Interactive comment on "Weather, snow, and streamflow data from four western juniper-dominated experimental catchments in southwestern Idaho, USA" *by* Patrick R. Kormos et al.

Anonymous Referee #1

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General comments: Authors are to be commended for submitting a polished manuscript. The data set is comprehensive and can be used to study mountain hydrology in semi-arid catchments. The data may be used to drive physics-based snow or/and hydrology models. However, before the manuscript can be accepted in as is form, authors are encouraged to address the following comments:

Specific comments:

– The https link in abstract does not take me to the data. One has to search for the relevant data on nal.usda.gov. I wonder if this can corrected. However, the doi link

worked just fine.

– My experiences with accessing the data set: * When i clicked "readme" file, it showed "The requested URL "/system/files/readme_2.txt" was not found on this server.". Please correct it. * The "measurement location coordinates" link showed me 10 locations. Are these for the snow course observations. Explanation of the data is missing.

– In the "Introduction" section, it is noted that western Juniper is encroaching into the sagebrush-dominated landscape in the interior Great Basin region, and the presented data will facilitate the study of the impacts of Juniper encroachment on ecohydrology. It is not clear if any of the discussed catchments present a base case with zero to minimal encroachment. If there is such a watershed, please identify it. If not, authors are encouraged to highlight sites that are "juniper influenced" vs. "sage influenced" that may allow understanding the effects of juniper encroachment. Alternatively, sufficient explanations should be provided on how the data sets may be used to study the impacts of juniper encroachment.

– P3,L31 and P4,L1: "Precipitation phase was computed using methods described by Marks et al., (2013)". Marks et al. compared 4 methods for estimating precipitation phase. I did not see the phase data from all four methods. If evaluation of the phase was done based on a certain method (e.g. dew-point temperature method) only, clearly state so.

– P3, L21: It is noted that wind direction time series was not filled, while other data sets were. Please add a short statement explaining why wind direction wasn't/can't be filled.

– P3, L29: The WMO protocol used in Dingman's book should be properly referenced by providing the page number. Otherwise, it is difficult to cross-check.

– P5, L7: Please provide more information on the thresholds or methods used to determine "excessively noisy data".

– P6, L7: The ftp://ftp.nwrc.ars.usda.gov/publicdatabase/ is very slow. Also, I did not see any "additional" data of south mountain on this website as has been claimed. If there is some, why has that been not added to the NAL website. The FTP site also does not appear to have the details of data. I suggest removing this link. It is also not clear why Reynolds Creek watershed is mentioned here.

– While the presented data set is rich, considering that it is designed to be used for snow and hydrologic modeling, there are some important variables that are missing. For example, most radiation or snow interception/melt/accumulation models use LAI or shape of vegetation (e.g. cylindrical canopy with given minimum/maximum height and diameter at certain height) as inputs. Given the LiDAR data, can the aforementioned variables (LAI or canopy shape) be generated/provided. The would significantly improve the usability of this data by snow and hydrology modeling. Kormos et al. (2016, RE&M) have used the presented data sets for modeling, but it is not clear how the LAI was derived.

Another important data that is often required by snow and hydrology modelers for validation is SWE. It appears that SWE is only available few times during the water year. A line or two highlighting this limitation and how the presented data set may still be used for validation, should be included in the text. If there is any data of soil properties from the catchments, authors are encouraged to include those in the data set.

– Some discussion of the juniper removal plan and which watersheds they are being implemented in, should be included in the summary. This will allow readers to identify watersheds of interests where one can study the impacts of juniper removal.

Minor concerns:

– P1,L19: Consider revising "which affect wildlife habitat" to "which in turn also affects the wildlife habitat". Provide a reference or two regarding the affects on wildlife habitat.

– P2,L1: "there are limited datasets available to quantify the impact on larger scales

through modeling". Provide references for "limited datasets" if there are any. Also, it is not clear if the previously published data sets are at points or at plot scales. That will give the reader some idea of what is meant by "larger scales" here. Is it the watershed scale or an area larger than a certain threshold.

– P2,L28: "A snow courses is" should be revised to "A snow course is"