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Natural Hazards and Earth System Sciences
Discussions

Interactive comment on "Brief Communication: Differences between Sundowner and Santa Ana wind regimes in the Santa Ynez Mountains, California" *by* Benjamin J. Hatchett et al.

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A.. General 1. This manuscript is a nice, crisp presentation of the soundowner and the Santa Ana. The differences between them are clear and convincing. The figues are very well done, informative and attractive. 2. I would like to see added the mean 500 hPa and mean sea level pressure for both winter and summer. I need to compare with the individual sundowner mean with the seasonal mean of all events and same for the Santa Ana. The result should be that the sundowner, the Santa Ana and the seasonl mean have standout differences that appear significant. The Sundowner + Santa Ana for a season is not as effective for me and is rather like taking the mean of olives and

oranges with the final result being dominated by the heavy which is not as useful. 3. While the sundowner and santa Ana means look significant, it would be good if there was a way to say so other than just by eye. However, I am not sure how this might be done.

B. Specific Comments: 1. Page 3, Lines 7-8. " The hourly SAW index used for comparison against our Sundowner climatology was developed for southern California by Guzman-Morales et al. (2016) using output from a dynamically downscaled regional climate model." More should be given on this index so that the reader understands what variables Guzman-Morales et al. (2016) used and how they are applied. This way the reader does not have to go to the referece to dig out this key aspect. Briefly elaborate how this index was actually applied for this manuscript as has been done for Sundowners (starting page 2, line 27, ending page 3, line5).

2.. Page 3, line 23, cite a reference for the August-Roche-Magnus approximation

3.. Page 4, Lines 24-29: "The similarity in 500 hPa geopotential height patterns between the two SAW regimes supports the hypothesis that coinciding SAW and Sundowner events are dynamically linked. This linkage likely results from the large-scale thermal gradient and momentum fluxes resulting from the amplified ridging that produces broad offshore flow and downslope warming throughout southern California (Hughes and Hall 2010). The lack of highly amplified flow during Sundowner-only events suggests that these events are synoptically distinct from the conditions characterizing SAWs." Comment: I am not sure of the intent here. This text seems to be conflicting.

4.. Page 5, Lines 27-29 "We postulate that for the Santa Ynez region, similar findings would occur for Sundowner events as Peterson et al. (2011) found for SAW events, i.e., Sundowner intensity should also explain variance in modeled fire size and likely fire growth rate given broad similarity in fuels, terrain, and climate. " Comment: This sentence seems a litte awkward and might be rewitten.

5. Page 11, Suggest adding the mean 500 hPa and sea level pressure mean charts for both seasons as note in the preceeding General.

6. Page 11, Fig. 3a. ”Soundowner Only: Winter” Comment: ”Winter” should be Mar-Jun

7. Page 11, Fig. 3a-f. Comment: Dashed lines are rather faint, hard to see. Suggest that they be made more bold.

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