

# Research shows plants in Africa 'green up' ahead of rainy season

July 2 2018

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A study led by the University of Southampton has shown the greening up of vegetation prior to the rainy season in Africa is more widespread than previously understood.

Geographers from Southampton, working with scientists at Lancaster University, used [remote sensing data](#) (satellite imagery), sourced over a 16 year period (2000-2016), to examine when plants in the continent began and finished their green period of growth. This was compared with meteorological data showing the onset and conclusion of the rains.

The researchers found that over 80 per cent of the [natural vegetation](#) commenced greening up before the beginning of the [rainy season](#). This was most prominent in woodlands in the southern part of Africa, which saw greening as early as three months before the start of the rains. Only an estimated four per cent showed greening up after the rain began, and these were confined to the Sudano-Sahelian region above the equator.

The study examined crops, grasslands and woodland. It showed that crops typically began their growing season after the wet weather, while woodlands mainly greened up a week or more before the arrival of the rains. Grasslands fell into two groups, those which greened at the same time as rain and those which greened much earlier.

Jadu Dash, Professor in [remote sensing](#) at the University of Southampton comments: "These findings add further evidence to the 'pre-rain green up' phenomenon observed locally across [vegetation types](#)

in Africa. The results contradict the widely held view that rainfall drives the onset and end of the vegetation growing season across Africa.

"Our study raises questions as to what environmental cues are initiating [vegetation growth](#) when rain isn't a factor. Climate change adds an extra dimension to this, making it even more important to understand how plants are responding to these cues."

Several theories have been suggested for what drives plants to green up, other than rainfall. Among these are a form of climatic memory mechanism in plants, day length, temperature, air humidity and physical attributes of plants, such as their ability to tap reserves of nutrients or deep root systems which access [underground water sources](#). Further research is needed to more fully understand these cues.

The African continent contains the world's largest area of savanna and around 17 per cent of the world's tropical forests. Savannas alone account for 30 per cent of the primary production from global terrestrial vegetation, underlining the importance of African vegetation.

The paper Large Scale Pre Rain Vegetation Green Up Across Africa is published in the journal *Global Change Biology*.

**More information:** Tracy Adole et al, Large-scale prerain vegetation green-up across Africa, *Global Change Biology* (2018). [DOI: 10.1111/gcb.14310](#)

Provided by University of Southampton

Citation: Research shows plants in Africa 'green up' ahead of rainy season (2018, July 2) retrieved 16 July 2024 from <https://phys.org/news/2018-07-africa-green-rainy-season.html>

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