

## ***Interactive comment on “Calibration and evaluation of the Canadian Forest Fire Weather Index (FWI) System for improved wildland fire danger rating in the UK” by M. C. De Jong et al.***

**P. Fernandes (Referee)**

pamfernand@gmail.com

Received and published: 6 December 2015

### General comments

In this manuscript the authors develop a spatially explicit FWI system climatology for the UK, expressed as percentiles, which is shown to have substantially higher skill than the approach currently in place. The ms. is clear and well written, and the findings are thoroughly discussed and well interpreted. The authors may consider two improvements: - The ms. is too long and I advise decreasing the extent of sections 2 and 6 (in this case there is unnecessary repetition of details previously presented); - A caveat of the approach that might be addressed in the Conclusion is that fire behaviour

C2505

characteristics (hence fire suppression difficulty and fire effects) will vary by vegetation type and often will be unrelated with the percentiles. The primary objective of fire danger rating (and the philosophy under which the FWI was designed) is that a single value of a given index in a specific vegetation type should represent the same fire behaviour potential to allow more objective preparedness, pre-suppression and suppression planning to take place. See Alexander (1994) for more on this (<http://www.fire.uni-freiburg.de/fwf/Proposed-Revision-Fire-Danger-Classes-New-Zealand.pdf>)

### Minor comments

P6999, line 20. Fire use for management purposes in the UK approaches more traditional practices than prescribed burning, i.e. the technical, planned and monitored use of fire. Advise elimination of “prescribed” from the sentence, here and elsewhere.

P7002, l1-2. Rephrase. Only fuels are flammable, not weather or topography.

P7002, l28. Be more precise. Not all of the indicated studies have actually related FWI codes with observed fire behaviour so you are probably referring to fire activity. In Europe the only study to do so was the one by Palheiro et al. 2006 (A fire behaviour-based fire danger classification for maritime pine stands: comparison of two approaches. *Forest Ecology and Management*, 234(S1): S54)

P7004, l22. Viegas et al. 1999 related the FWI with fire activity, not with fuel moisture or fire behaviour. Again, check Palheiro et al. 2006.

P7006, l1-2. Yes, because fire behaviour in shrub fuels is weakly, if at all, affected by live fuel moisture (doi:10.1071/WF14130) and dead fuels large enough to respond to drought are mostly nonexistent.

P7022, l 16-18. Perhaps fire sizes in the UK are not large enough to reveal such influences, but high values of the DMC, BUI and DC will increase landscape-level fuel connectivity, because under those circumstances vegetation types and topographic positions that normally act as fuel breaks will be dry enough to burn.

C2506

Figure 5. Wind speed clearly made the difference for this fire as shown by the ISI vs the FFMFC.

---

Interactive comment on Nat. Hazards Earth Syst. Sci. Discuss., 3, 6997, 2015.

C2507