

# ***Interactive comment on “Net ecosystem exchange of carbon dioxide and water of far eastern Siberian Larch (*Larix dahurica*) on permafrost” by A. J. Dolman et al.***

## **Anonymous Referee #1**

Received and published: 3 September 2004

### General comments

This paper focuses on the diurnal and seasonal variation of CO<sub>2</sub> and water vapor above the canopy of Siberian larch forest. The results are important to understand the CO<sub>2</sub> and water vapor exchanges in Far East forest. Some parts of the description are not enough to understand the methodology of observations and analysis. For example, the method of correction on CO<sub>2</sub> flux in night time using friction velocity is not clear (P284, L8 - 18). Furthermore, the estimation of aerodynamic conductance should be written more clearly (P287, L16 - 19), because the method was not clear in the reference (Dolman et al., 2002).

Comments on the text 1. Site description and methods: The observation methods should be written more detail. For example, is the angle correction the double or triple rotation? How long is the averaging period to calculate the fluxes? There is no descrip-

Full Screen / Esc

Print Version

Interactive Discussion

Discussion Paper

tion about the meteorological observations. If you used the original data, you should present the methodology. For example, is the net all-wave radiation obtained from a net radio meter or four radiation components measurements? How deep is the ground heat flow? How about are air temperature and humidity to calculate the atmospheric saturation deficit? If you did not use the original one, the data source should be written. It is better for readers to indicate the distance between the campaign site and Yakutsk airport where the precipitation used in this paper was measured. 2. P286, L26: Does the term, “&#946;” means the Bowen ratio? 3. P290, L7 - 16: You compared your results with the previous ones, and mention that the difference of results between them mainly resulted from the processes of CO<sub>2</sub> soil trapping. Are there no effects of the meteorological conditions between years? How about are the site conditions in Hiyama’s (2001)? 4. P292, L3 - 16: I think the spatial variation may be an important factor. Especially characteristics of permafrost varied widely. And you mention that the density is a factor for the spatial distribution of NEP. If the stand density affects the spatial variation of NEP, LAI will be more useful parameter for large scale modeling. Could you mention the relationships between NEP and LAI. 5. P292, L17 - P293, L7: What is the tree species in the site of Lloyd et al. (2001)? There is a significant difference of transpiration between the tree species even in the same climatic area. Transpiration is much higher at a deciduous broad leaf forest than in a coniferous forest in BOREAS project. The same differences between forest types and/or tree species maybe occur for CO<sub>2</sub> exchanges. How do you think about the effects of tree species on photosynthesis?

---

Interactive comment on Biogeosciences Discussions, 1, 275, 2004.

[Full Screen / Esc](#)[Print Version](#)[Interactive Discussion](#)[Discussion Paper](#)