

HESS Editorial Team,

Thank you to the reviewers for the excellent feedback and opportunity to improve our manuscript. We have accepted and responded to all referee comments (RC1 and RC2).

In regard to RC1's general feedback, we have bolstered the background with additional literature on hydrology and stream classification of flashy and ephemeral streams (revised revised lines 36-38; 100-101). We have also included additional language highlighting flashy and ephemeral streams (revised lines 16-17; 18; 45). We more clearly articulated differences between modeling general hydrology and modeling environmental flows (revised lines 81-83). We clarify "best current practices" (revised line 105). Additionally, we strengthened the background and discussion related to hydrologic model error and uncertainty (revised lines 196-198; 415-416).

For specific RC1 comments, we have corrected our interpretation of Lane et al. (2017) (revised lines 60-61). We changed "separate" to "separation" (revised line 65). We defined all acronyms prior to using (revised line 39, 45, 58, etc.). We substantially changed Figure 1 to eliminate county delineations, added the cities of Santa Barbara, Los Angeles, and San Diego, and changed the inset to show the western US. We specified "daily average streamflow" (revised line 161). We rewrote the final paragraph in Section 2.2.1 to provide more detail about methods and scripts for stream classification (revised lines 165-171). We also removed mention of specific R packages from the main text. The following paragraph in Section 2.2.2 was rewritten to provide further discussion of how highly correlated metrics were removed and to remove mention of specific R packages (revised lines 175-178). We removed mention of specific R packages from the following paragraph in Section 2.2.3 (revised line 183). Figure 2 was completely redeveloped into a more intuitive flowchart to provide a better visual tool for understanding this complex process. Finally, we reworded the reporting of our results to clarify model calibration was accurate, not "successful" (revised lines 336-337).

We addressed RC2's general feedback by augmenting our background literature related to ungaged catchments (revised lines 91-93; 94-96). For specific RC2 comments, we clarified "singular streamflow metrics" (revised line 76) and "network of models" (revised lines 85-86). We added transferring hydrologic index (revised line 87). We specified that we used "conceptual" models and not just process-based (revised line 76-77; 415-416). We ensured all equations use proper mathematical notation required by HESS. We provided more detail on why we chose 1 cfs as the threshold for a dry stream (revised line 155). We enhanced our description of "weighted classical (metric) multidimensional scaling (revised lines 166-167) and clustering indices (revised lines 168-169). We clarified our statement that "calibrated parameters inherently have greater uncertainty than directly calculated parameters" (revised lines 196-198). We also clarified "reciprocating model accuracy" (revised lines 193-194). We completely redeveloped Figure 2, which was also requested by RC1. We clarified "successful" model calibration (revised lines 336-337), which was also requested by RC1. Finally, we added DOIs to citations.