Figure S1. *Snow water equivalent (SWE) comparison at CDWR stations in the Sacramento River Basin as represented in study area figure (Fig. 1). Monthly mean of control and dynamic vegetation modeled SWE with NLDAS-2 (solid lines) and AORC (dotted lines) forcing are plotted against the gridded observation (UA-SWE, SNODAS and NWM 3.0), and CDWR station (solid black line).*
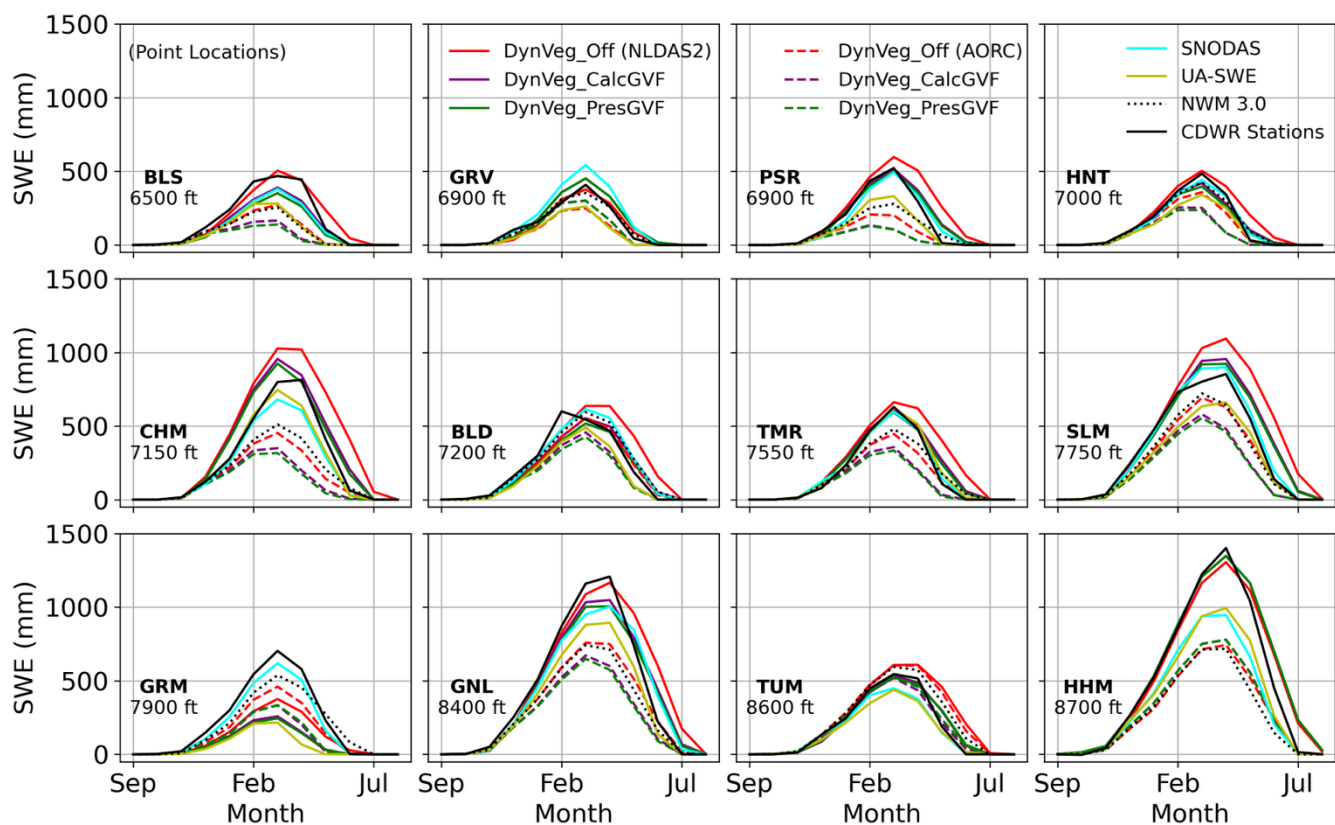
Figure S2. *Snow water equivalent (SWE) comparison at CDWR stations in the San Joaquin River Basin as represented in study area figure (Fig. 1). Monthly mean of control and dynamic vegetation modeled SWE with NLDAS-2 (solid lines) and AORC (dotted lines) forcing are plotted against the gridded observation (UA-SWE, SNODAS and NWM 3.0), and CDWR station (solid black line).*
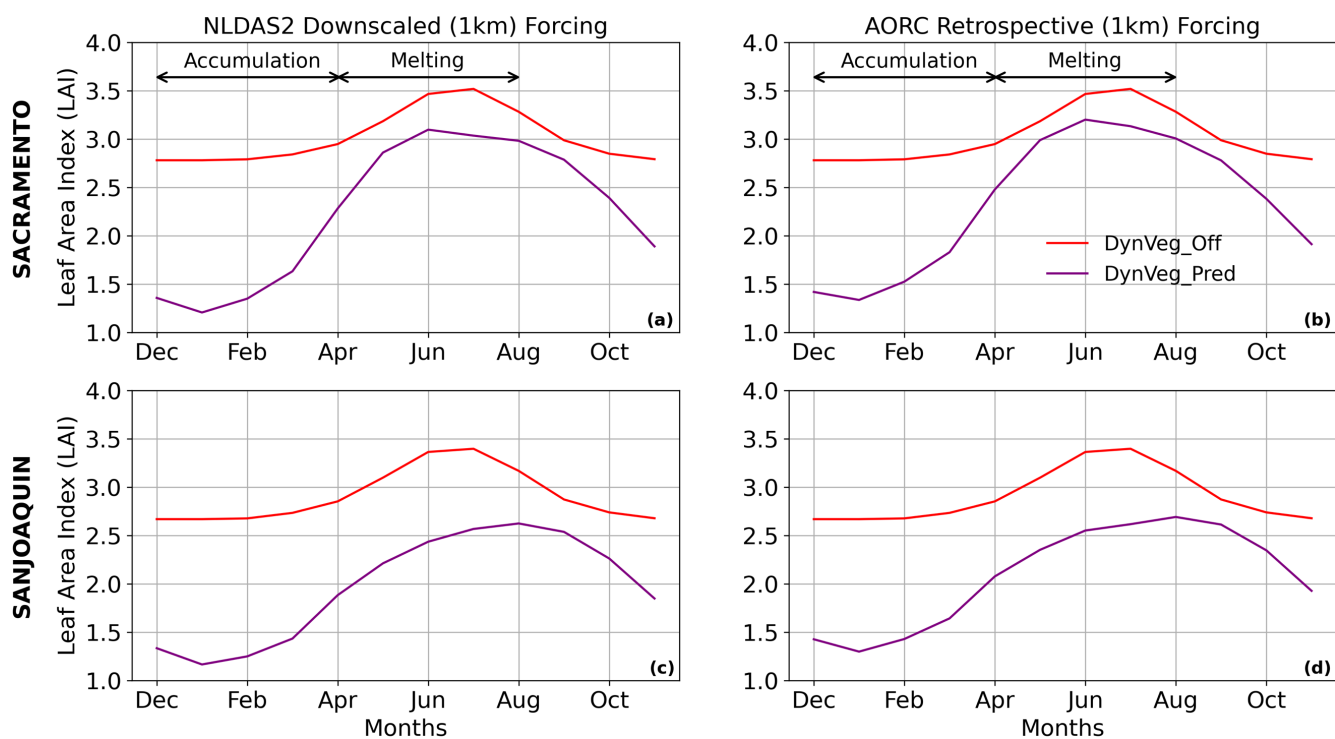
Figure S3. *Leaf area index (LAI) using different atmospheric forcing data (left panels: NLDAS-2; right panels: AORC) under prescribed vegetation (DynVeg_Off) and dynamic vegetation (DynVeg_Pred) in the Sacramento (upper two panels) and San Joaquin (lower two panels) River Basins. A SWE threshold of 0.1 mm/day has been applied to mask the region.*
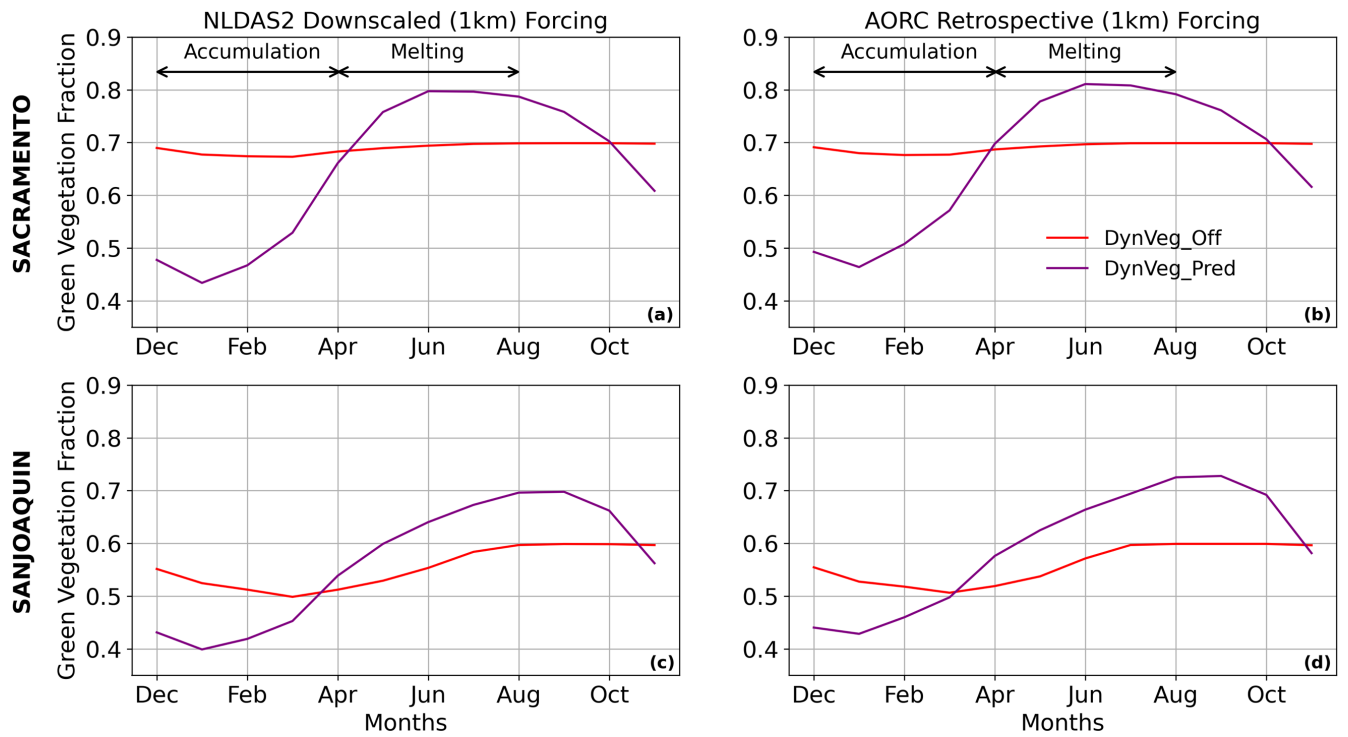
Figure S4. *Green vegetation fraction (GVF) using different atmospheric forcing data (left panels: NLDAS-2; right panels: AORC) under prescribed vegetation (DynVeg_Off) and dynamic vegetation (DynVeg_Pred) in the Sacramento (upper two panels) and San Joaquin (lower two panels) River Basins. A SWE threshold of 0.1 mm/day has been applied to mask the region.*
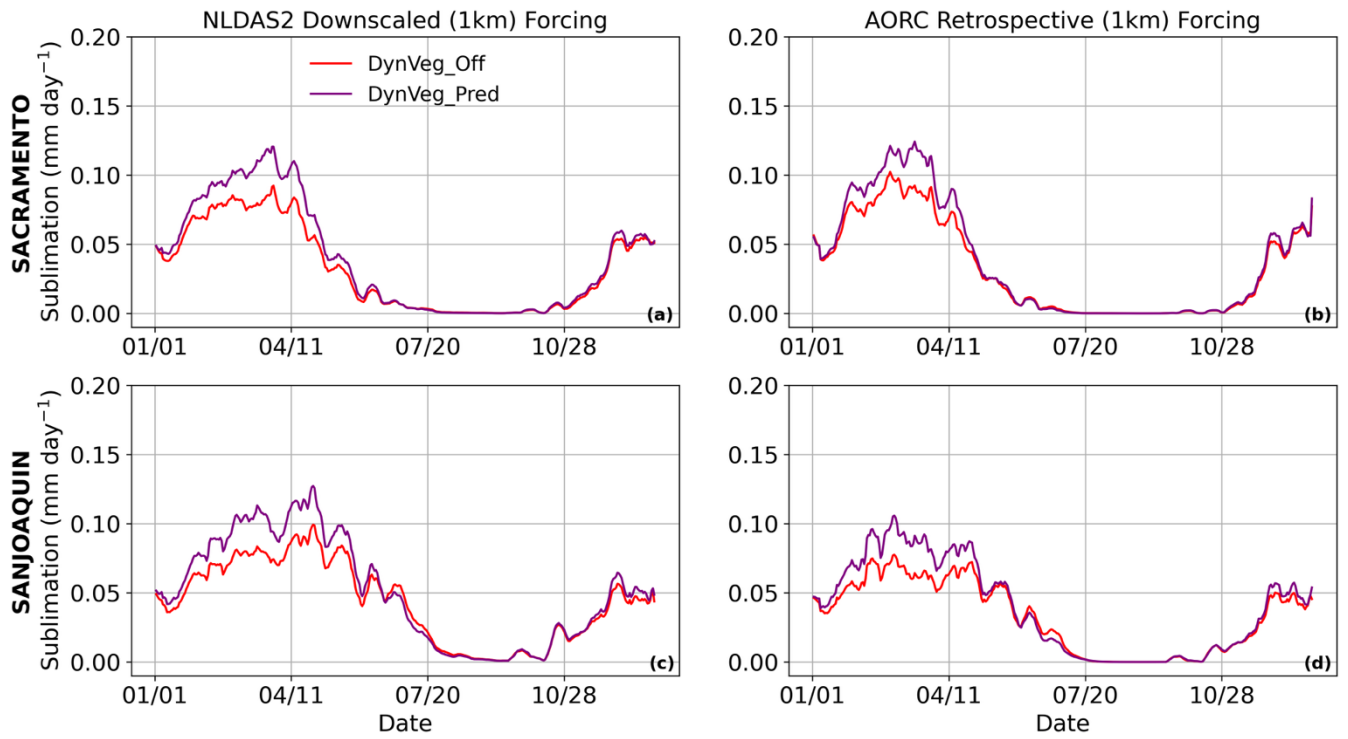
Figure S5. *Snow sublimation rate using different atmospheric forcing data (left panels: NLDAS-2; right panels: AORC) under prescribed vegetation (DynVeg_Off) and dynamic vegetation (DynVeg_Pred) in the Sacramento (upper two panels) and San Joaquin (lower two panels) River Basins. A SWE threshold of 0.1 mm/day has been applied to mask the region.*