

Supplementary Material

Supplementary Table 1: Statistical evaluation of the seasonal EBCs

Statistical evaluation of the energy balance closure for the sites a) Nazinga, b) Kayoro and c) Sumbrungu for the different seasons as well as the whole year, all values in Wm^{-2} .

a)	Slope	Intercept	\bar{x}_{AE}	\bar{x}_{TF}	B ₁	SAE	STF	B ₂
Dry Season	0.792	29.1	101.4	109.4	8.0	189.2	161.3	-27.9
Pre-Monsoon	0.788	22.8	170.4	156.9	-13.4	228.6	192.0	-36.6
Monsoon	0.834	3.8	186.2	159.0	-27.1	218.7	194.5	-24.2
Post-Monsoon	0.845	17.1	220.8	203.7	-17.1	255.8	230.4	-25.4
Year	0.815	18.3	162.2	150.4	-11.8	223.0	194.0	-28.9

b)	Slope	Intercept	\bar{x}_{AE}	\bar{x}_{TF}	B ₁	SAE	STF	B ₂
Dry Season	0.708	6.1	82.2	64.3	-17.9	133.4	100.5	-32.9
Pre-Monsoon	0.681	9.6	119.9	91.2	-28.7	155.6	115.0	-40.6
Monsoon	0.694	6.8	147.1	108.8	-38.3	174.6	133.6	-41.0
Post-Monsoon	0.649	9.7	160.9	114.1	-46.8	208.9	144.6	-64.3
Year	0.678	8.3	128.5	95.5	-33.1	172.1	126.3	-45.9

c)	Slope	Intercept	\bar{x}_{AE}	\bar{x}_{TF}	B_1	S_{AE}	S_{TF}	B_2
Dry Season	0.580	19.9	81.0	66.8	-14.1	135.9	87.8	-48.1
Pre-Monsoon	0.644	21.2	125.9	102.3	-23.6	172.3	122.5	-49.8
Monsoon	0.668	32.8	148.3	131.9	-16.4	193.2	140.0	-53.2
Post-Monsoon	0.677	28.6	161.3	137.8	-23.5	210.2	153.1	-57.0
Year	0.661	24.6	128.6	109.7	-19.0	183.0	131.6	-51.4

Supplementary Table 2: Statistical evaluation of the EBCs by CPs

Statistical evaluation of the energy balance closure for the sites a) Nazinga, b) Kayoro and c) Sumbrungu for the eight CPs, all values in Wm^{-2} .

a)	Slope	Intercept	\bar{x}_{AE}	\bar{x}_{TF}	B_1	S_{AE}	S_{TF}	B_2
CP1	0.807	28.0	117.0	122.5	5.5	203.9	176.8	-27.0
CP2	0.806	10.9	177.2	153.7	-23.4	223.7	192.0	-31.7
CP3	0.844	12.1	208.4	188.0	-20.4	250.2	223.6	-26.7
CP4	0.848	3.2	192.1	166.1	-26.0	224.3	202.6	-21.7
CP5	0.851	2.4	194.5	167.8	-26.7	224.6	203.4	-21.2
CP6	0.789	30.8	132.3	135.1	2.8	214.7	182.4	-32.3
CP7	0.771	30.5	119.6	122.7	3.1	203.1	167.3	-35.8
CP8	0.834	15.6	198.1	180.8	-17.2	239.4	212.8	-26.7

b)	Slope	Intercept	\bar{x}_{AE}	\bar{x}_{TF}	B₁	S_{AE}	S_{TF}	B₂
CP1	0.686	9.0	106.1	81.8	-24.3	158.1	110.3	-47.7
CP2	0.694	5.5	140.7	103.2	-37.5	168.1	125.4	-42.7
CP3	0.666	8.5	153.1	110.5	-42.6	192.3	135.6	-56.7
CP4	0.681	7.1	153.4	111.6	-41.8	184.6	137.4	-47.2
CP5	0.675	9.7	156.2	115.3	-41.0	189.9	143.0	-46.9
CP6	0.673	9.1	98.5	75.3	-23.2	152.0	109.8	-42.2
CP7	0.678	7.7	95.4	72.5	-22.9	142.6	104.8	-37.8
CP8	0.675	8.2	133.0	98.0	-35.0	172.4	124.9	-47.5

c)	Slope	Intercept	\bar{x}_{AE}	\bar{x}_{TF}	B₁	S_{AE}	S_{TF}	B₂
CP1	0.642	24.2	99.0	87.7	-11.3	157.3	111.0	-46.3
CP2	0.689	26.9	152.7	132.1	-20.6	195.3	144.1	-51.2
CP3	0.673	27.4	166.6	139.5	-27.1	205.8	152.1	-53.7
CP4	0.682	32.8	152.9	137.1	-15.8	200.8	148.9	-51.9
CP5	0.682	31.0	154.4	136.2	-18.1	202.3	149.6	-52.7
CP6	0.619	20.4	106.4	86.3	-20.1	162.6	108.9	-53.7
CP7	0.580	20.0	95.7	75.4	-20.2	151.0	96.4	-54.6
CP8	0.655	23.3	142.5	116.6	-25.9	192.9	135.3	-57.7

Supplementary Table 3: Corrected Relative Bias RB_1

Relative bias (RB_1) for Nazinga (top), Kayoro (middle) and Sumbrungu (bottom) calculated for the uncorrected values, the values corrected with the Bowen-ratio method (BR), with the quantile mapping (QM) and the quantile mapping conditioned on circulation patterns (QM-CP), grouped by CPs.

