

Eyes in the sky track health of Earth's African 'lung'

December 3 2015, by Celia Lebur



A satellite antenna of the Gabonese Agency for Space Observation (AGEOS - Agence Gabonaise d'Observation Spatial) pictured around 30 kms from the capital Libreville on November 22, 2015

High in the sky, a satellite passes over the equatorial forest of west Africa, the Earth's second largest "lung" after the Amazon.

In Ntoum, a village about 30 kilometres (18 miles) from Gabon's capital

Libreville, a giant [satellite](#) dish slowly swings into action, capturing key data on Africa's environmental health.

It takes in a broad sweep of 23 countries from the Sahara Desert to southern Africa, covering a 2,800-kilometre (1,700-mile) radius.

The idea for the station, inaugurated in August, stemmed from UN climate talks in Bali, Indonesia, in 2007.

"We realised the importance of our forests and of the importance of satellite imagery as a scientific tool," recalled Tanguy Gahouma Bekale, special advisor to Gabonese President Ali Bongo on climate issues.

Gahouma now also directs the Gabonese Agency for Space Studies and Observation, which goes by the French acronym AGEOS and runs the Ntoum station.

The forested countries of the Congo Basin face enormous challenges.

"We are responsible for the second-biggest green lung on the planet, and now we have the resources to answer these questions," Gahouma said.

Tracking environmental threats

The information AGEOS gathers is invaluable for the protection of an environment increasingly threatened by drought, maritime pollution and logging.

Satellite data can track changes such as the size of Lake Chad, which has shrunk by 90 percent in the past 50 years, or that of Gabon's forests.

The station, built for some nine million euros (\$9.5 million) with French funding, has direct access to data from NASA satellites in the United

States and the Italian-French group Telespazio.

At the Nkok reception station, around 20 mainly Gabonese scientists sift through the latest data.

"It's like a medical X-ray. You have to handle and interpret the satellite image correctly so that it can be intelligible to the ordinary user," said Ghislain Moussavou, AGEOS's scientific director.

His team is developing a new map of Gabon's forest cover, which currently makes up 88 percent of the country.

It is mostly primary forest, criss-crossed by rivers and smaller waterways and populated by a wealth of fauna including elephants, buffalos, antelopes and apes.

'Joint heritage'

The government says it wants to calibrate Gabon's economic, agricultural and mining development with the need to protect this exceptional ecosystem.

Since different types of forest harbour different levels of carbon, careful planning regarding where to exploit timber and where to grow palms for oil, for example, can rein in carbon emissions, Moussavou said.

Another team is poring over [satellite data](#) on the waters of the Gulf of Guinea, looking for oil spills and monitoring large-scale commercial fishing.

Dots on a screen pinpoint the locations of ships off Gabon's shores.

The analysts are able to identify the vessels down to their names,

registration numbers and the flags they are flying, said Dominique Rozier, a Telespazio engineer assigned to AGEOS.

The technology is providing a welcome new tool to crack down on illegal fishing and aid in the management of fish stocks.

AGEOS plans to share its data freely with the other countries covered by the satellite footprint.

"The forests of the Congo basin are a heritage that we should manage jointly. It makes no sense to protect the forest in one part while the vast remaining territory is not protected," Gahouma said.

Talks are under way with Rwanda and the Democratic Republic of Congo to determine how they can gain access to the satellite images.

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