



Supplement of

Exploring the potential of thermal infrared remote sensing to improve a snowpack model through an observing system simulation experiment

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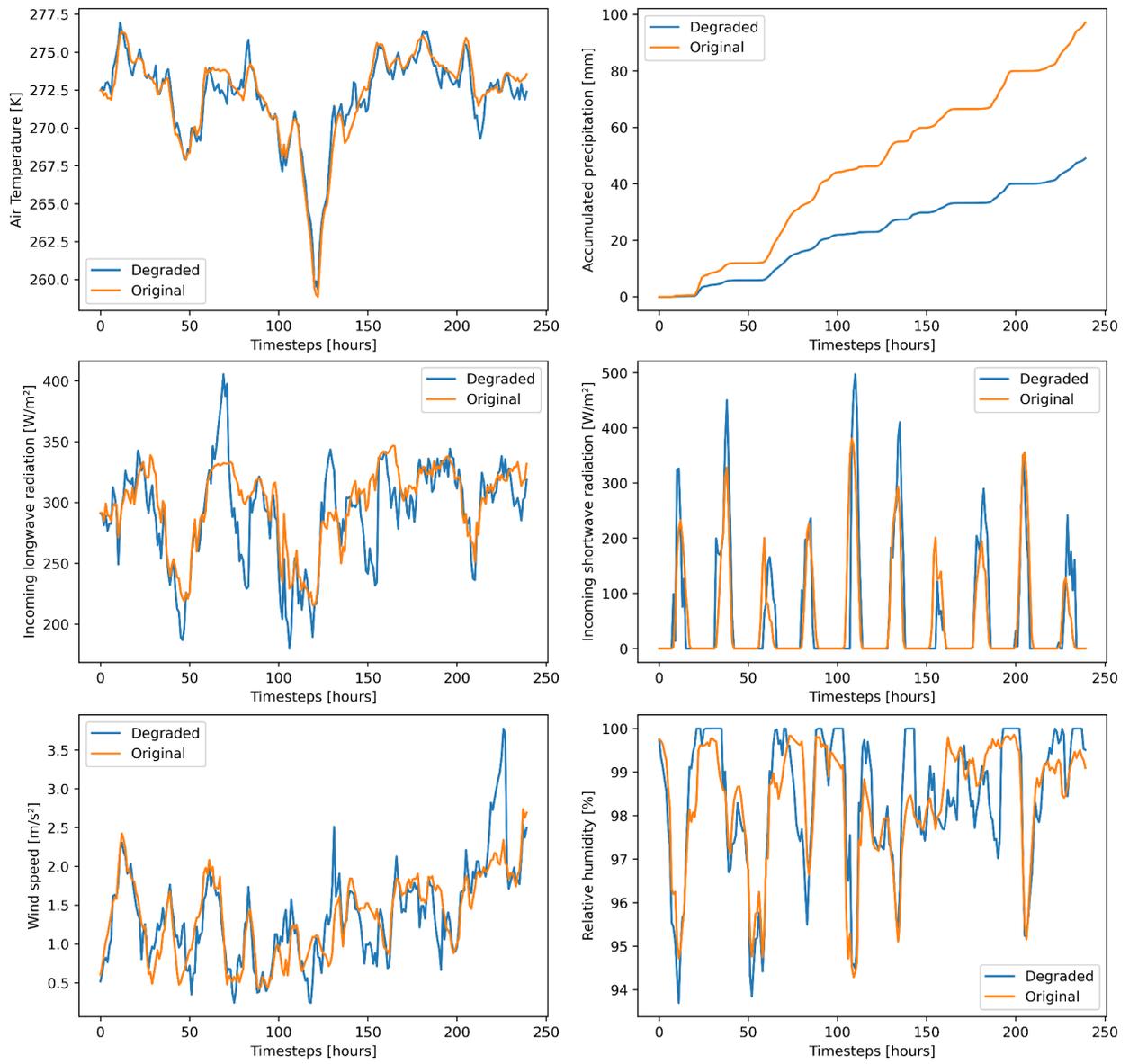


Figure S1: Example of the forcing degradation covering 10 days at hourly timesteps

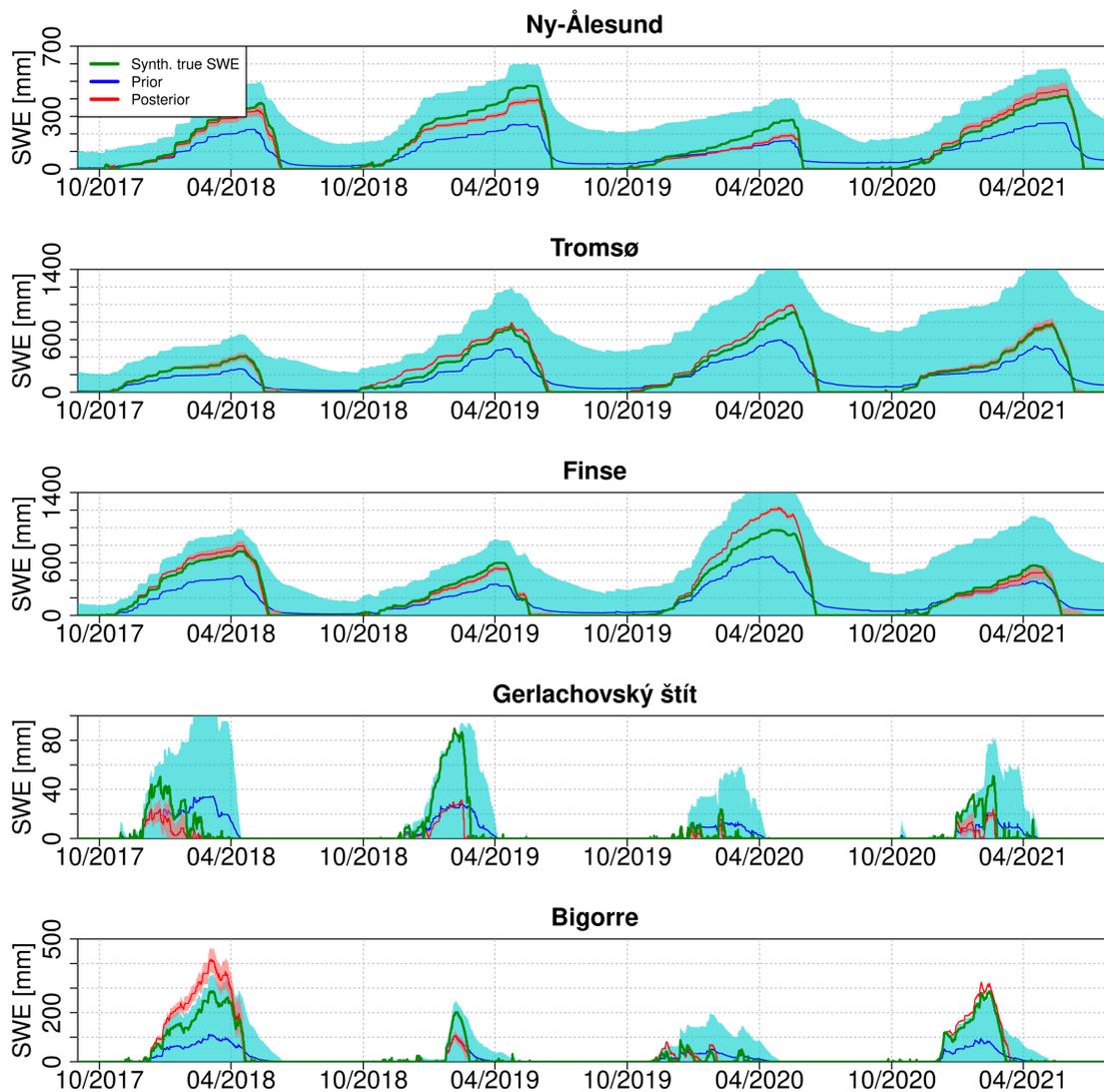


Figure S2 Example of prior and posterior SWE ensembles for a single replicate assimilating LST at a time resolution of 3 days in the absence of clouds. The shaded areas show the prior and posterior standard deviation.

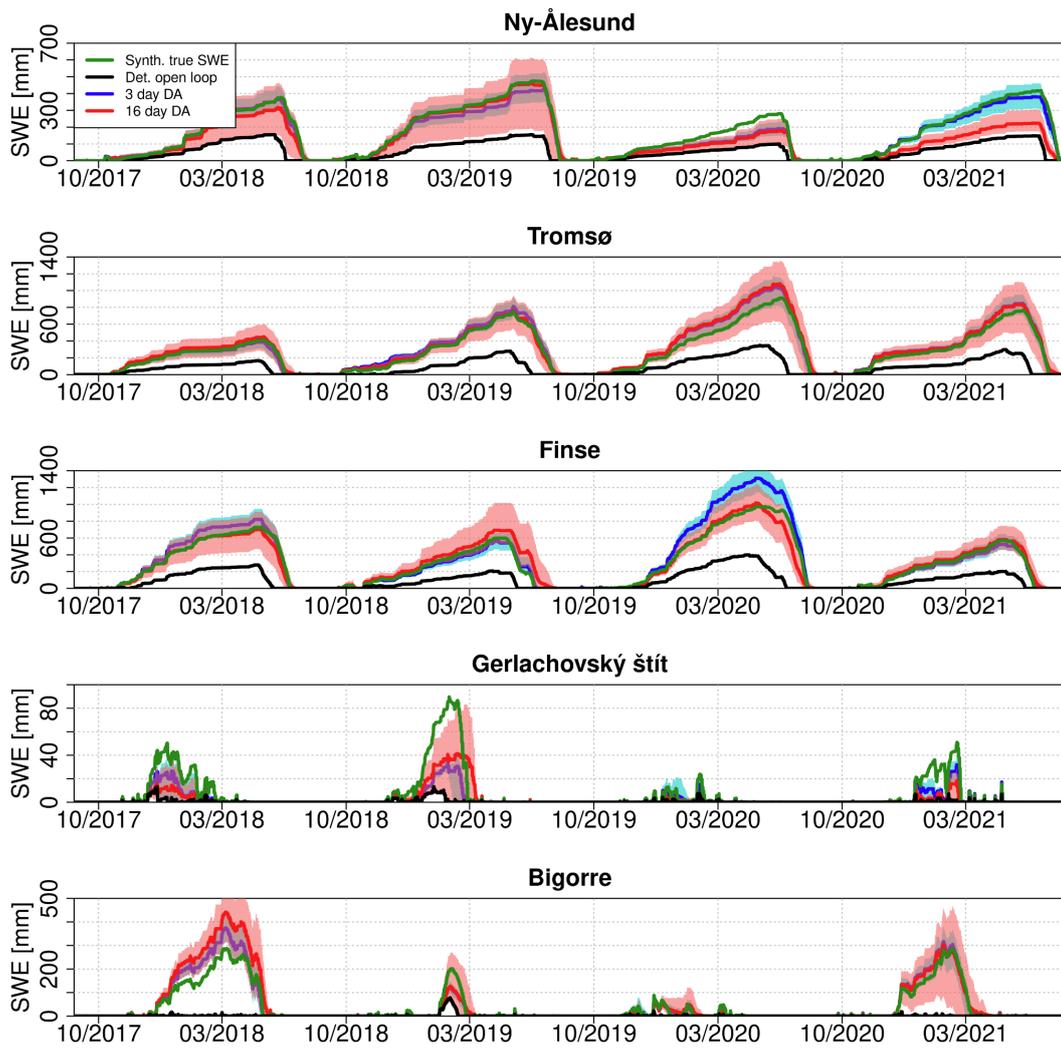


Figure S3: Comparison of hourly time series of synthetic true SWE with the open loop simulations and the posterior SWE after assimilating LST with a revisit time of 16 days or 3 days (25% cloud cover scenario) using the PBS. Here, the posterior SWE is the average of the 100 replicates and the shaded areas represent the 95 to 5th quantile range

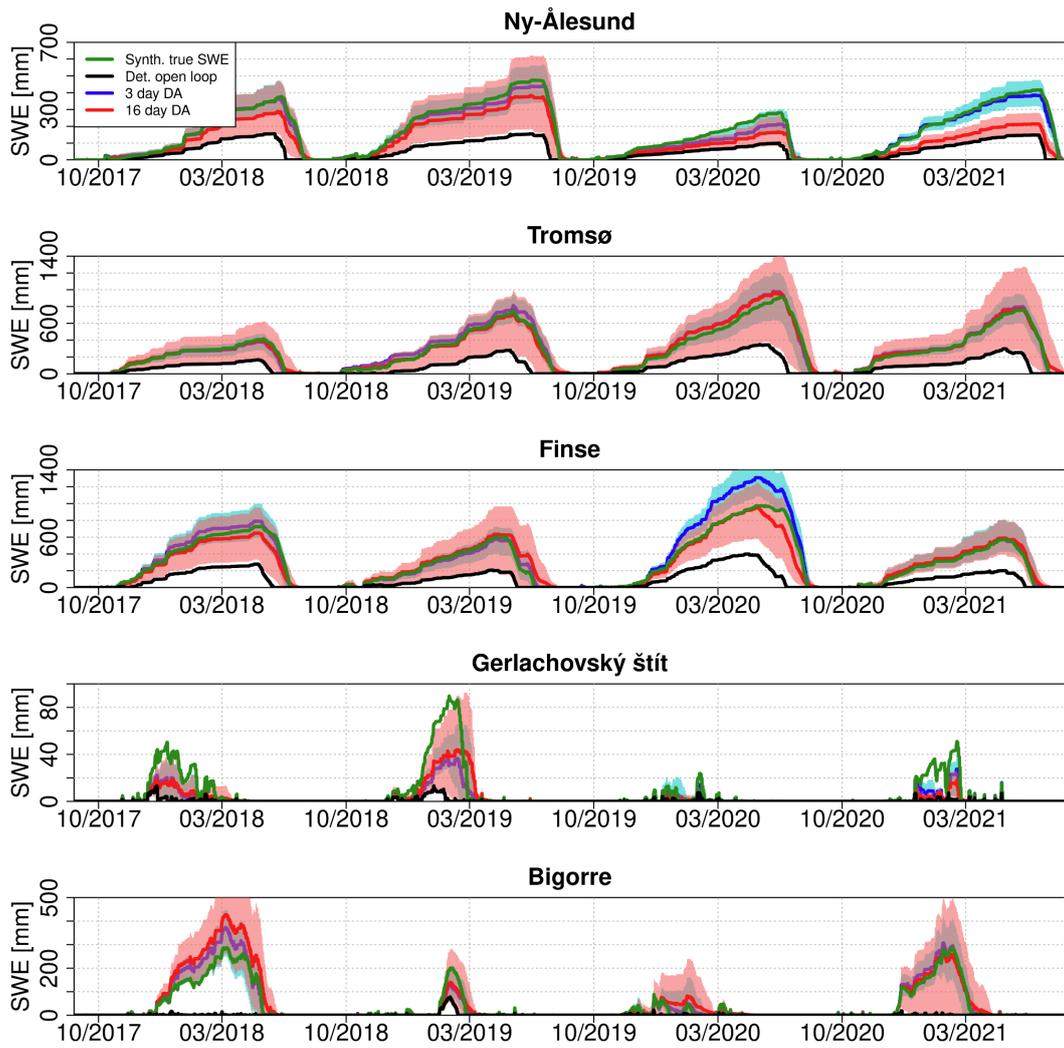


Figure S4: Comparison of hourly time series of synthetic true SWE with the open loop simulations and the posterior SWE after assimilating LST with a revisit time of 16 days or 3 days (50% cloud cover scenario) using the PBS. Here, the posterior SWE is the average of the 100 replicates and the shaded areas represent the 95 to 5th quantile range.

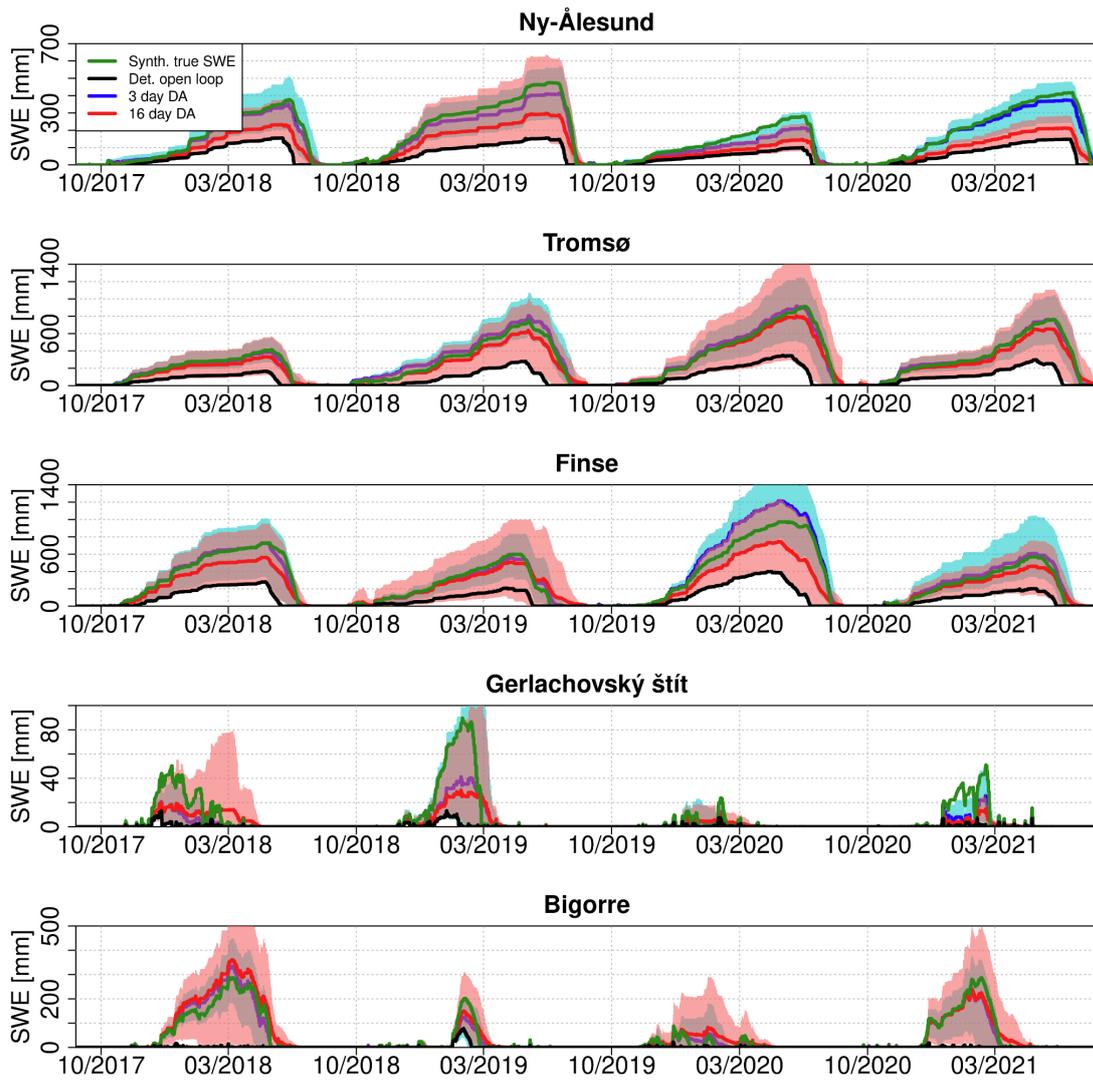


Figure S5: Comparison of hourly time series of synthetic true SWE with the open loop simulations and the posterior SWE after assimilating LST with a revisit time of 16 days or 3 days (75% cloud cover scenario) using the PBS. Here, the posterior SWE is the average of the 100 replicates and the shaded areas represent the 95 to 5th quantile range.