

Ecosystem Fluxes in a Papyrus Swamp of the Okavango Delta, Botswana

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Half of the earth's wetlands are located in the tropics and subtropics. These 2 million km² of tropical wetlands store about 250 Gt of carbon (Neue, 1997). Especially swamps store carbon due to slow decomposition of organic material. Nevertheless, so far, reliable ecosystem carbon and energy flux data are still sparse, especially for Africa. Most of Africa's permanent swamps are situated in the equatorial belt, where two annual wet seasons occur. This is a more favourable climate for swamps or peatlands to develop, compared to the rest of the rather dry continent. Surprisingly, the Okavango Delta, situated at the edge of the Kalahari Desert zone, which rarely receives more than 400 mm of rain per year, sustains permanent swamps of an area of about 4000 km². The advantage of the Delta is the bi-modal hydrological regime, local rains and the annual flood do not occur at the same time. We present final results from a study employing the eddy covariance method in papyrus swamp in the Okavango delta, including energy flux measurements. The study investigated environmental factors controlling seasonal differences in net ecosystem exchange and aimed at identifying those environmental factors that control diurnal net ecosystem exchange during different times of the year.