



Interactive comment on “Measuring forest floor interception in a beech forest in Luxembourg” by A. M. J. Gerrits et al.

A. M. J. Gerrits et al.

Received and published: 19 October 2006

We are very grateful to referee 2 for the comments on our paper. The remarks will be considered in the final version of the article and will improve the quality of the paper.

Reply on the comments, numbered in order of appearance:

General comments:

The main concern of the referee is that the paper is not a research paper, but rather a technical note. We agree with the referee that our paper is mainly a technical note; it mostly describes how the measuring device is working and shows some preliminary

Full Screen / Esc

Printer-friendly Version

Interactive Discussion

Discussion Paper

results. However, we also include and analyse the first observations with the new instrument, which are unique in its kind. Whether a technical note or a paper, we think it is worth publishing in HESS.

Specific comments:

1. We agree that the literature review is quite long. However the described methods are later on used to compare with our results. Because few similar studies have been done before this comparison is difficult and therefore we think it is necessary to explain the different methods and under which conditions they have been developed, so as to understand the different results.
2. The referee is right that a part of the “materials and method” section is included in Section 2 “Site description”. In the final version we will combine Section 2 “Site description” with Section 3 “Research method” into a section named “Materials and method”. We will also add a drawing with an overview of the experimental plot, so more information is given on the site. We will add also the name of the tree species, which is indeed *Fagus Sylvatica*.
3. We think the lack of clarity regarding the calculation of the net rainfall (read throughfall) will mainly be solved by adding a drawing of the plot (as mentioned before) plus some short explanation about which rain gauges are used.
4. It is indeed possible to obtain the precipitation from the measured data, by summing up all weight increases of the two basins. We could consider to present a graph of one such a calculation. This calculation may show a bias because fluctuations due to noise could be mistaken for rainfall.
5. The referee doubts if an interception rate of 34% is plausible, especially if compared with literature. Initially, the percentage indeed seems high, but when we look at the weather and canopy conditions for November 2004 it can be explained.

Full Screen / Esc

Printer-friendly Version

Interactive Discussion

Discussion Paper

As can be seen in Figure 4 the amount of rainfall was *relatively* low and was gradually spread over the month. Such weather conditions give relatively high forest floor interception values. If the rainfall had fallen with higher intensity then the amount of evaporation from interception would probably have been lower percentage wise, because interception is a typical threshold process. Furthermore in November the trees do not contain leaves anymore, so more radiation is available for evaporation and there is a thick layer of dead leaves. That our results are higher than results found in literature, is in our opinion clearly described in Section 4 “Results and discussion”. As mentioned before the comparison is quite difficult, because few studies are carried out and those who are related are often carried out in either different climates or the studies deal with different forest floors.

6. We will try to be clearer about the temperature effect in the final version. Although we would like to emphasis that the temperature correction described in the paper is not completely satisfactory. Therefore we are now using a dummy sensor to do the temperature correction.
7. We think there is already a clear discussion on the working of the device.

Technical comments:

1. We will change the section title into “Materials and methods”.
2. We don’t see what the problem is with this sentence.
3. In the final version we will try to clarify this paragraph. We can think of adding one graph with an example of the calculation.
4. We agree that this figure is maybe superfluous.

Full Screen / Esc

Printer-friendly Version

Interactive Discussion

Discussion Paper

5. We will include the regression parameters and try to clarify this paragraph. We will also explain why there is a time lag. This is due to hysteresis: there is a difference between heating and cooling. We do not think a graph is necessary, the regression parameters will tell enough about the reliability of the analysis. Besides at the moment a dummy sensor is used with works much better than a temperature compensation with the applied regression analysis.
6. We will explain the symbols of Equation 5 in the text. Sorry for the confusion.
7. We will emphasis in the conclusions that the results are just for one month.
8. We think it is a part of the conclusion to also give feedback of the general problem of disregarding forest floor interception.
9. It is indeed right to add some information about the reliability of the regression analysis.
10. We will skip this figure.
11. We assume the referee meant Figure 4 instead of Figure 3. In this figure we will add the bulk rainfall. We agree that we have to clarify the vertical axis. In Figure 4A and C we plotted the relatively storage instead of the absolute values.
12. We assume the referee meant Figure 5 instead of Figure 4. The negative storage values are possible for the same reason as described in the answer on the previous comment. We will clarify this.

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 3, 2323, 2006.

Full Screen / Esc

Printer-friendly Version

Interactive Discussion

Discussion Paper