Response to Reviewers:

Thanks for taking the time to (re)review our manuscript, we believe everything requested has been addressed.

Mel & Mark.

Reviewer 1:

The writing should be further improved and the data should be double checked.
Data have been double checked via a second download from ERA5-land and are correct. Please see tracked-changes for specific text-related improvements.

Reviewer 2:

I appreciate the efforts the authors have made to address all my concerns. The manuscript now seems clearer and more reasonable to me. After addressing a few minor issues as listed below, this paper can be accepted for publication.

(1) Since the spatial correlation issue has not been addressed in the SMW model, I suggest removing the term "watershed-scale weather model" from the Abstract and elsewhere in the paper.
Done.

(2) caption of Fig.1: Change "Read/Process ERA5 data" to "Read/Process ERA5-land data".
Done.

(3) Please add at least one sentence to introduce the input ERA5-land data, including its spatial resolution (0.1°), time span, and the official download link.
Done. Sentence included at lines 39/40 and reads: *"Spatial resolution is 0.1°, and data are available from January 1950, at https://cds.climate.copernicus.eu/cdsapp#!/dataset/reanalysis-era5-land "*

(4) Lines 49-51 (in the changes-tracked version): Since the authors mentioned the example of "20 datasets for 10 years of data starting from April 30th," should the following sentence be: "...the starting block of wet or dry is randomly selected (constrained by the starting date)" as April 30th, rather than "starting month"? Then, what is the "starting date" for your working example in Section 3? Please explain in Section 3 and add this detail.
Thanks, these clarifications have been added in - see lines 48 to 50 for method description update, and 68 for example application clarification.

(5) Given that the wet-dry threshold is nonzero (less than one mm of rainfall in 24 hours = 4.12 x 10^-5 m/hr; in Section 3), I think the wet threshold used for calculating the portion of wet periods should also not be 0 m? (the lower-right panel of Supplementary Figure 5).
Agreed, this was how the plots were produced, but as there was no discernible difference in results between > 0 m and > (1/24)/1000 m, we used > 0m as it looked cleaner. Figure captions now altered to include this detail.