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Biogeosciences
Discussions

Interactive comment on "Vegetation structure and fire weather influence variation in burn severity and fuel consumption during peatland wildfires" *by* G. M. Davies et al.

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The authors are very grateful to the reviewer for their constructive comments on our paper. We are pleased they think it makes a valuable contribution to our understanding of the environmental effects of peatland fires and that the pCBI is likely to prove useful for other researchers. Most of the reviewers comments requested specific and relatively minor corrections - we have integrated them all into the revised version of the manuscript we will submit once the review process is complete. Responses to some of the more general queries are provided below.

Page 15740, line 3: Can you give any specific examples of 'other significant envi-

ronmental and human impacts'? - For the sake of brevity we directed readers to the excellent review by Watts & Kobziar (2013). Negative human effects include respiratory problems associated with the inhalation of noxious smoke (see recent reports from Indonesia) and the significant effort and costs involved in fighting such fires. Environmental impacts include destruction of soil seedbanks, widespread plant mortality, post-fire erosion and water pollution problems and the emission of large quantities of carbon.

Page 15740, lines 9-13: Probably also worth noting that British peatlands have also been impacted by other drivers of changes such as pollution, N deposition, etc. - Agreed, we will mention this in the revised MS

Page 15740, line 20: You refer to 'managed burning' here, but elsewhere the term 'prescribed burning' is also used. If defined differently, give definitions; otherwise, stick to one term. - This is an error on our part. Generally we prefer to refer to managed burning in a UK context as (traditional) fire use by land-managers, though widespread, does not have the technical features and heavy regulation and planning associated with prescribed burning elsewhere.

Page 15741, lines 5 – 14: Given the confusion in the wider media with the term 'peatland fires' i.e. whether it refers to fires that consume peat, or surface fires that consume peatland vegetation, it might be worth expanding a little here to carefully explain the differences. - Agreed and we will do so in our revised MS

Page 15745, lines 16-17: It might be useful to report equation 4 from Davies et al. (2008) - The equation is Moss and buried stem biomass = 407 + 171 $\times$ Mean M/L depth (cm). We will provide this in the revised MS

Page 15746, line 26: It is implied that Appendix II details the various transformations used for the fuel consumption data, but instead Appendix presents two figures of fuel load. Please clarify. - Appendix II provides dot plots which shows the distribution of individual estimates of surface and ground fuel load. The skewed distributions in the

plots were used as justification for the transformations. We will clarify this in the revised MS

Page 15747, line 24: DMC and DC are not defined in the main body of the text. - The DMC (Duff Moisture Code) and DC (Drought Code) are fuel moisture codes from the Canadian Fire Weather Index System. They relate, respectively, to the moisture content of duff (partly decomposed litter) and compacted deeper organic layers.

Page 15748, lines 19 – 20: Does this sentence only concern itself with ground fuel combustion completeness? If so update beginning of the sentence to “Ground fuel combustion completeness appeared - The sentence in question reads "Ground fuel consumption and combustion completeness..." We are referring to ground fuels in both cases. We will clarify this

Page 15748, line 24: BUI not defined in the main body of the text. BUI is the Buildup Index from the Canadian Fire Weather Index System it relates to the availability of ground fuels for consumption. We will clarify this in the revised MS

Page 15751, lines 4 – 5: Might be worth making the distinction that it is components of the FWI that are useful not necessarily the full FWI. - Agreed, we are particularly referring to the DC and DMC

Table 1: Could you add the duration of the fire or the date range? - Unfortunately we only have the date the fire was reported available.

Figure 4: Caption refers to colours and shapes of points ‘follows Fig 4’ – I assume you mean Figure 2? - The legend should state that colours and shapes follow Figure 3

Interactive comment on Biogeosciences Discuss., 12, 15737, 2015.