



Interactive
Comment

Interactive comment on “An assessment of fire occurrence regime and performance of Canadian fire weather index in south central Siberian boreal region” by T. Chu and X. Guo

Anonymous Referee #1

Received and published: 5 August 2014

This paper aims to investigate the basis and underlying relationships between large-scale reanalysis climate data based Canadian fire weather indices and Siberian fire regimes, in order to evaluate its potential use in south central Siberian fire environment. The authors use some indices to assess the fire risk and predict the fire activities in south central Siberian environment. The Canadian Fire Weather Index is most used in Canada, however, in this study it seems novel to investigate the relationship between fire weather index and fire activities in Siberian where environment conditions and fire regimes are quite different from that of Canada boreal forest. However, this study lacks any statistical analysis, a fact which is considered as a significant drawback especially

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taken to predict the fire activities. Thus, I recommend to conduct the validation and the accuracy analysis by using the previous fire remote sensing data in Siberian. Thus I think that this paper is unacceptable for publication in its current state, but the paper can be reconsidered is revised appropriately.

Comments and Questions: 1. Page 8 Line 26: Is there any references to support your description “This moisture codes is an indicator of the relative ease of ignition and flammability of the top litter layer less than 1-2 cm in depth with typical fuel loading of 5 t ha⁻¹”. 2. Page 9 Line1: Any references to support your description “The Duff Moisture Coad (DMC) is a numerical rating of the average moisture content of. . .” 3. The same with the previous two questions, some references are needed to support the authors’ description. 4. Page 9 Line 10: “It combines effect of wind and the FFMC to indicate the expected rate of fire spread.” It makes me confused: “the effect of wind” presents what, and the previous description of FFMC “The FFMC fuels are affected by air temperature, wind speed, relative humidity, and rain”, the FFMC is already affected by wind speed, why it cannot be used to indicate the rate of fire speed. And how to combine these two factors. 5. Page 9 Line 25: “All fire weather indices were calculated for 14 year time series over winters, except for the Drought Code (DC).” I can’t understand that all indices were calculated over winters. Most of the data indicated that few fires happened in winters because of the low temperature. 6. It is difficult for me to read and understand the Fig.5 and Fig.6 because I am not very familiar with wavelet analysis. Thus, the authors can explain these two figures more in details just for me if possible. 7. Page 15 Line 15: “The calculation of average phase angle at scales of 8-16 months indicated the time lag of 3 months between FWI and fire activity in the study area.” Why does this phenomenon exist? Was it affected by any factors? In my opinion, it has not any necessary relationship between each other. So the authors should provide more proof to support your description. 8. Page 15 Line 16: “other reasons” present “what reasons”. 9. Page 16 Line 20: “Artic Oscillation Index (AOI)” appears for the first time, thus the authors should give the definition of “AOI”. 10. Page 17 Line 17: “with higher their values”, what does the authors want to express? 11. Page 18

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Line 15: “data not shown”, why don’t the authors show the data? Maybe the authors should show the results to support your point. 12. Several sentences of the paper that confuse me must be revised. Page 18 Line 8: “This argument of the phase...” Page 19 Line 2: “The annual patterns...” 13. The authors use six indices to assess the fire risk, but it doesn’t present the expression of them. Thus, I recommend the authors to list the expressions (or formula) in a table.

Interactive comment on Nat. Hazards Earth Syst. Sci. Discuss., 2, 4711, 2014.

NHESD

2, C1764–C1766, 2014

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