

Anonymous referee #2

I thank the authors for their concerted effort to address many of the points raised in my (admittedly) lengthy first review. I put in a considerable amount of time and energy into my review because I think this study is an important contribution to the literature and is a first glimpse of what the DOE's SCREAM model (combined with RRM) can provide in the climate impacts space. I look forward to reading more SCREAM-RRM-based climate impact studies in the coming years.

Thank you so much for such swift feedback, and thank you again for your careful reading, insightful suggestions, and thorough review! We have modified the manuscript according to your nice suggestions.

I have a few minor revision requests and would advise the editor to accept the manuscript pending these changes:

Line 470 - Change "older female adults" to "older populations that work in agriculture"

Changed.

Line 474 - Change "Tahoe City (one of the coldest city over High Sierra)" to "Tahoe City (a city representative of the High Sierra)"

Changed.

Line 505 - Change "an increase of precipitation more than 30% of annual total precipitation..." to "annual total precipitation is projected to increase by 30% in the northern, ..."

Changed.

Line 544 - Change "MCS-like" to "mesoscale convective system-like" (MCS was never defined up to this point)

Changed.

Line 581 - Change "agriculture and energy supplies for electricity" to "agriculture yields and energy supplies"

Changed.

Figure 15g - what is the random "orange blob" on the 0mm SWE line and left of the JJA x-axis label? Please check other plots throughout the manuscript for random artifacts.

Good catch! It's related to the processing of SNOTEL records— there are several missing values separated by two consecutive commas that were incorrectly skipped during processing. This bug has been fixed.

Besides, I found that the temperature records of "-60.3 F" seem to be invalid (please see the records from 1990-09-01 to 1990-09-06 at Tahoe City Cross pasted below, columns 4-6 are daily maximum/minimum/average temperatures). It makes no sense for such low temperatures and such large jumps. I didn't find any documentation for the -60.3 values, so I just set the corresponding records to missing values. After this change, the standard deviation of the temperatures is more consistent over the year.

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SNOTEL809_TahoeCityCross.6797ft.39.17162_-120.15362.1980-2024.csv
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...
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```
1990-09-01,0.0,25.2,37.8,-3.5,15.6,0.0
```

```
1990-09-02,0.0,25.2,39.4,-6.7,14.2,0.0
```

```
1990-09-03,0.0,25.2,32.2,-60.3,13.8,0.0
```

```
1990-09-04,0.0,25.2,, -60.3,-60.3,0.0
```

```
1990-09-05,0.0,25.2,, -60.3,-60.3,0.0
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```
1990-09-06,0.0,25.2,, -60.3,-60.3,0.0
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...
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I also forgot to mention the quality control for GHCN in the last revision. Only values with an empty QFLAG field were kept, which means they passed all quality assurance checks. Figure [\ref{OBS-SNOTEL-PRISMUA-SP-dayline}](#) has been updated, and the description of the quality control for SNOTEL and GHCN has been added:

"Only values with an empty QFLAG field are kept in GHCN records, meaning they pass all quality assurance checks. The temperatures of -60.3 F in SNOTEL records seem to be invalid and are set to missing."

Line 660 and Figure 17 - "Note here that we cannot add observation-based gridded

products...PRISM does not provide daily products for the full spatial distribution" A quick search on the PRISM homepage (<https://prism.oregonstate.edu/downloads/>) shows that this is not true as you can see that they provide PRISM daily fields in a publicly accessible FTP location - <https://ftp.prism.oregonstate.edu/>

Thank you for pointing to the FTP page! Added the statewide 30-day mean precipitation for PRISM from 1989 to 2020 to this figure. Text has been updated:

“Considering the wet bias of CARRM as shown in Fig. \ref{boxRun30d-CA-PRECT} and Fig. \ref{compOBS1-PRECT-SNOWHLND}), the 14 mm/d statewide precipitation may underestimate the intensity of ARkStorm events. “

Line 683 - "...primarily due to larger amounts of precipitation falling from stronger rather than more frequent moisture belts hitting California..." Moisture belt or moisture surge? If you change to moisture surge, be sure to change everywhere else in the text too.

Thanks for the suggestion. All “moisture belt” has been changed to “moisture surge”.

Line 747 - make sure that the citation formatting is correct throughout the manuscript. For example, in this sentence Huang et al. (2020) should not be in parentheses like this (Huang et al., 2020).

We have corrected this one and several other citations.