Geoscientific Instrumentation Methods and Data Systems Discussions

Geosci. Instrum. Method. Data Syst. Discuss., referee comment RC2
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Comment on gi-2021-34

Anonymous Referee #2

Referee comment on "The soil heat flux sensor functioning checks, imbalances' origins, and forgotten energies" by Bartosz M. Zawilski, Geosci. Instrum. Method. Data Syst. Discuss., https://doi.org/10.5194/gi-2021-34-RC2, 2022

Zawilski presented an interesting manuscript on potential uncertanties in soil heat flux measurements. I found this manuscript interesting and easy to read, some minor grammar errors are within the text, but it does not compromise the clarity of the message. The examples and illustrations are illustrative, and have clear messages. I just have a few comments that the author might integrate, or not, that might help enhancing the quality of the manuscript.

In section 3.2.3 Evapotranspiration, positive imbalances sources, I would recommend the author to include some tought on hydraulic redistribution (i.e., hydraulic lift). This might be a good source of discussion, and some comments might be worthed. https://doi.org/10.1016/S0169-5347(98)01328-7

In section 3.2.4 Rainfall or irrigation a negative and positive imbalance source, it will be good to include a perspective of non-rainfall/irrigation inputs (i.e., mist, fog, marine brezee). It is a common feature of some mediterranean ecosystems (i.e., across the shoreline of the Californias), and might enhance the audience. The mist/fog/marine brezee is an important input of water that is not traditionally measured as an input, but is measured as an output of energy by eddy covariance measurements, however, might have influence in the soil heat flux too.

L185-190. I do not completely agree on the criteria for removing G42 and G51 . From my point of view, this is natural variability until it is demonstrated that the sensors are incorrect. Is there another criteria for removing these measurements? i.e., do not fall between three standard deviations from the mean of the remaining sensors?