HESS: Supplemental Information for

Extending the utility of space-borne snow water equivalent observations over vegetated areas with data assimilation

Justin M. Pflug[1,2], Melissa L. Wrzesien[1,2], Sujay V. Kumar[2], Eunsang Cho[1,2,3], Kristi R. Arsenault[4,2], Paul R. Houser[5], Carrie M. Vuyovich[2]

[1]Earth System Science Interdisciplinary Center, University of Maryland, College Park, MD, USA
[2]Hydrological Sciences Laboratory, NASA Goddard Space Flight Center, Greenbelt, MD, USA
[3]College of Engineering, Texas State University, San Marcos, TX, USA
[4]Science Applications International Corporation, McLean, VA, USA
[5]Geography and Geoinformation Science Department, George Mason University, Fairfax,VA, USA

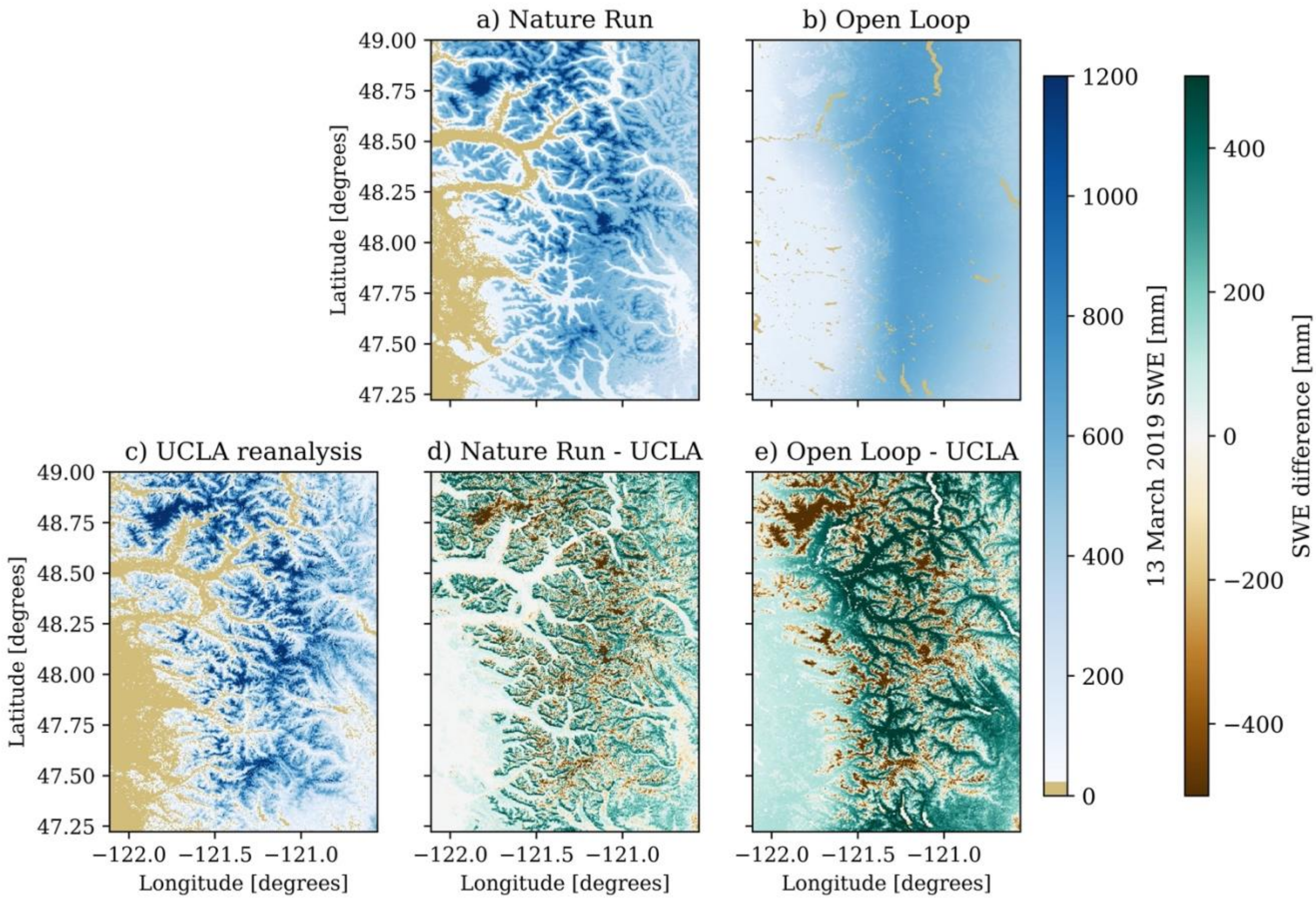

Figure S1. Comparisons (d and e) between 13 March 2019 SWE between the nature run (a) and open loop (b) simulations performed in this study, and an external snow reanalysis dataset (Fang et al., 2022). The spatial plot presented is for a subdomain in the Pacific Northwest hydrologic region, where the nature run and open loop simulation are regridded to the reanalysis coordinate reference system and spatial resolution (~500 m).

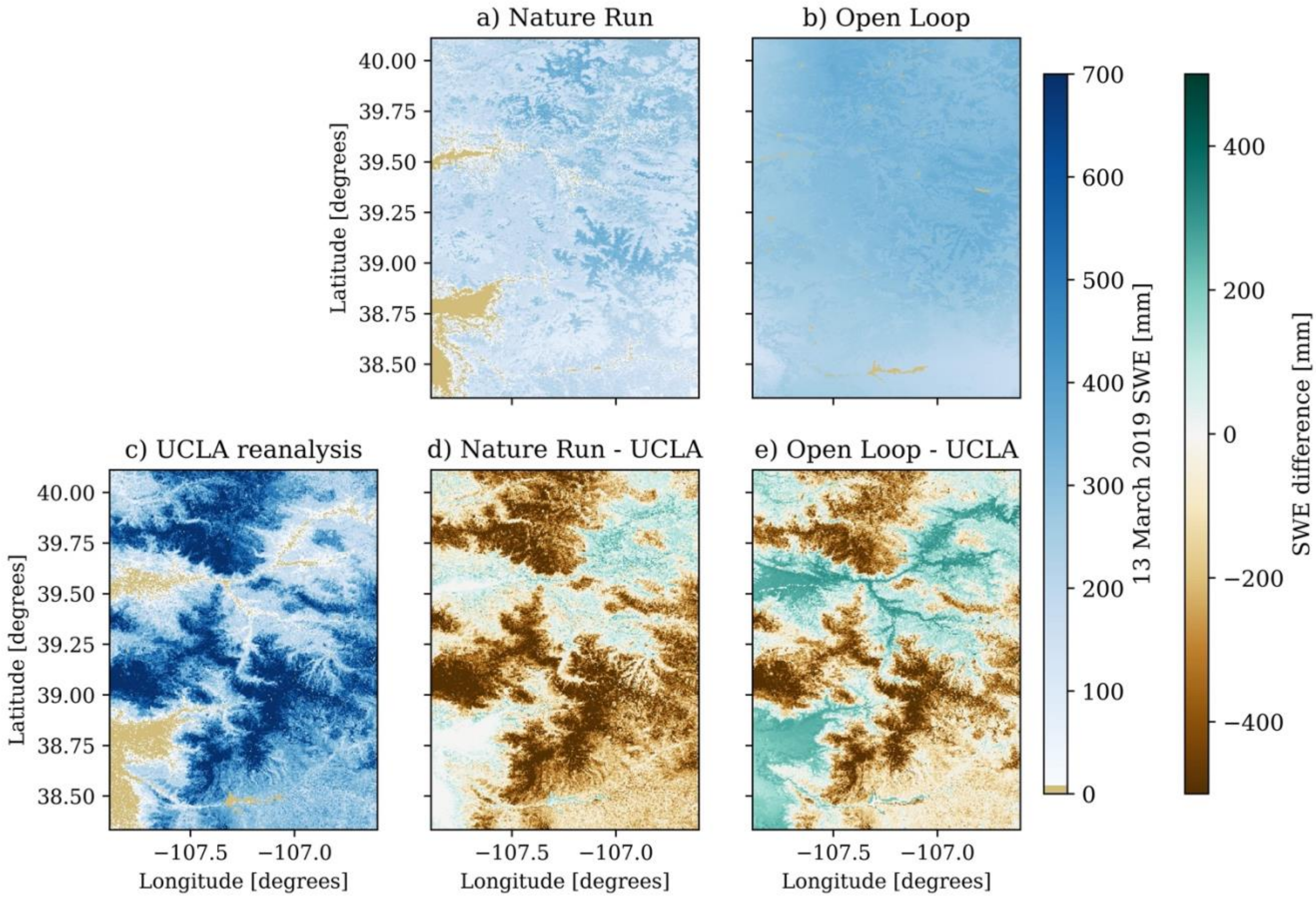

Figure S2. Comparisons (d and e) between 13 March 2019 SWE between the nature run (a) and open loop (b) simulations performed in this study, and an external snow reanalysis dataset (Fang et al., 2022). The spatial plot presented is for a subdomain in the Upper Colorado hydrologic region, where the nature run and open loop simulation are regridded to the reanalysis coordinate reference system and spatial resolution (~500 m).

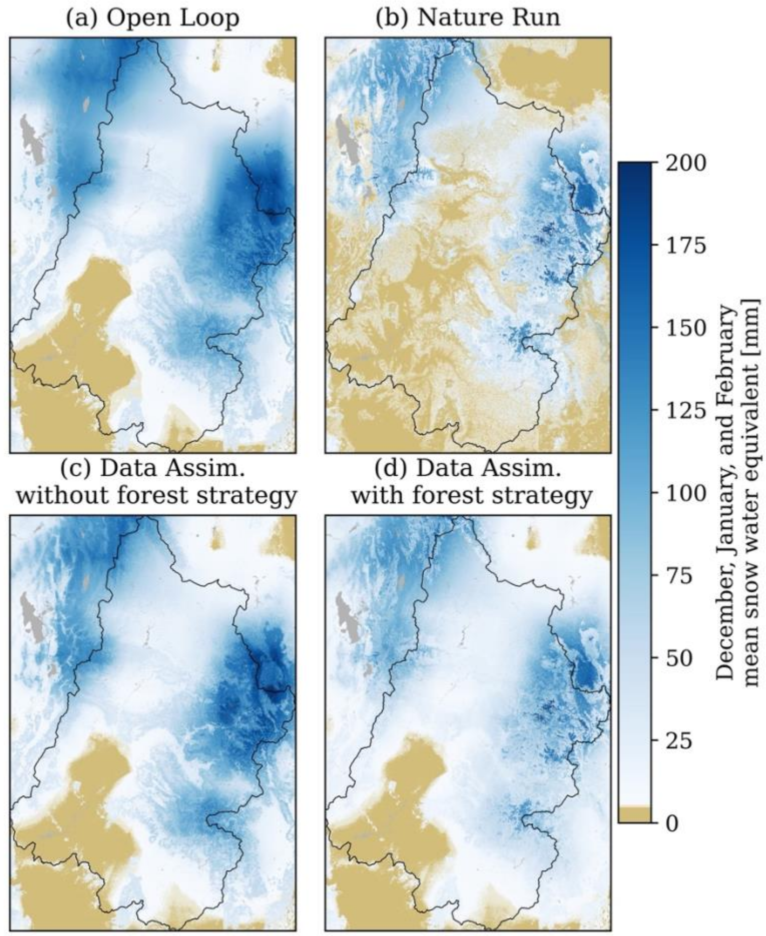

Figure S3. Winter (December, January, and February) mean SWE in the Upper Colorado region simulated at 250 m resolution from the open loop (a), nature run (b), and data assimilation simulations, both with (d) and without (c) the forest strategy. Note that the colorbar limits for this figure are different from those used in Fig. 3.

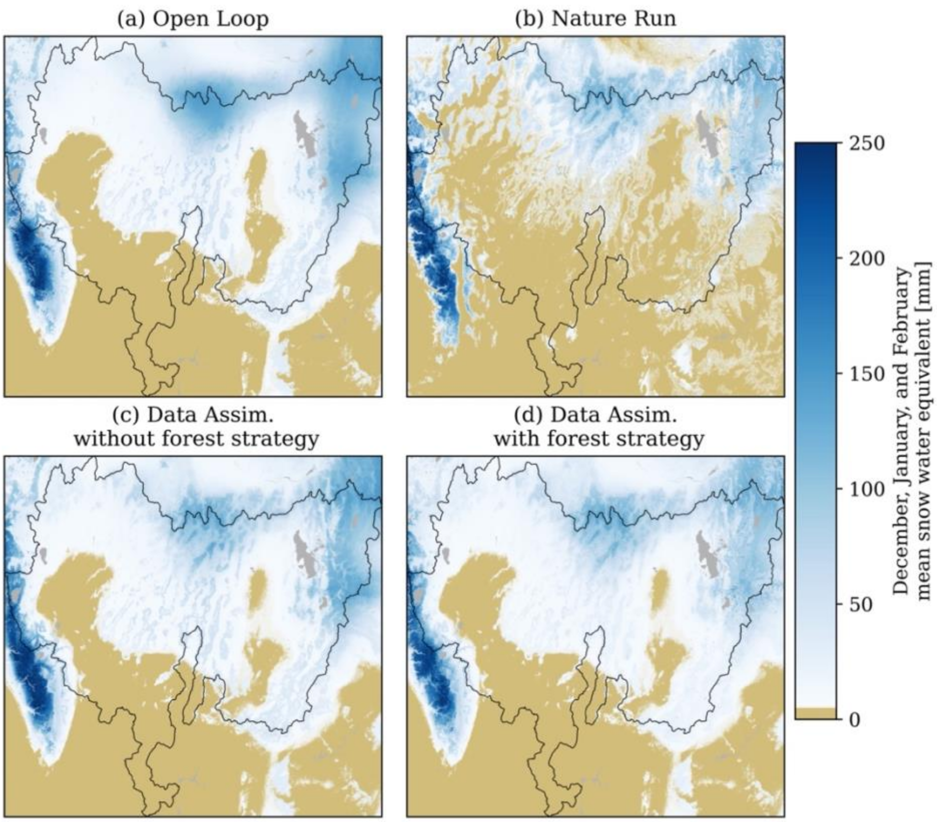

Figure S4. Winter (December, January, and February) mean SWE in the Great Basin region simulated at 250 m resolution from the open loop (a), nature run (b), and data assimilation simulations, both with (d) and without (c) the forest strategy. Note that the colorbar limits for this figure are different from those used in Fig. 3.

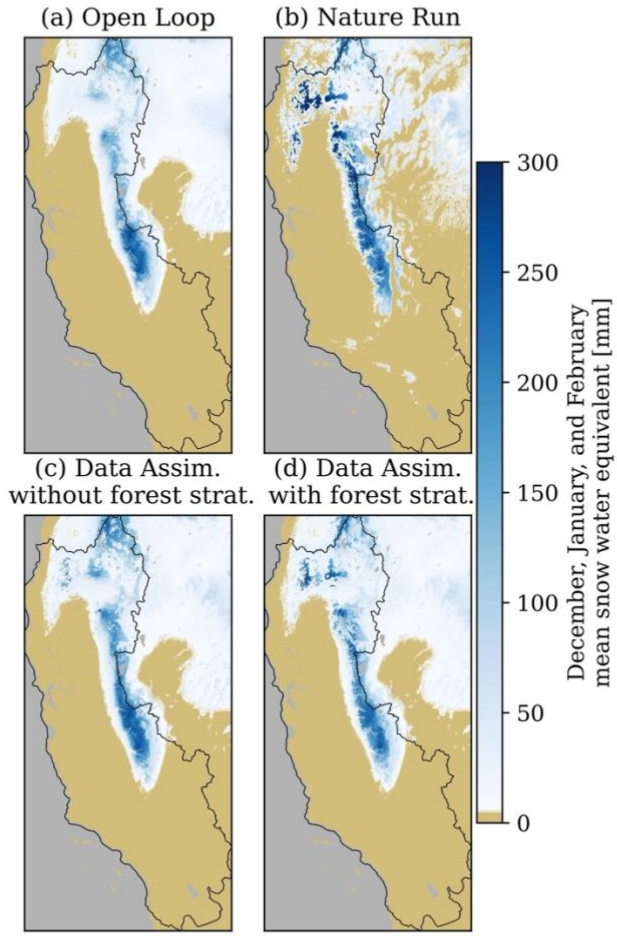

Figure S5. Winter (December, January, and February) mean SWE in the California region simulated at 250 m resolution from the open loop (a), nature run (b), and data assimilation simulations, both with (d) and without (c) the forest strategy. Note that the colorbar limits for this figure are different from those used in Fig. 3.

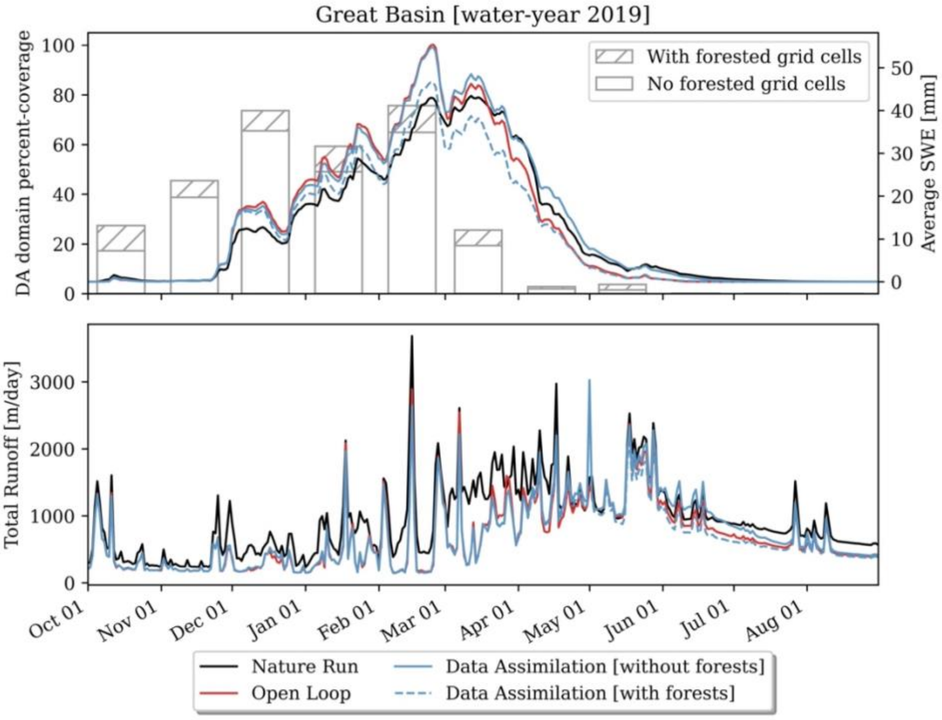

Figure S6. Plots are the same format as those shown in Fig. 7, but present domain average SWE and domain total runoff over the Great Basin.

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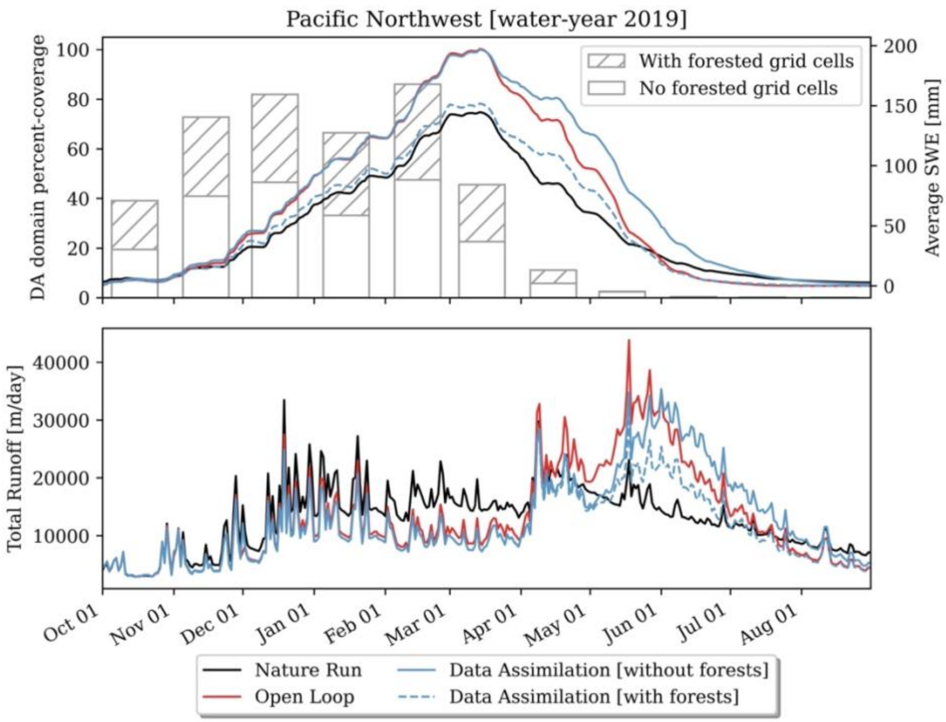

Figure S7. Plots are the same format as those shown in Fig. 7, but present domain average SWE and domain total runoff over the Pacific Northwest basin.

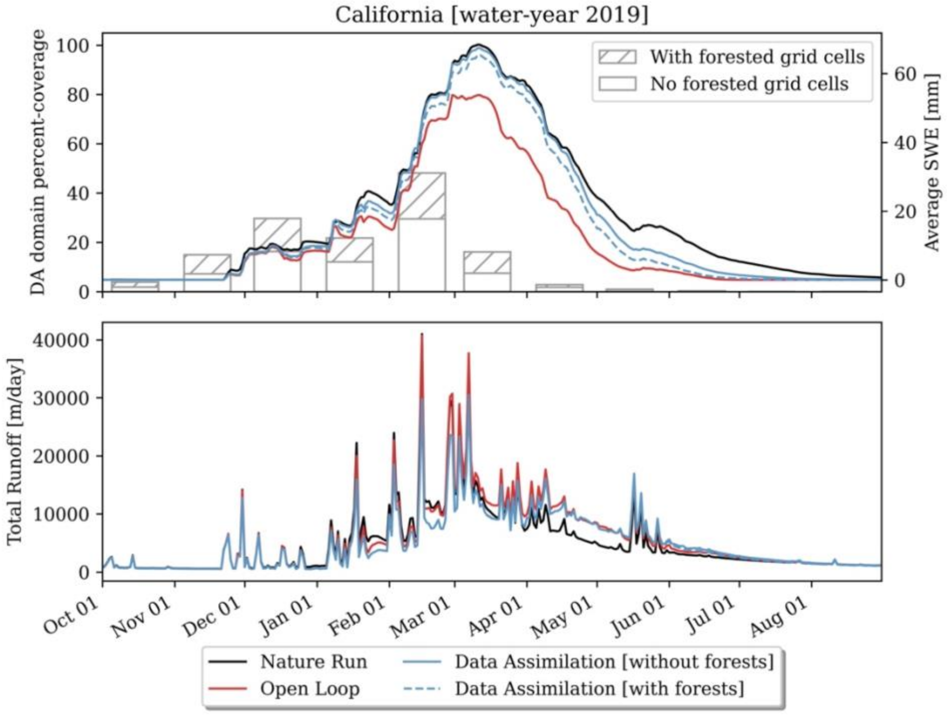

Figure S8. Plots are the same format as those shown in Fig. 7, but present domain average SWE and domain total runoff over the California basin.

References:

Fang, Y., Liu, Y., Margulis, S.A.: A western United States snow reanalysis dataset over the Landsat era from water eyars 1985 to 2021. Sci Data 9, 677. https://doi.org/10.1038/s41597-022-01768-7, 2022.