

Interactive comment on “Microclimatic and ecophysiological conditions experienced by epiphytic bryophytes in an Amazonian rain forest” by Nina Löbs et al.

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Received and published: 19 February 2019

An additional consideration: an alternative way to use the electrical resistance measurements

Dear authors,

After some more thought and discussion with some colleagues, with whom we will be installing a similar system to measure moss wetness, I would like to suggest using more caution in the translation of the electrical resistance to moss water content and to propose an alternative way of interpreting the measurements. This is giving away the

C1

method we intend to use ourselves, which I think may be a good alternative for your study also. You are welcome to cite me for the idea if you think it appropriate.

It is clear that there is a very wide range of moss water-content (WC) values that may be indicated by any electrical resistance value measured. The values are more constrained for the cushion species (*Leucobryum*), which makes sense seeing that such a life form is denser and more homogenous than the other species, which are prostrate or consist of loosely scattered turf, if I am not mistaken. With such inhomogenous substrates, with different amounts of air and tissue between the probes for each sample, it is no wonder that the measured conductance is widely scattered within species. I think you should reconsider whether you should really try to deduct an absolute value of WC from these measurements. It looks like this is not really possible for most species.

It seems that the points within each calibration curves are nicely ordered, however. Therefore an alternative approach would be to only look at the changes in electrical conductivity, which should reliably indicate changes in water content. With this, you can deduct for any time period whether the samples were drying out or being wetted. When stable at low conductivity, this indicates that the samples are dry (in equilibrium with air humidity), when stable at high conductivity they must be completely wet during rain or fog events. If you have good data about the maximum water content of the species, you might even be able to interpolate between the stable low and the stable high, considering that drying tends to follow relatively smooth extinction curves, as you will see when plotting your calibration curves against time.

I hope this suggestion is of use.

Interactive comment on Biogeosciences Discuss., https://doi.org/10.5194/bg-2018-521, 2019.

C2