Supplement of

Ozone dry deposition through plant stomata: Multi-model comparison with flux observations and the role of water stress as part of AQMEII4 Activity 2

Khan et al.

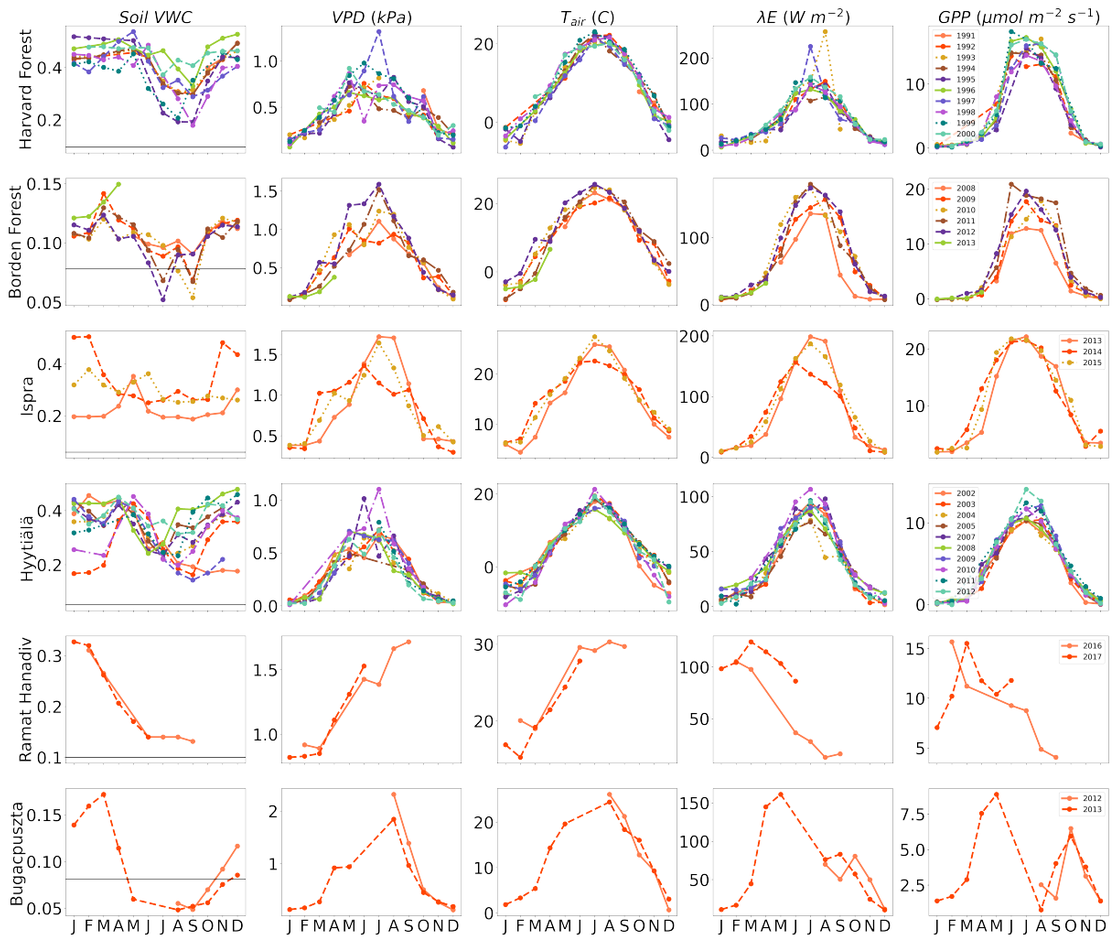

Figure S1: Monthly averages of soil volumetric water content ($Soil\ VWC$), air vapor pressure deficit at measurement height (VPD), air temperature (T_{air}), latent heat flux (λE), and gross primary productivity (GPP) at flux tower sites used in the study. Rows are labeled by site and columns are labeled by the variable plotted on the y-axis. The horizontal gray line in column 1 marks the wilting point for soil moisture that was set for the site in single-point model base simulations. Details about site observations are listed in Table 1. Months without dots do not have available data.

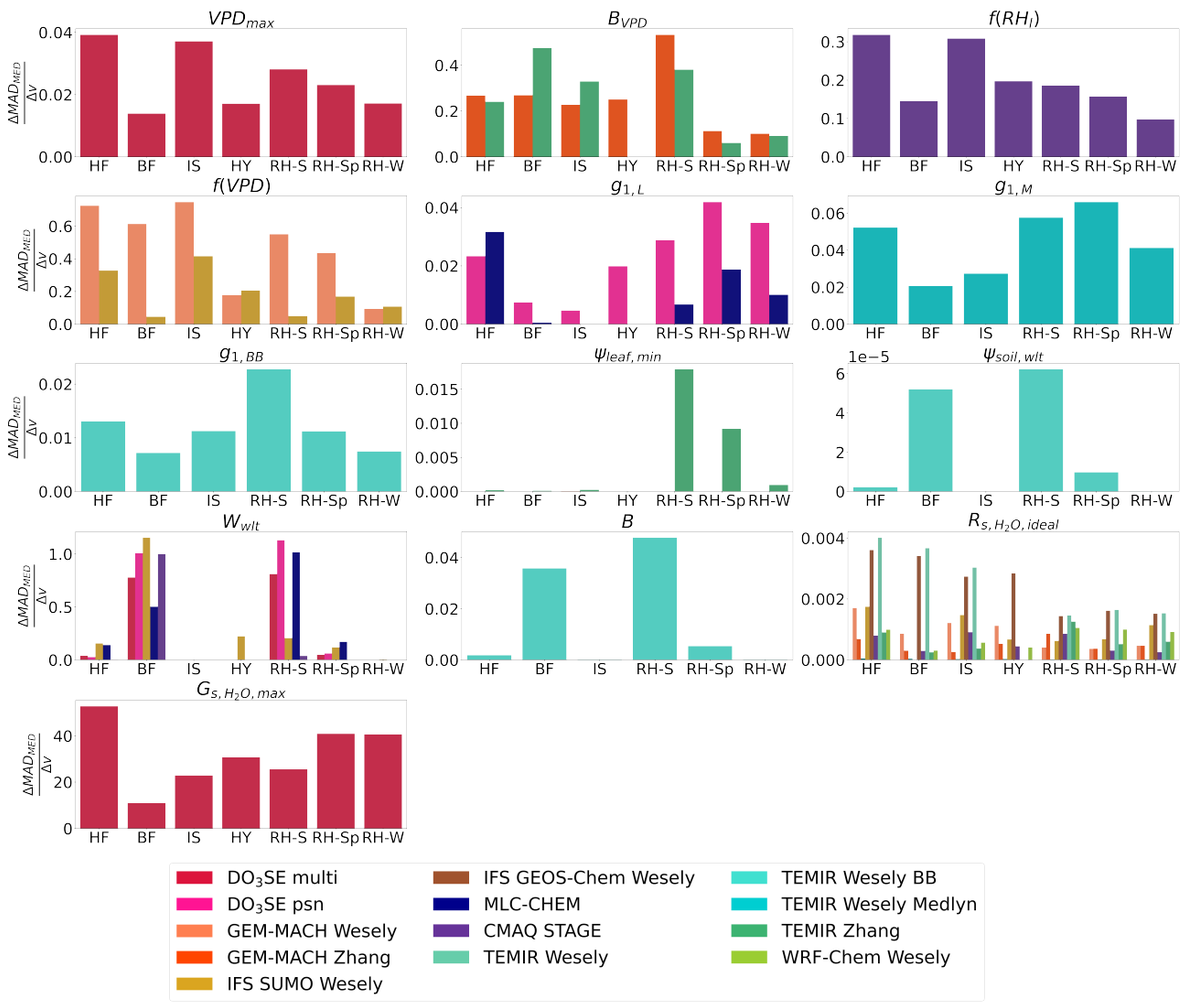

Figure S2: Comparisons of the change in median absolute difference between single point modeled eg_s and flux-based $eg_{s,MED}$ (ΔMAD_{MED}) with change in a parameter or stress function value (Δv) for each parameter and stress function at each site. For each model-parameter pair or model-stress function pair, one summer $\frac{\Delta MAD_{MED}}{\Delta v}$ was calculated for Harvard Forest (HF), Borden Forest (BF), Ispra, (IS), and Hyytiälä (HY), and three $\frac{\Delta MAD_{MED}}{\Delta v}$ were calculated for Ramat Hanadiv: winter (RH-W), spring (RH-Sp), and summer (RH-S). MAD_{MED} was calculated using daytime (half-) hourly estimates of eg_s.

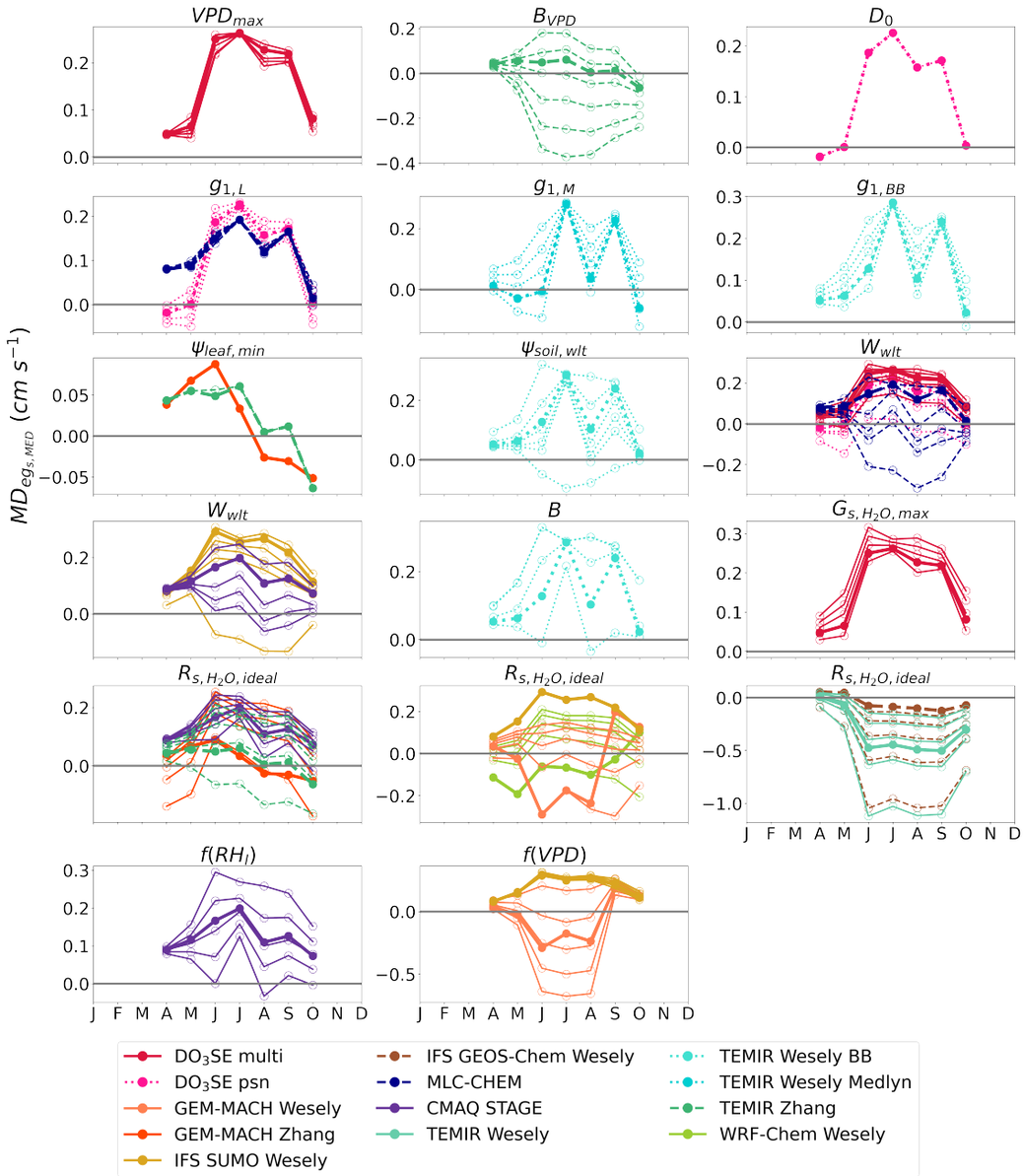

Figure S3: The 2011 and 2012 multiyear monthly median difference between single-point modeled eg_s and observed flux-based $eg_{s,MED}$ ($MD_{eg_{s,MED}}$) at Borden Forest for base and sensitivity simulations of single-point models. Sensitivity simulations perturbed the values of each parameter and stress function. Lines with filled dots show the $MD_{eg_{s,MED}}$ for base simulations of single-point models. Lines with open dots show the $MD_{eg_{s,MED}}$ for each parameter or stress function perturbation where each line represents one perturbation. Table 2 lists the interpretation of the parameters, stress functions, and the values used for sensitivity simulations. W_{wlt} and $R_{s,H_2O,ideal}$ are shared among many models, and they are displayed in multiple plots to avoid plotting many model results in a single plot.

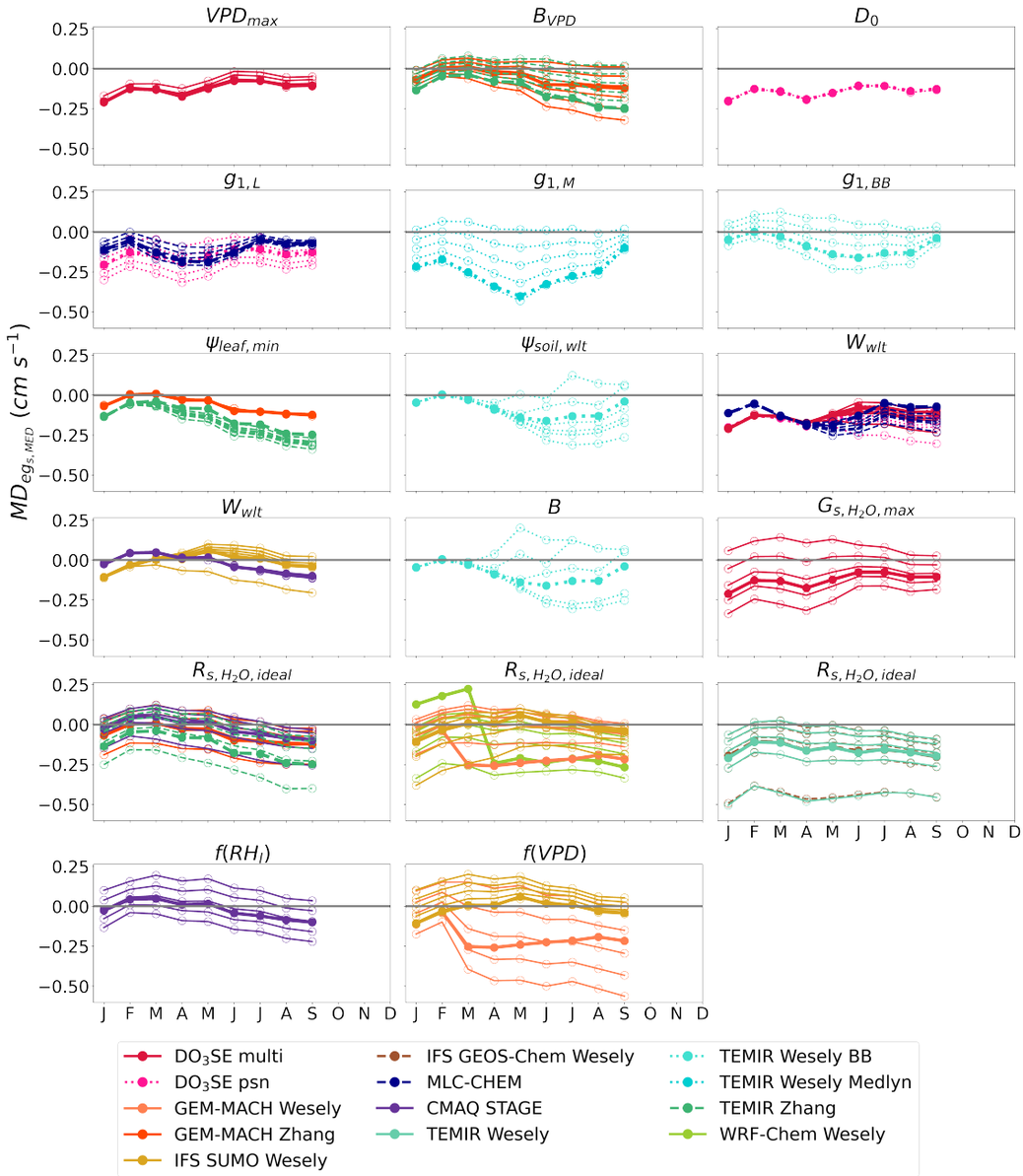

Figure S4: Monthly median difference between single-point modeled eg_s and observed flux-based $eg_{s,MED}$ ($MD_{eg_{s,MED}}$) at Ramat Hanadiv for base and sensitivity simulations of single-point models. Some months have multiple years of data. Sensitivity simulations perturbed the values of each parameter and stress function. Lines with filled dots show the $MD_{eg_{s,MED}}$ for base simulations of single-point models. Lines with open dots show the $MD_{eg_{s,MED}}$ for each parameter or stress function perturbation where each line represents one perturbation. Table 2 lists the interpretation of the parameters, stress functions, and the values used for sensitivity simulations. W_{wlt} and $R_{s,H_2O,ideal}$ are shared among many models, and they are displayed in multiple plots to avoid plotting many model results in a single plot.