

► charity Médecins Sans Frontières (also known as Doctors Without Borders) in New York. Those include complications of child-birth; trauma and other acute conditions requiring surgery; and causes such as diarrhoeal disease, respiratory viruses and especially malaria. With proper treatment malaria can usually be cured completely, but if left untreated it can develop into a severe form that is often fatal.

"It's a disaster in all ways possible," says Lasry. "The public-health impact will be huge."

As of August, the WHO had not seen a year-on-year increase in people with malarial symptoms reporting to clinics in Guinea, the only Ebola-affected country where such data

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are available. In fact, malaria deaths in Guinean clinics decreased for the first half of this year compared with 2013. But that is not necessarily good news, says Teuscher. It could mean that the illest people have been staying away from clinics, scared off by the Ebola outbreak, and their deaths have gone unnoticed.

Furthermore, the symptoms of malaria mimic Ebola, so many people who might have malaria are avoiding clinics for fear of learning the worst, says Alice Johnson, a nurse and clinical mentor for Last Mile Health, an organization in Boston, Massachusetts, that trains health workers in rural Liberia.

Ebola's impact on malaria programmes is likely to linger long after the outbreak ends. In Guinea, for instance, authorities bury Ebola victims with their bed nets to prevent the spread of infection; this has raised suspicion that the nets have some inherent connection to Ebola.

And health workers are afraid to do blood tests to confirm malaria because Ebola is spread by blood and other bodily fluids. That could lead to people who do not have malaria being given antimalarial medication, which can contribute to the development of drug resistance in the parasite that causes the disease.

It is important to get malaria control programmes back on track, says Teuscher, in part because they could help to fight Ebola.

For instance, in Sierra Leone about 2,000 community health workers have been trained to go into villages to find and treat malaria. They could also be trained to detect Ebola and help infected people to get care, he says.

"Potentially, we have an army of people available in these countries who have experience delivering malaria treatments," says Teuscher. "They're still there; they just need to be helped to do a good job." ■

## CLIMATE SCIENCE

# Tibetan plateau gets wired up for monsoon prediction

*Largest and highest plateau in the world has outsized impact on climate.*

BY JANE QIU IN LHASA

The gigantic, remote Tibetan plateau is being flooded with sensors in an unprecedented attempt to understand its influence on climate — especially the Asian monsoons, which caused deadly flooding in India and Pakistan in September. The US\$49-million Chinese effort could help to predict extreme weather — both in Asia and as far afield as North America — and give scientists a steer on how climate change affects these events.

Sitting at an average height of around 4,000 metres above sea level, the plateau protrudes into the middle of the troposphere, where most weather events originate. As the biggest and highest plateau in the world, it disturbs this part of the atmosphere like no other structure on Earth. But there are little data on the impact that this has on climate.

In central and western Tibet, where weather observations are particularly lacking, researchers jointly funded by the China Meteorological Administration and the National Natural Science Foundation of China began, in August, to place temperature and moisture detectors in the soil and to erect 32-metre-high towers laden with sensors that measure cloud properties. In recent weeks, the team has begun deploying sensors mounted on weather



WOLFGANG KAELER/LIGHTROCKET VIA GETTY

balloons and unmanned aerial vehicles.

Such sensors will eventually monitor a vast swathe of the plateau's ground and air — across diverse landscapes such as desert, grassland, forest and farmland. "The data should help determine the extent to which different types of land surface heat up the overlying air, and how this might vary in response to factors

such as snow cover and vegetation changes," says Wu Guoxiong, an atmospheric scientist at the Institute of Atmospheric Physics of the Chinese Academy of Sciences (CAS) in Beijing and a principal investigator of the project.

Scientists agree that Tibet plays a key part in the climate system, but many of the details are a mystery. The plateau's remoteness, altitude

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and harsh conditions — it is often called the third pole because it hosts the world's third-largest stock of ice — mean that even basic weather stations are few. Satellite data are also plagued by large errors owing to lack of calibration from ground observations.

"Climate models have the greatest uncertainties in Tibet and the Himalayas, and are especially weak at simulating monsoons," says Xu Xiangde, an atmospheric scientist at the Chinese Academy of Meteorological Sciences in Beijing and investigator on the project. This dearth of information about the plateau, acknowledged by the Intergovernmental Panel on Climate Change, affects scientists' ability to predict how the climate is changing, and the consequences for people living in vulnerable regions.

The plateau's altitude means that it receives more sunlight and so gets hotter than land at sea level. And because land absorbs more solar radiation than air, the plateau acts like a giant heating plate. This heat pumps air upwards, which disperses in the upper troposphere, giving the plateau an outsized influence over atmospheric circulation, and thus climate. The heating effect also intensifies monsoons, which arise as a result of a temperature difference between land and the oceans that sets up a pressure gradient in the atmosphere. In 2008, Wu reported that the surface heating of the plateau had been weakening since the 1980s (A. Duan & G. Wu *J. Clim.* **21**, 3149–3164; 2008), consistent with a weakening in the strength of Asian monsoons. But monsoons seem to be getting stronger again, and occurring in places where they were previously rare, says Klaus Fraedrich, an atmospheric scientist at the University of Hamburg in Germany.

In early September, a deadly flood caused by a monsoon hit border regions between India and Pakistan that are normally dry, killing hundreds and affecting millions more. If the Chinese project can help to explain why monsoons are changing, it "could help instigate early evacuation plans and save many lives", says Fraedrich.

The project could have yet broader effects. A team led by Hai Lin, an atmospheric scientist at Environment Canada in Quebec, found that the greater the snow cover in Tibet, the warmer the winter in Canada (H. Lin & Z. Wu *J. Clim.* **24**, 2801–2813; 2011). The latest initiative could confirm Lin's suspicion that increased snow cover causes the plateau to reflect more sunlight, reducing its heating capability and strengthening a pressure system that causes warmer-than-usual winters in North America. Ma Yaming, an atmospheric scientist at the CAS Institute of Tibetan Plateau Research in Beijing, says that combined with data on glaciers, permafrost, rivers and lakes, the project will contribute to a better picture of Asia's entire water cycle. ■



The illegal trade in South Africa's cycads is threatening to push the endangered species to extinction.

#### BOTANY

# Forensic chemistry could stop plant thieves

*Scientists hope to save rare cycads using isotope analysis.*

BY LINDA NORDLING IN CAPE TOWN

**S**carred earth meets visitors at the Kirstenbosch National Botanical Garden where some of South Africa's rarest plants once stood. In August, 24 of the garden's cycads were stolen, probably to be sold on the black market as landscaping ornaments. As with the country's emblematic rhinos, time is running out for the plants. But scientists hope that a forensic method that is also used to track ivory might help to deter plant poachers.

South Africa's endemic cycads rank among the most endangered plants in the world. Of the country's 38 species, 3 are extinct in the wild and 12 are critically endangered. The plants grow slowly and can live for hundreds of years. Their striking looks and rarity make them prized collectors' items, with individual plants fetching tens of thousands of US dollars.

This profitability fuels illegal poaching, which has proved hard to stop even though it carries a ten-year prison sentence. Microchip tags embedded in the plants have been spotted by thieves armed with X-ray machines, and gouged out. And it is not feasible to treat every plant in a collection — let alone in the wild — with a more successful method that sprays plants with microdot paint containing identification tags that are too small to be seen with the naked eye.

A team led by plant

scientist Adam West of the University of Cape Town hopes that chemistry can help. The forensic method used by the team depends on the fact that the relative abundances of a chemical element's isotopes vary naturally from place to place. As organisms grow, they incorporate these isotope signatures, providing a trace of where they have lived. Stable-isotope analysis has helped to identify the origins of smuggled ivory, counterfeit money and drugs.

When West's team used the method to compare the isotope signatures of cycads that they knew had been relocated with those of wild plants that had never been moved, they found that it was possible to identify the relocated plants. Their results, to be published in the November issue of the *Journal of Forensic Sciences*, suggest that the method can reveal a plant relocation that happened decades ago. "If you got your cycad from the wild 30 years ago, we can still tell," says West. The team is now testing suspect plants that were flagged in police raids, to see whether the isotope signatures are consistent with the owner's story or with a wild origin. West hopes that the ability to read a plant's history might deter illegal dealers.

For a longer version of this story, see:  
[go.nature.com/jbrn6g](http://go.nature.com/jbrn6g)

It is "an elegant piece of work", says Jason Sampson, curator of the Manie van der Schijff Botanical Garden in Pretoria. But he says that more also needs to be done to satiate the demand for rare cycads, for instance by accelerating breeding programmes. ■