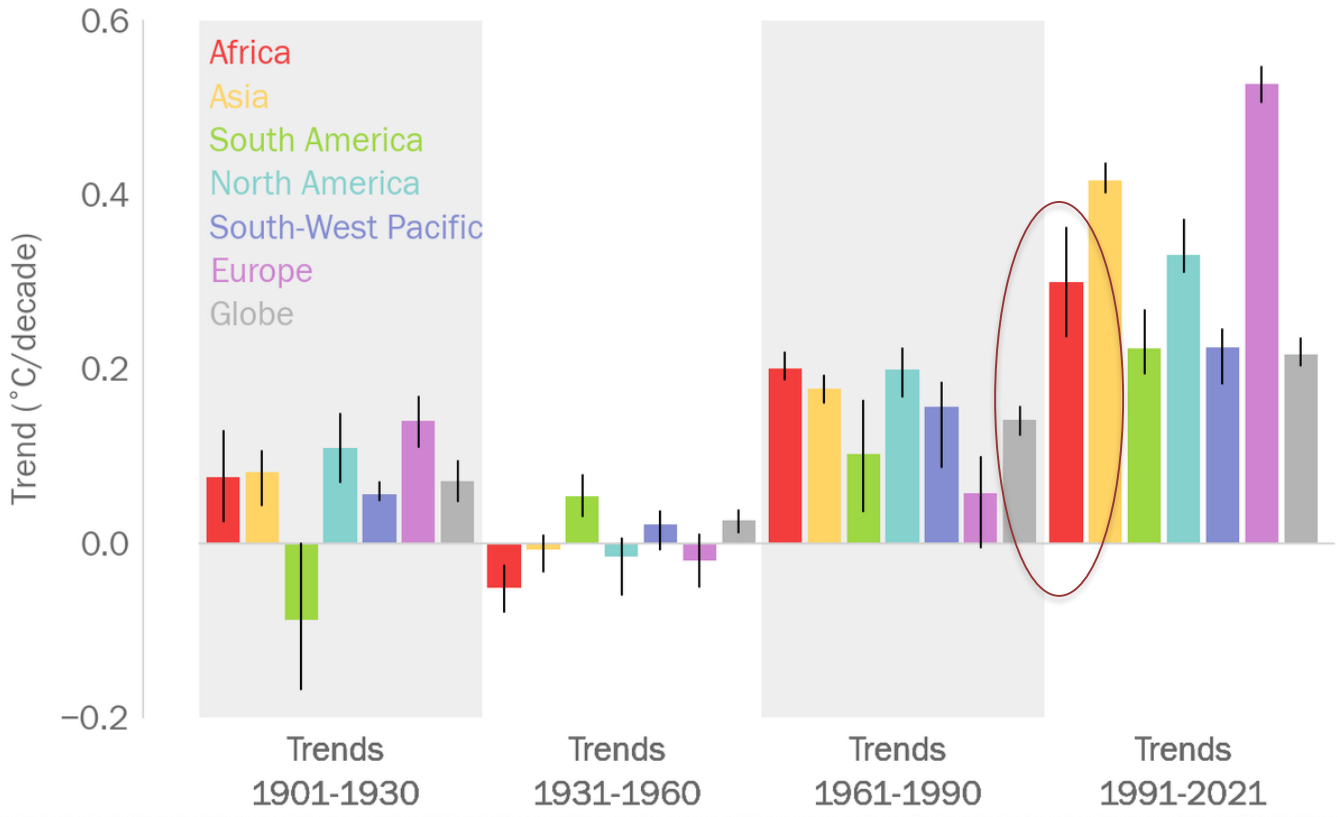
Authoritative information including

- Physical science
- Associated Socio-economic impacts and risks
- Climate policies and mitigation and adaptation strategies

The 2021 report is the third in the series after 2019 and 2020 annual editions. It has an extended emphasis on water issues

https://library.wmo.int/index.php?lvl=notice_display&id=22125#.Y1FDwy-l3OQ

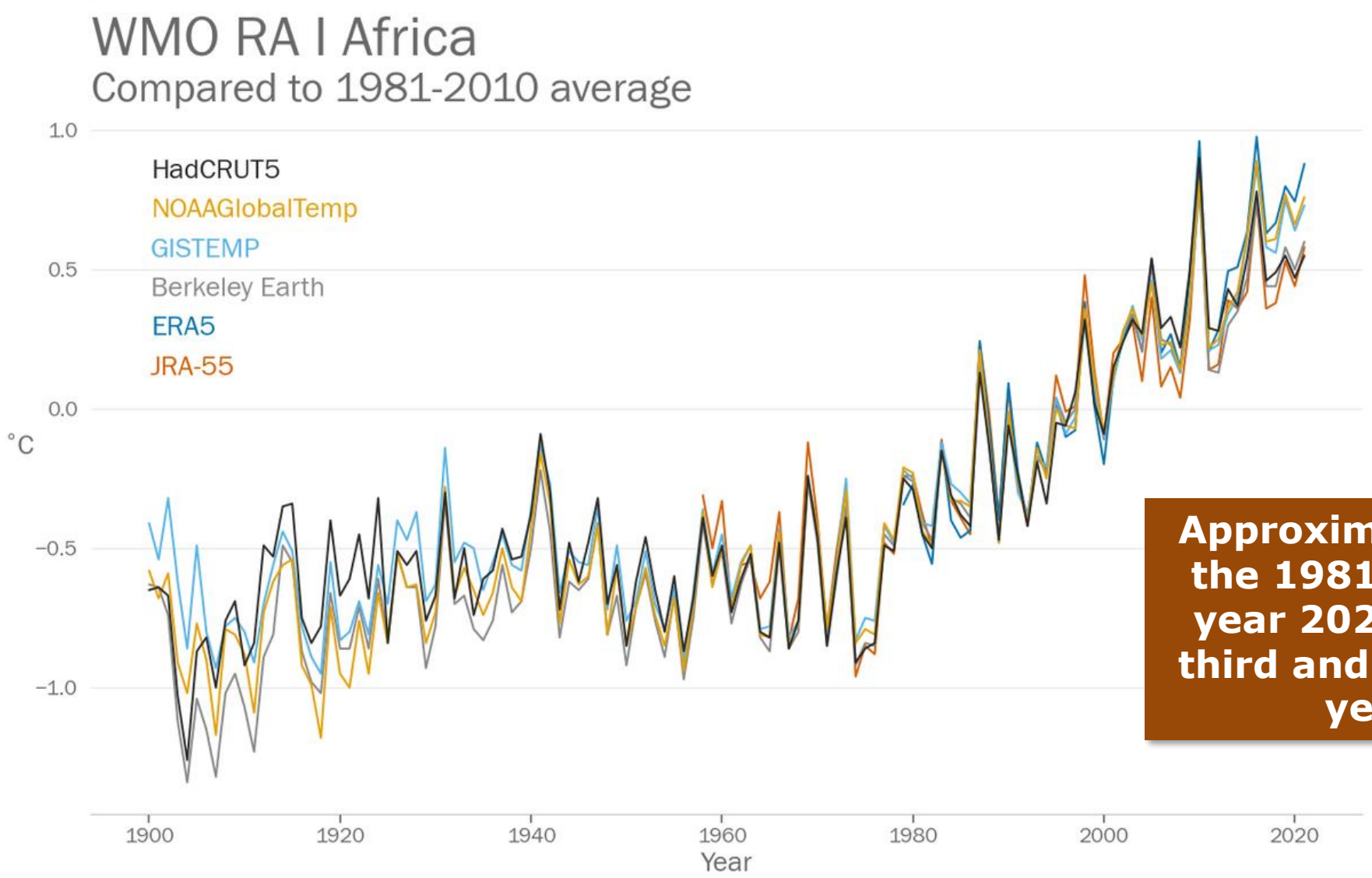
Global temperature trends



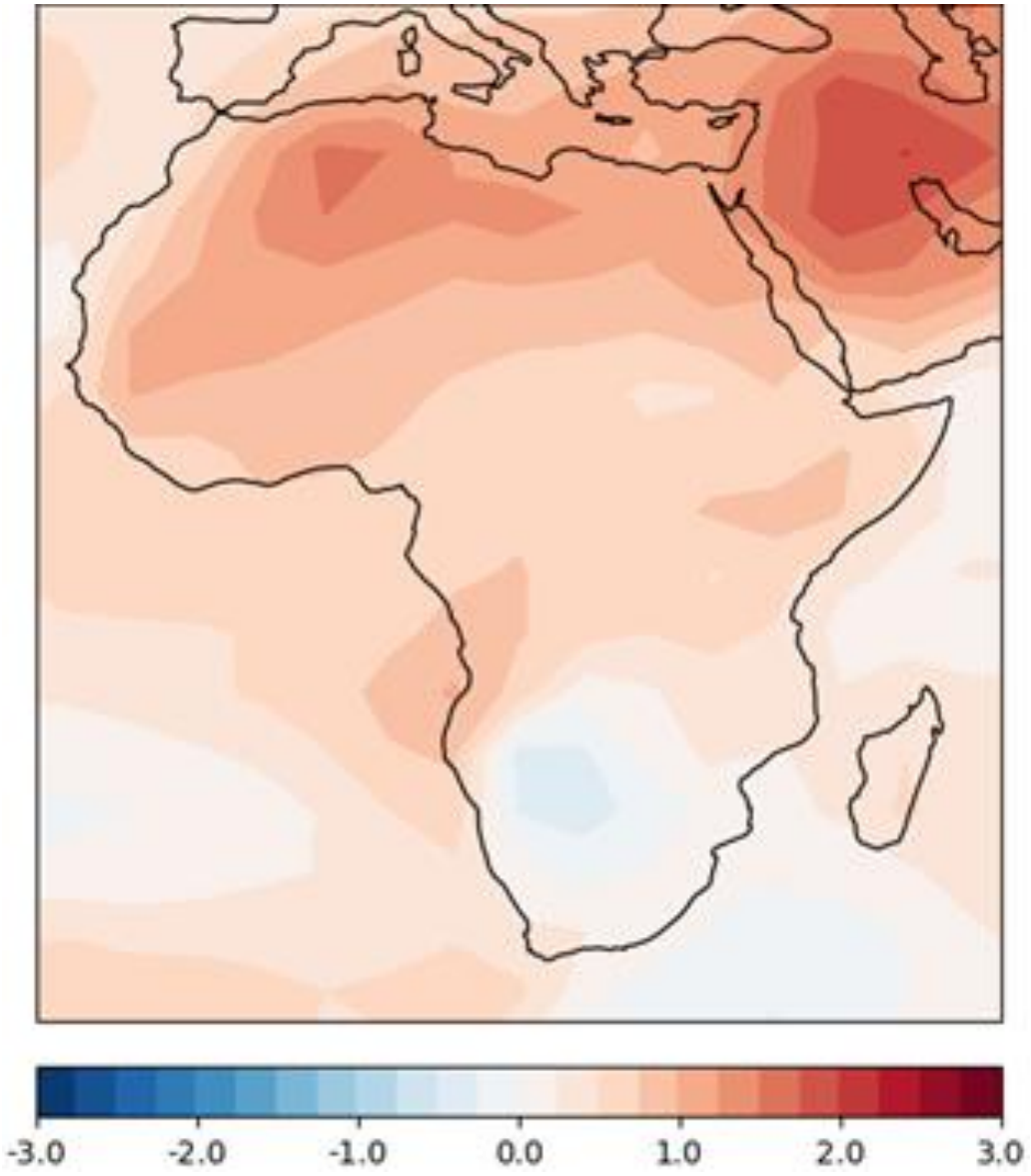
At an average rate of around +0.3 °C/decade between 1991 and 2021, warming has been more rapid in Africa than the global average.

Decadal temperature trends across WMO regions from 1901-2021. Source: UK Met Office

Annual average temperature anomalies



Approximately 0.68 °C above the 1981-2010 average, the year 2021 was between the third and the fourth warmest year on record.



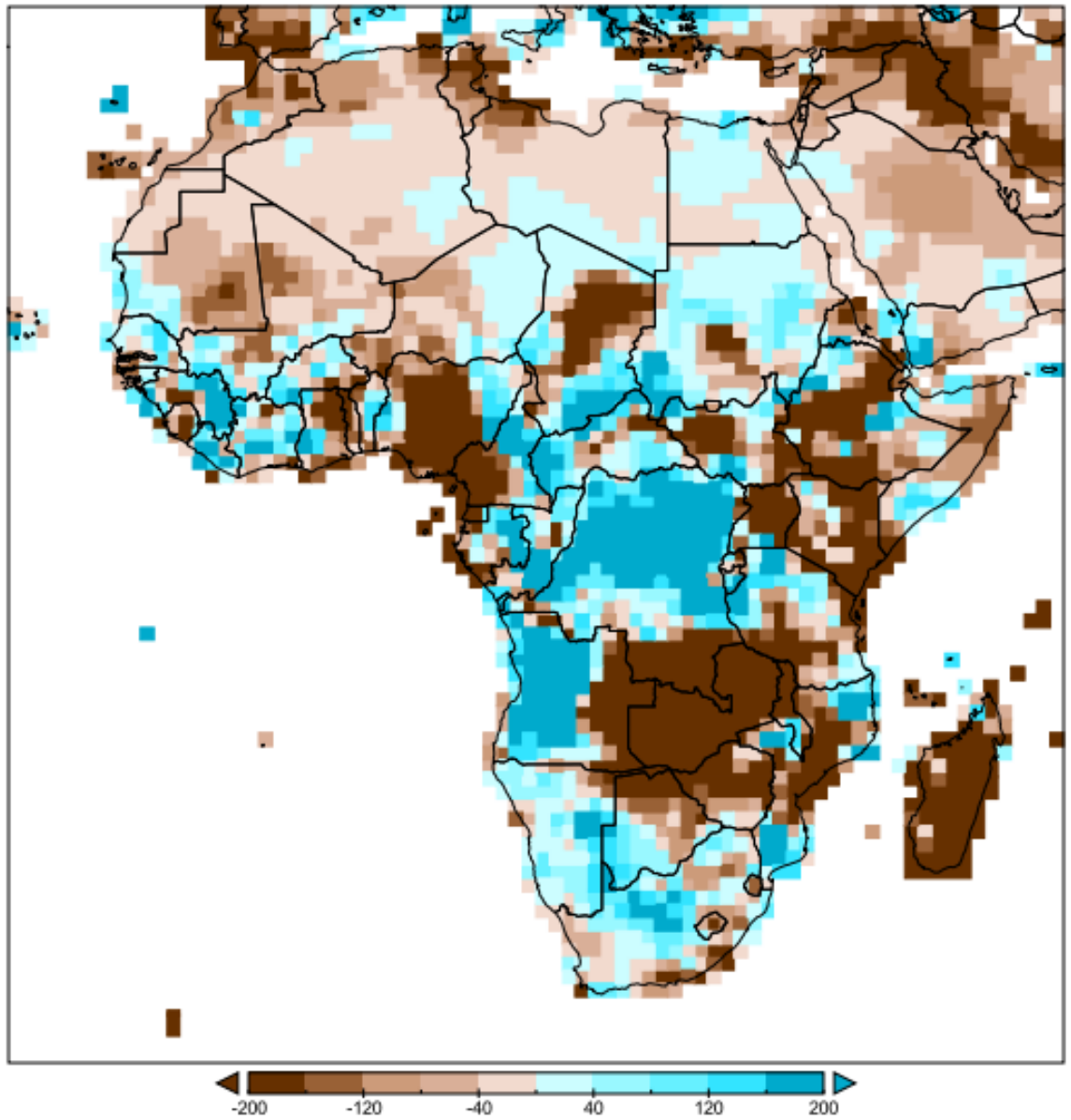
Temperature anomalies compared to 1981–2010. Source: UK Met Office

Regional temperature variation

North Africa: **1.22 °C** above the 1981-2010 average

West Africa: 0.91 °C above the 1981-2010 average

Southern Africa: 0.17 °C above the 1981-2010 average

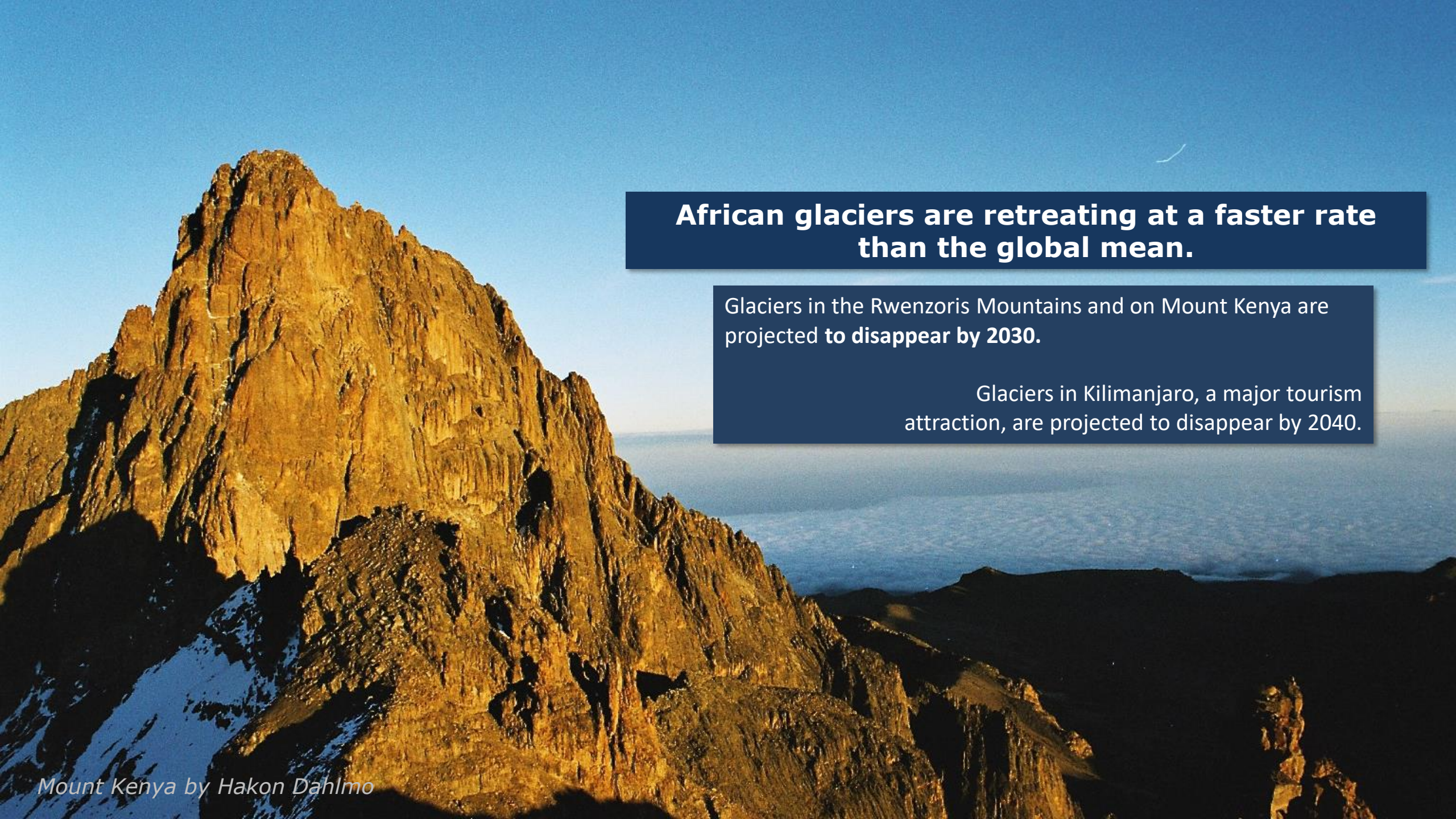


Absolute precipitation anomalies compared to 1981–2010. Source: DWD

Annual average precipitation anomalies

Drier-than-normal conditions prevailed over much of North Africa, Nigeria, Zambia, Madagascar, and local areas along the coast of South Africa.

Wetter-than-normal conditions prevailed over portions of Central Africa, including the Central African Republic, Republic of Congo, Democratic Republic of the Congo, western Angola, and parts of Namibia.



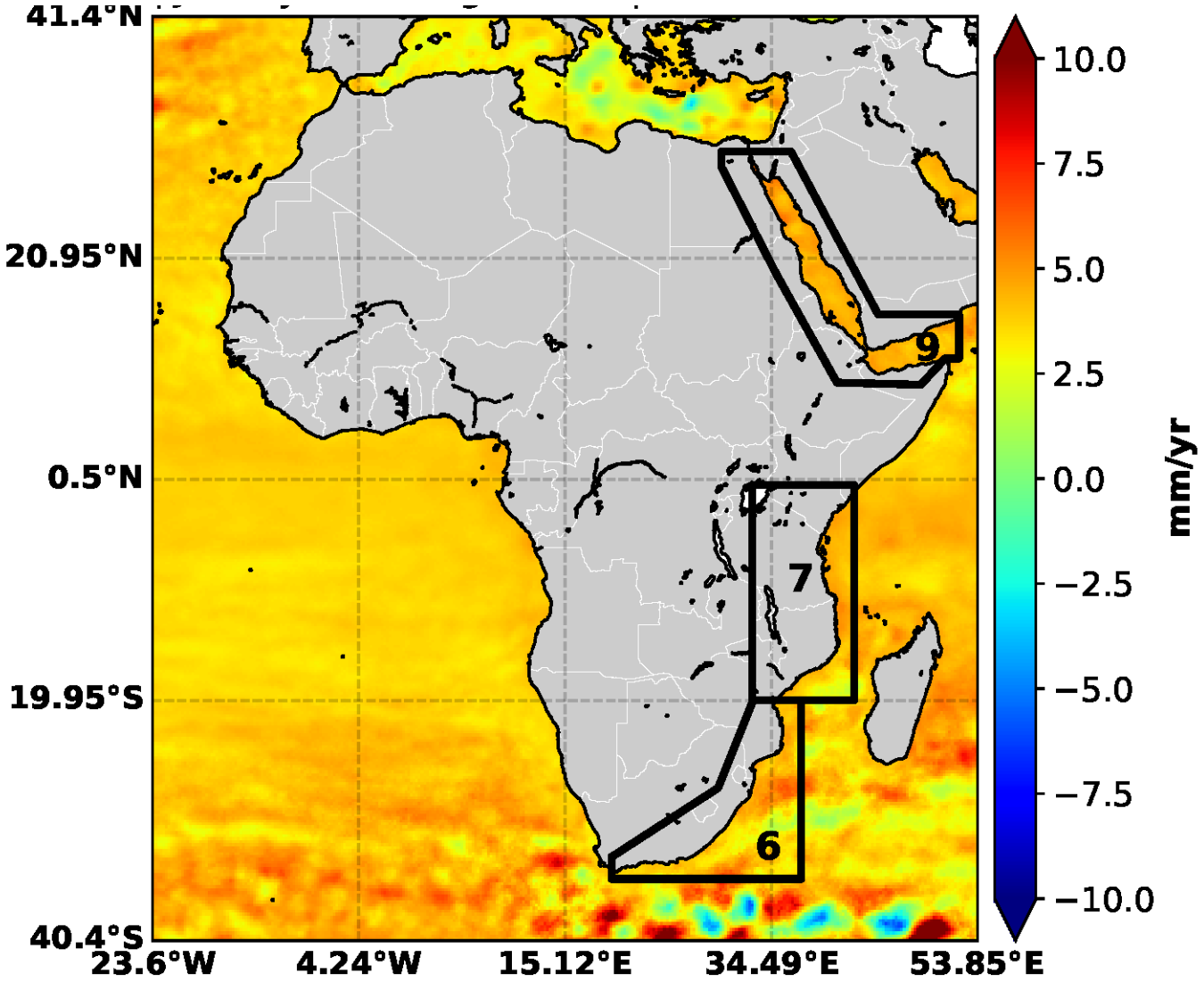
African glaciers are retreating at a faster rate than the global mean.

Glaciers in the Rwenzoris Mountains and on Mount Kenya are projected **to disappear by 2030.**

Glaciers in Kilimanjaro, a major tourism attraction, are projected to disappear by 2040.

Mount Kenya by Hakon Dahlmo

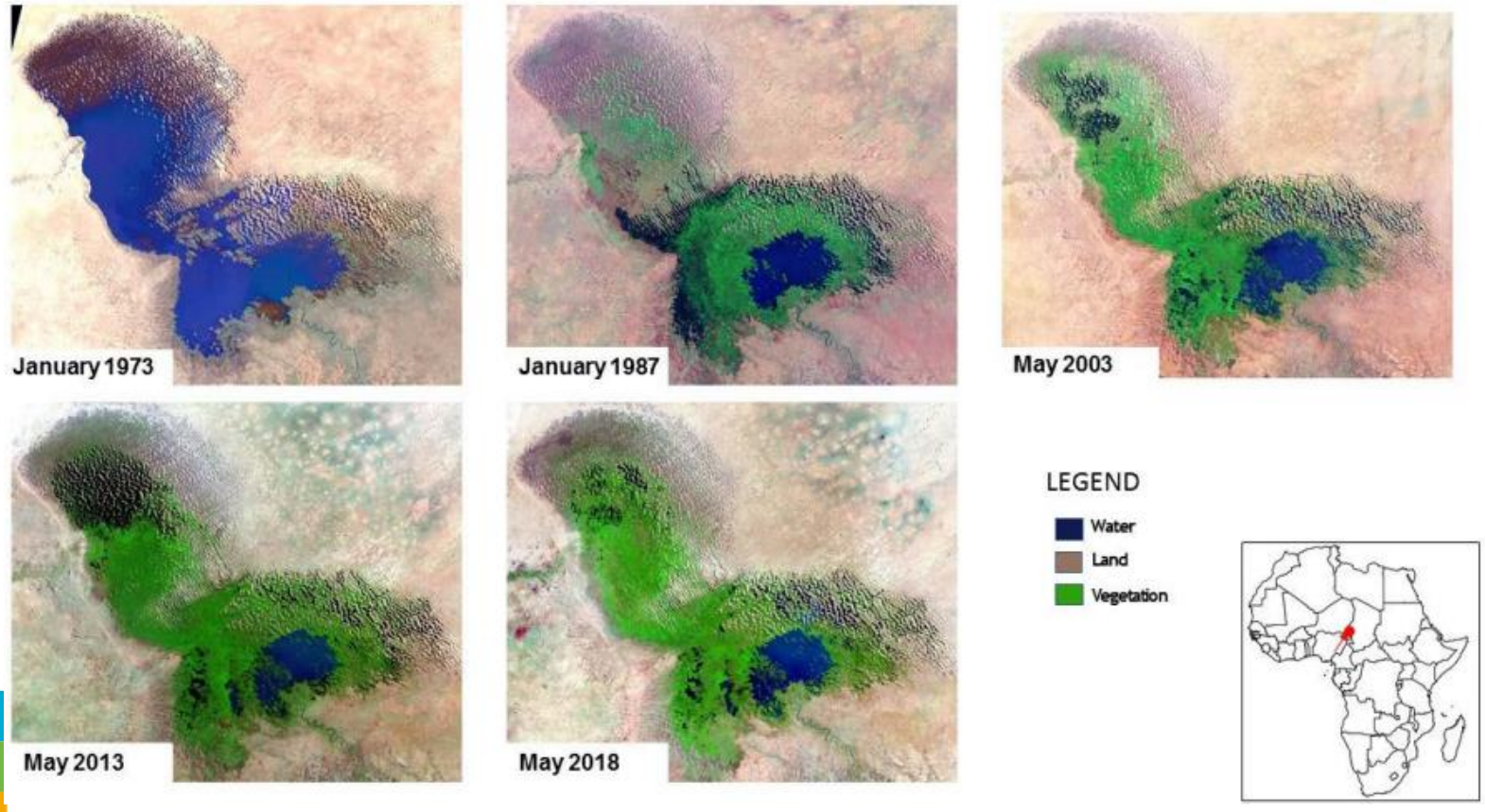
Sea Level Rise



Rate of sea level rise in the 12 coastal regions of Africa. Source: Copernicus

- The rate of sea level rise around Africa is higher than the global mean (3.3 mm/year), as highlighted in the IPCC AR6.
- Relative sea level rise is likely to continue around Africa, contributing to increases in the frequency and severity of coastal flooding in low-lying areas. Associated damages of sea level rise in sub-Saharan countries could amount **2-4%** of the GDP by 2050.
- The highest rates of sea level rise observed in 2021 around Africa are observed along Southwest Indian Ocean and the Red Sea with approximately **4 mm/yr**

Continental Water Bodies: Lake Chad

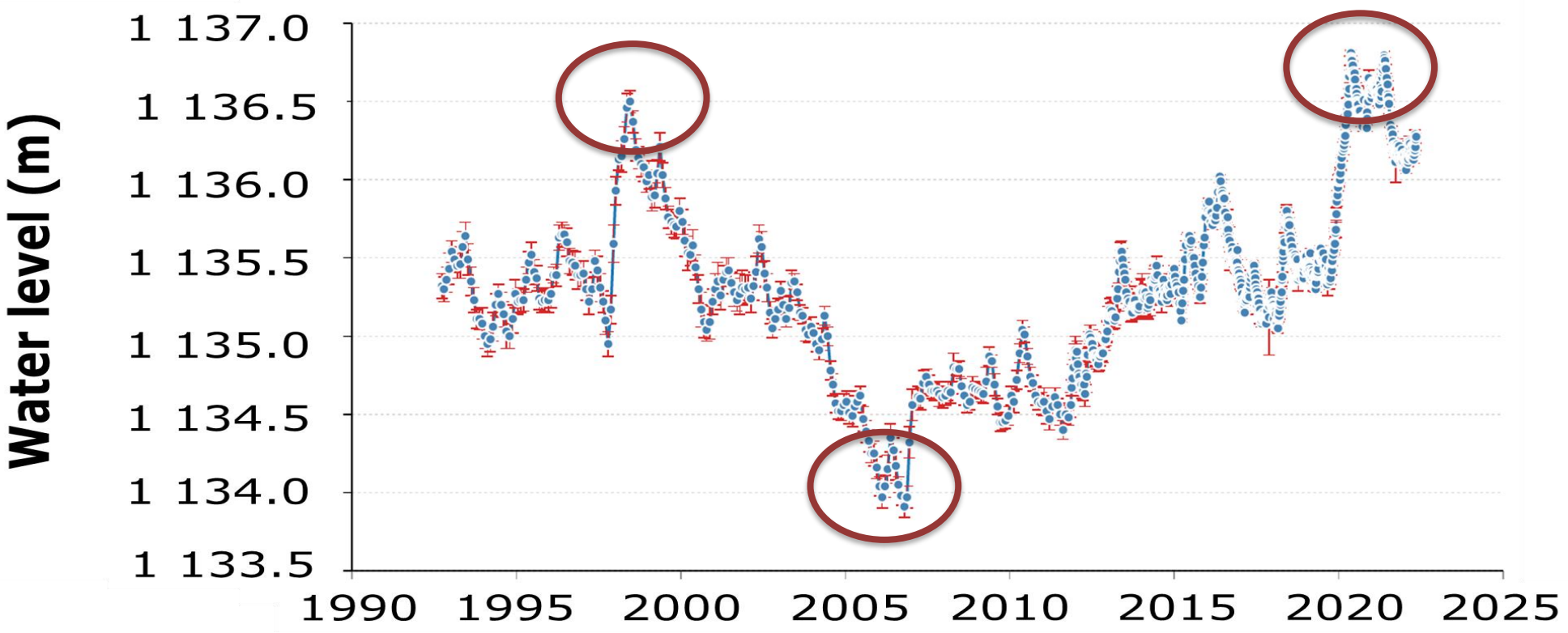


- A major evidence of threats to natural fresh water bodies, is the shrinking of natural lakes, due to various factors, including land use and climate change.
- The water surface area of Lake Chad shrunk 90% from the 1960s - 2000s average levels. *Maps are based on Landsat images from the United States Geological Survey*

Lake Chad – Declining water levels from January 1973 to May 2018. Source: UNU-INWEH, based on Landsat images from the United States Geological Survey"

Continental Water Bodies: Lake Victoria

Around 80% of the refill of Lake Victoria comes from direct rainfall and only 20% from the basin discharge.



Lake Victoria water level from September 1992 to May 2022. Source: Hydroweb portal

1997/1998: Extreme precipitation associated with El Niño

2006: Severe drought and strong negative IOD phase

Late 2019/early 2020: Intense precipitation and positive phase of the IOD

Floods
South Sudan, Nigeria, Republic of Congo, DRC
Burundi

Droughts
The Sahel, East Africa, Madagascar

Extreme Events in Africa in 2021

Sandstorms
Algeria, Libya, Egypt

Tropical Cyclone Eloise
Madagascar, Mozambique

Heatwaves & Wildfires
Libya, Morocco, Tunisia, Algeria,

Drought and Temperature rise, major African Climate crisis

Due to an exceptional long drought, **58 million** people in East Africa are experiencing acute food insecurity.

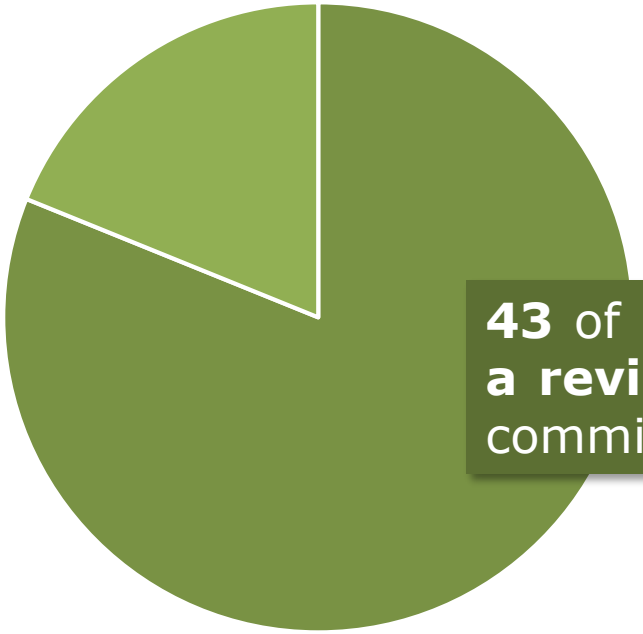
23.7 million people in the Sahel and West Africa were estimated to be in crisis or worse (IPC Phase 3)

Temperature rise contributed to a 34% reduction in agricultural productivity in Africa since 1961, more than any other region in the world.

Persistent drought in Southern Madagascar has left 70% of people were without access to basic drinking water and 50% of the region in urgent need of water, sanitation and hygiene assistance.

Around 14 million people were internally displaced in Sub-Saharan Africa in 2021, including over 2.5 million due to disasters.

African Nationally Determined Contributions (NDC)



43 of 53 total African Parties who have submitted an NDC have submitted **a revision reflecting more substantial ambitions** and more significant commitments for **adaptation** and **mitigation** to climate change.

Top priority areas

- Agriculture and food security
- Water
- Health
- Disaster risk reduction

Most Parties have aligned their adaptation efforts with the SDGs.

Focus areas

- Energy
- Agriculture
- Waste
- Land Use, Land-Use Change & Forestry

Although Africa contributes only 2-3% of global GHG emissions, 83% of NDCs include GHG reduction targets.

Africa still faces numerous capacity gaps in high-quality and reliable water-related climate services.

Very few countries, **not more than 4**, are providing full advanced drought or flood forecasting and early warning services.

While the majority of countries are still at an inadequate level of capacity

Water-related climate service capacities in Africa. Source: WMO

Strategic Climate Policy perspectives

Toward sustainable water use

Crop diversification and adopting more drought-resistant crop varieties

Policy for cost recovery, economic incentives for efficient water management, and private sector investment

Implementing early warning systems

Invest in end-to-end drought and flood early warning systems in at-risk LDCs

Fill the capacity gap in collecting data for basic hydrological variables

Improve interaction among national stakeholders to co-develop and operationalize climate services with users

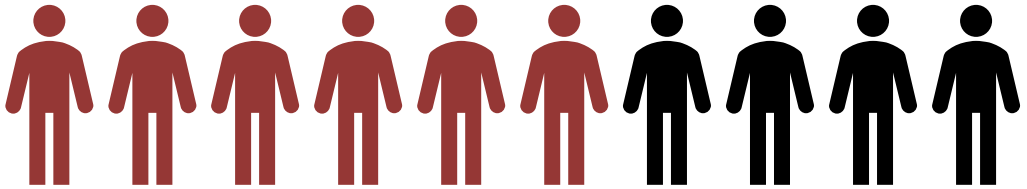
António Guterres

Secretary-General of the United Nations

"We must boost the power of prediction for everyone and build their capacity to act. On this World Meteorological Day, let us recognize ***the value of early warnings and early action*** *as critical tools to reduce disaster risk and support climate adaptation."*

Accelerating the implementation of early warning systems

- In Africa, the rate of MHEWS implementation overall is **lower than in other regions**.



- Approximately **60% of people lack coverage** of early warning systems to cope with extreme weather and climate change.
- Greater investment in end-to-end multi-hazard early warning systems in Africa is needed

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Thank you

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