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Hydrology and Earth System Sciences
Discussions

Interactive comment on "Characterization of post-fire streamflow response across western US watersheds" *by* Samuel Saxe et al.

Anonymous Referee #3

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This manuscript describes a study that investigates the effects of wildfires on subsequent watershed flow regimes, focussed on hydroclimatic regions in the western United States. The study provides a summary of 82 watersheds affected by fire, and examines changes in post-fire streamflow characteristics. The authors have done an admirable job in pulling together the results and analysing them from a range of studies in a broad range of climate zones. The results of this confirm what has been discovered before in those studies.

I have provided my main comments and suggestions below, and have included an annotated pdf version of the manuscript with edits and additional comments. I feel this manuscript requires major revision before being suitable for publication in HESS.

While the subject matter and focus of this study is suitable for publication in HESS, I

think it requires major revision before this should occur. The major limitation is that, as comprehensive as the methodology and execution of this study may be, it really stops short of providing detail on the driving factors of the post-fire streamflow responses. My feeling is that this is really required for this publication to be considered suitable for HESS. The authors mention towards the end of the manuscript, that a separate publication will discuss the geophysical factors controlling the post-fire flow response. I feel such a discussion should be brought into this manuscript.

As a consequence, I found the discussion of results to be very light on. The results and discussion section is, by and large, focussed on results, with some light discussion of the results in terms of the analyses performed, and no discussion of how results relate to catchment or fire characteristics.

In many instances, the language is difficult to follow and too vague to know exactly what is being stated. For example, lines 12-13 in the abstract "Watersheds in Cluster 9 (eastern CA, western NV, OR) typically demonstrate a negative relative post-fire response, in that when scaling response to area burned, a slight negative response is observed in flow regimes".The reader is left wondering what cluster 9 is, international readers may not know what CA/NV/OR refer to, and what is a 'negative relative post-fire response'?

This vagueness and use of unfamiliar terms occurs throughout the manuscript, and makes following and understanding it very difficult.

Most figures are virtually impossible to read as they are very small and of low resolution. Furthermore, most charts do not have axes labels, and many have labels that are not intuitive for the reader. For example, figure 7 uses labels LF, HF, RO, Nzero, PF, BF, all with subscripts one, two and five. The reader must try to find where these are defined earlier on, and continue to refresh themselves of this, in order to have any chance of interpreting this chart. These labels/acronyms are then also used in the text describing this chart, making is very difficult to read and understand.

The text around whether responses are similar or different is sloppy in terms of whether differences are significantly different or not. The term ‘significant’ is, at other times, used inappropriately.

Please also note the supplement to this comment:
http://www.hydrol-earth-syst-sci-discuss.net/hess-2016-533/hess-2016-533-RC3-supplement.pdf

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