

Supplementary Material

Simulating surface energy fluxes using the Variable Resolution Community Earth
System Model (VR-CESM)

submitted by Burakowski and Coauthors to

Theoretical and Applied Climatology

LIST OF SUPPLEMENTARY FIGURES

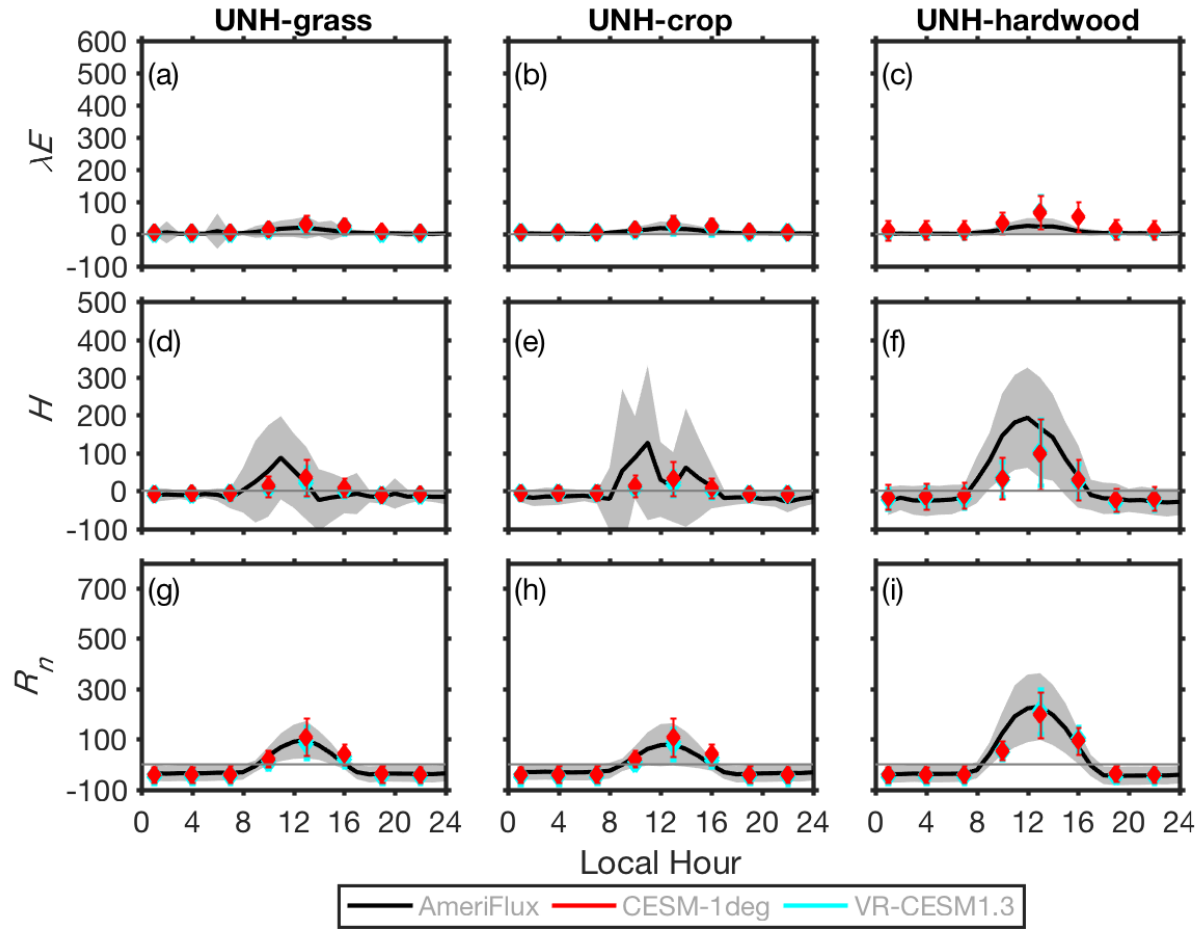
Figure S1. Winter (Dec – February) surface energy fluxes from eddy covariance towers (black), 1° uniform CESM (red), and 0.25° VR-CESM (blue). Diurnal cycle shown in local time for latent heat (λE), sensible heat (H), and net radiation (R_n) at the UNH-grass (a, d, g), UNH-crop (b, e, h) and UNH-hardwood (c, f, i) sites. All fluxes in W/m^2 . Shading and error bars indicate $\pm 1 \sigma$.

Figure S2. Winter (Dec – February) surface energy fluxes from eddy covariance towers (black), 1° uniform CESM (red), and 0.25° VR-CESM (blue). Diurnal cycle shown in local time for latent heat (λE), sensible heat (H), and net radiation (R_n) at the Duke-grass (a, d, g), Duke-hardwood (b, e, h) and Duke-pine (c, f, i) sites. All fluxes in W/m^2 . Shading and error bars indicate $\pm 1 \sigma$.

Figure S3. Winter diurnal cycle of latent heat flux (λE), sensible heat (H), net radiation (R_n), and ground heat flux (G) for C3 Non-Arctic Grass (UNH-grass; left column), crop (UNH-crop; middle column), and Broadleaf Deciduous Temperate forest (UNH-BDT; right column) at UNH. Hourly averaged fluxes shown for flux towers (black), PTCLM4.5 (red),

and 3-hourly fluxes for VR-CESM (blue). Shading and error bars indicate $\pm 1 \sigma$. Tower and PTCLM4.5 values were averaged over the period 2014-2015. All VR-CESM values are averaged over the period 1979-2008.

Figure S4. Winter diurnal cycle of latent heat flux (λE), sensible heat (H), net radiation (R_n), and ground heat flux (G) for C3 Non-Arctic Grass (Duke-grass; left column), broadleaf deciduous temperate forest (Duke-BDT; middle column), and Needleleaf Evergreen Temperate forest (Duke-NET; right column) at UNH. Hourly averaged fluxes shown for flux towers (black), PTCLM4.5 (red), and 3-hourly fluxes for VR-CESM (blue). Shading and error bars indicate $\pm 1 \sigma$. Tower and PTCLM4.5 values were averaged over the period 2014-2015. All VR-CESM values are averaged over the period 1979-2008.



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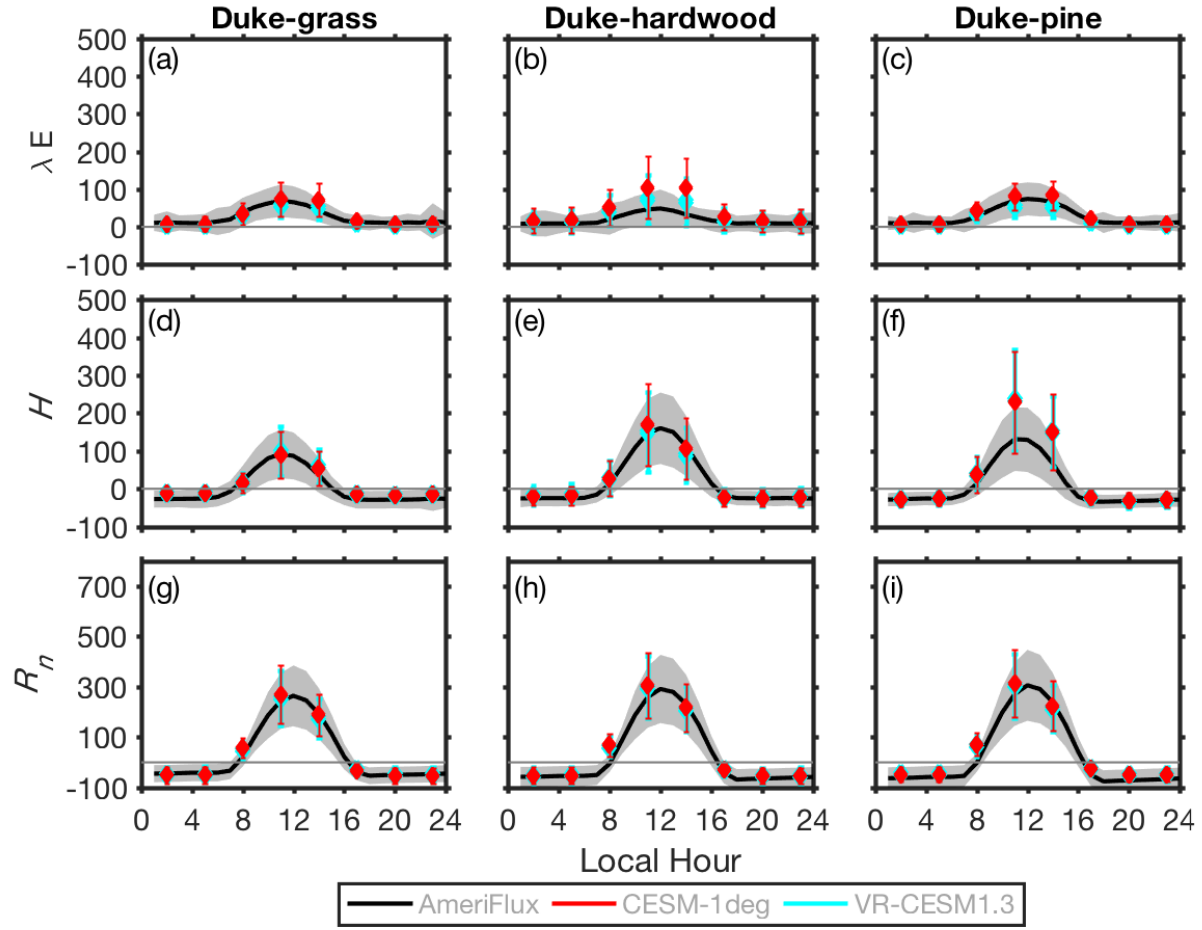


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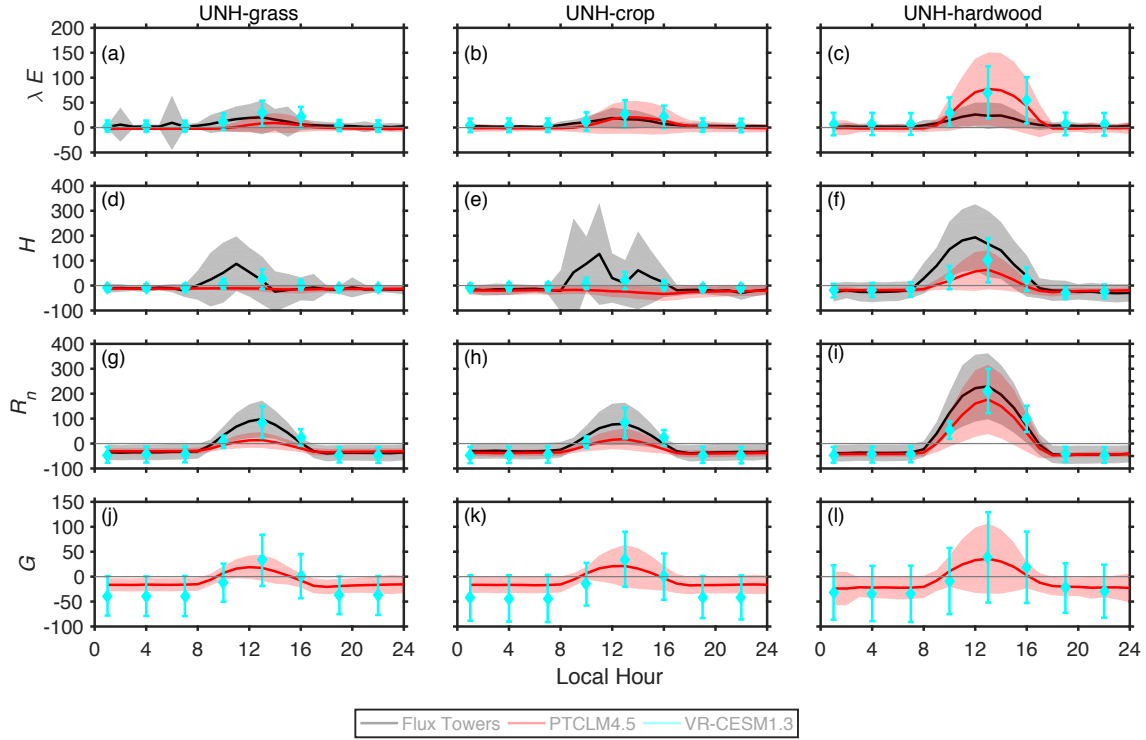
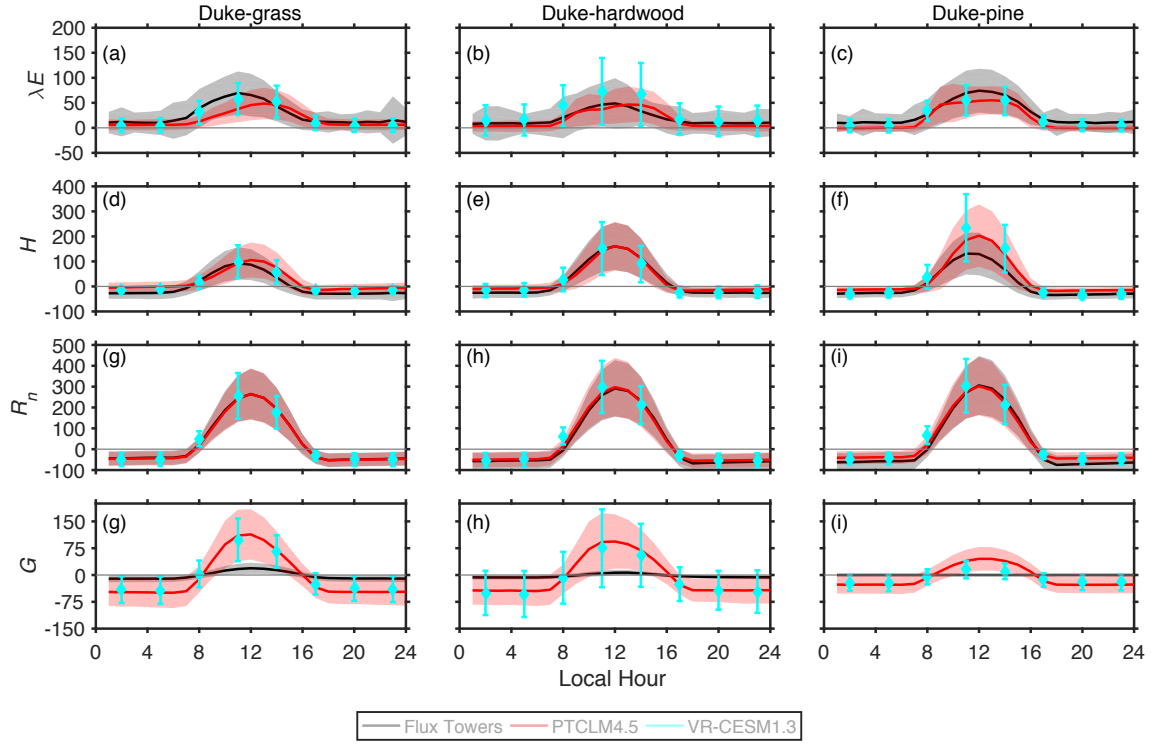


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