



## **Impact of landuse and albedo change on the Western African Monsoon circulation by means of a deforestation in the Congo Basin**

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The Congo Basin forests of Central Africa cover a massive expanse of over 180 million hectares and comprise 10 per cent of the world's remaining tropical rain and moist forests. They form the second largest block of rainforest in the world, after the Amazon. This region is subjected to an high deforestation rate.

In this study we use the International Centre for Theoretical Physics (ICTP) Regional Climate Model (RegCM3) in order to investigate the role of deforestation of Congo Basin on atmosphere circulation dynamics.

A series of multi-year simulations are performed using ECMWF's reanalysis boundary conditions in a normal landuse state (control simulation) and under an idealized scenario of deep and complete deforestation.

The study shows that deforestation has not only a strong local impact, causing strong increase of temperature, decrease of precipitation and an increase in West African monsoon circulation, but also a remote effect of deforestation with an increase of summer rainfall on the Sahel and a decrease on the Guinea Coast. Reasons for these dynamical reasons of the dynamical feedback are explored.