Using a portable elevator-based facility, profiles of CO2, water vapour, temperature and wind-speed between the soil surface and the atmospheric surface layer above crop canopies are measured. Each measurement day contains a number of half-hour measurements which are used to produce a mean 30-min profile of CO2/H2O and temperature/wind speed.

Each half-hour folder contains two image files (.png) which illustrate the CO2/H2O and temperature/wind speed profiles.

Additional files:

out_2018XXXXXXXX_wheat_data.csv: contains "semi-raw" measured data

out_2018XXXXXXXX_wheat_mcol.csv: contains processing meta data per column

out_2018XXXXXXXX_wheat_meta.csv: contains meta data

prof.csv: contains the resulting profiles

Explanation of prof.csv columns:

column	variable name	explanation	unit
B - D	pos	position above ground surface	m
E - G	CO2A	CO2 reference measurement	umol mol-1
H - J	CO2B	moving CO2 measurement in a vertical profile	umol mol-1
K - M	H2OA	H2O reference measurement	mmol mol-1
N - P	H2OB	moving H2O measurement in a vertical profile	mmol mol-1
Q - S	Aux1	reference wind speed	m s-1
T - V	Aux2	moving wind speed measurement in a vertical profile	m s-1
W - Y	FW_DIFF1	reference temperature measurement	degC
Z - AB	FW_DIFF2	moving temperature measurement in a vertical profile	degC

nanmean - mean value (used to visualize vertical profiles)

nanstd - standard deviation

Nnotnan - number of measurement points per height

To reconstruct the profiles you need the position above ground surface and one of the following columns: H (CO2), N (H2O), T (wind speed), Z (temperature)

For further information the following publication is recommended:

Ney, Patrizia, and Alexander Graf. "High-Resolution Vertical Profile Measurements for Carbon Dioxide and Water Vapour Concentrations Within and Above Crop Canopies." Boundary-Layer Meteorology 166.3 (2018): 449-473.

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