

## SUPPLEMENTAL MATERIALS

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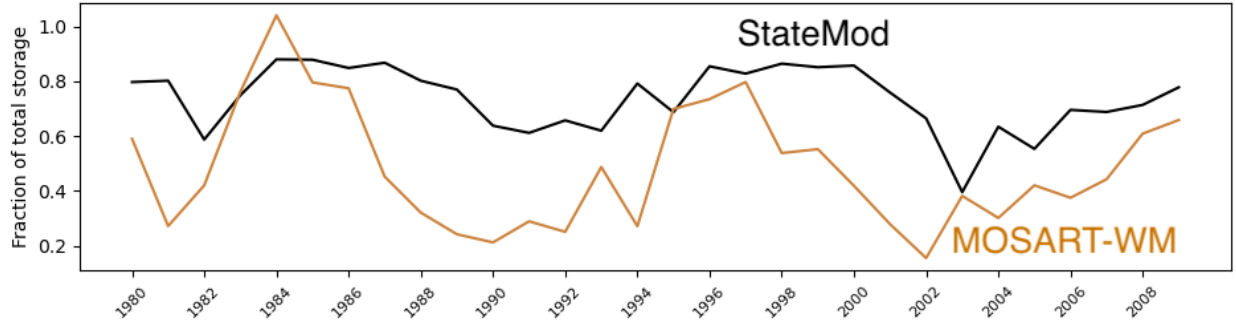
# Exploring the Consistency of Water Scarcity Inferences between Large-Scale Hydrologic and Node-Based Water System Model Representations of the Upper Colorado River Basin

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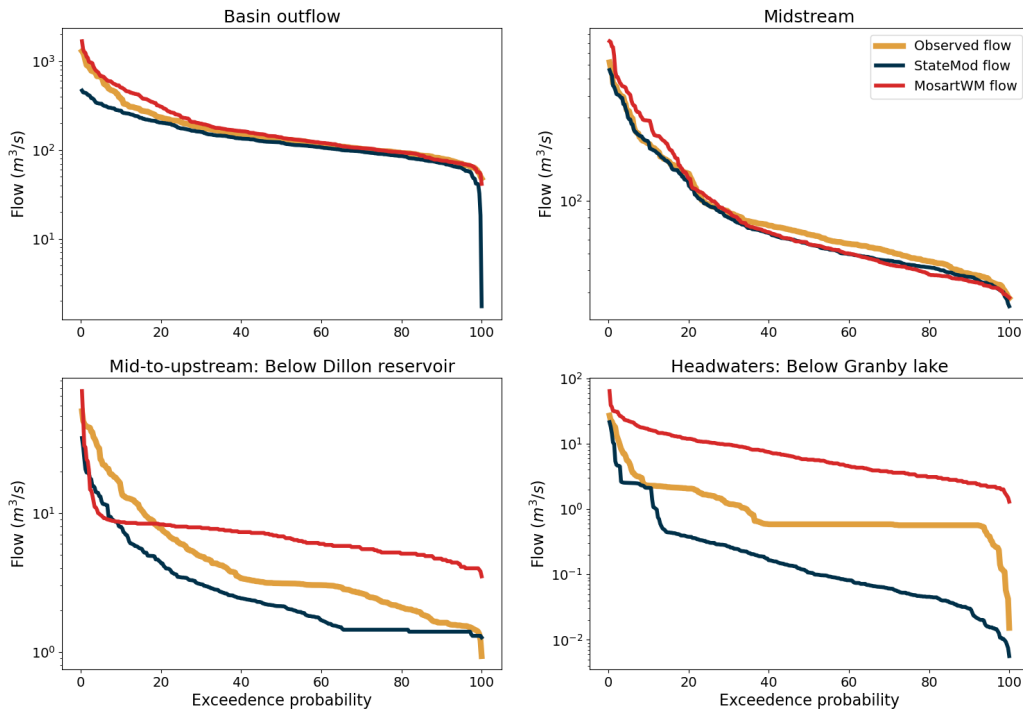
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**Fig. S1.** Fraction of end-of-year storage across all reservoirs in the basin. All instances of MOSART-WM (GCAM-, USGS-, and StateMod-informed) have the same storage values since most of the represented demand is downstream of the reservoirs and reservoir operations are essentially driven by monthly inflow climatology. In StateMod and with Colorado State institutional structure, reservoir storage is specifically managed to meet the demand. The December storage values denote the differences in drivers of reservoir operations between the StateMod and MOSART-WM models. This figure presents the same results as Fig. 4(c) in the main text, but with the fraction of reservoir storage in each model instead of their absolute volumes.



**Fig. S2.** Flow duration curves of monthly streamflow levels at four gauges in the basin for the period of 1980-2009. The four gauge locations are the following: (a) basin outlet, near the Colorado-Utah state line (USGS gauge 9163500); (b) midstream of the Colorado River below Glenwood Springs, CO (USGS gauge 9085100); (c) on the Blue River tributary below the Dillon reservoir (USGS gauge 9050700); and (d) at the headwaters of the Colorado River near Granby, CO (USGS gauge 9019500). All USGS gauges are indicated in Fig. 1 in the main text. The respective time series of these data are shown in Fig. 5 in the main text.