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Atmospheric Chemistry and Physics Discussions

Interactive comment on "Influence of clouds on the spectral actinic flux density in thelower troposphere (INSPECTRO): overview of the field campaigns" *by* S. Thiel et al.

Anonymous Referee #2

Received and published: 31 October 2007

The authors present and discuss a very interesting manuscript describing an overview of the INSPECTRO field campaigns which took place in 2002 and 2004.

The English manuscript is written concise. The usage of the English language is good. The number and quality of the tables, graphs and figures are appropriate. The focus of the presented work fully fits into ACP.

Publication of the manuscript is recommended because the paper gives a very good overview of the comprehensive INSPECTRO field campaigns which indeed provided impressive data sets.

Please follow the mostly minor comments listed next to prepare the final version of the manuscript:

1)P. 13419, line 10, and pp. 13443, line 12 until p. 13444, line 17: The exploitation of the three-dimensional radiation transfer model MYSTIC is mentioned at the end of the first paragraph. While reading the entire manuscript, the reviewer was not able to find graphs for MYSTIC results, even though MYSTIC was described in some detail in section 4 of the manuscript. Thus, the reader is given the impression that results to 3D radiative effects will be found in this paper. This is not the case. - Please correct.

2)P. 13426, line 27: please add "diameter" to "size range of 0.5-47 μm".

3)P. 13429, line 23: The reviewer does not understand the units of the lower irradiance limit. Is this limit in terms of photons per unit surface per unit wavelength interval? Please correct appropriately.

4)P. 13436, line 23: "non-spherical (That is solid) particles"; the term in parentheses can be replaced by "solid", because that is the situation the authors really refer to.

5)P. 13436, line 26: typo "retieved"

6)P. 13440, lines 4-13: What is the difference between "Ultralight" and "microlight"? Is it not the same platform?

7)P. 13442, line 27: "were assumed" -> "was assumed"

8)P. 13450, line 27, and all other occurrences (also figures): which colour is meant by "wine"? Please correct.

9)P. 13451, line 1: "the profile which is much more rotund"; usage of the term "rotund" is a rather unusual one; a term like "the profile having stronger curvature" or similar seems to be more appropriate. Secondly, the authors are asked to provide an explanation why the curvature behaves in this particular manner. What are the physical explanations? Is this an effect appearing near the lowermost layers (lowermost

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100-200 m) directly above the surface?

10)P. 13453, line 12: typo "to high" -> "too high"

11)P. 13454, lines 11-25: For the reader it is not clear find why the authors at exactly this point make reference to other published INSPECTRO work, because the findings listed do not follow from the content (figures/results) of the present paper. Certainly, INSPECTRO was a very important project with new and innovative results. This paragraph should entirely be placed, for example, in the introductory section. Another appropriate location would be to re-formulate section 7's title to "Comparison of observations with 1-D radiative transfer models and with a simulated 3-D cloud field", and to add this paragraph there.

12)P. 13454, line 26-29: The authors announce that the INSPECTRO data sets belong to the most accurate and best characterized validation sets worldwide. Therefore, it is recommended to add a web address through which interested readers and researchers can obtain access to the INSPECTRO data.

13)P. 13455, line 15: typo "spectophotometers"

14)P. 13458, line 29: typo? "libRadtransoftware" -> "libRadtran software"

15)P. 13459, line 11: typo "homogenous"

16)P. 13459, line 22: typo "Venem" -> "Venema"

17)P. 13471, caption Fig. 9: typos "airborned", "turkoise", "groundbased"

Interactive comment on Atmos. Chem. Phys. Discuss., 7, 13417, 2007.