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Climate signal in Pericopsis elata tree rings d18O series and potential for precipitation reconstructions in the eastern Congo Basin

Tom De Mil[1], Daniele Colombaroli[2], Nestor Luambua[3], Chadrack Kafuti[3], Paolo Cherubini[4], Matthias Saurer[4], Wannes Hubau[3], and Hans Beeckman[5]

[1]Forest Is Life, TERRA Teaching and Research Centre, Gembloux Agro Bio-Tech, University of Liege, Gembloux, Belgium
[2]Department of Geography, Royal Holloway University London, London, Belgium
[3]Department of Environment, Ghent University, Ghent, Belgium
[4]Swiss Federal Research Institute WSL, Birmensdorf, Switzerland
[5]Laboratory for Wood Biology and Xylarium, Royal Museum for Central Africa, Tervuren, Belgium

it is unclear whether pronounced droughts reaching the most remote regions of the Congo Basin are within a historical norm or have occurred only in the last decades. There is a growing evidence that a number of species with anatomically distinct rings can be used for dendroclimatological studies in the Congo Basin, such as Afrormosia (*Pericopsis elata*) (PEEL). Annual growth increments, i.e. Tree-Ring Width (TRW), are often co-determined by many environmental factors and yield low potential for reconstructions. Earlier work has shown that $\delta^{18}O$ measured in PEEL tree rings holds a precipitation amount effect. Here we focus on new *P. elata* isotope series to estimate the isotope-precipitation relationship at the annual-scale and discuss its potential for reconstructing precipitation variability back to 1850 AD. $\delta^{18}O$ values yielded better sensitivity as well as coherence between trees compared to TRW. Lower $\delta^{18}O$ values (28-29‰) after 1960 reflect the anomalously wetter conditions between 1950 and 1970 recorded in the Congo Basin and neighbouring areas. Higher $\delta^{18}O$ values after 1970 are in agreement with the reduction in precipitation reflected in gauges and satellite data. Further comparisons with instrumental data and other proxies can refine a precipitation reconstruction currently extending to 1850 AD.