

Interactive comment on “Methane emissions from boreal and tropical forest ecosystems derived from in-situ measurements” by V. Sinha et al.

Anonymous Referee #1

Received and published: 12 October 2007

Review of S-NR: acpd-2007-0386 Title: Methane emissions from boreal and tropical forest ecosystems derived from in-situ measurements Author(s): V. Sinha, J. Williams, P. Crutzen, and J. Lelieveld

General comments

Sparked by the recent findings of Keppler et al. (2006) the pro and contra of a possible CH₄ source from vegetation is lively discussed. The ms under review presents new CH₄ measurements from two contrasting forest ecosystems. The results are interpreted in the way that they are supporting a night time CH₄ source from vegetation. On the basis of their measurements the author extrapolate their results to a global scale. Although the results presented are very interesting, I have mixed feelings about the

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ms, especially I have major concerns about some of the conclusions and the method (see below).

Specific comments

1) pages 14016/14017: Used calibration gas - Obviously the authors solely relied on the stated accuracy given by the manufacturer and they did not bother to calibrate their methane standard against internationally accepted standard scales of NOAA or SIO. Therefore, any comparison with other data (see e.g. on page 14022, lines 6-10; page 14025, lines 13-25; page 14026, lines 21-25) and any efforts to explain differences or agreements are only speculative, at best.

2) I am wondering why the authors do not discuss their results in view of actual CH₄ measurements from a nearby atmospheric monitoring station in Finland (Aalto et al. 2007), which would make more sense than the comparison with satellite data which have a high degree of uncertainty (as stated by the authors, page 14022, lines 14-17.)

Aalto, T., Hatakka, J., and Lallo, M.: Tropospheric methane in northern Finland: Seasonal variations, transport patterns and correlations with other trace gases, *Tellus*, 59B, 251-259, 2007.

3) page 14026, line 5: The estimate of the tropical CH₄ night time emission flux is not based on measurements of the NBL and therefore it is entirely speculative and should be removed from the text and not discussed further.

4) page 14023, lines 8-11: An extrapolation to the global scale cannot be solely based on a single measurement campaign. Unless other measurements are used together with the data presented here, a global extrapolation is misleading, at best. In this point I certainly disagree with the authors argumentation (page 14023, lines 4-8): I would like to see the global extrapolation to be removed from the text. (By the way, it makes no sense to report a value with one decimal place in view of a stated best

guess’ uncertainty of +/- 25 %).

Technical comments

p. 14012, line 26: in-text citation IPCC 2001 is not listed in the reference list; And: Please cite the new IPCC report 2007! p. 14013, line 24 and elsewhere in the text: SCHIAMACHY should be corrected to SCIAMACHY

Interactive comment on Atmos. Chem. Phys. Discuss., 7, 14011, 2007.

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