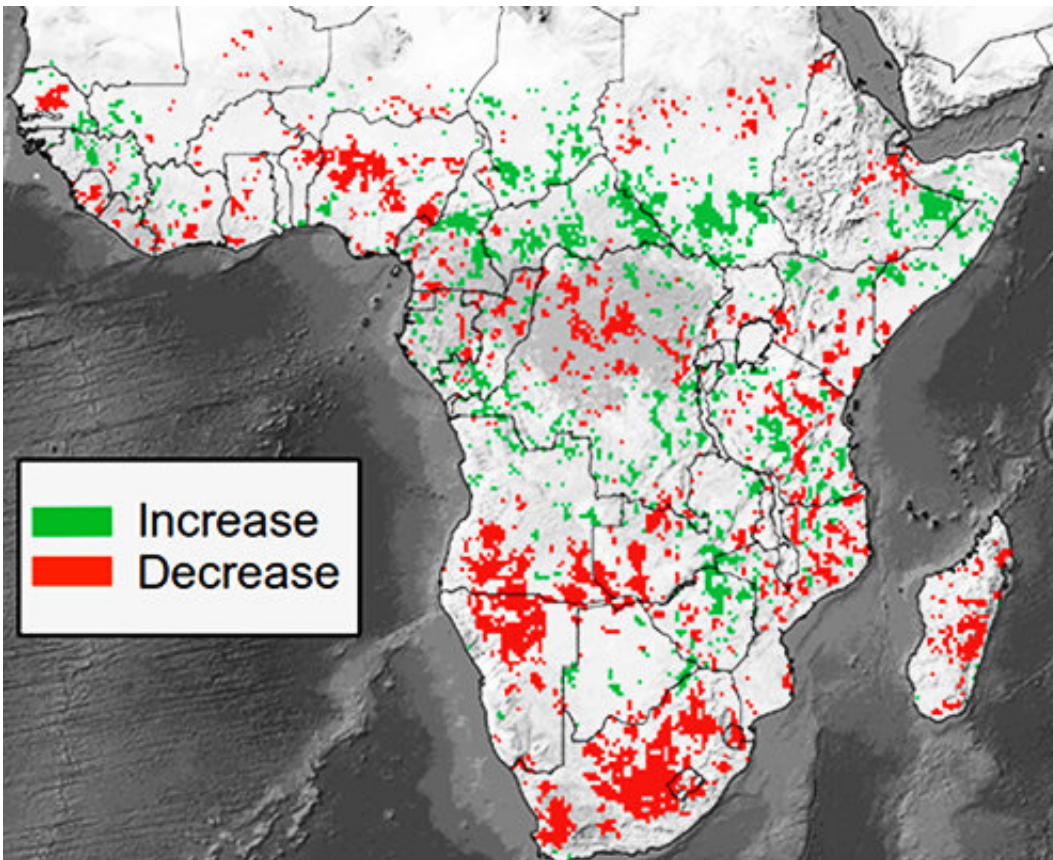


Carbon satellite to serve as an important tool for politicians and climate change experts

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Credit: University of Copenhagen

A new satellite that measures and provides detailed carbon balance information is one of the most important new tools in carbon measurement since infrared light, say researchers from the University of Copenhagen. The researchers expect the satellite to be a valuable tool for

the U.N.'s work on climate change related to the Paris climate accord.

Carbon balance is important for [climate](#) and environment because whenever [carbon](#) is converted into carbon dioxide, CO₂ emissions increase. On the other hand, carbon is an essential aspect of life on Earth. A felled tree releases carbon into the atmosphere, whereas a planted one takes up carbon in vegetation and soil. A lack of carbon in vegetation and soil can create a carbon imbalance and have climate-related consequences.

University of Copenhagen researchers have tested a new French satellite that can measure [carbon balance](#) far more precisely than the current method, which uses aerial photography. The satellite uses low-frequency passive microwaves to measure the biomass of above ground vegetation. The studies have recently been published in *Nature Ecology and Evolution*.

"This is one of the biggest steps related to carbon measurement since infrared measurements were developed in the 1970s," says postdoc Martin Stefan Brandt of the Department of Geosciences and Natural Resources Management, the researcher behind the study.

"The new satellite can measure emissions from all types of vegetation—including trunks and branches, not just the crowns, as has been the case until now. This presents a much more detailed account of the carbon balance in the region concerned."

Vital for further work on climate change

The Danish researchers took satellite images of the African continent for seven years. The satellite made it possible to produce a detailed map of the carbon balance across the whole of Africa. Over the seven years, the researchers observed that drought and deforestation had a dramatic

influence on [carbon emissions](#), which has a negative effect on climate. For this reason, it is important to have a tool on hand for monitoring changes to the landscape.

"We will need to understand how various factors like deforestation and drought affect the carbon balance in order to provide a knowledge base for experts and politicians whose job it is to make decisions related to work on [climate change](#)," says Martin Stefan Brandt.

The satellite is an important tool for future work on climate change and the reduction of CO₂ emissions. For example, researchers expect that the U.N. Intergovernmental Panel on Climate Change (IPCC) will be able to use the [satellite](#) in relation to the Paris climate accord because it is well suited to present emissions by country.

More information: Martin Brandt et al, Satellite passive microwaves reveal recent climate-induced carbon losses in African drylands, *Nature Ecology & Evolution* (2018). [DOI: 10.1038/s41559-018-0530-6](https://doi.org/10.1038/s41559-018-0530-6)

Provided by University of Copenhagen

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