Supplemental information for:

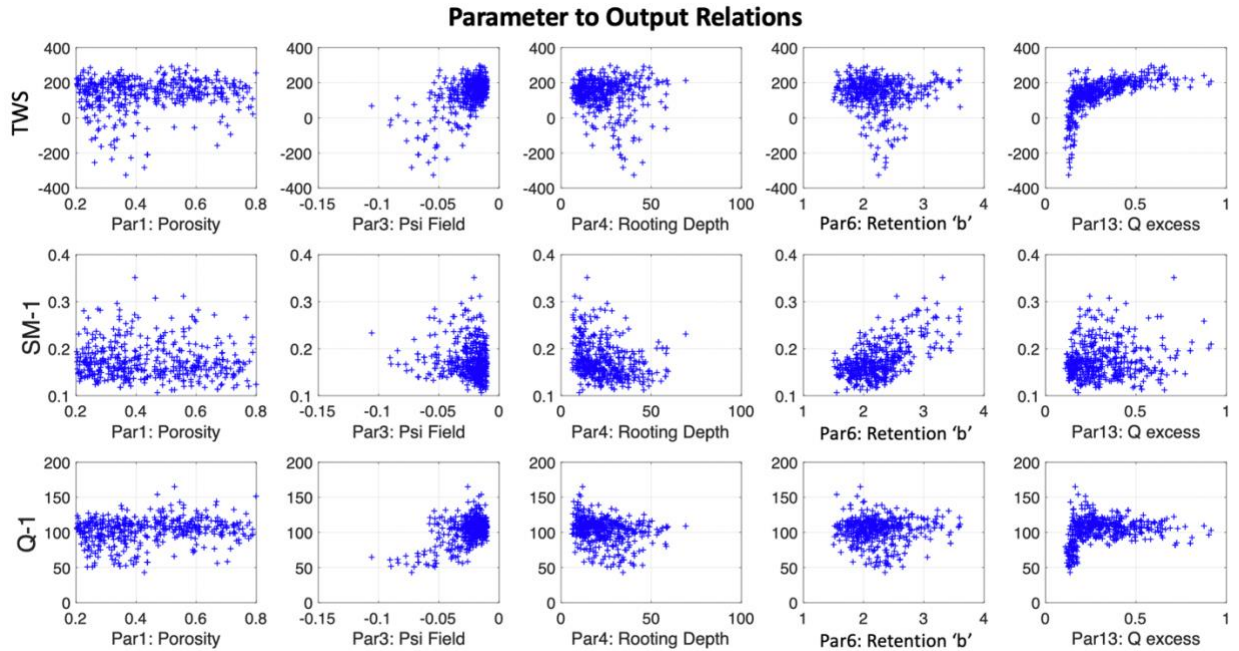**Information content of soil hydrology in the Amazon as informed by GRACE**

Figure S1: Scatter plots showing correlation of the posterior parameter values with corresponding model simulated values for Terrestrial Water Storage (TWS), soil moisture (SM-1), and discharge (Q-1). These plots portray the relationship and correlation between select estimated parameters and simulated model processes of interest as inferred by GRACE.
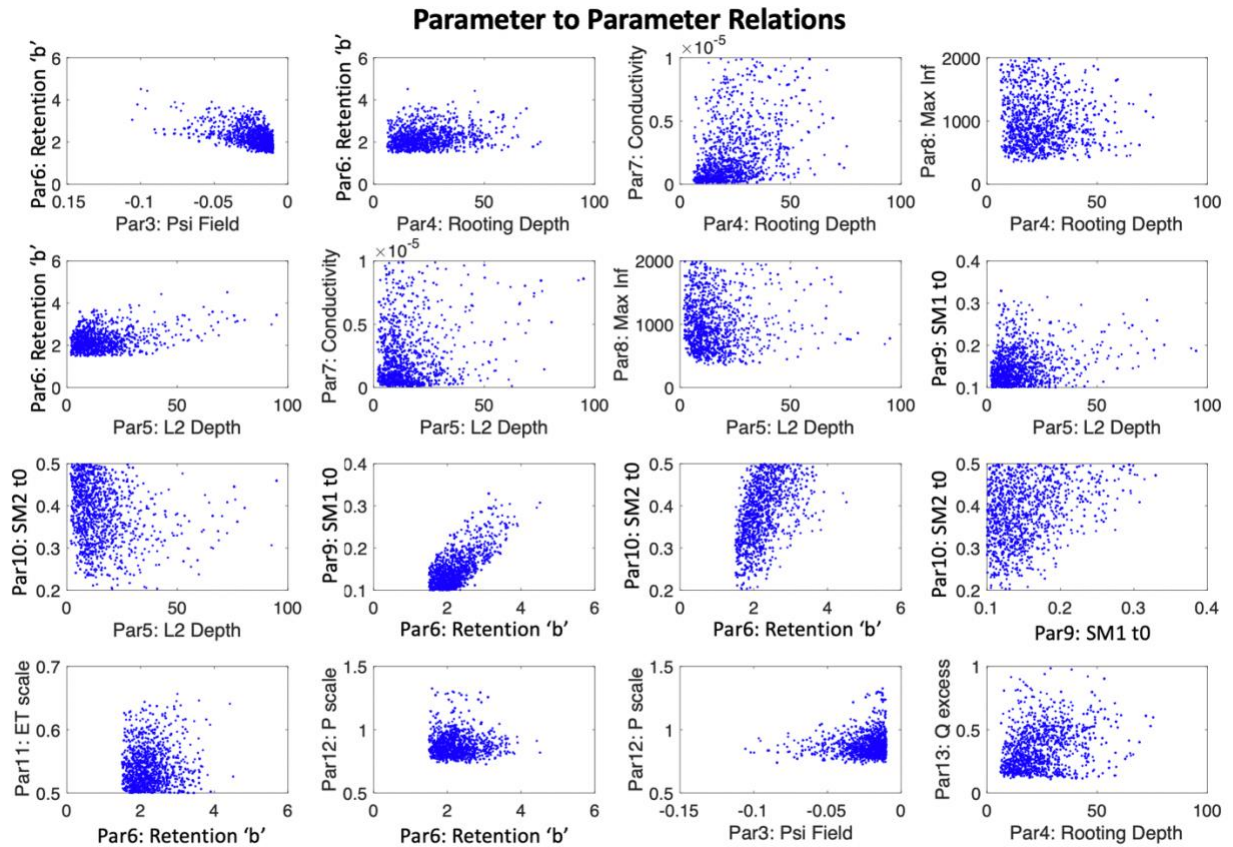
Figure S2: Scatter plots showing correlation of the posterior parameter values with other parameter posteriors. These plots portray the relationship and correlation between pairs of model parameters in the posterior space as inferred by GRACE.
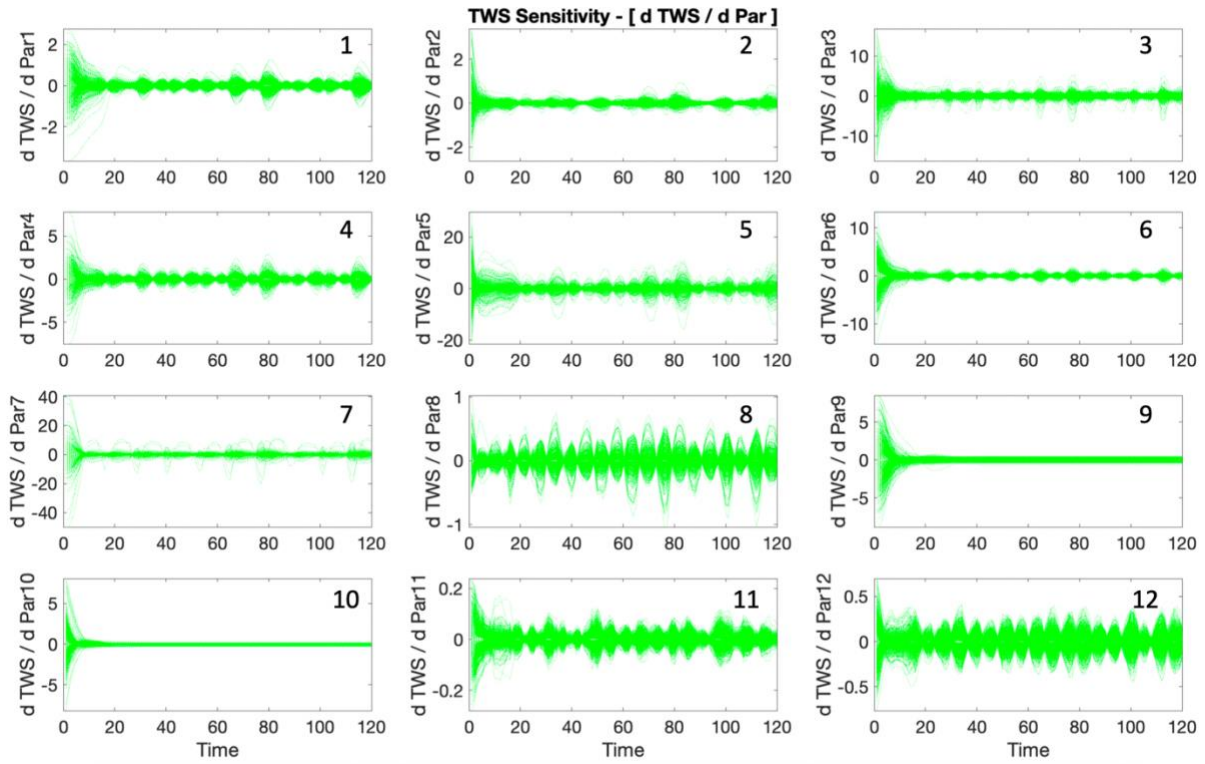
Figure S3: Sensitivity of the model simulated TWS to minor perturbations in parameter values. Shown here in green are the changes in simulated TWS (d TWS) when each parameter is perturbed (d Par) by 1% of its prior range, indicating the magnitude and the time steps of model sensitivity.