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The investigation between covariability of energy fluxes and CO2 flux exchanges at Skukuza Kruger National Park by Eddy Covariance technique.

Abstract
The contribution of the Kruger National Park South Africa ecosystem to Carbon uptake and emission is highly variable across the years due to perturbations in vegetation cover as driven by large herbivores and inter annual climate variability. The quantification of the contribution of savanna ecosystems to the global carbon budget is still highly uncertain. This can account for by unavailability of CO2 measurements as well as changes in patterns of land use. This study explores the simultaneous changes in CO2 flux exchanges and energy fluxes to understand the response of vegetation to climate variability. We have investigated the covarability between energy fluxes such as sensible heat flux, latent heat flux and net radiation and CO2 flux exchange by Eddy Covariance technique at Skukuza Kruger National Park South Africa. The patterns of the energy fluxes and net ecosystem exchange(NEE) during 1st January 2017 and 2018 shows the ecosystem as a sink of Carbon with average of -11,6177 umol.m-2.s-1 daytime, +4,6354 umol.m-2.s-1 nighttime, -8,3959 umol.m-2.s-1 daytime, +6,3479 umol.m-2.s-1 nighttime, respectively. CO2 fluxes showed similar trends during the hydro-ecological year with average of +0,8455 umol.m-2.s-1 and +0,1102 umol.m-2.s-1 annual increase from 2017 and 2018,respectively. While the energy flux increases with a decrease in carbon sink over that period from H = 67,3488 w/m2 , LE = 78,7404 w/m2 and Rn-MET = 86,4002 w/m2 up to H = 82,3075 w/m2 , Rn-MET = 99,0331 w/m2 and down LE = 40,4249 w/m2 contribution of the change from dry year to wet year for 2017 and 2018 ,respectively. The increasing in energy fluxes and CO2 flux exchanges shows connection that have large implications to the Skukuza area and its response to inter-annual variability.

Keywords : Net ecosystem exchange, energy fluxes, carbon sink, eddy covariance

Apply to be considered for a student ; award (Yes / No)?

Yes

Level for award;(Hons, MSc, PhD, N/A)?

MSc

Consent on use of personal information: Abstract Submission

Primary author: Mr TAKALANI, Lufuno (University of Venda)

Co-authors: Ms THENGA, Humbelani (csir); Dr MATEYISI, Mohau (csir); Dr MALUTA, Eric (University of Venda); Dr MULAUDZI, Sophie (University of Venda)

Presenters: Mr TAKALANI, Lufuno (University of Venda); Dr MULAUDZI, Sophie (University of Venda)

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