

***Interactive comment on “The seasonal cycle of the greenhouse gas balance of a continental tundra site in the Indigirka lowlands, NE Siberia” by M. K. van der Molen et al.***

**Anonymous Referee #1**

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1. This article extends the knowledge of two important greenhouse gases in a critical region of the world. Inclusion of methane is rapidly becoming recognized for its importance to the issue of climate change, further demonstrated by these data.
2. The estimations of flux should be kept to summer or seasonal as no data were collected during the winter period, through any means. Therefore it is impossible to estimate with any accuracy the annual flux values.
3. I am confused as to why the data collection frequency would be altered, even if data storage space was an issue. Numerous articles cite the importance of at a minimum, 10 hz data collection. Were the cospectra analyzed for 5 vs. 10 hz? I suspect

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significant data loss during periods of 5 hz data collection.

4. 2003 is mentioned only briefly in the text, and in Figures 12 and 13. What were the general conditions? From the two figures, it seems to have the most consistent data with a clear seasonal pattern.

5. This paper is long and has a lot in it. It may be useful to save some of it (OR-CHIDEE part?) for a separate manuscript. The site description is way too long, as is the discussion. Many of the tables/figures are unnecessary and should be cut down.

6. In pages 2333-4, average hours of sun per month are given, then it is stated that the average in 2004 and 2005 are considerable different. What are the averages for 2004/2005 (90/280)? Annually? Monthly? How to interpret these is confusing.

7. Page 2345 line 27 use IS LARGER not IS MORE LARGE.

8. It appears (Fig 9d) that the model cuts off GPP at 9  $\mu\text{mol}$ ?

9. Table 1 BASIC CLIMATOLOGY OF AS OBSERVED should read BASIC CLIMATOLOGY OF THE STUDY SITE AS OBSERVED.

10. Table 2 line 2 water table should be 5-20, not May-20? Table can be simplified.

11. Table 4 can be included in text.

12. In Fig. 1, remove panel C and detail panel B.

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