

## ***Interactive comment on “Dominance of brown carbon in aerosol emissions from burning of boreal peatlands” by R. K. Chakrabarty et al.***

**Anonymous Referee #1**

Received and published: 18 November 2015

### General

This is a very interesting study on results from biomass burning of boreal peat material from Alaska and Siberia with emphasis on brown carbon. It is very knowledgeable as for the derived radiative quantities and a possible contribution of carbonaceous particles to surface temperature increase at high northern latitudes.

The manuscript title does not make fully clear that this study is indeed concerned with peat burning. The authors may consider to make this more clear in their manuscript title.

I have a number of specific points to be addressed, see below. I think the manuscript should be revised, at a level somewhere between minor and major revision.

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### Details

Abstract: I find the abstract quite condensed. Is this really all which should be mentioned here ?

P 28796, l 8: Why will the Siberian peatland burning increase so much 'in response to to climate change' - a few words to explain would be good.

P 28796, l 11 ff: This paragraph very well addresses past studies of boreal forest fires. Because the study really is about peat burning, please reference former such studies right here in the section - this is fully missing now.

P 28798, l 27: This estimate must be rough. It means BrC from this study is an upper limit because EC has to be subtracted. This should be mentioned everywhere and an estimate of the size of this error should be given.

P28799, l 12: Results of previous studies could be incorporated into Table 1.

P 28800, l 12ff: Can you nevertheless document the results of the varying humidity experiments ? What could be a possible explanation of the differing trends ?

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Interactive comment on Atmos. Chem. Phys. Discuss., 15, 28793, 2015.

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