



Climate

Introduction: The Current Status of our Climate

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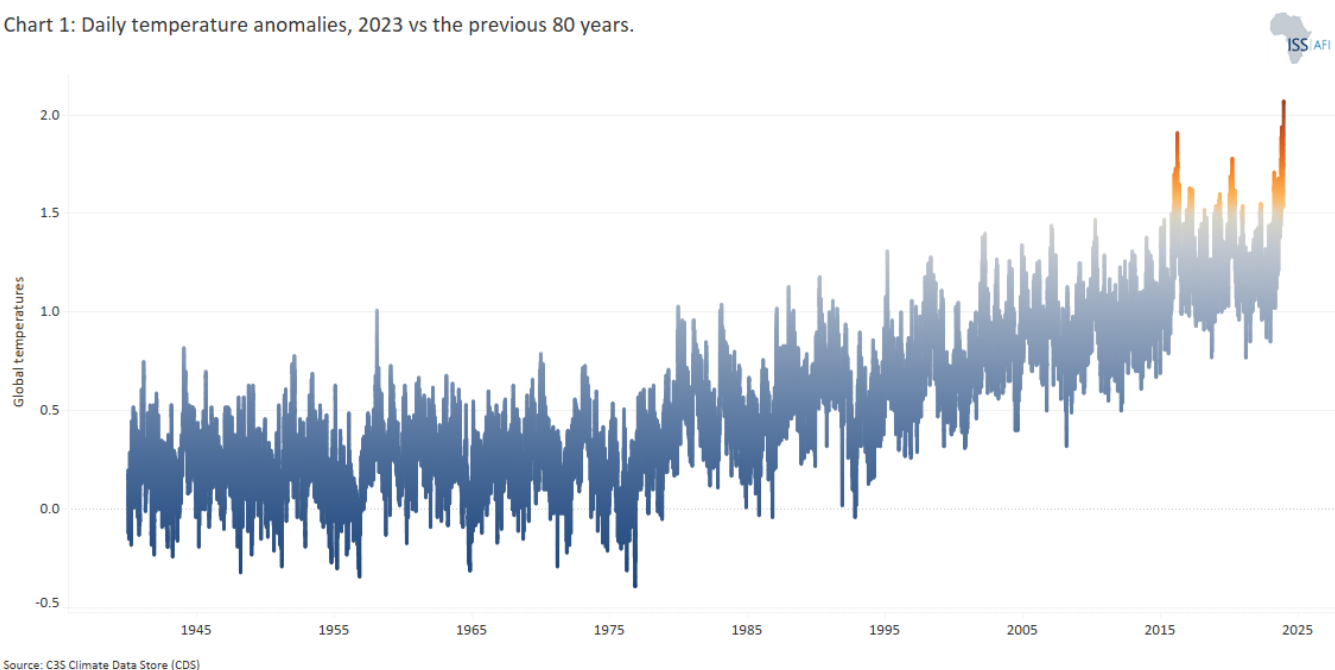
Introduction: The Current Status of our Climate

In its landmark 2022 [Global Land Outlook report](#), the UN Convention to Combat Desertification warns, 'At no other point in modern history has humankind faced such an array of familiar and unfamiliar risks and hazards, interacting in a hyper-connected and rapidly changing world.'

The statement is particularly evident in the unfolding climate crisis.

In early January 2024, the Copernicus Climate Change Service (C3S) announced that 2023 was the warmest year on record, a concerning 1.48°C warmer than the pre-industrial [reference period](#) (1850-1900). Almost 50% of days in 2023 [exceeded](#) 1.5 °C and, on 17th and 18th November 2023, [global temperatures](#) exceeded the critical 2°C threshold for the first time in recorded history (Chart 1). Furthermore, C3S also announced that the 12-month period ending in February 2024 will likely exceed the 1.5 °C mark. The daily temperature anomalies for 2023 compared to the previous 80 years, extracted from the C3S data [server](#), is presented in Chart 1.

Chart 1: Daily temperature anomalies, 2023 vs the previous 80 years.



In the words of the [Secretary-General](#) of the United Nations (UN): 'The era of global warming has ended; the age of global boiling has arrived'.

The consequences of the climate crisis extend far beyond rising temperatures. It includes devastating impacts on ecosystems, weather patterns, vulnerable communities[1] and exposed infrastructure and assets. Scientists attribute a discernible surge in weather-related disaster frequency and losses in the past two decades to climate change. In the 42 years from 1980 to 2022, more than 10 000 weather-related disasters were recorded in the International Disaster Database (EM-DAT), of which 69% were recorded after 2000. Disaster losses have risen by more than 200% in the last two decades. The trend highlights the intensification and acceleration of the challenges posed by climate change. Concurrently, climate-induced displacement is also rising, with millions of people forced to relocate due to the adverse effects of changing weather patterns. According to the [iDMC\[2\] database](#), more than 260 million internal displacements occurred between 2012 and 2022 due to natural disasters (the vast majority due to flooding and storms).

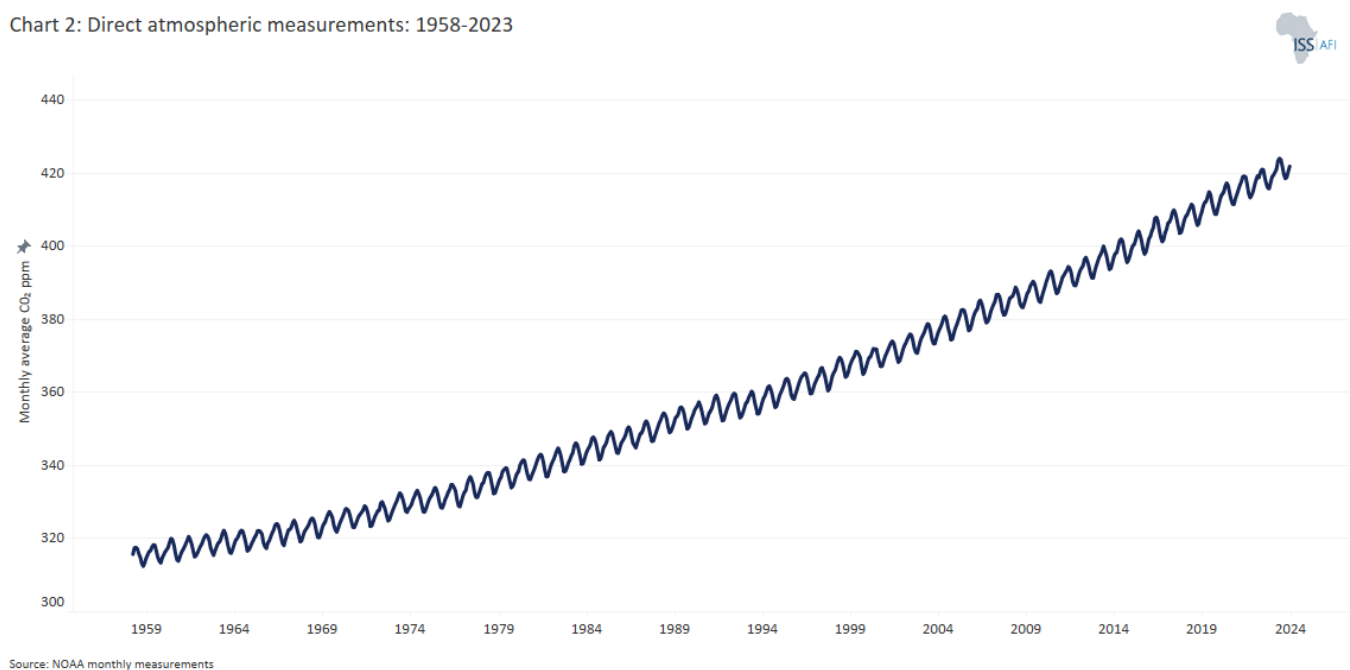
The unfolding crisis draws attention to the gap between the world's current trajectory and the aspirational targets outlined in the ground-breaking [2015 Paris Agreement](#). The Agreement emphasised limiting global temperature increases to below

2°C above pre-industrial levels, with a concerted effort to strive for a more ambitious 1.5°C limit. The emerging consensus is that the latter is on the cusp of being breached, emphasising the pressing need for urgent adaptation measures to address the inevitable impacts.

It is essential to strengthen adaptation efforts and align them with the [Sendai Framework for Disaster Risk Reduction](#). This framework, adopted in 2015, underscores the importance of reducing disaster risk and building resilience in the face of rising natural hazards, acknowledging the interconnectedness of climate change, disasters, and sustainable development. Additionally, initiatives like the Global Adaptation Goal (GAG) and the [Adaptation Communication](#) under the United Nations Framework Convention on Climate Change (UNFCCC) provide additional avenues to enhance international cooperation on adaptation strategies.

Yet, despite numerous frameworks and policies and the well-established understanding that a growing population and human-induced activities, notably fossil fuel burning and unsustainable land use practices, have been significant contributors to the [climate crisis](#), global average concentrations of Carbon Dioxide (CO₂) in the atmosphere have persistently risen year after year, reaching record high levels in 2023. The World Meteorological Organization (WMO) has also stated that human activities have raised the CO₂ content in the atmosphere by more than 50% from [pre-industrial levels](#), warming the planet to the unprecedented levels observed today. CO₂ in the atmosphere was recorded at a peak of 424 parts per million (ppm) in 2023 over [Hawaii's Mauna Loa Observatory](#), a staggering increase from the 320 ppm recorded in 1960 and the [pre-industrial levels](#) of 280 ppm. The data in Chart 2 on direct atmospheric CO₂ measurements from 1958 to 2023 is extracted from NOAA monthly [measurements](#).

Chart 2: Direct atmospheric measurements: 1958-2023



Endnotes

1. Vulnerability refers to a catch phrase that encompass socio economic vulnerability (inclusive of household composition, education, health status, basic service access, safety and security constraints and inequality)
2. internal displacement monitoring centre

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About the authors

Ms Alize le Roux joined the AFI in May 2021 as a senior researcher. Before joining the ISS, she worked as a principal geo-informatics researcher at the CSIR, supporting various local and national policy- and decision-makers with long-term planning support. Alize has 14 years of experience in spatial data analysis, disaster risk reduction and urban and regional modelling. She has a master's degree in geographical sciences from the University of Utrecht, specialising in multi-hazard risk assessments and spatial decision support systems.

Dr Jakkie Cilliers is the ISS's founder and former executive director. He currently serves as chair of the ISS Board of Trustees and head of the African Futures and Innovation (AFI) programme at the Pretoria office of the Institute. His 2017 best-seller *Fate of the Nation* addresses South Africa's futures from political, economic and social perspectives. His three most recent books, *Africa First! Igniting a Growth Revolution* (March 2020), *The Future of Africa: Challenges and Opportunities* (April 2021), and *Africa Tomorrow: Pathways to Prosperity* (June 2022) take a rigorous look at the continent as a whole.

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