



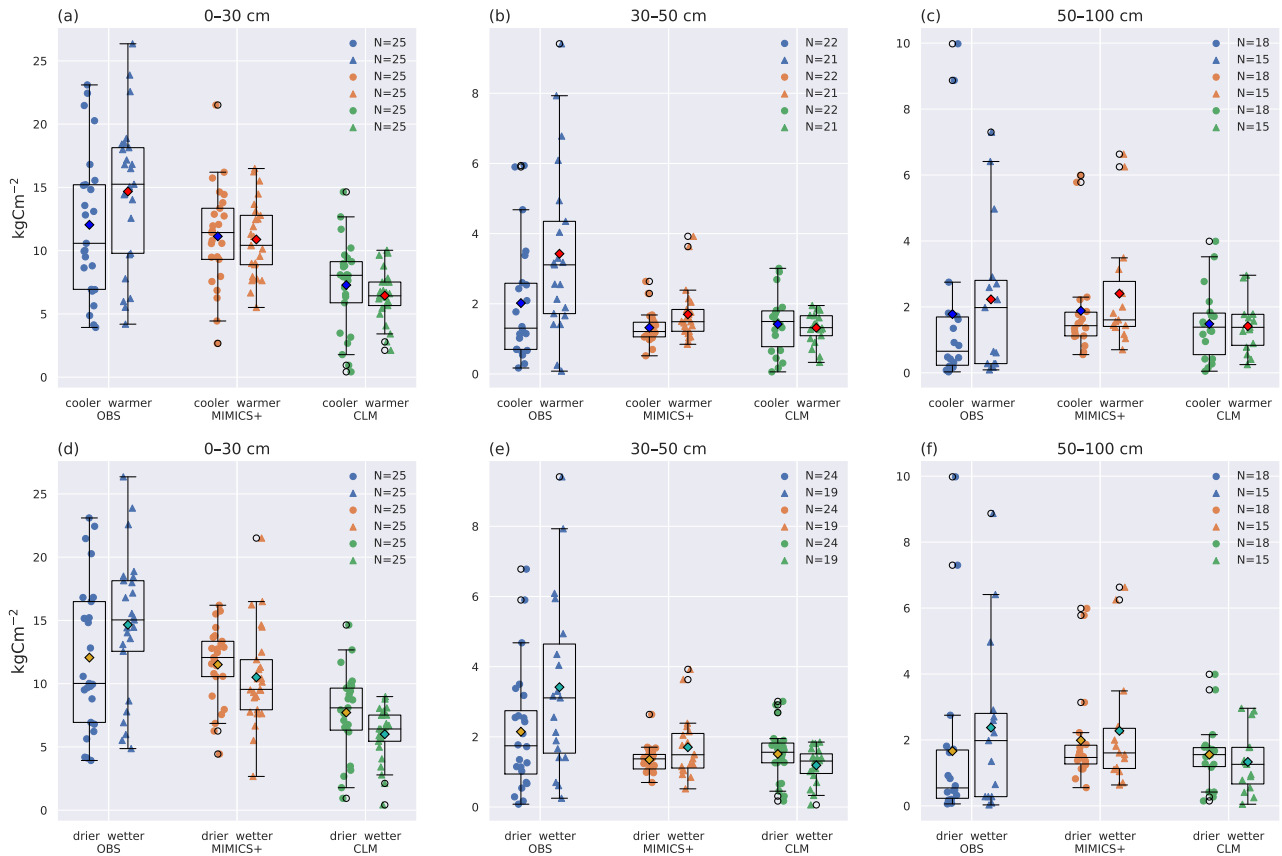
*Supplement of*

## **Modeling boreal forest soil dynamics with the microbially explicit soil model MIMICS+ (v1.0)**

**Elin Ristorp Aas et al.**

*Correspondence to:* Elin Ristorp Aas ([ecaas@uio.no](mailto:ecaas@uio.no)) and Terje K. Berntsen ([t.k.berntsen@geo.uio.no](mailto:t.k.berntsen@geo.uio.no))

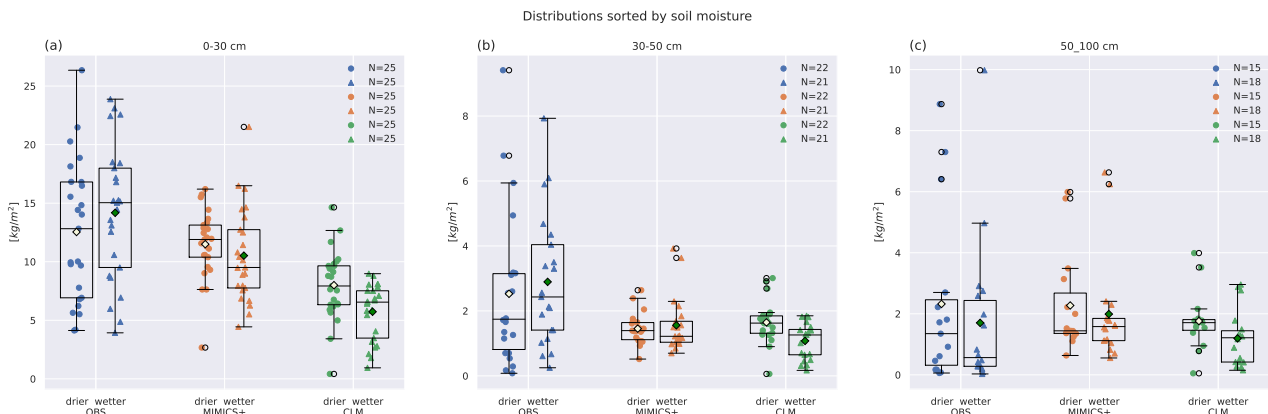
The copyright of individual parts of the supplement might differ from the article licence.



*S1: Total carbon stocks for cooler/warmer (a--c) and dryer/wetter (d--f) parts of the dataset. All three datasets (OBS, MIMICS+, CLM) are sorted after the climatic gradient of the observations. Box plots of carbon stocks in the (a), (d) top 30 cm, (b), (e) 30--50 cm, (c), (f) 50--100 cm soil depths for observed profiles from Strand et al. 2016 (left), simulated with MIMICS+ (center) and with CLM (right). In (a--c) the leftmost quartiles represent the coldest 50 % of the dataset, while the rightmost represent the warmest 50 % of the dataset. In (d--f) the leftmost boxes represent the drier 50 % of the total subset, while the rightmost represent the wetter 50 %.*



**S2:** Each panel contains boxplots of carbon stocks in the depth interval indicated in the top right corner, at sites from the total podzol dataset ( $N=578$ ), that falls into the MAT interval indicated in the top left corner. The sites in each plot is divided into MAP categories described in main text, Table 1. The line in each box is the median, while the diamonds mark the mean values. The box upper and lower edges are the 75th and 25th percentiles, respectively. The whiskers extend from the box by 1.5 times the inter-quartile range.



**S3:** Carbon concentrations for dryer/wetter parts of the datasets divided by the CLM variable `SOILWATER_10CM`. Box plots of carbon concentrations in the (a) 0--30 cm, (b) 30--50 cm, (c) 50--100 cm soil depths for observed profiles from Strand et al. 2016 (left), simulated with MIMICS+ (center) and with CLM (right). The line in each box is the median, while the diamonds mark the mean values. The diamond color correspond to the climate category; yellow: drier, turquoise: wetter. The box upper and lower edges are the 75th and 25th percentiles, respectively. The whiskers extend from the box by 1.5 times the inter-quartile range.