Metadata for rainfall data recorded at Lopé NP, Gabon (1984 – 2018)

Rainfall has been recorded at Lopé NP using two pieces of equipment: a manual rain gauge (total precipitation for the preceding 24 hour period recorded at 8am each day) and a weather station. The Davis VantagePro2 weather station (https://www.davisinstruments.com/solution/vantage-pro2/) was installed in January 2012 and recorded relative humidity every 30 minutes for two years until the equipment was struck by lightning in January 2014. We calculated daily rainfall from the weather station data using a 24-hr period beginning and ending at 8am to match the rain gauge (Figure 1).

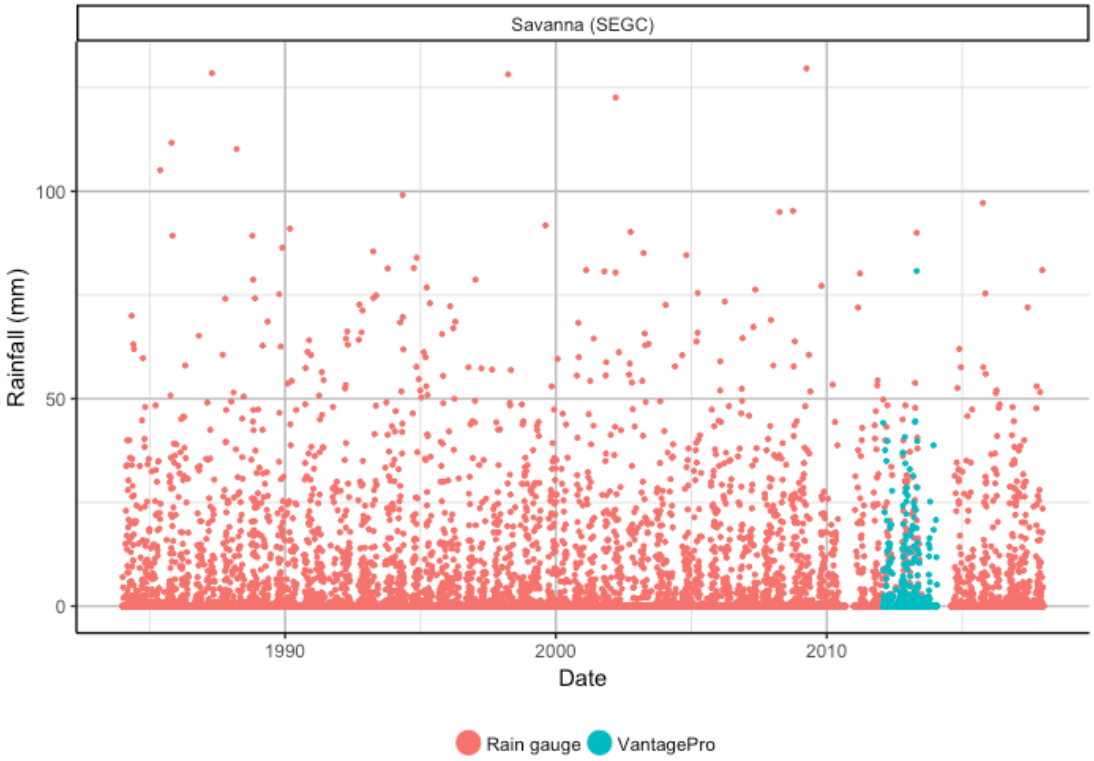

Figure 1. Time series plot of rainfall observations at Lopé NP, 1984-2018. *Coloured dots show original daily observations from both the rain gauge and the VantagePro weather station.*

When we compared simultaneous measurements of total daily rainfall from the two different equipment recorded between 2012 and 2014 we found that the weather station consistently underestimated rainfall compared to the rain gauge (Figure 2).

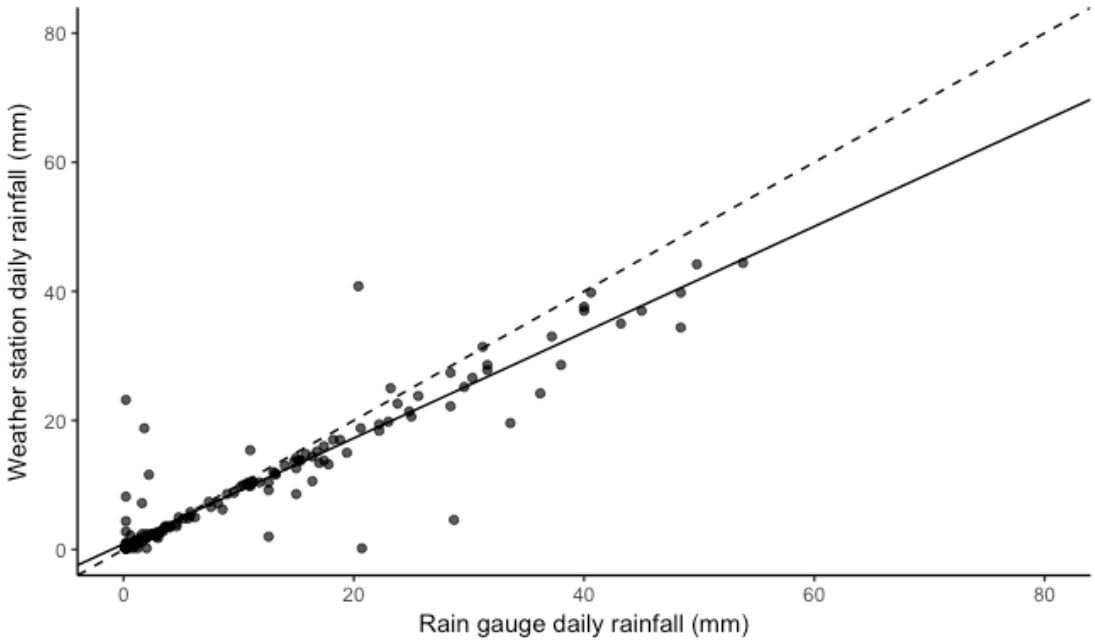

Figure 2. Comparison of simultaneous non-zero rainfall observations from the weather station and the rain gauge at Lopé NP, 2012-2014. *The dotted line indicates the expected 1:1 relationship. The solid line indicates the model prediction.*

In order to standardise the data record we evaluated the relationship between rain gauge-rainfall and weather station-rainfall for all simultaneous non-zero daily records within a linear model (Table 1).

Table 1. Estimates from a linear model used to standardise Lopé rainfall observations between equipment*. Rainfall observations from the rain gauge were used to predict rainfall observations from the weather station (VantagePro) for all simultaneous non-zero observations.*

Predictor	Estimate	SE	T value	P value
Intercept	0.86	0.42	2.05	<0.05
Rainfall (rain gauge)	0.82	0.02	35.67	<0.0001

We extracted the intercept and slope from the linear model and used these values to adjust the weather station data accordingly.

The accompanying dataset includes the standardised daily rainfall data derived from both pieces of equipment (Rainfall daily dataset C in accompanying manuscript).