

***Interactive comment on “Carbon balance assessment of a natural steppe of southern Siberia by multiple constraint approach” by L. Belelli Marchesini et al.***

**Anonymous Referee #2**

Received and published: 12 February 2007

**General comments**

In this paper the carbon balance of a natural steppe is presented, the aim of the work was to validate the NEP measured by eddy covariance method against the NEP estimated by inventory methods (biomass sampling and chamber measurements). The different methods used during both field experiments and data processing are described in details. Results are described aboveboard, the discussion section does not overlap with results.

**Specific comments**

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2.4. CO<sub>2</sub> flux measurements (eddy covariance) page 175-176: the use of coordinate rotation or planar fit is not mentioned when describing the flux calculations. page 177, lines 12-17: it is not mentioned that the energy balance closure is investigated based on half hourly or daily basis. (daily would preferred)

2.6. Uncertainty analysis in  $\dot{E}$ . Page 183, lines 6-11: The deviation of the three different values of NEP estimates concerning to the three different gap filling methods refers to the uncertainty of the choice of gap filling method. The overall uncertainty should contain the uncertainty stemming from the missing data (quantity, position, length).

The uncertainty of NEP (EC method) is  $\pm 30.1 \text{ gC m}^{-2}$  in the results section (p188, line 13) and in the abstract, but  $\pm 16.9 \text{ gC m}^{-2}$  at the conclusions (p192, line 12), and  $\pm 31.6 \text{ gC m}^{-2}$  in Table 1 (p199)

### Technical corrections

Figures 1,2,3,4,8: please complete the title of y-axis

Figures 4 and 7 are very small.

Mainly at the beginning of the manuscript of “below-ground” is used instead of “below-ground”, the situation is the same with “above-ground” and “aboveground”.

page 166, line 4-5: “et al.” is missing in the reference

page 167, line 17: “Suyker and Verma, 2001” instead of “Suyker et al., 2003”

page 169, line 11: “et al.” is missing after Conen

page 172, line 1: There are only six algorithms listed

page 172, line 18: Singh and Joshi instead of “et al.”

page 176, line 4: Webb et al., 1980 would be the conventional

page 176, line 21: maybe “dataset” is missing after “half hourly”

page 177, line 20: “et al.” after Flanagan

page 178, line 4: “et al.” after Falge

page 180, line 15: In the second “ref” to subscript

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page 182, line 15: “et al.” is missing after Goulden  
page 183, line 15: “et al.” is missing after Barford  
page 184, line 21: The end of the previous growing season should be 15 October, 2003.  
page 187, line 12: use a hyphen between the two percentage values  
page 188, line 14: problem with the sequence of space and comma  
page 188, line 16: “et al.” is missing after Reichstein  
page 189, line 15: “et al.” is missing after Titlianova  
page 190, line 9 and 13: “et al.” is missing after Scurlock,  
page 197, line 10: and is missing between the name of the authors  
page 197, line 21: “Stolbovoi” instead of “Stolboboï”  
page 201, line 3: a space is missing between BG and NPP  
page 203, line 6: “et al.” is missing after Reichstein  
page 206, lines 3 and 6: “et al.” is missing after Reichstein

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Interactive comment on Biogeosciences Discuss., 4, 165, 2007.

**BGD**

4, S10–S12, 2007

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