

Response Letter of X Li's to editor' comments on MS No. ESSD-2024-187

Please carefully consider some final comments for the final version of your paper:
Lines 22-23. '... occurrences of wildfires have been increasingly more frequent in boreal and arctic forests during the last few decades'. Do the authors mean: '... occurrences of wildfires have been increasingly more frequent in boreal forests and arctic tundra during the last few decades'?

Response: Yes, it is our meaning.

Thus, after re-writing, it is expressed as follows in Lines 22-23:

Under a warming climate, occurrences of wildfires have been increasingly more frequent in boreal forests and arctic tundra during the last few decades.

Lines 99-103. 'It contains 1100–1500 Pg carbon in boreal permafrost regions (1 Pg=1015 g), approximately twice of the carbon pool in the atmosphere (Hugelius et al., 2014), accounting for nearly half of the global belowground organic carbon pool (O'Donnell et al., 2011a).' Please rephrase as something like: 'Arctic-boreal permafrost soils contain between 1100-1500 Pg carbon,...'.

Response: Agreed and done. Changed to the
In Lines 99-102.

"Arctic-boreal permafrost soils contain between 1100-1500 Pg (1 Pg=1015 g) carbon, approximately twice of the carbon pool in the atmosphere (Hugelius et al., 2014), and accounting for nearly half of the global belowground organic carbon pool (O'Donnell et al., 2011a)."

Lines 166-167. '...and; in Section 5, major conclusions and prospects.' Please add 'are given' or something similar at the end of the sentence.

Response: Agreed and done. Changed to the
In Lines 166-167

"...and; in Section 5, major conclusions and prospects are given."

Lines 191-192. 'The light blue areas in Figure 1a is the permafrost region.' Should be 'The light blue areas in Figure 1a are the permafrost region.'

Response: Agreed and done. Changed to the
In Lines 191-192

"The light blue areas in Figure 1a are the permafrost region."

Lines 254-255. 'According to the Cocke et al. (2005) and Roy et al. (2006), the dNBR optimality values for these average changes are 0.241 for grass and 0.57 for shrub.' dNBR optimality should not be confused with dNBR values. The dNBR optimality following Roy et al. (2006) offers a performance metric for the dNBR index. I suggest the authors rewrite this section and remove ambiguity between the terms dNBR values and dNBR optimality.

Response: Agreed and done. Changed to the
In Lines 254-256.

"According to the Cocke et al. (2005) and Roy et al. (2006), the dNBR values of 0.241 and 0.57 are the critical values for the division between lightly and moderately burned,

and moderately and severely burned.”

Lines 328-329. ‘... a total of 28,890 pieces of data were collected’. Suggested rephrasing: “... a total of 28,890 data records were collected’.

Response: Agreed and done. Changed to the

In Lines 328-329

“..., a total of 28,890 data records were collected, ...”