

Interactive comment on “Methodology and calibration for continuous measurements of biogeochemical trace gas and O₂ concentrations from a 300-m tall tower in central Siberia” by E. A. Kozlova et al.

Anonymous Referee #3

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General Comments

This paper is generally well written and informative, highlighting the standard of atmospheric monitoring station that can be achieved by a big research group with a big budget. The main complaint with the written text is that the Concluding Discussion section falls between two stools. If it is a conclusion it is far too long; if it is discussion then it is very repetitive of preceding section. This would benefit from including only the major highlights without providing details of precisions and sampling heights again. Suggestions for further improvements or development work, currently buried in

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this section, could also be highlighted here.

Given the effort that has gone into the set-up would it not have been possible to rationalize the analysis intervals and timings so that each species was measured every 15 minutes? This would aid direct correlation of species during short synoptic events and simplify incorporation into global databases.

Minor comments

Page 282 - Abstract - Too many sentences starting with 'we'

Page 282 - Line 20 - decide whether this sentence should be singular - driver, is, concentration, or plural, drivers, are, concentrations

Page 283 - Line 23 - citations should be in date order

Page 283 - Line 27 - 'changes in photosynthetic and respiration activities in the local ecosystem' is better

Page 284 - Line 9 - remove the second '‘in Europe’';

Page 287 - Line 12 - How is the level of ethanol in the trap maintained? Is this checked by the on-site scientist?

Page 292 - Lines 12 and 20 - How often are the Mol Sieve traps checked and how often do they need replacing?

Page 301 - Line 5 - Cylinder ND21972 - As the reason for the drift down in O2 ppm Equiv is put down to a 'larger' leak from the cylinder, was it noticed that the pressure in this cylinder was dropping at a faster rate.

Page 303 - Line 17 - Given that the precision target for CO has not been reached using the methaniser, what were the reasons behind choosing this method for CO analysis instead of a Reduced Species Analyser such as the PP1.

Page 304 - Line 21 - Regarding the lack of explanation for the 300m height data in

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late 2006, could there be a meteorological explanation. The manuscript has no mention about measurement of meteorological parameters, although temperature measurements from each inlet height should be essential data, particularly if there is the possibility for inversion heights being below the top of the tower at this site.

Page 308 - Line 12 - Was the influence of tower construction on the 4 and 52m height data for 2005-06 quantified?

Figure 2 - Caption requires more explanation. The text explanation refers to only 2 of the graphs.

Figure 3 - The source of the baseline cycling in raw O₂ is not clearly explained in the text.

Figure 4 - caption - ppm Equiv - sometimes a space between these, sometimes not - need to stick with the correct protocol.

Interactive comment on Atmos. Meas. Tech. Discuss., 1, 281, 2008.

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