

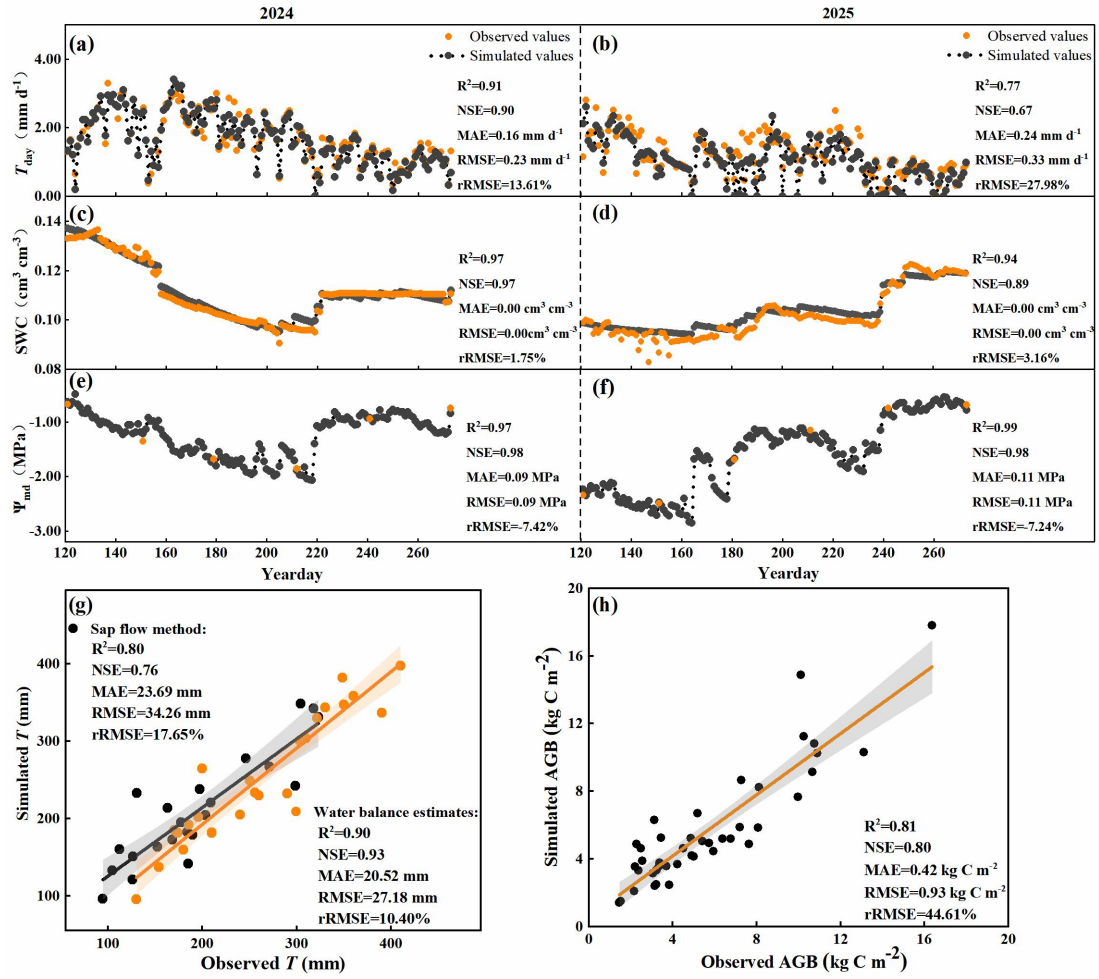


Figure 2. Comparison of simulated and observed values of daily transpiration (T_{day}), average soil water content (SWC) in the 0–500 cm soil profile, midday leaf water potential (Ψ_{md}), growing-season transpiration (T), and aboveground biomass (AGB) in *Pinus tabuliformis* Carrière plantations. (a), (c), and (e) show the calibration results (2024), while (b), (d), and (f) show the validation results (2025) for T_{day} , SWC, and Ψ_{md} , respectively. (g) shows the validation of growing-season transpiration (T) across multiple sites, with black and orange points representing observations obtained from the sap flow method and water balance estimates, respectively. (h) shows the validation of aboveground biomass (AGB).

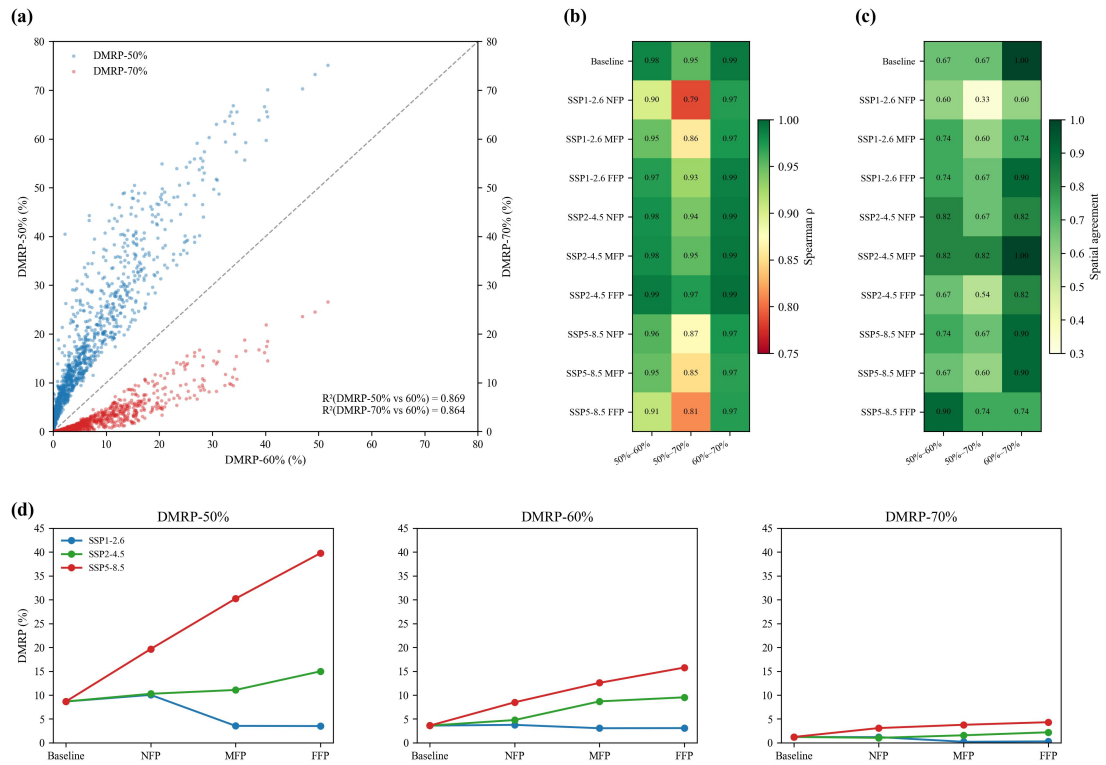


Figure S3. Sensitivity of drought-induced mortality risk (DMRP) to the choice of the hydraulic mortality threshold (50%, 60%, and 70%). (a) Comparison of DMRP values among hydraulic mortality thresholds ($n = 1300$ data points; blue points, left axis: DMRP-50% vs. DMRP-60%; red points, right axis: DMRP-70% vs. DMRP-60%; dashed line indicates the 1:1 reference). (b) Spearman rank correlation coefficients of site-level DMRP between thresholds for each period. (c) Spatial agreement of the top-20 highest-risk sites identified under different hydraulic mortality thresholds. (d) Temporal changes of DMRP-50%, -60%, and -70%. Baseline, NFP, MFP, and FFP are the same as defined in Fig. 5.