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Triple collocation validates CONUS-wide evapotranspiration inferred from atmospheric conditions

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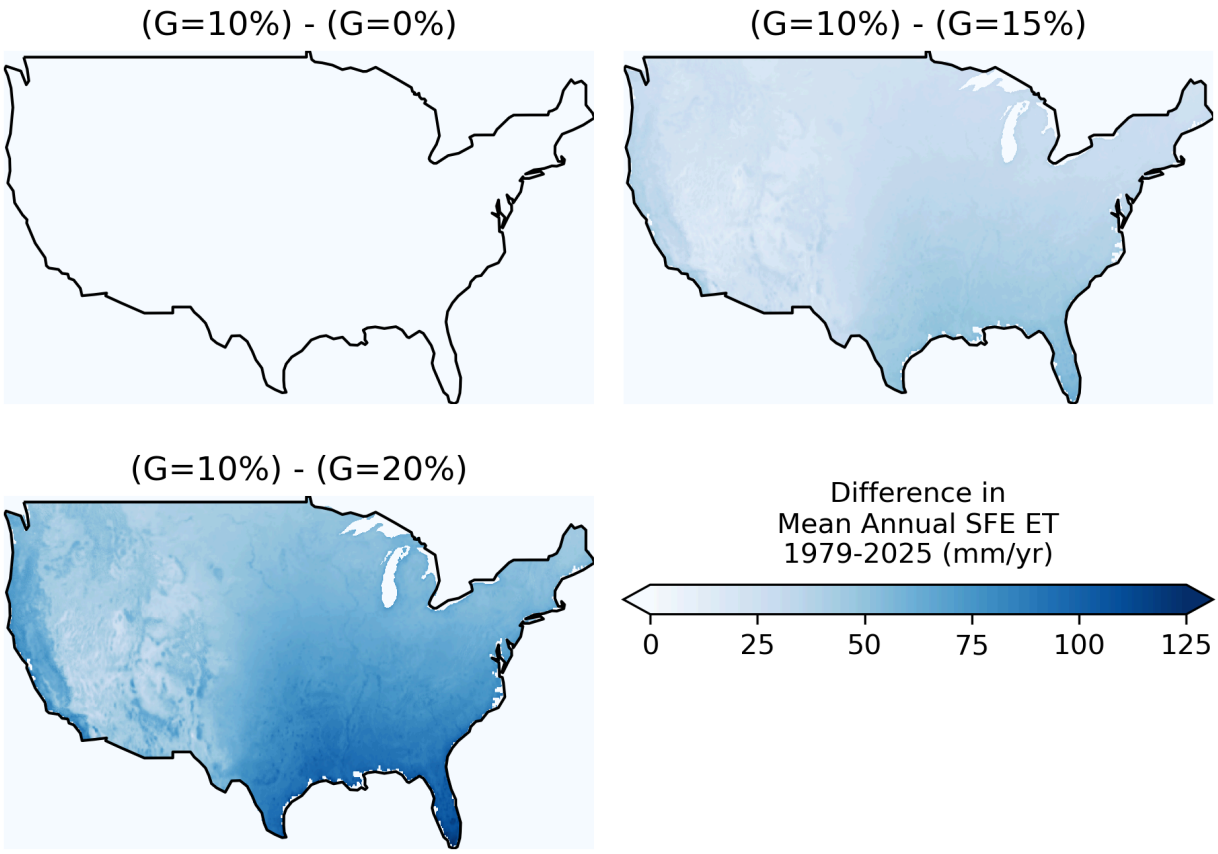

Figure S1. The difference in mean annual SFE ET from 1979 to 2025 for different values of the ground heat flux (G).

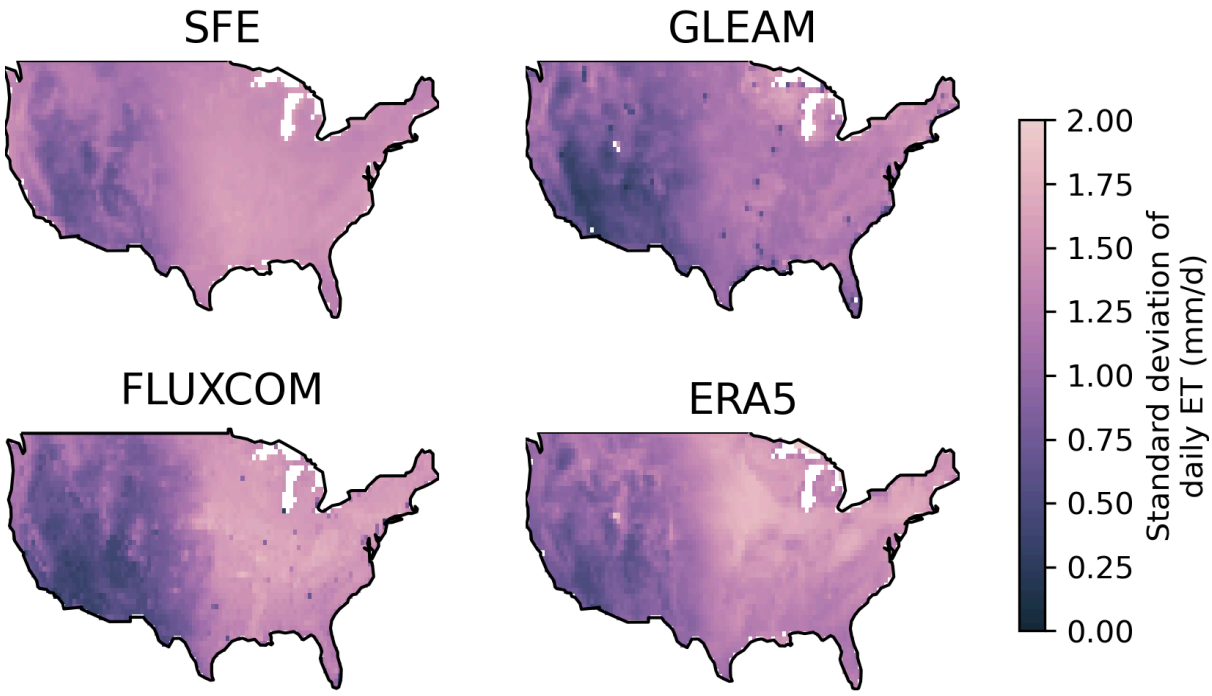

Figure S2. Standard deviation of daily ET from 1979-2016 for each dataset.

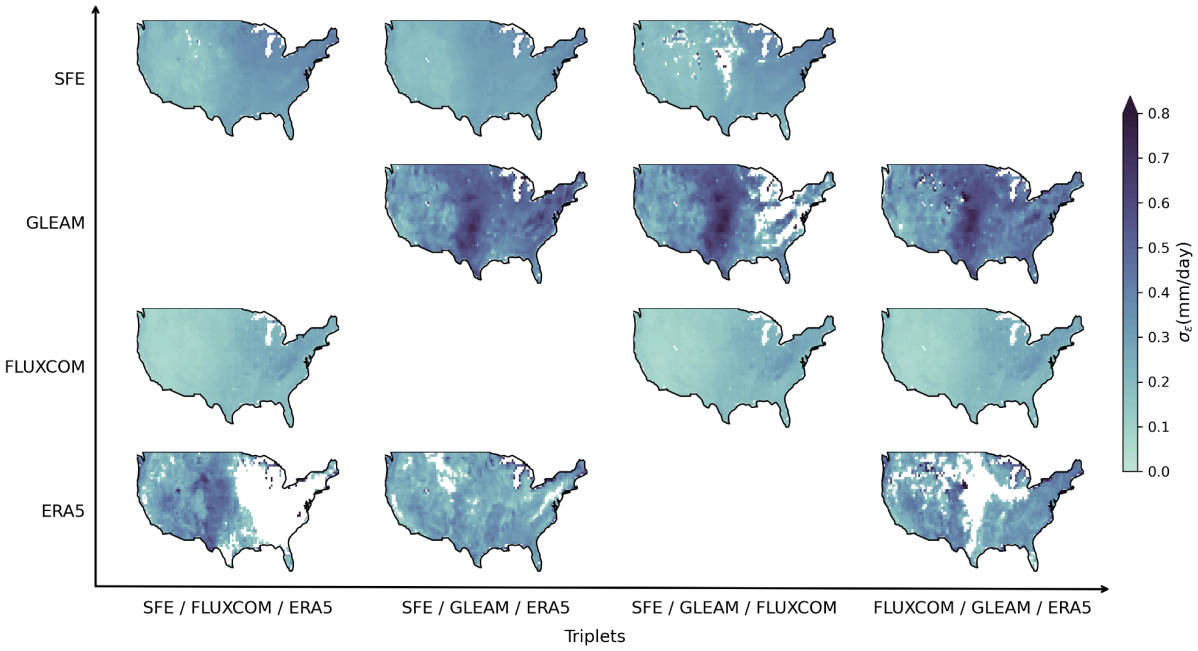

Figure S3. The random error standard deviation for each triplet (columns) and dataset (rows). White areas are those where the random error standard deviation can not be evaluated because of negative standard deviation, indicating that the assumptions of triple collocation are not met.

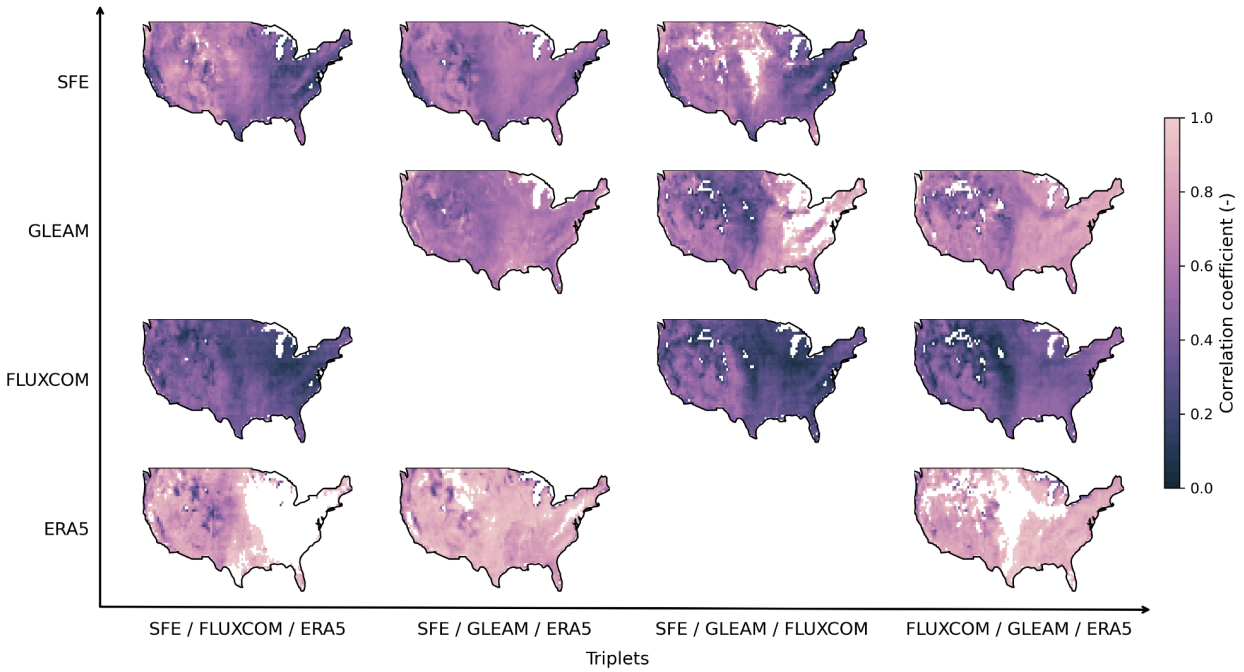

Figure S4. The correlation coefficient with the truth (R_T) for each triplet (columns) and dataset (rows). White areas are those where the correlation coefficient is greater than one, indicating that the assumptions of triple collocation are not met.

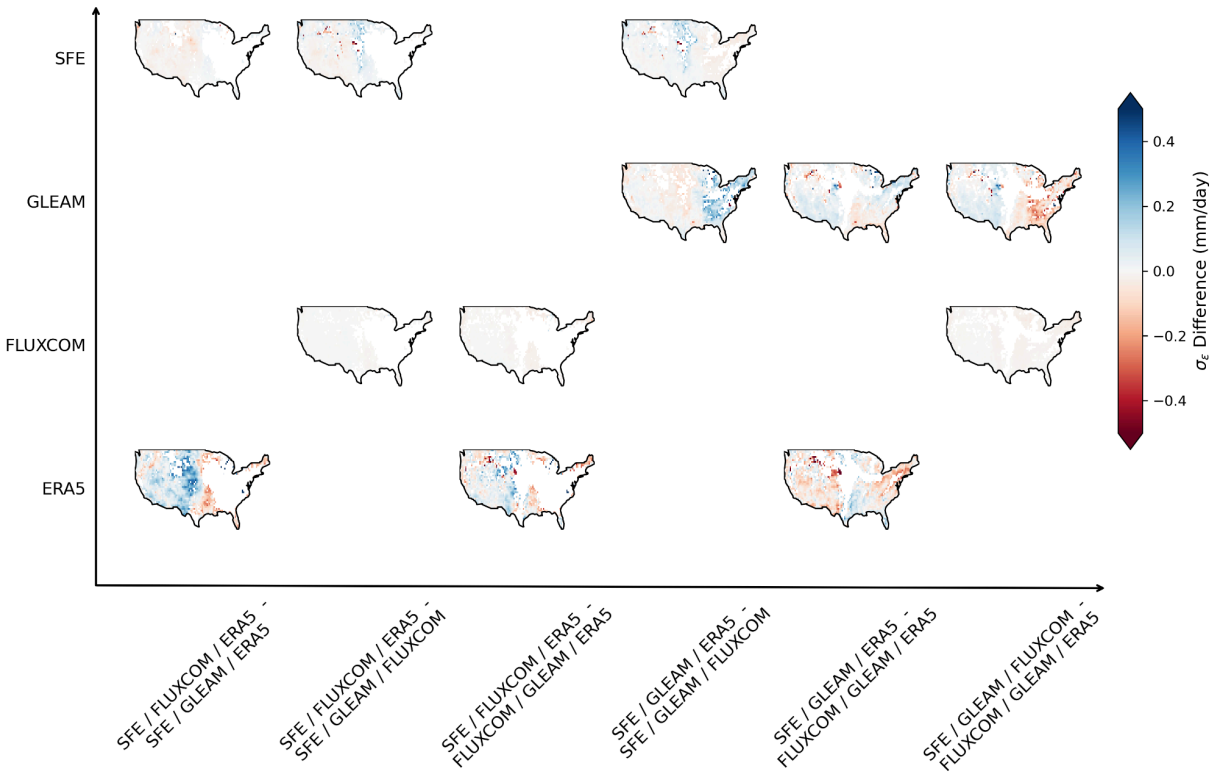

Figure S5. The difference in the random error standard deviation (σ_ε) between pairs of triplets (columns) for each dataset (rows). White areas are those where the random error standard deviation can not be evaluated because of negative standard deviation, indicating that the assumptions of triple collocation are not met.

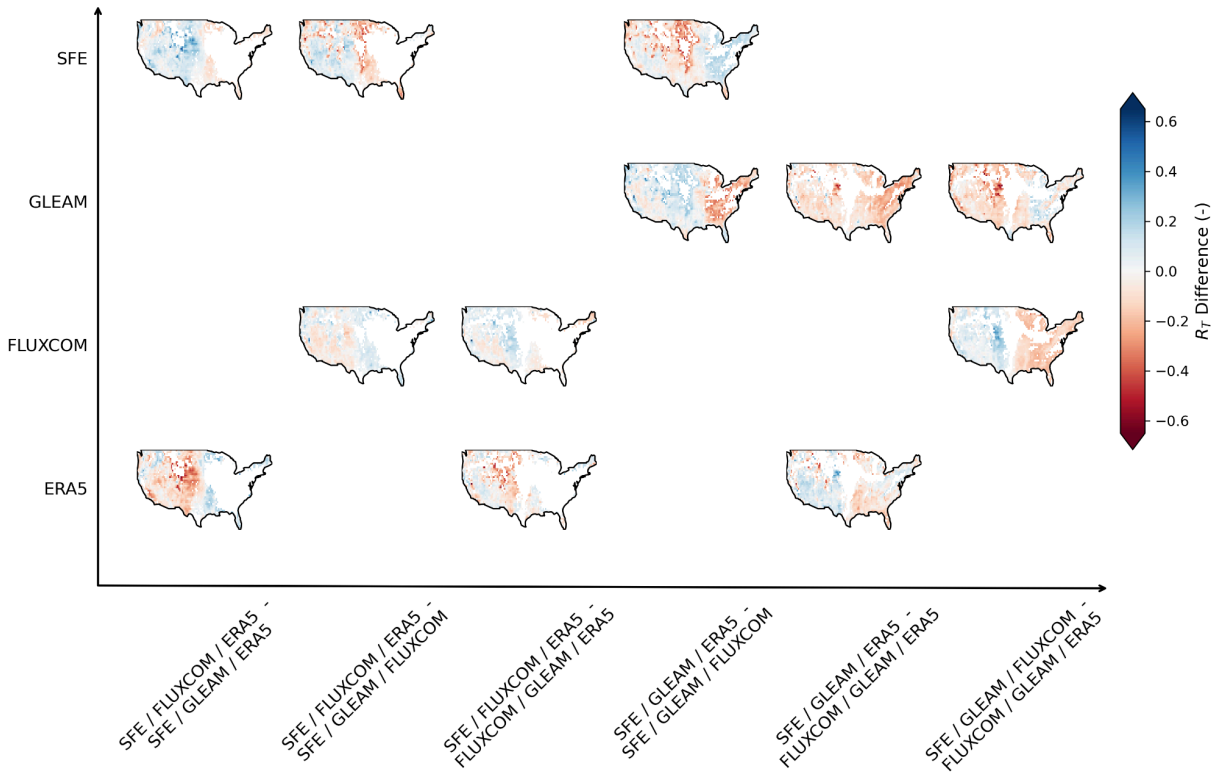

Figure S6. The difference in the correlation coefficient with the truth (R_T) between pairs of triplets (columns) for each dataset (rows). White areas are those where the correlation coefficient is greater than one, indicating that the assumptions of triple collocation are not met.

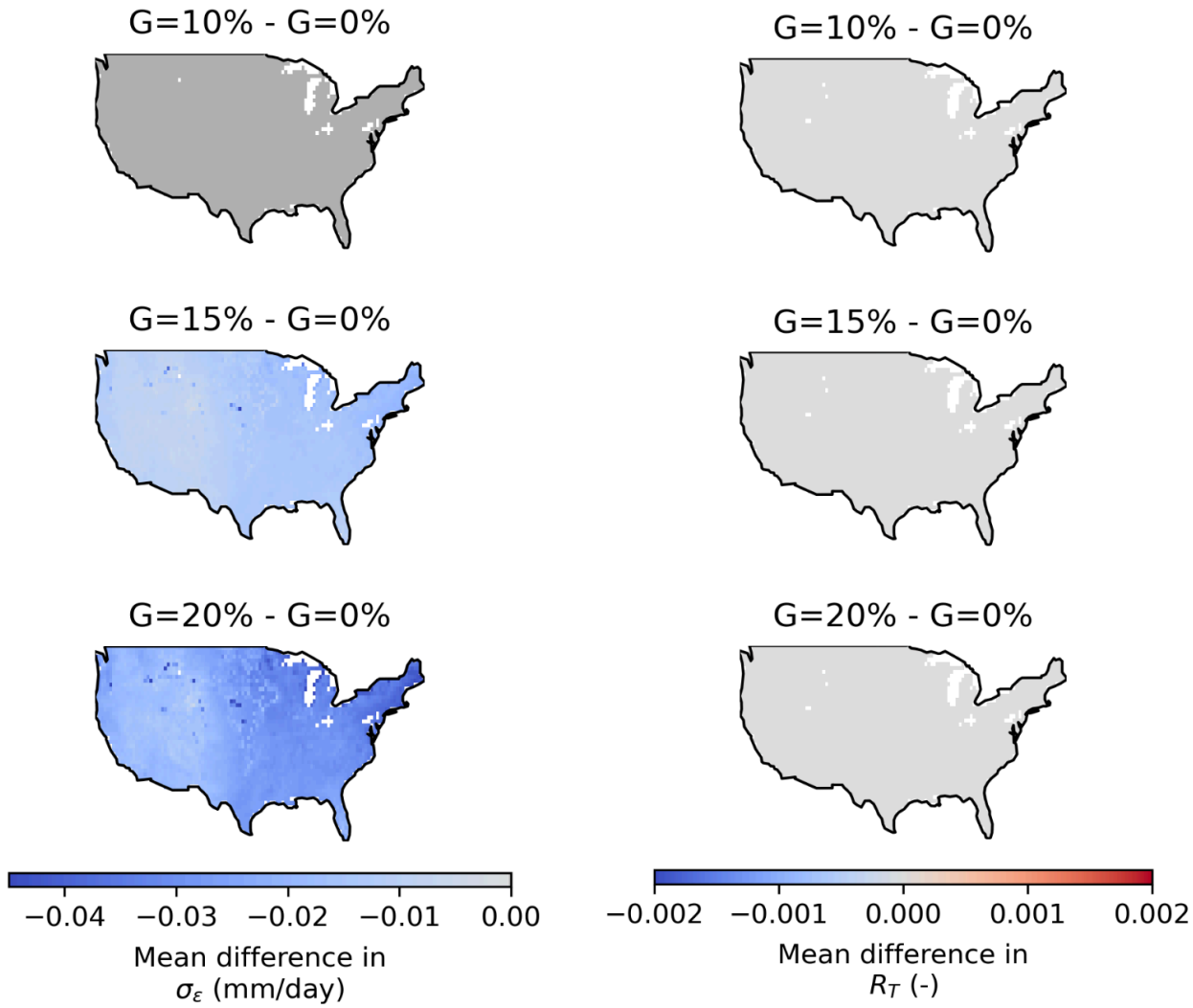

Figure S7. The change in the standard deviation of the random error ($\sigma_{\varepsilon,}$ left column) and the correlation coefficient ($R_{T,}$ right column) averaged across all possible triplets for SFE calculated with different values of the ground heat flux (G), expressed as a percentage of total net radiation. Grey indicates no change.

Table S1. Correlation coefficients between each ET dataset.

	GLEAM	**FluxCom**	**ERA5-Land**
SFE	0.55	0.41	0.43
GLEAM	-	0.51	0.20
FluxCom	-	-	0.71

Table S2. Mean annual ET across CONUS (excluding large water bodies) for each dataset from 1979 through 2016 and mean bias relative to SFE.

	Mean annual ET (mm/year)	**Bias relative to SFE**
SFE	538	1.0
GLEAM	552	1.03
FluxCom	609	1.13
ERA5-Land	645	1.20