

# News in focus



TIMOTHY ALLEN/GETTY

Archived weather data are helping to produce more-accurate climate predictions, such as the extent of rainfall in Mali.

## SCIENTISTS STRUGGLE TO ACCESS AFRICA'S HISTORICAL CLIMATE DATA

Better climate predictions require Africa's weather agencies to open up their archives. But commercial concerns and a lack of trust are holding them back.

By Linda Nordling

For principal meteorologist Grieffy John Stegling, the storerooms at Botswana's national weather-service headquarters in Gaborone hold a rare treasure: floor-to-ceiling shelves containing boxes of old notebooks with carefully recorded weather observations going back more than a century.

Such records offer clues not only to the country's past, but also to the future of its climate. Like most African countries, Botswana is ill served by global climate models, because predictions are based on patchy records of key variables such as temperature, humidity and atmospheric pressure (E. Archer *et al. Biodivers. Ecol.* **6**, 14–21; 2018).

"Historical climate data over Africa are very valuable for understanding climate variability and trends," says Chris Taylor, a meteorologist at the Centre for Ecology and Hydrology in Wallingford, UK, who studies African climate trends.

In 2017, Taylor and his team found that climate change will increase extreme rainfall in the Sahel, a semi-arid region south of the Sahara Desert (C. M. Taylor *et al. Nature* **544**, 475–478; 2017). A crucial part of their study involved cobbling together historical records – some of them "locked away in cupboards" – from different national weather services, Taylor says. "Having a historical baseline is a prerequisite for understanding how intense rainfall is changing," he says.

Since 2015, the World Meteorological Organization in Geneva, Switzerland, and Germany's weather service, Wetterdienst, have provided training and equipment to help Botswana digitize and share its historical climate data. But because there are no dedicated staff members, progress has been slow. Of 2 million records, only 100,000 have been processed. "If we had more manpower, it would go much faster," Stegling says.

Whereas Botswana is making some progress, in other meteorological offices across Africa, millions of records are mouldering in cardboard boxes or languishing on obsolete technology. Digitization efforts have been held up because of concerns that giving researchers free access to the data will prevent such offices

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from making money by selling the information.

The South African Weather Service (SAWS) has turned down offers by the International Data Rescue (I-DARE) project to help digitize historical climate data because the agency wants to be able to sell its data. “If unrestricted access to the National Climatological Databank, of which SAWS is the custodian, is allowed, SAWS might not be able to deliver on its commercial mandate,” a spokesperson told *Nature*.

Similar concerns are holding up the digitization of 2 million surface observations – including temperature, rainfall and humidity – from 48 African countries. Those data are stored at the African Centre of Meteorological Applications for Development (ACMAD) in Niamey, Niger.

“The private sector is progressively being involved in climate-services delivery,” says ACMAD director-general Andre Kamga Foamouhoue, and this sometimes creates conflicts of interest with government agencies looking to commercialize data.

Many of the data-rescue requests come from initiatives led by individuals or institutions from Europe or the United States, says Jane Olwoch, executive director of the Southern African Science Service Centre for Climate and Land Management, a regional climate research centre in Windhoek, Namibia.

And that can be a problem because institutions in African countries aren’t sure how they will benefit if the data expertise comes from outside the continent. She hopes that data-rescue efforts fronted by her own organization, in Angola and Botswana, will be viewed with less suspicion because the organization is backed by four southern African governments and has local headquarters and staff, even though much of the funding comes from the German government.

### Recovering old records

Not all of Africa’s climate records are in Africa, however. Many of the oldest ones were collected by professional and amateur meteorologists who came to Africa from Europe during colonial times. Stefan Grab, a geographer at the University of the Witwatersrand in Johannesburg, South Africa, says that, paradoxically, these records can be easier to access than local ones.

South Africa has the Southern Hemisphere’s longest uninterrupted weather observations, recorded at the astronomical observatory in Cape Town. It was thought that these data stretched back to 1841, but Grab, who leads South Africa’s data-rescue efforts, knew that astronomers had been in the Cape since the 1830s. So he contacted staff at the Royal Greenwich Observatory in London, who directed him to the archives at the University of Cambridge, UK. “Lo and behold, they found the earliest records, which go back to 1834,” he says.

ACMAD’s Kamga Foamouhoue says that

weather agencies must be persuaded of the benefits of mining, and then sharing, historical data with other scientists, and that the biggest benefit is more-accurate climate predictions.

“Anything that’s really old, like from the nineteenth century, is extremely valuable,” Grab emphasizes. “It’s worth far more than gold and diamonds.”

# CANADIAN RESEARCHERS RELIEVED AS TRUDEAU EKES OUT ELECTION WIN

## Government’s need to rely on progressive parties bodes well for climate policies and science funding.

By Brian Owens

Canada’s Prime Minister Justin Trudeau won a second term on 21 October, but his Liberal Party lost its majority in parliament. The Liberals and the Conservative Party were locked in a dead heat leading up to election night, and the outcome of the closely fought race brought a sense of relief for many researchers in Canada.

Apart from climate change, science issues didn’t feature prominently in the election campaign. But researchers are hopeful that several of the parties that won seats in parliament will work together to pass climate-change policies and increase science funding.

The left-leaning Liberal Party – which has had a mixed, but generally positive track record with respect to science – won 157 seats in parliament, 13 shy of a majority. The Conservatives won the second-largest number of seats at 121. This means that the Liberals will need to rely on other minority parties in parliament, specifically the New Democratic Party (NDP) and the Green Party, to help pass legislation. Such policies could include the Liberal proposal of

reaching net-zero carbon emissions by 2050.

Cathleen Crudden, a chemist at Queen’s University in Kingston, Canada, says that there was a real possibility that the Conservatives would win, and that they would undo the progress in science made over the past four years under the Liberal government. “What the Liberals started under their last mandate now has an opportunity to continue,” she says.

The government’s reliance on minority parties such as the NDP could be especially helpful to scientists when it comes to issues such as funding, says Molly Sung, a chemist at the University of Toronto in Canada who supported the NDP in the election. During the campaign, the NDP committed to boosting funding for basic research by Can\$80 million (US\$61 million) per year, she says. Sung thinks that their influence in a minority government could result in more money for science.

The NDP, along with the Liberals and the Greens, also supports the existing science-integrity policy that ensures government researchers can speak freely about their work. And all three parties have expressed interest in keeping the science-adviser position created by Trudeau in 2017.

Despite the agreement between the three progressive parties on science and climate issues, analysts also expect some friction. The NDP and the Greens say that they are open to cooperating with the Liberals. But they will probably demand concessions for their support – such as more-ambitious climate targets or increases in the country’s carbon tax – that the Liberals might not be comfortable with.

It’s important that researchers keep working to focus the government’s attention on science issues, says Katie Gibbs, executive director of the campaign group Evidence for Democracy in Ottawa. Minority governments tend to be messy as different interests jockey for power, so strong advocacy for science will be especially crucial, Gibbs says. “The science community is going to have to work hard and be loud to ensure these concerns don’t fall off the agenda.”



Justin Trudeau leads Canada’s Liberal Party.