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Interactive comment on "Effect of ablation ring and soil temperature on 3-yr spring CO_2 efflux along the trans-Alaska pipeline, Alaska" *by* Y. Kim

Anonymous Referee #2

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Kim presents measurements of soil CO2 efflux during winter and spring along a latitudinal gradient in arctic Alaska. The methods are general sound and the study addresses an important knowledge gap, arctic ecosystem CO2 dynamics outside of the growing season, which is of critical importance to global change research. For the most part the study is methodologically sound. One exception may be the extrapolation of measurements to calculate winter and spring contributions to annual C balances for each ecosystem. It is not clear how this was done, but I suspect that the methods used were no appropriate. The writing could also stand to be improved; there are many poorly worded passages and a number of confusing sections. The study will not be suitable for publication until major revisions to the writing have been made that improve grammar and clarity, and until several key issues have been clarified.

Were these chamber bases permanently installed? It is my understanding that CO2 may build up in the snowpack, resulting in pulses. It would be good to discuss whether this could have affected your measurements at some point in our paper, perhaps in the methods.

P 3617 L7: what do you mean 'terrestrial carbon is susceptible to climate changes'?

The second paragraph in the introduction is rather confusing and contains a number of logical inconsistencies.

P3618 L 25: Are you looking at the effect of the pipeline, or simply establishing a north-south transect using pipeline infrastructure (i.e. the Dalton Highway) to access sites. If the latter it is not necessary to emphasize the pipeline.

P3624 L 11-18: It is not clear whether these values represent differences between exposed and snow covered soils, or forest and tundra, or both. It would be good to have both. This paragraph a very unclear.

P3629 L5: What vegetation community types?

Interactive comment on Biogeosciences Discuss., 11, 3615, 2014.