Supplementary material: Inferring surface energy fluxes using drone data assimilation in large eddy simulations

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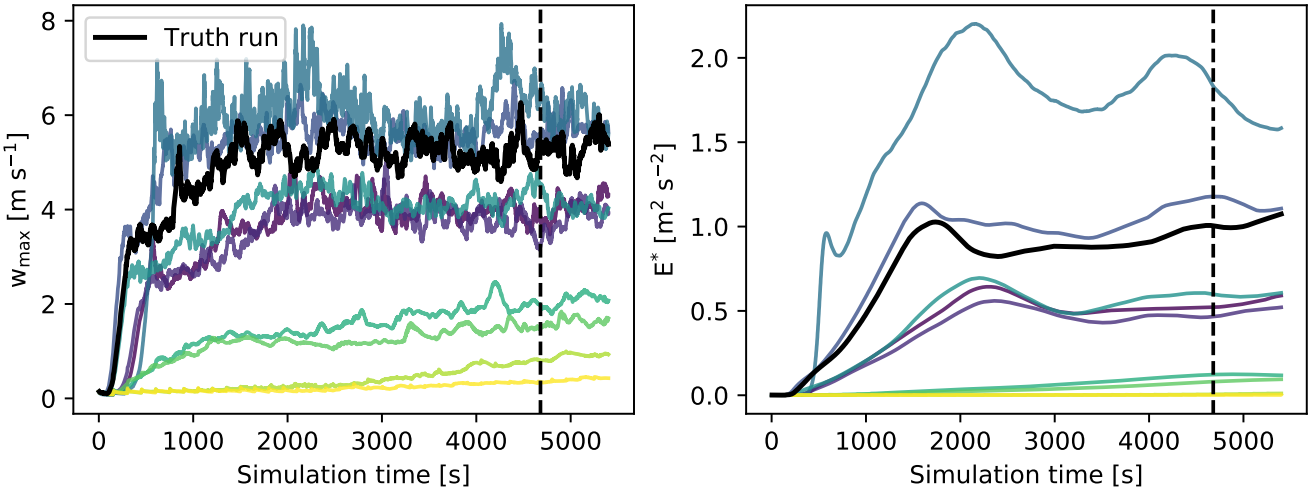

Figure S1. Time series of maximum vertical wind speed (left) and resolved-scale turbulence kinetic energy (right) for a subset of ensemble members and the truth run of our synthetic experiments. The first 4680 sec (dashed line) are regarded as the spin-up time and not used in the analysis.

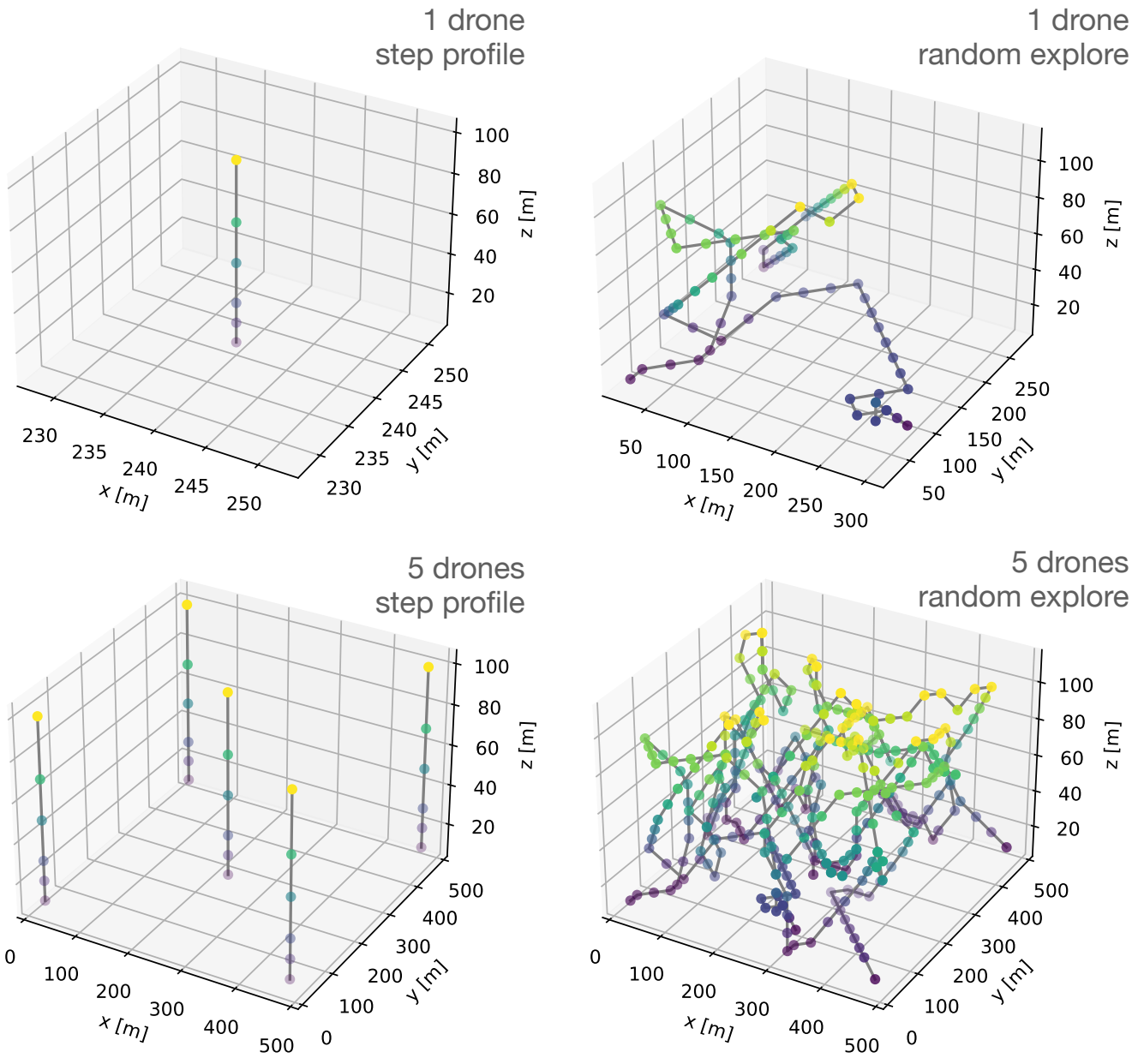

Figure S2. Examples of flight plans with measurement locations in the domain. For step profiles, drones stay at each location for two minutes to collect data. Random exploration flight plans allow drones to change location every 10 sec and are generated as bias random walks with a flight time of 12 min. The colors of the sampling points denote their altitude.

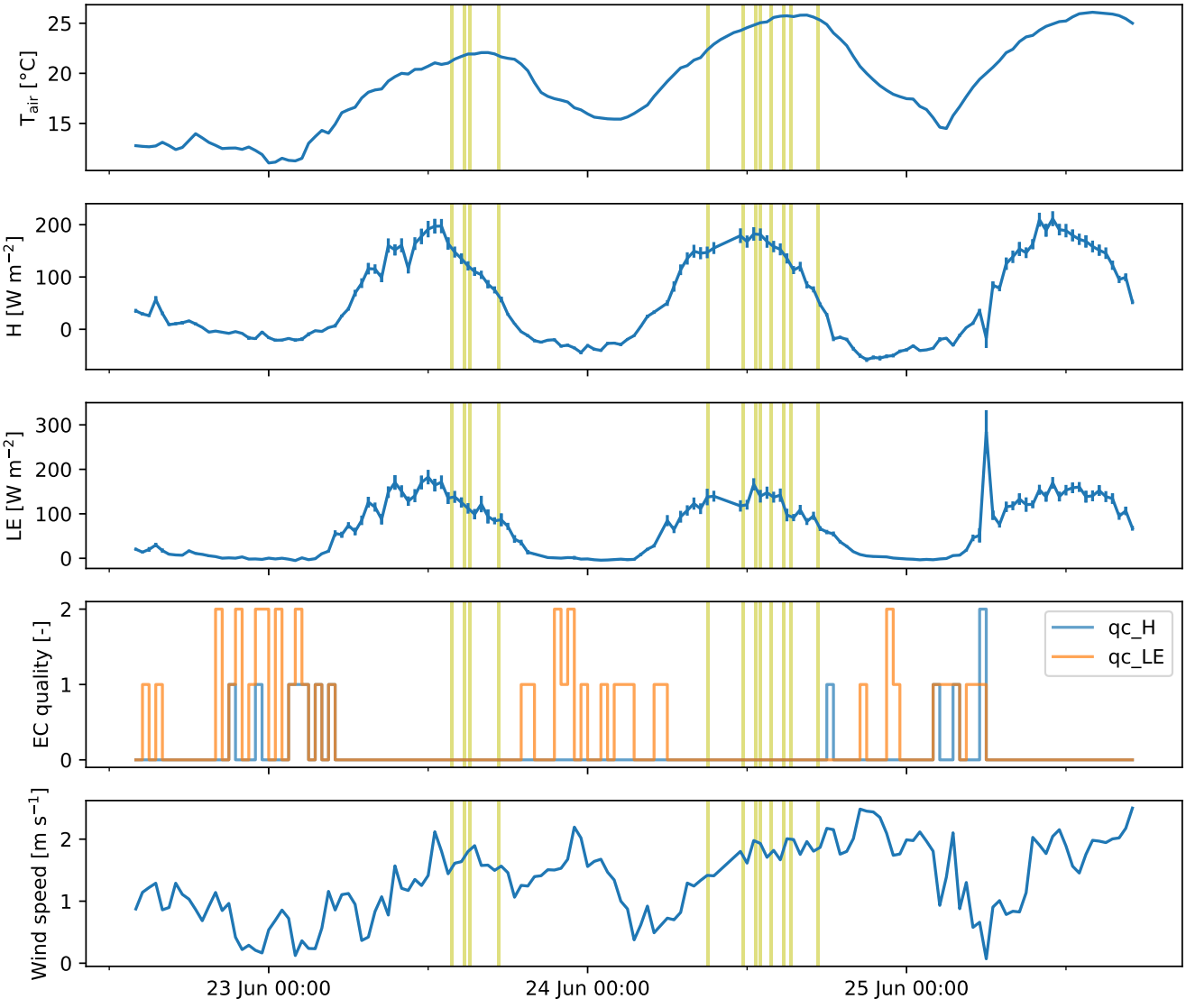

Figure S3. Campaign overview for our largest campaign featuring 12 successful flights (indicated as vertical yellow lines here) at the Hisåsen site. Error bars for H and LE indicate random flux uncertainty as estimated by EddyPro.