

## ***Interactive comment on “Evaporation from Savanna and Agriculture in Semi-Arid West Africa” by Natalie C. Ceperley et al.***

**Natalie C. Ceperley et al.**

natalie.ceperley@unil.ch

Received and published: 6 February 2017

Dear Anonymous Referee 1, Thank you very much for your comments regarding our manuscript, “Evaporation from Savanna and Agriculture in Semi-Arid West Africa received and published on January 16, 2017.

1, I find the calculation of net radiation for all the meteorological stations does not really contribute to the paper. If I understand correctly, the measured net radiation is not really used except in validation against the measured ones at the energy balance stations. It is interesting as a stand-alone piece but is not well integrated into this paper. And I find removing this does not change the paper significantly or even make the paper more focused. One supporting evidence for my argument is that none of the related cal-

C1

culations was even mentioned in the abstract and conclusions. Another reason I think this should be removed is that the calculations were not studied deeply. For example, I think the explanation of biases in the calculated net radiation is not thorough. The biases in the net longwave radiation in Figure 3 are so large that I don't think it is due to the wavelength of the instrument. Give these two reasons, I would strong suggest remove this part.

This is understandable; it arose from a discussion among co-authors. I will move this figure and the discussion surrounding it to the supplementary material.

Minor comments: 1, line 23, page 8: I would not use consistent. Maybe 'smooth'.

Thank you for this suggestion, this has been changed.

2, line 22-25, page 9: This should go to a place much earlier when the radiative and flux measurements are first discussed (for example in Figure 4).

This is a good point; it has been moved to the discussion of figure 5 on the previous page.

3, Figure 7 does not reveal much new information and should be removed. On the other hand, the discussion of Figure 8 is rather superficial at this moment. I only see 1 sentence for Figure 8 (line 20, page 9).

More discussion has been added for figure 8. Figure 7 and related discussion has been added to supplementary material.

C2

4, Figure 10 (section 3.3.1): R2 should be provided in order to claim “NDVI and soil moisture have the strongest positive correlation with evaporative fraction”.

A table of R2 values has been added to the figure.

5, Figure 11 has too much non-essential and redundant information. The only helpful information is the middle panel showing the validation of the model. The others can be safely removed. On the other hand, Figure 12 can be combined with the middle panels of Figure 11. By the way, figure 12 is not even mentioned.

The validation of the model and figure 12 have been combined and discussion has been developed around figure 12.

6, line 9, page 11: should be figure 9, not figure 8.

Thank you, this has been changed.

Sincerely,

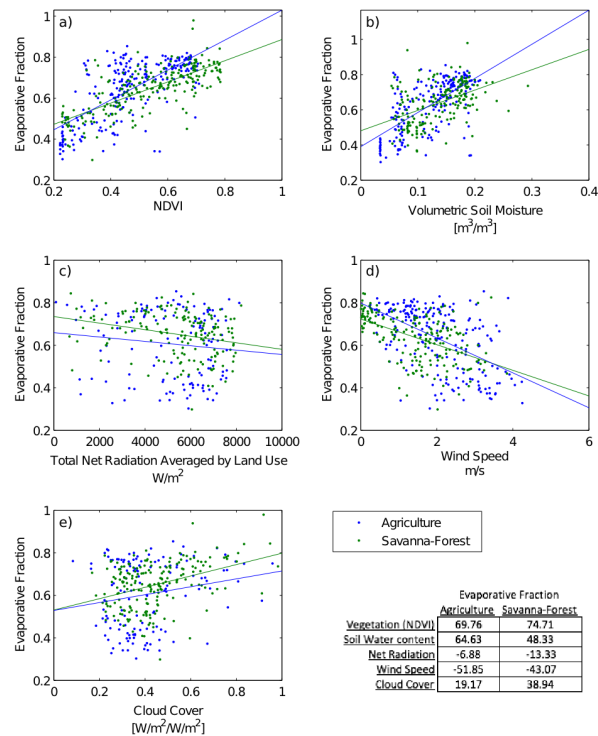
Dr. Natalie Ceperley, University of Lausanne

Please also note the supplement to this comment:

<http://www.hydrol-earth-syst-sci-discuss.net/hess-2016-672/hess-2016-672-AC1-supplement.zip>

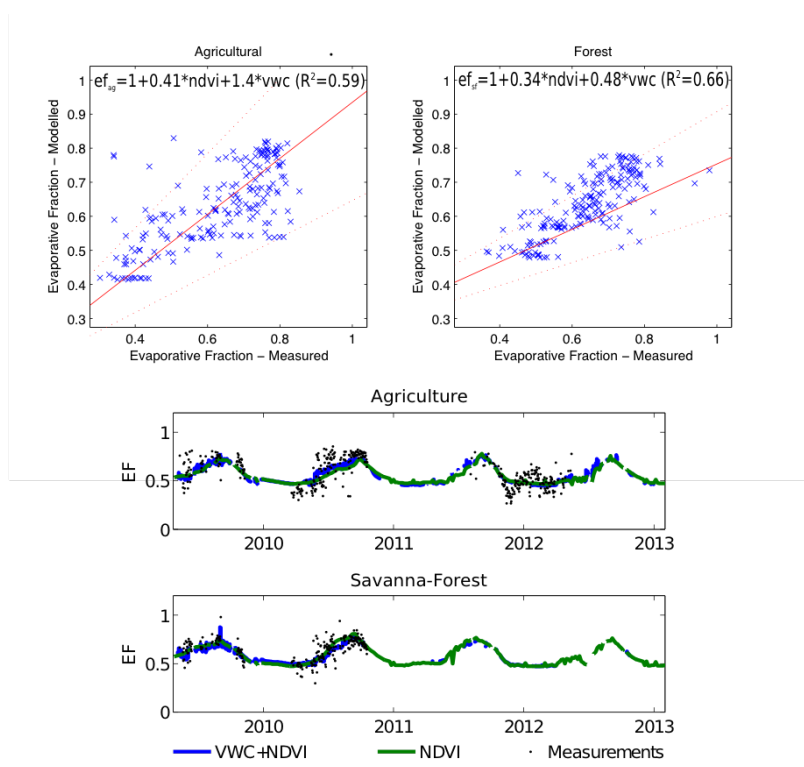
Interactive comment on Hydrol. Earth Syst. Sci. Discuss., doi:10.5194/hess-2016-672, 2017.

C3



**Fig. 1.** Daily evaporative fraction over study period compared with relevant variables. The least squared regression lines are shown for each plot. Correlations between variables are in the table.

C4



**Fig. 2.** Further Examination of relationship between Soil Moisture, Vegetation Index, and Evaporative Fraction. Upper plots show quality of fit and lower plots show modeled evaporative fraction.