QA/QC Meeting

21 Sep 2023

Participants: LH, LS, SO, YW, IF, KMK, SS, LK, XZ (9)

Talking Points

- LH is on holidays 9-20 Oct 2023, and thus not present for the next meeting on 18 Oct 2023
- Reminder: fluxcoffee notes with lots of details about flux calculations and more are available in Teams (Data/FluxCoffee)
- Reminder: Make sure to check the plots of a random EC raw data file from time to time
- Checking recent webcam images
- Checking SW_IN, VPD and TA, site overview
- Checking recent fluxes
- The wind component w shows an offset during some time periods at some sites, maybe we can correct this directly in EddyPro (see next slide). This seems to be a recurring issue for CH-CHA.

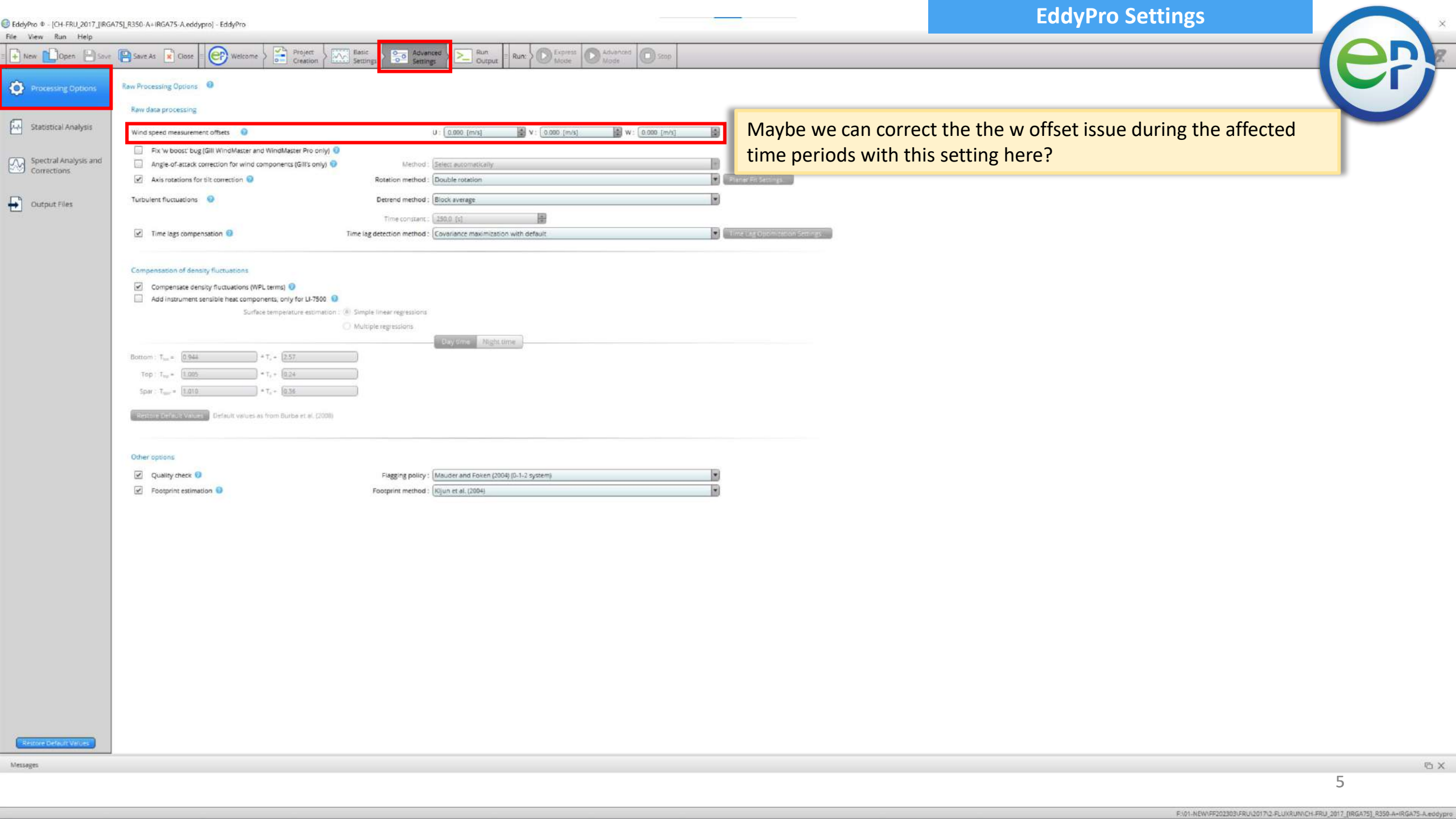
Talking Points

- **LH is on holidays 9-20 Oct 2023**, and thus not present for the next meeting on 19 Oct 2023
- **Reminder: FluxCoffee notes** with lots of details about flux calculations and more are available in Teams (Data/FluxCoffee)
- **Reminder**: Make sure to check the plots of a random **EC raw data** file from time to time
- Checking recent webcam images
- Checking SW_IN, VPD and TA, site overview
- Checking recent fluxes
- The wind component w shows an offset during some time periods at some sites, maybe we can correct this directly in EddyPro (see next slide). This seems to be a recurring issue for CH-CHA.

General Info

- **Attendance**: If you are (Tech-)SRP, please attend QA/QC meetings or tell LH if you can't, needed for planning of the meetings.
- **Short statement**: SRP & Tech-SRP: please prepare short statement about your site and post it on the slide together with the plot(s). You can also extend the already available text snippet(s) from previous meetings. (max. 2 sentences)
- **Purpose**: The purpose of QA/QC meetings is to check on current, incoming data. SRPs choose specific issues we should look at together and discuss in the group. Fluxes are checked if the respective SRP wishes to do so.
- **Variables**: There is a list of known variable abbreviations that you can use in case you wonder what an abbreviation means: Variable Abbreviations
- **Check of EC raw data files**:
  - Recommended check for SRPs and T-SRPS: take a look at EC raw data files and check if they look OK
  - Current EC raw data files are automatically converted to ASCII each day (done by the Python script bico)
  - Files and their plots can be found here, e.g. for CH-LAS: *gl-processing\CH-LAS_Lae-Subcanopy\20_ec_fluxes\2022\raw_data_ascii*
- **Weekly flux calculations on the RDS**:
  - Please calculate fluxes and check them once per week, or more often if you wish to do so.
  - If you cannot calculate the fluxes, try to find a substitute, e.g. LH.
  - Please move your Level-0 results from the RDS to the respective Level-0 folder.
- **RDS folder**: The folder P:\Flux\RDS_calculations is a temporary folder. Please move Level-0 flux calculations (preliminary fluxes) to the Level-0 folder on gl-processing. For example, for CH-CHA move files to Z:\CH-CHA_Chamau\20_ec_fluxes\2022\Level-0 (gl-processing is mounted as drive Z in this example).
- The RDS now has access to the database. This means that we now have a shared working environment where we can run Jupyter notebooks.
- **FluxCoffee**: separate meetings to discuss data related issues, e.g. flux processing and technical issues, started and will continue to take place. There are extensive notes available in the Data/FluxCoffee group on Microsoft Teams.
- **List of QA/QC Meeting dates**: QA/QC Meetings 2023

EddyPro Settings



Maybe we can correct the the w offset issue during the affected time periods with this setting here?

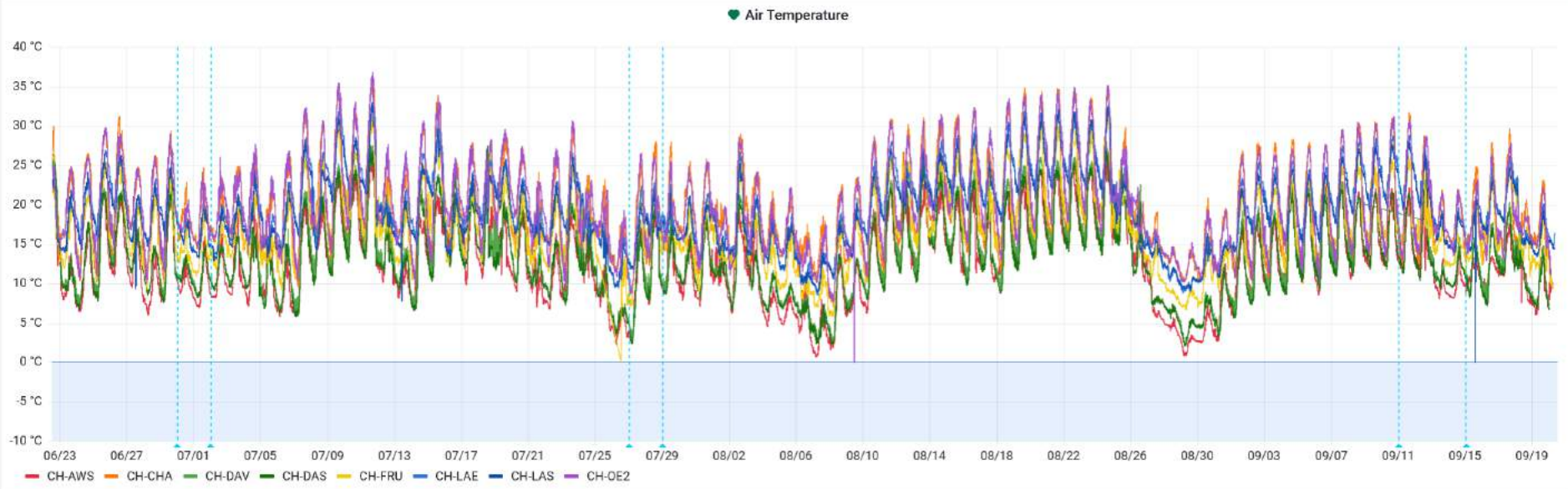
ALL SITES Recent webcam pictures

Source: Swiss FluxNet

ALL SITES TA, SW_IN

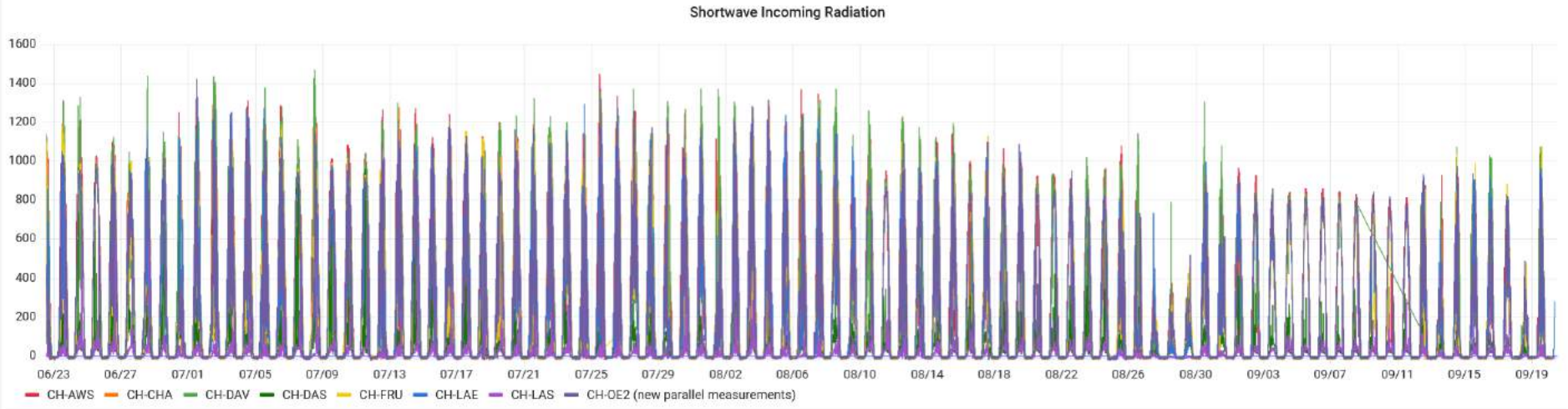
Air Temperature

- raw data
- no quality checks
- full resolution

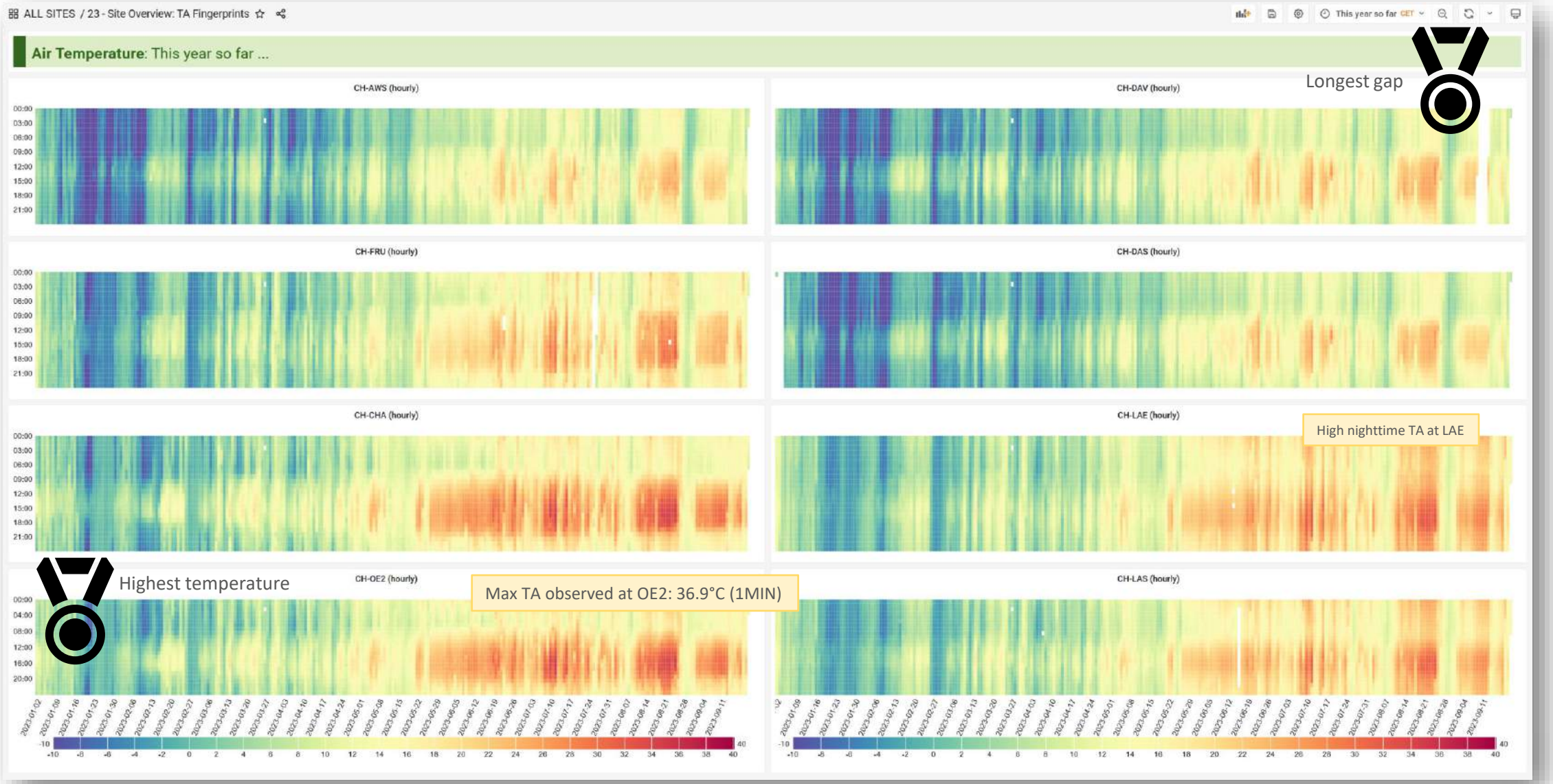


Shortwave Incoming Radiation

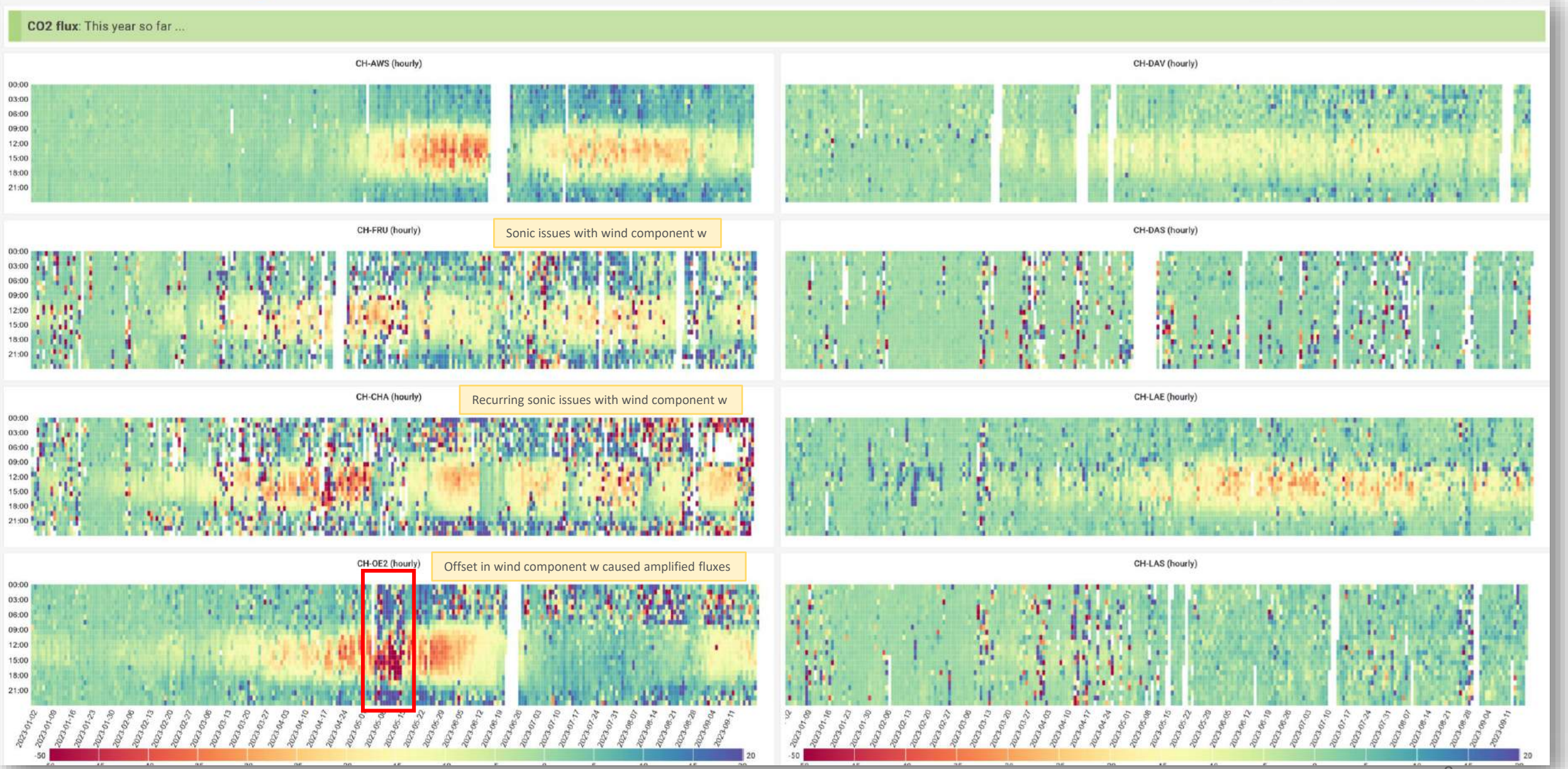
- raw data
- no quality checks
- full resolution



ALL SITES TA

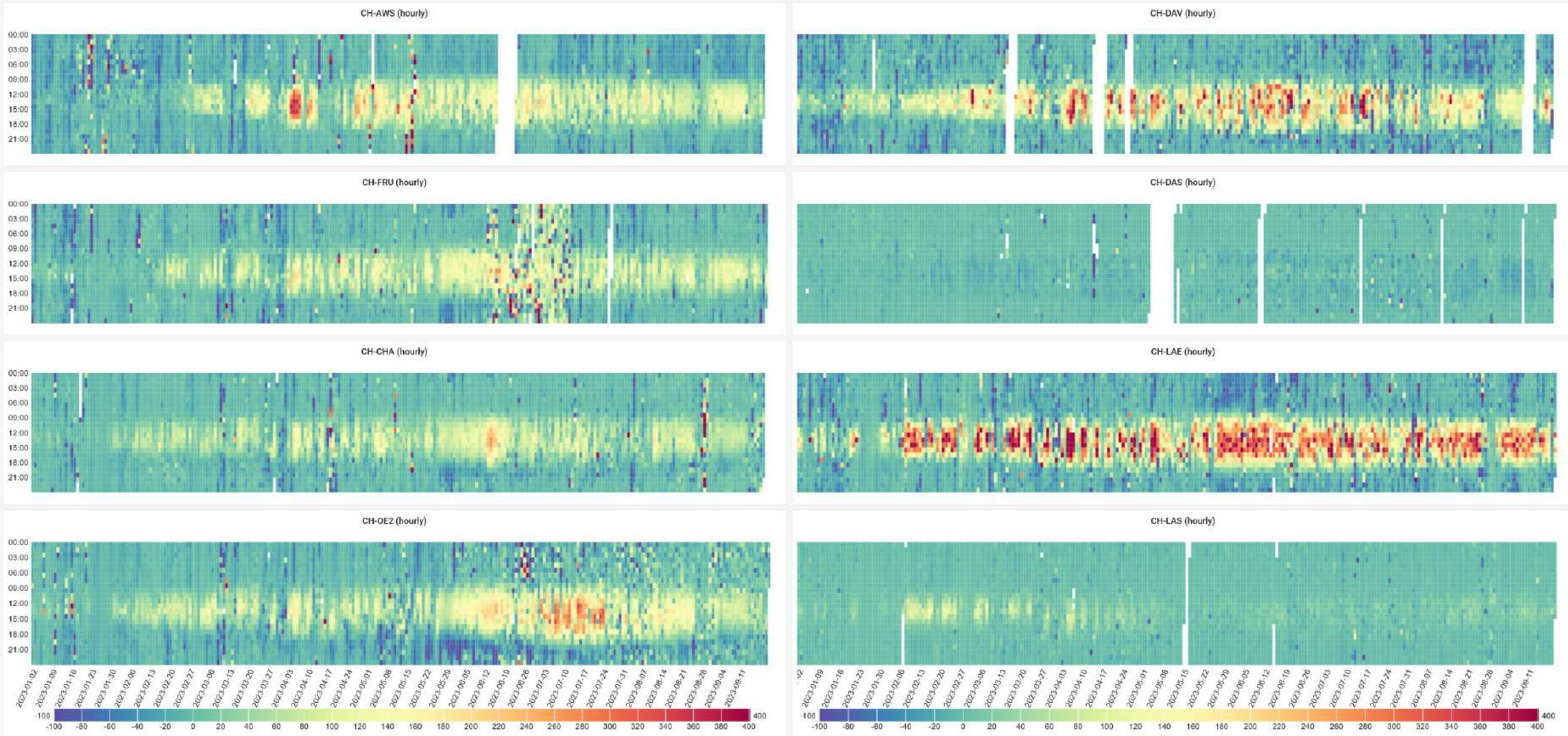

ALL SITES / 23 - Site Overview: TA Fingerprints
This year so far CET
Air Temperature: This year so far ...
CH-AWS (hourly)
CH-DAV (hourly)
Longest gap
CH-FRU (hourly)
CH-DAS (hourly)
CH-CHA (hourly)
CH-LAE (hourly)
High nighttime TA at LAE
Highest temperature
CH-OE2 (hourly)
Max TA observed at OE2: 36.9°C (1MIN)
CH-LAS (hourly)

ALL SITES CO2 Fluxes



ALL SITES Sensible Heat Fluxes (H)

H, sensible heat flux: This year so far ...



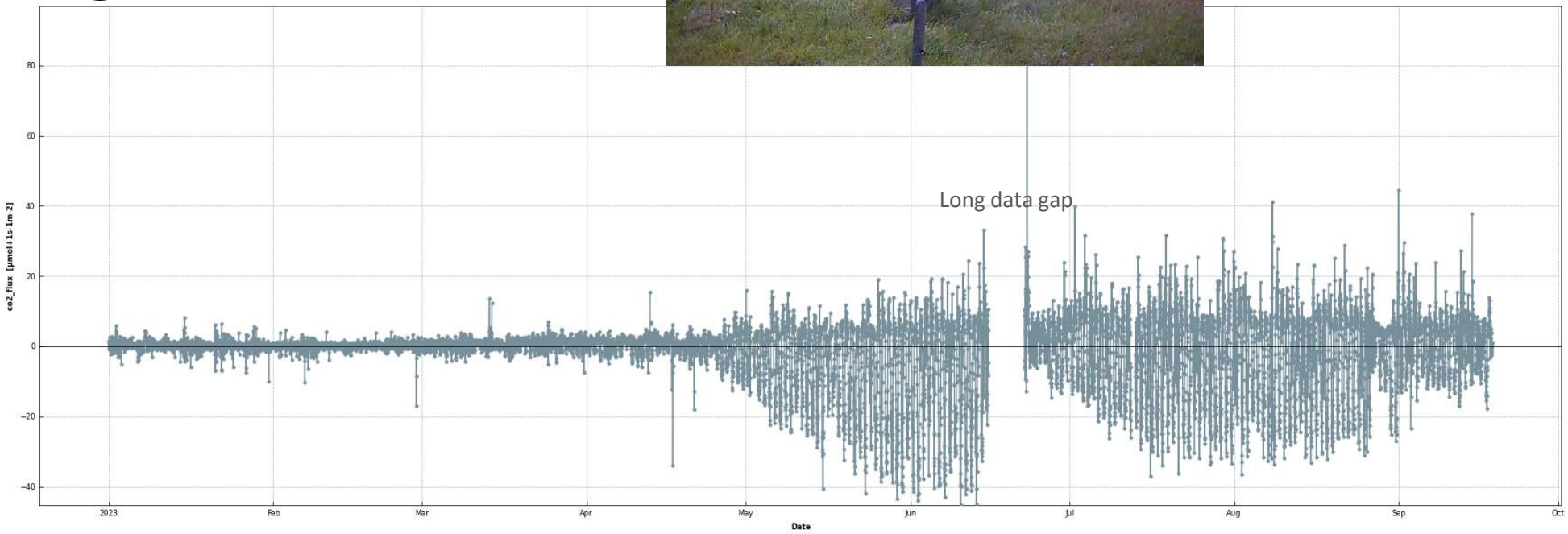
CH-AWS

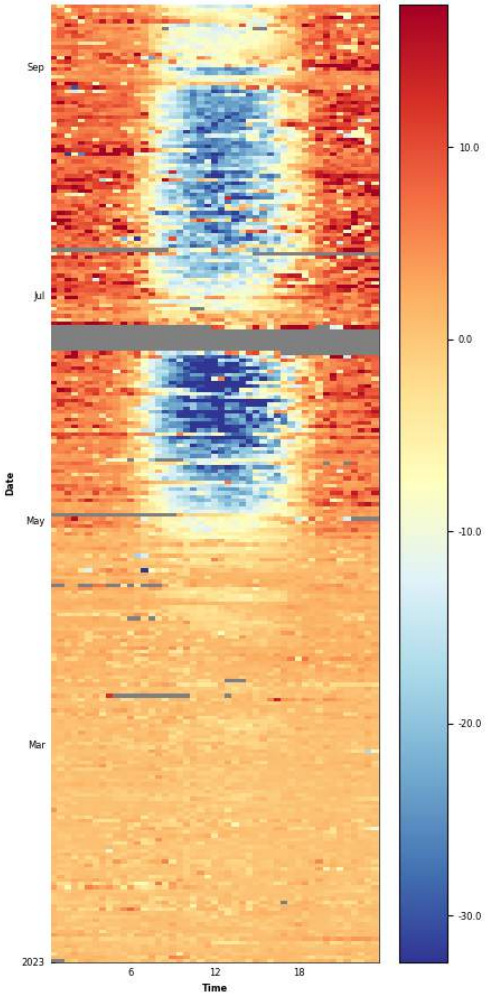
Photo: Matthi Barthel

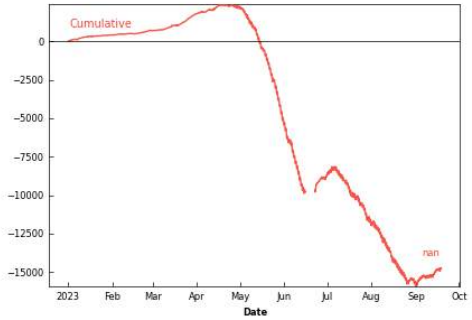
CH-AWS CO2 flux

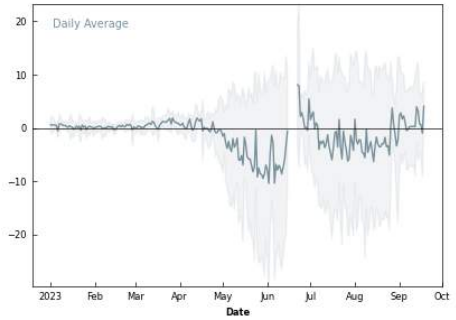
Most beautiful site & fluxes

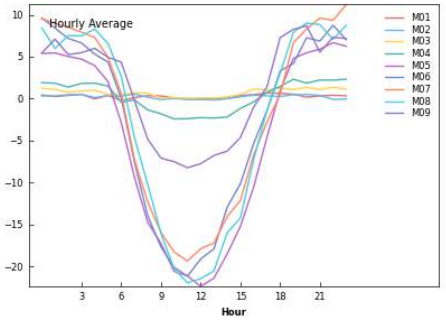
Long data gap

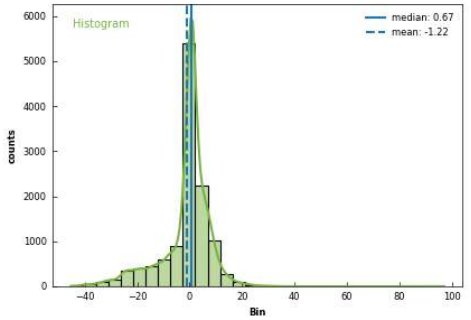






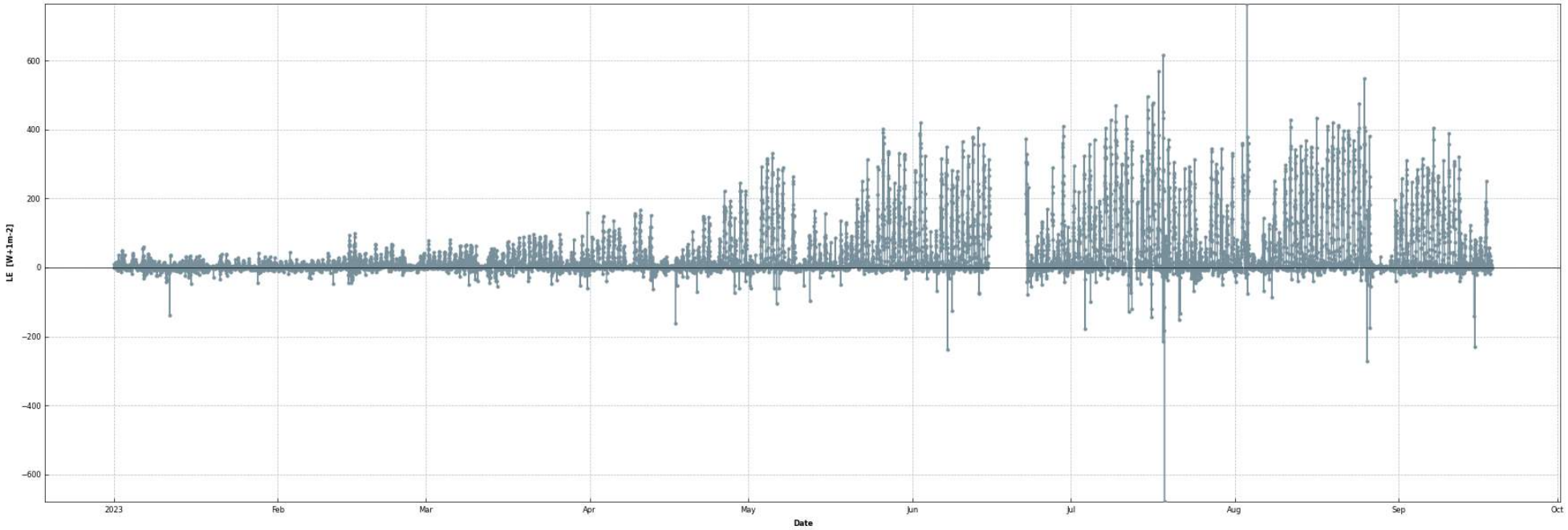


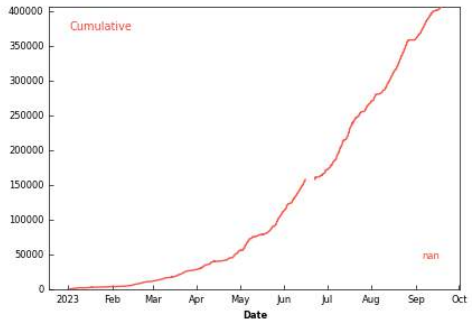


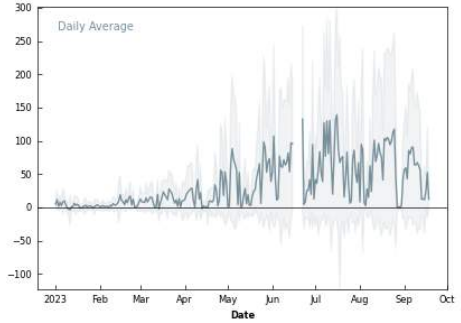


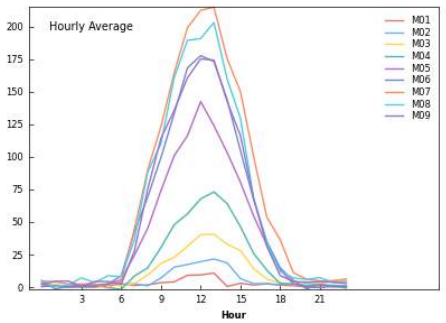
site info

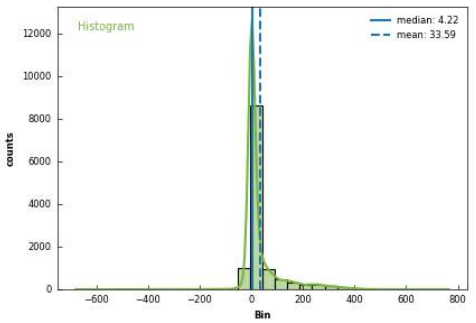
CH-AWS LE

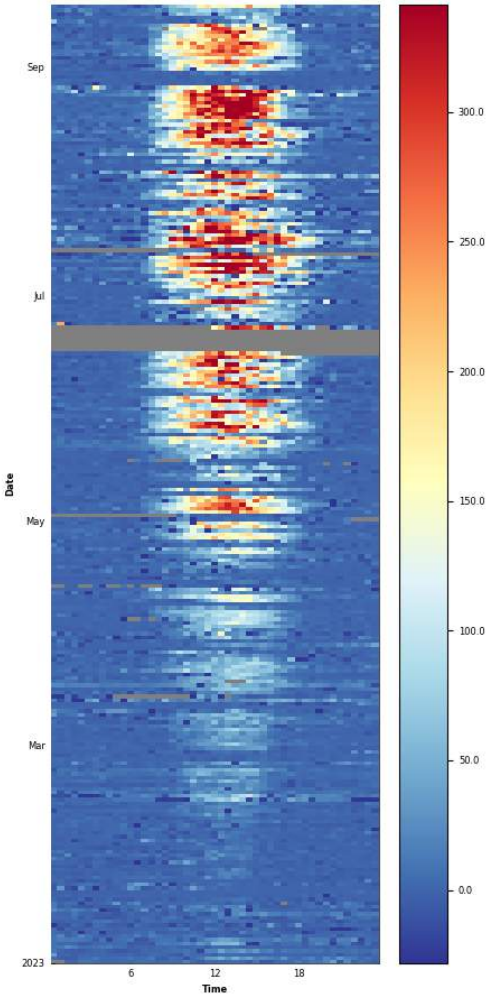






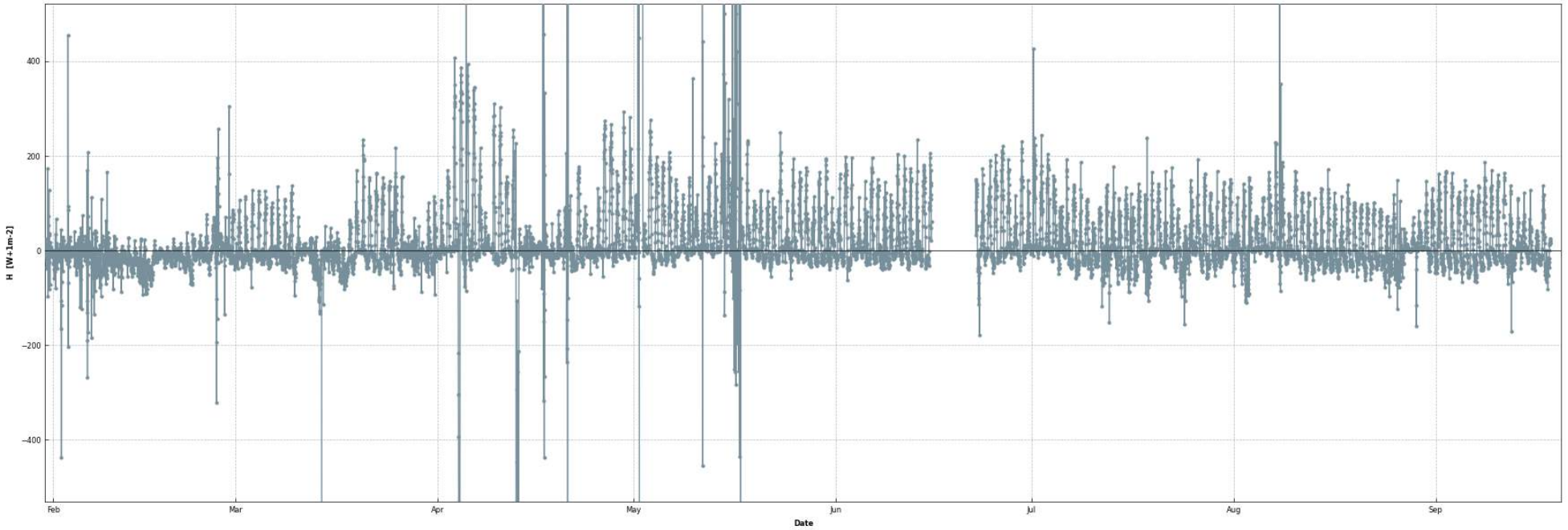


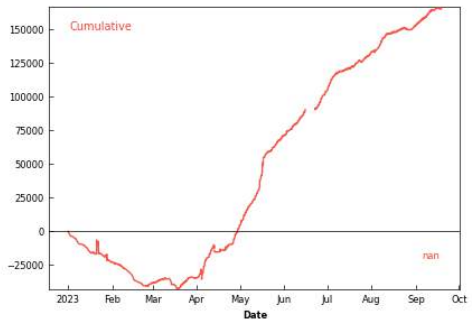


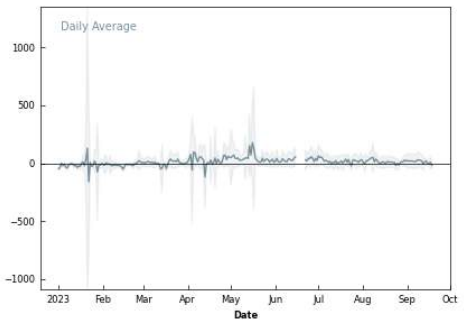


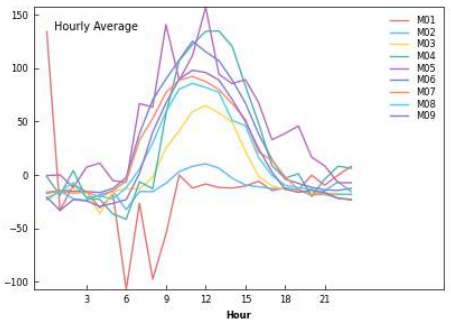
site info

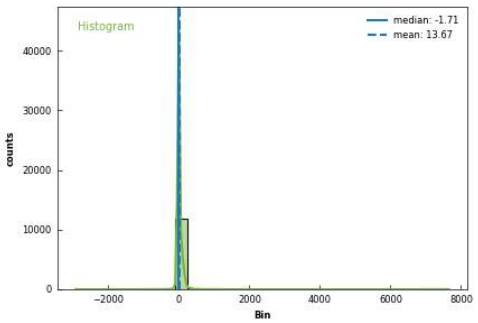
CH-AWS H

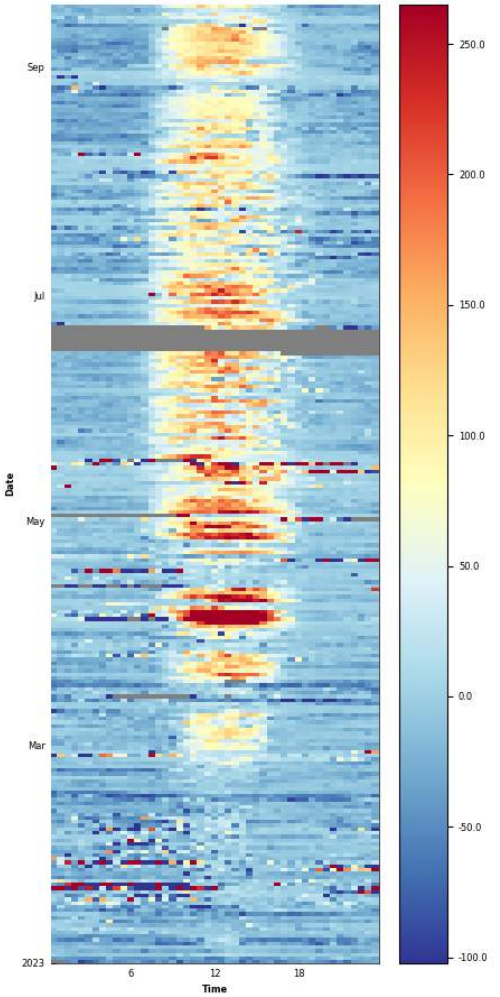








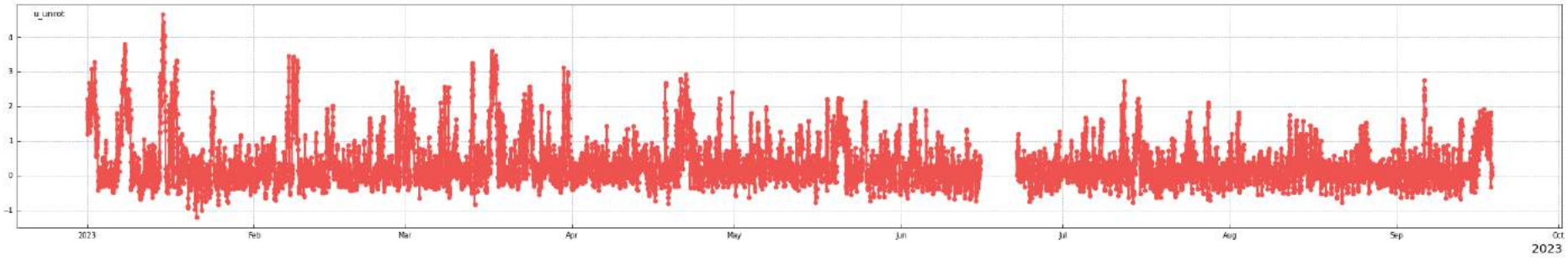




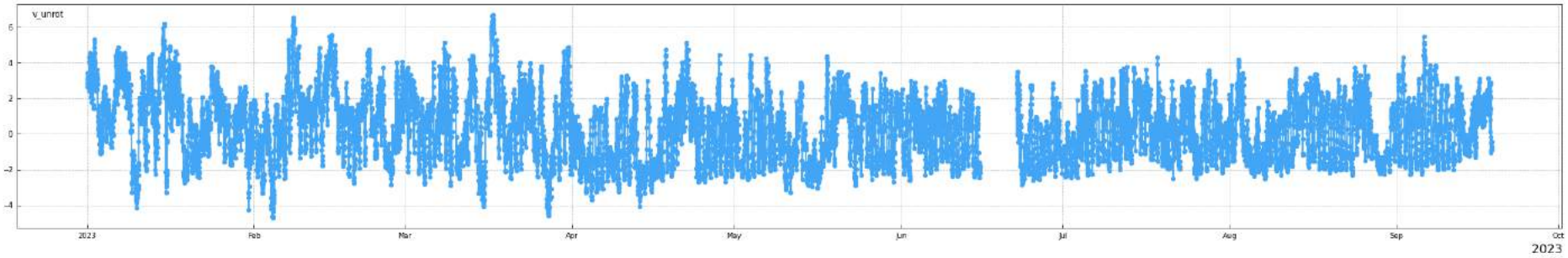
site info

CH-AWS u, v, w

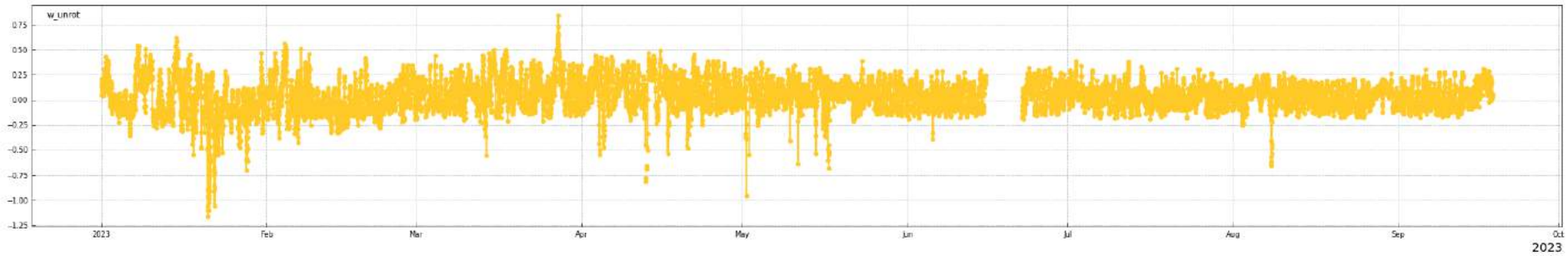
u_unrot



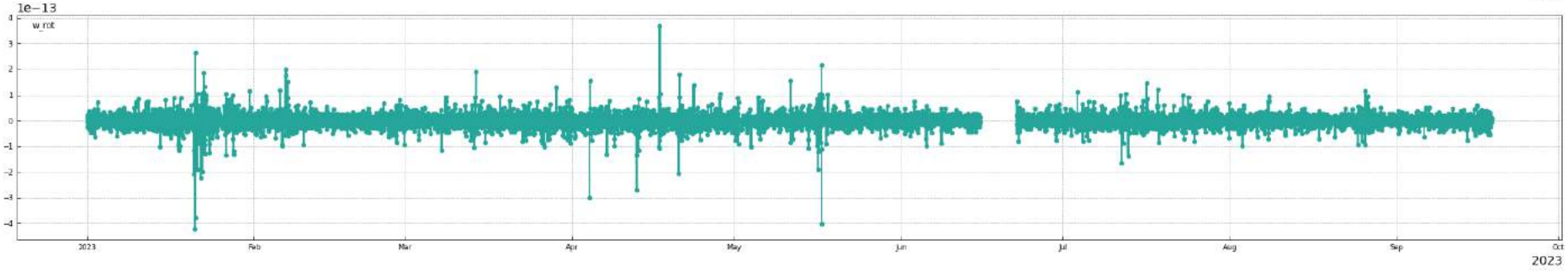
v_unrot



w_unrot



w_rot



site info

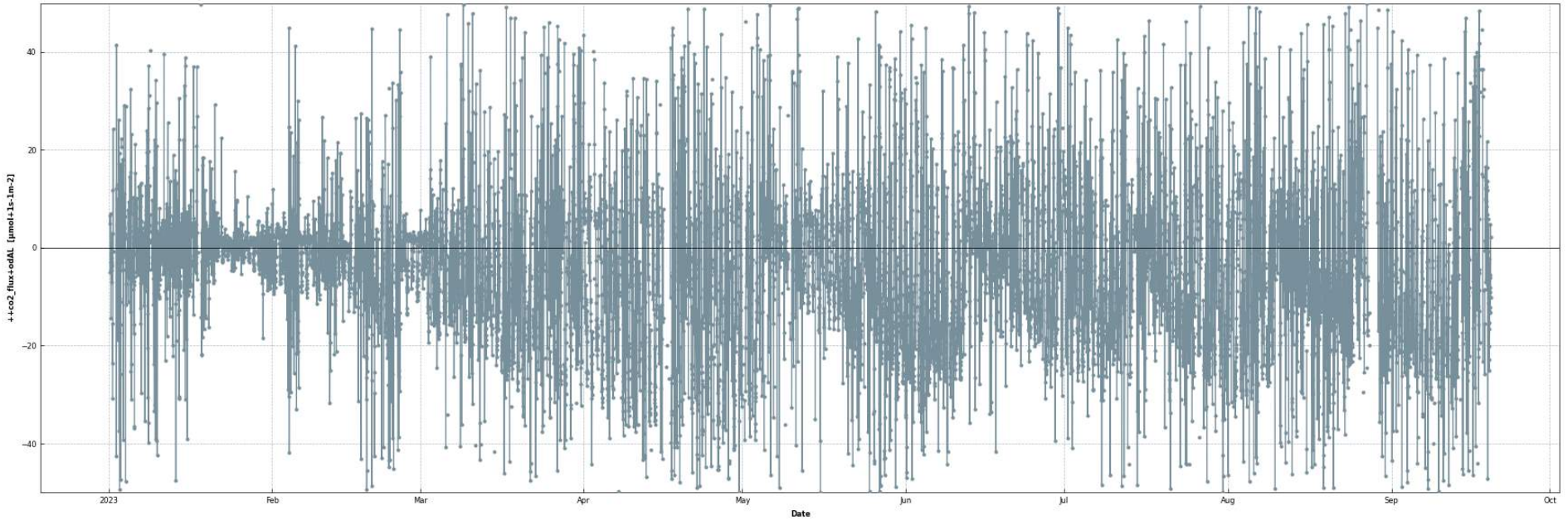
CH-CHA

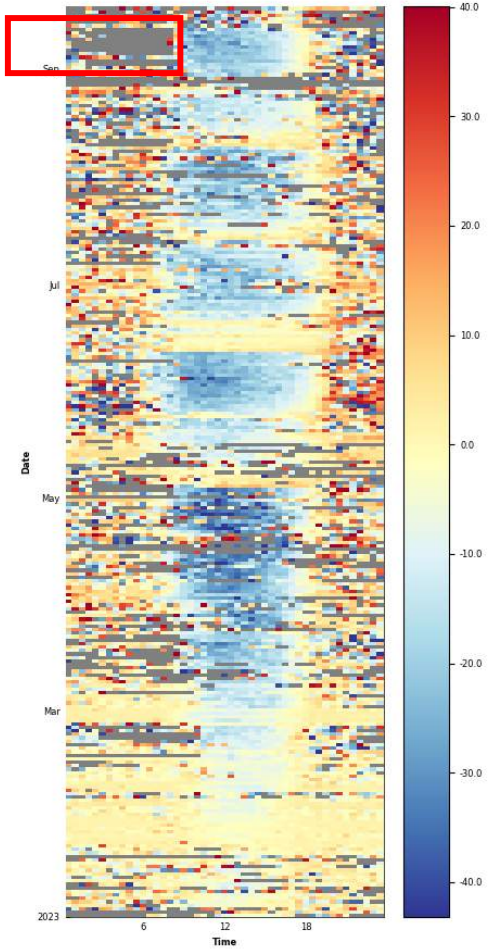
Photo: Lukas Hörtnagl

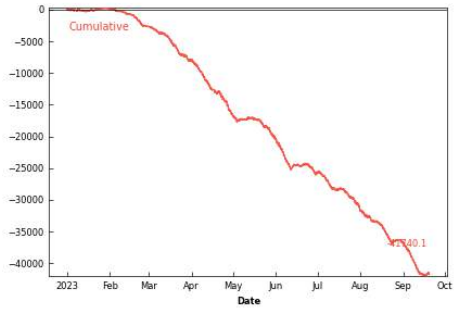
CH-CHA CO2 flux

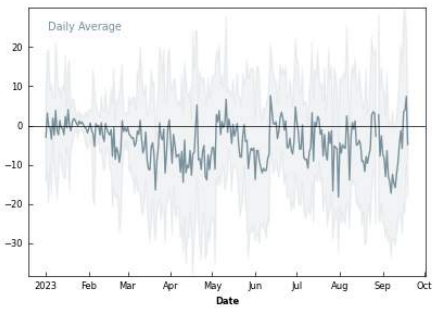
- 1st mowing: 2023.05.04
- 2nd mowing: 2023.06.11
- 3rd mowing: 2023.07.13
- 4th mowing: 2023.08.08

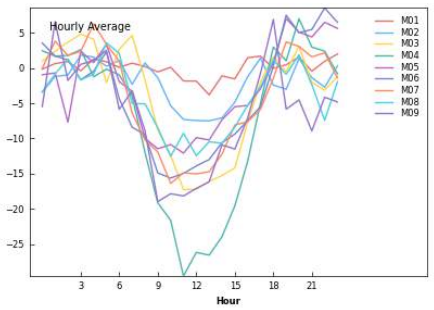
Foggy weather/Low visibility/High AGC values

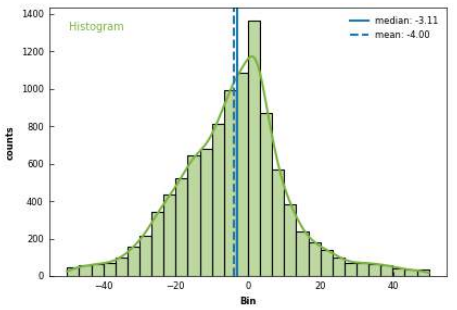










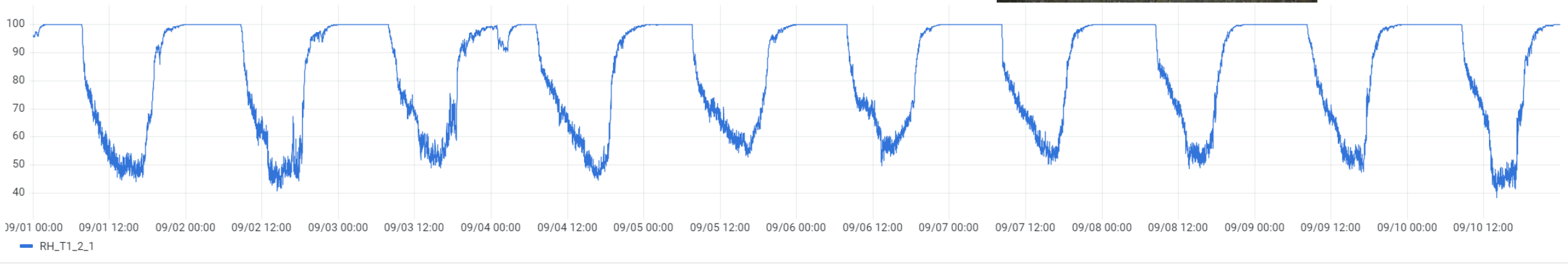


Quite some high uptake in September

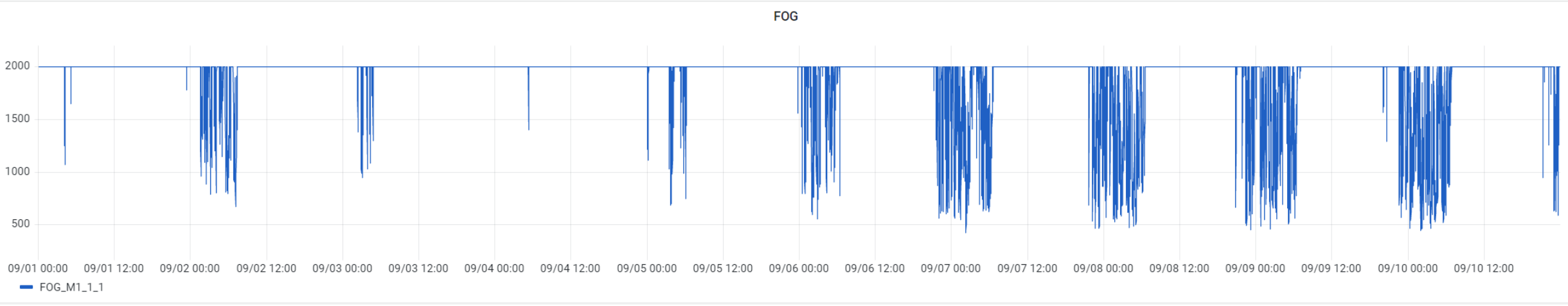
site info

CH-CHA Meteo

RH

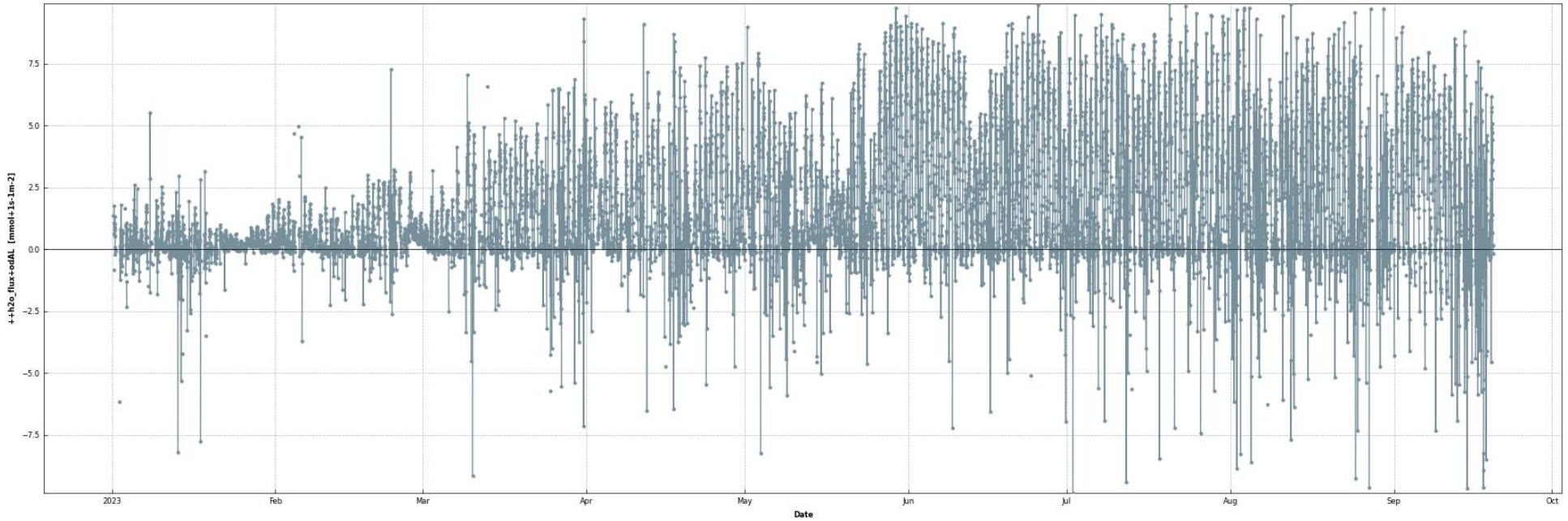


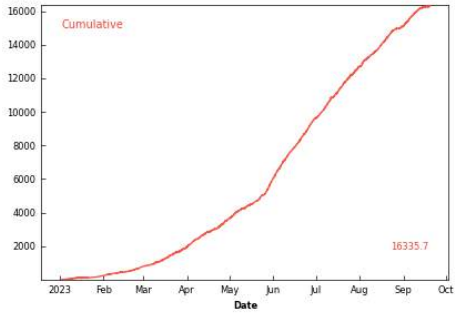
FOG

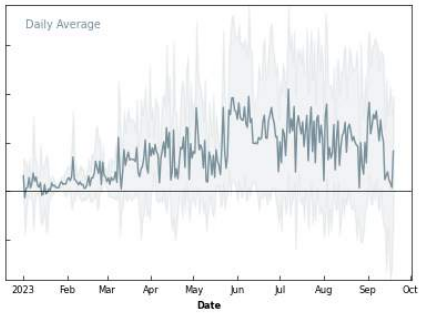


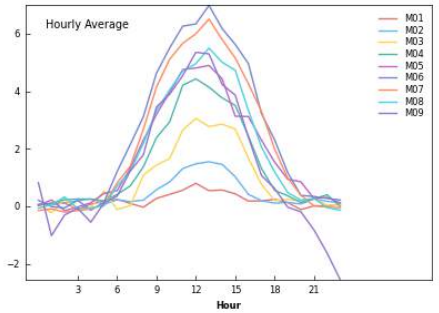
site info

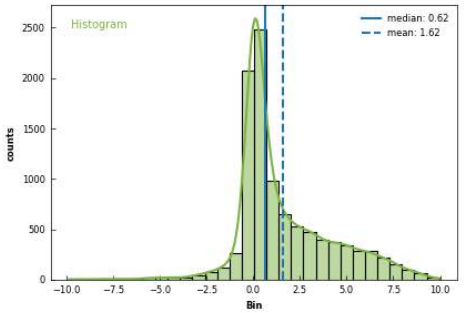
CH-CHA H2O flux

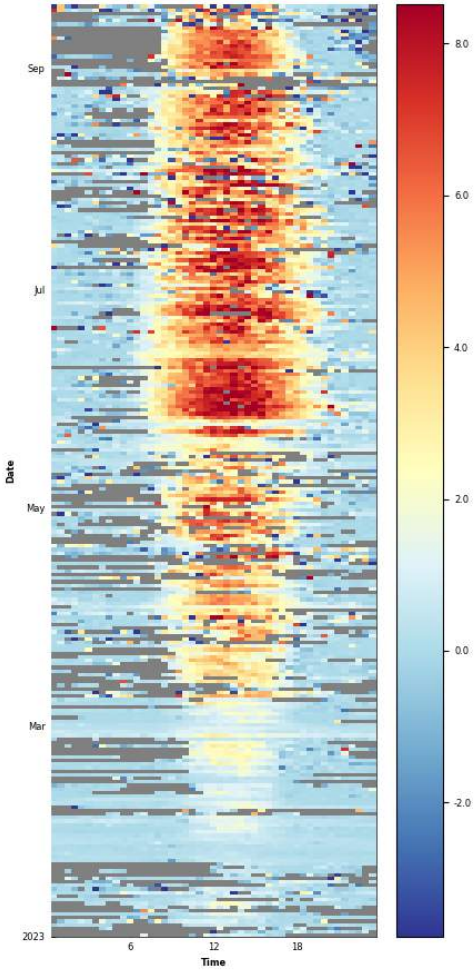








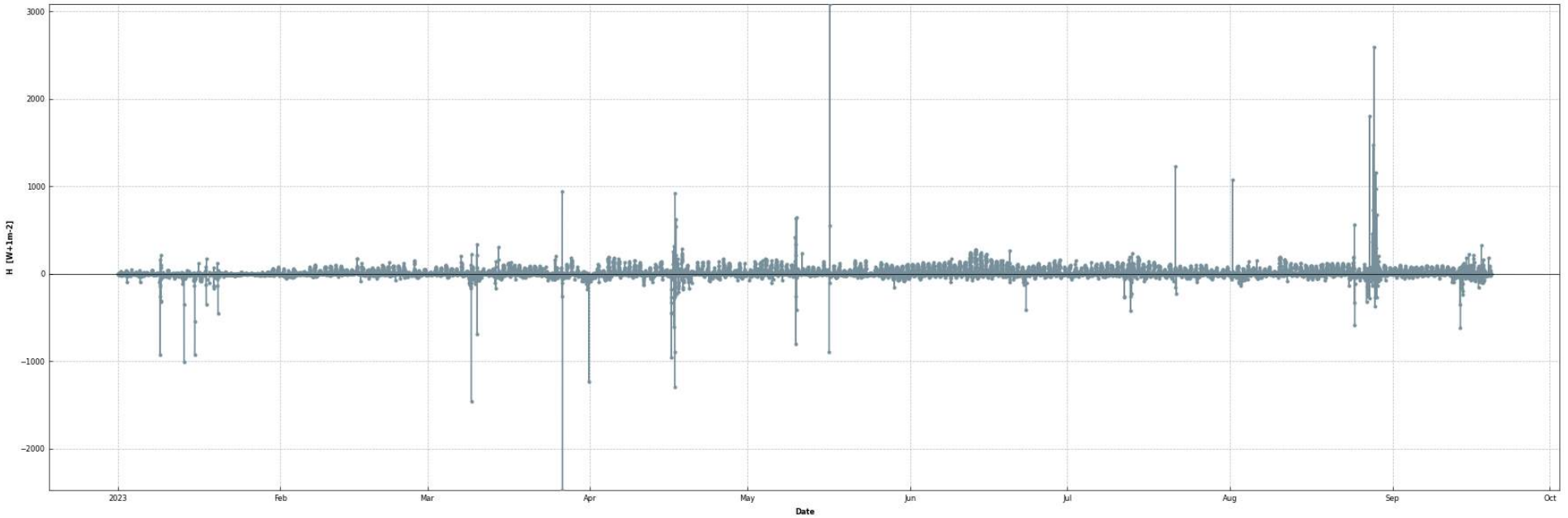


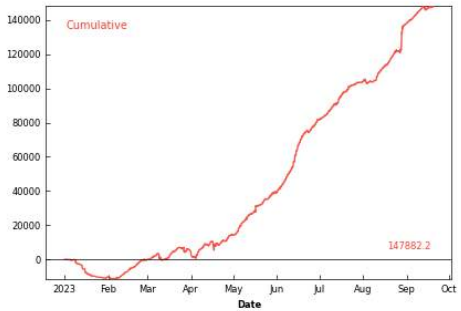


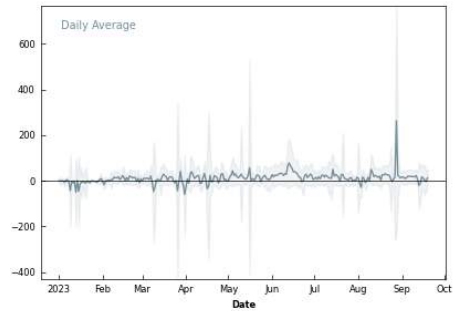
site info

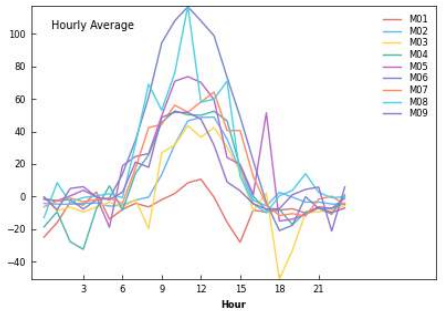
CH-CHA H

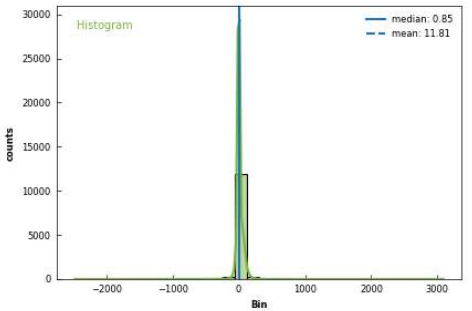
- Recent w_unrot offset: highly fluctuating H fluxes

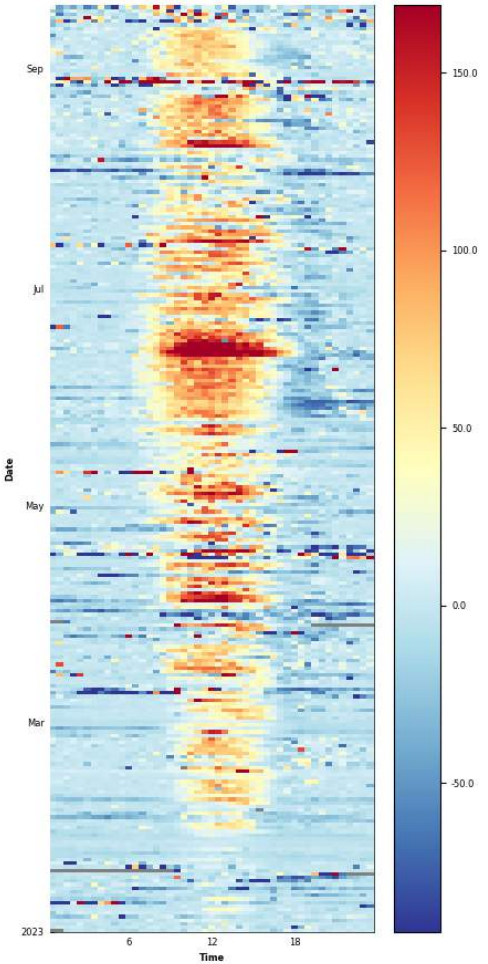








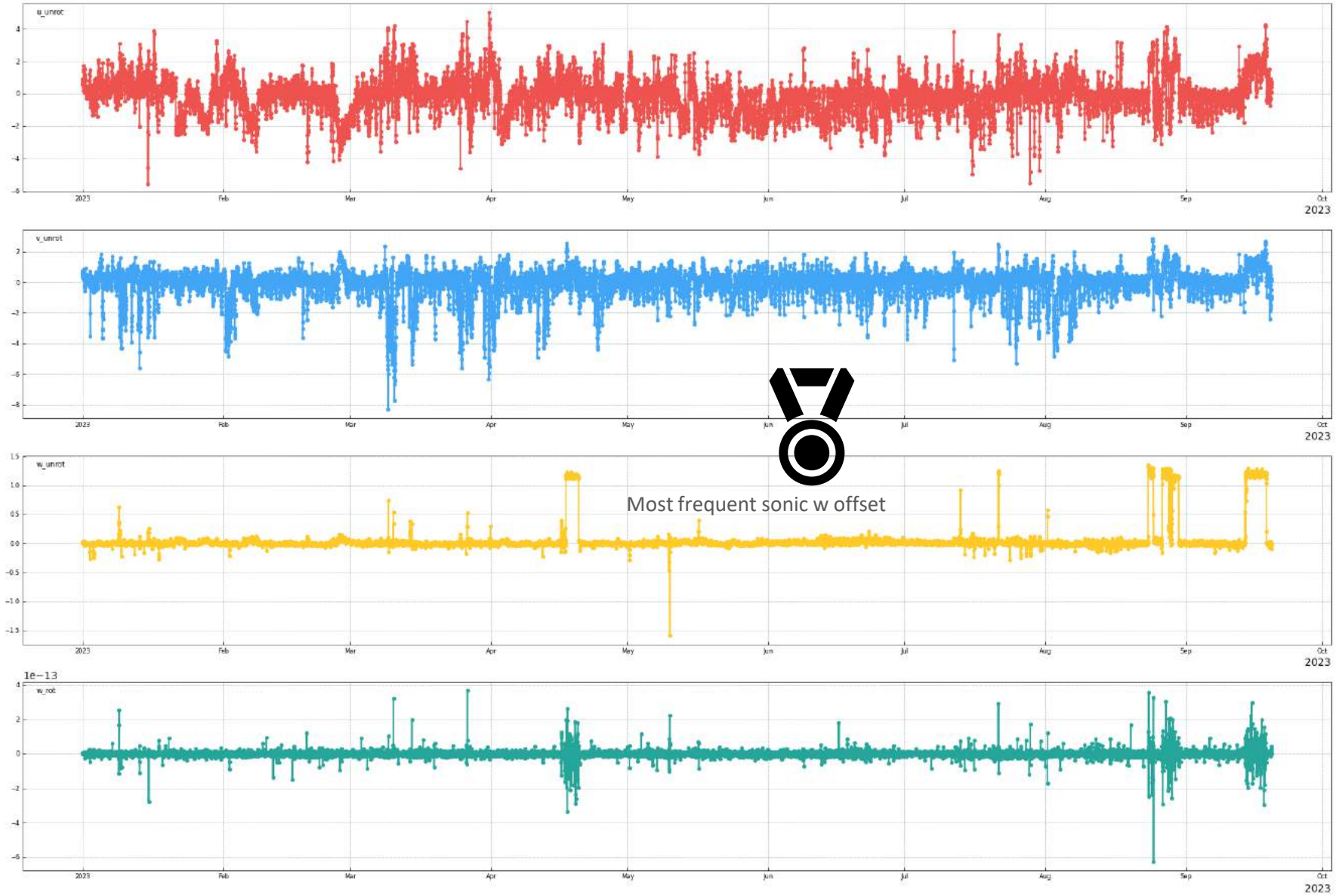




site info

CH-CHA u,v,w

- w_unrot offset was back **AGAIN**: **fixed by sonic restart again**



site info

CH-DAV

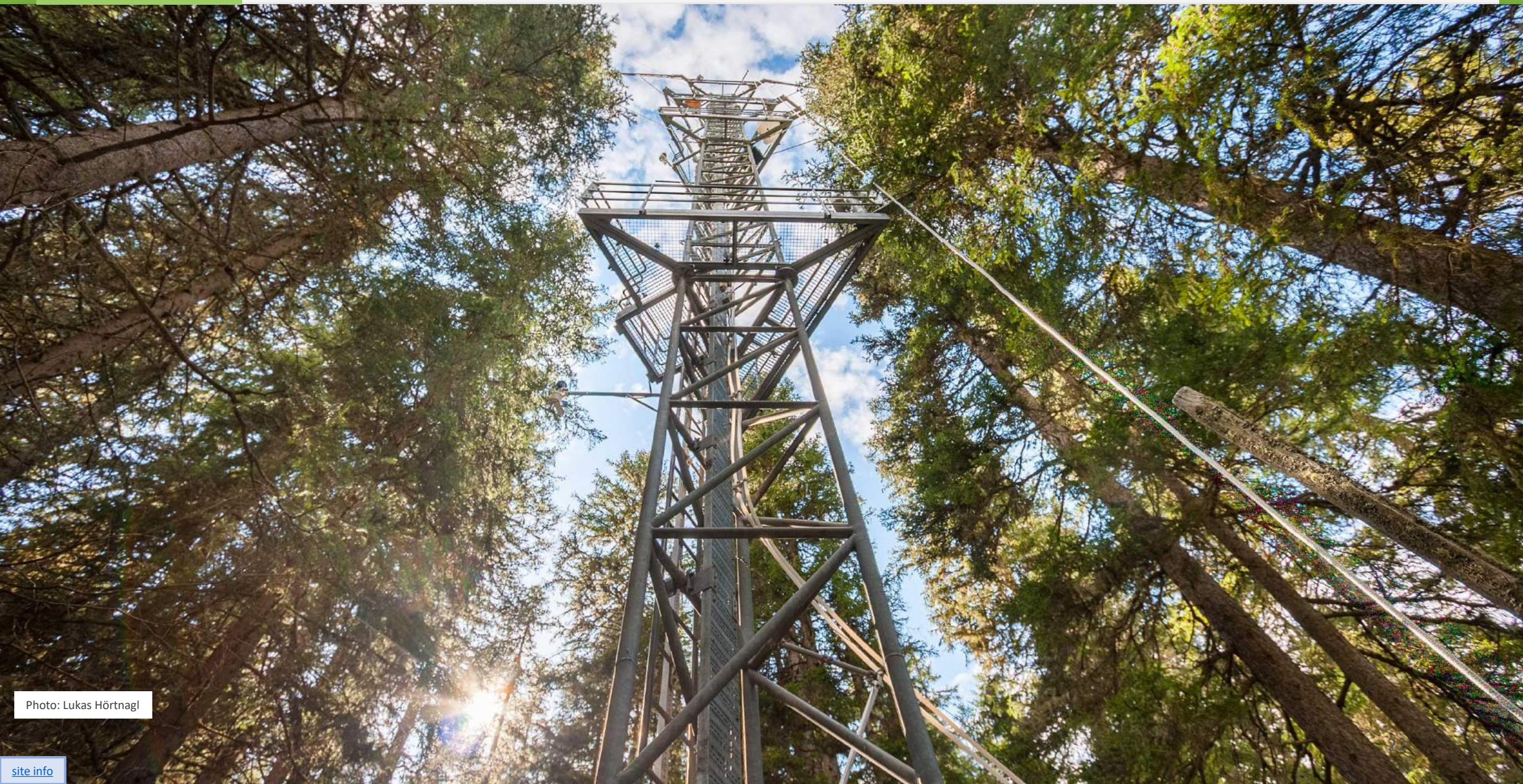
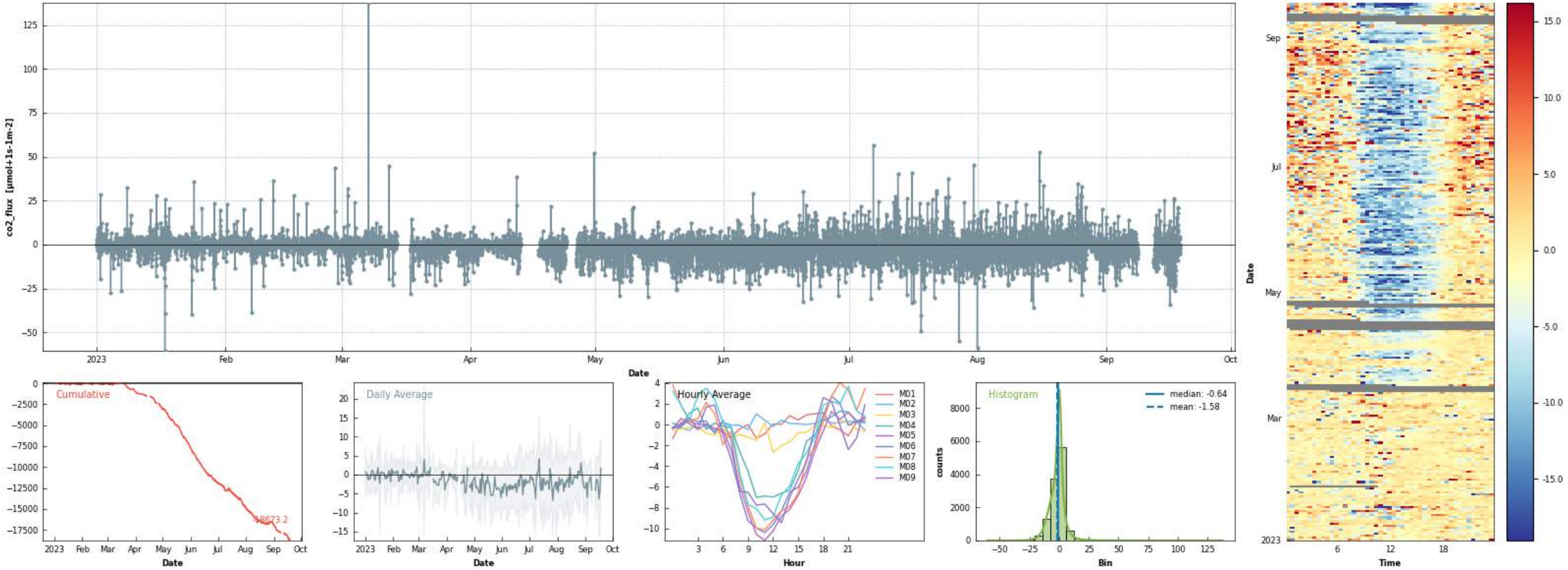


Photo: Lukas Hörtnagl

site info

CH-DAV CO2 flux

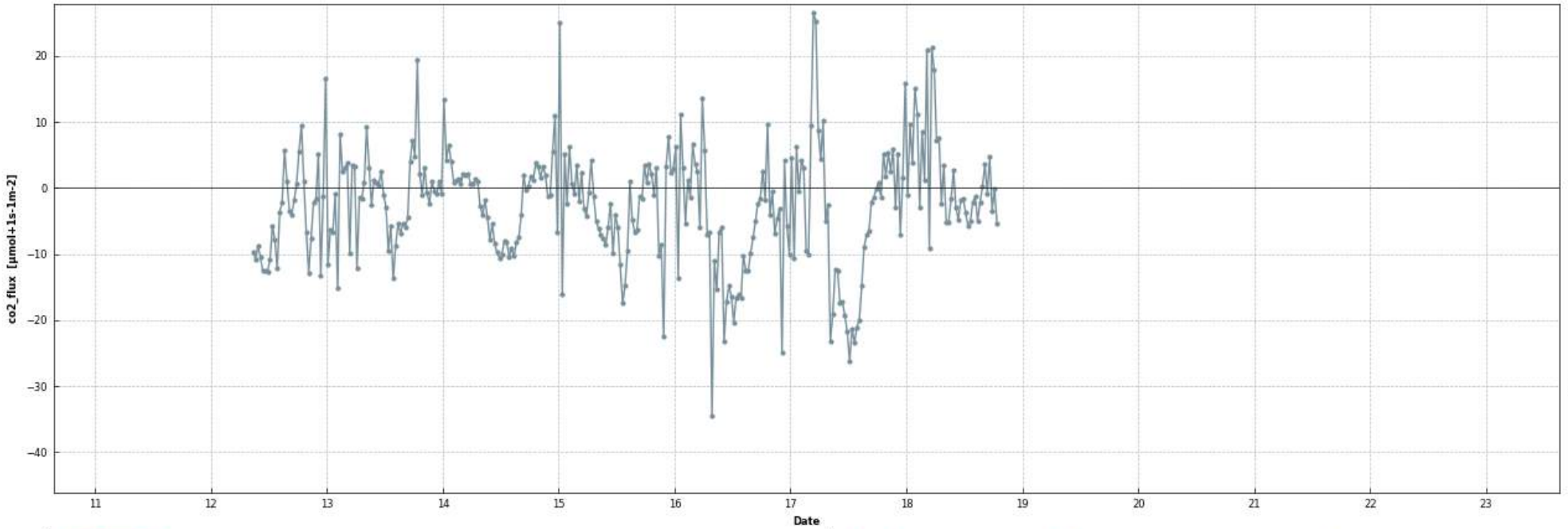
- Power outage over four days (8 to 12 September) due to a fuse blown, only tower data was affected (forest floor kept

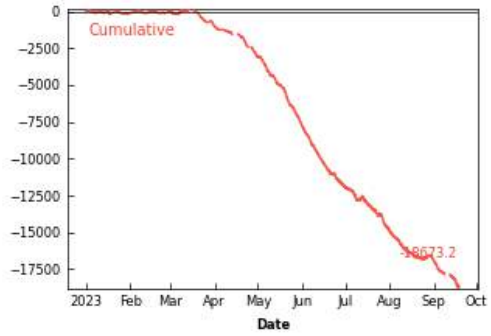


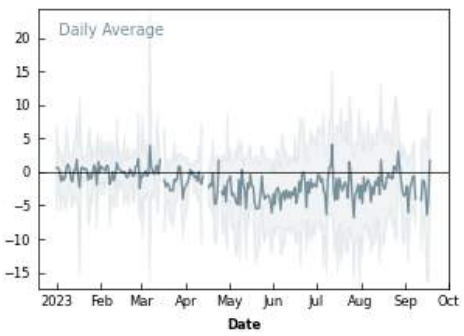
site info

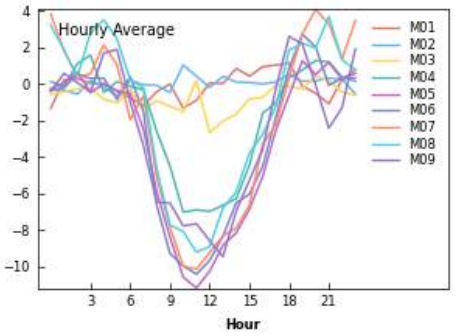
CH-DAV CO2 flux

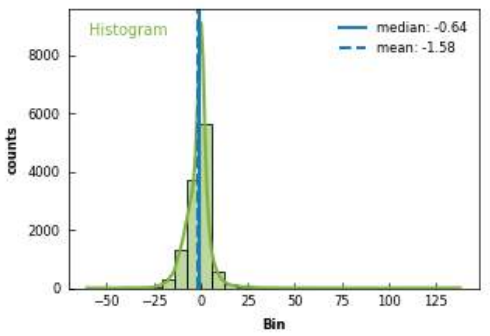
- Very high CO_2 uptake on 17th September

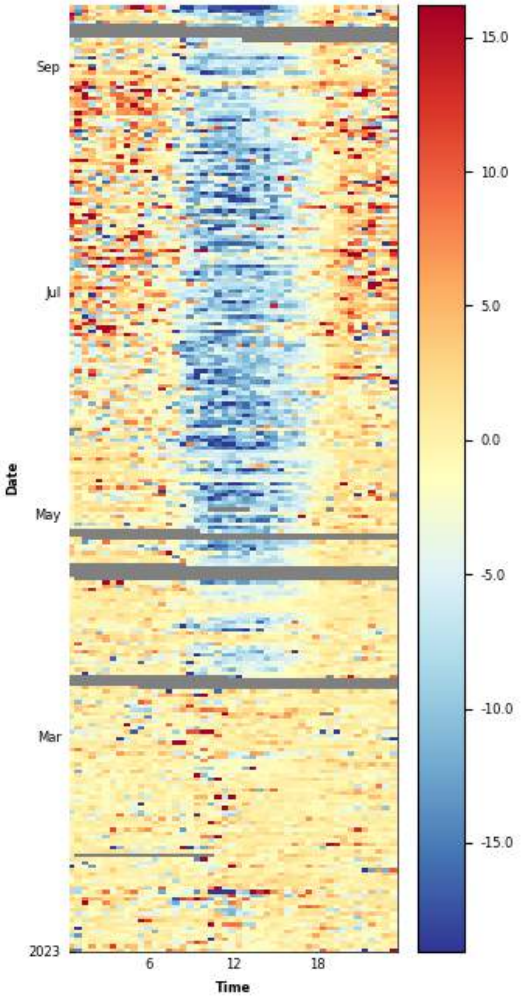






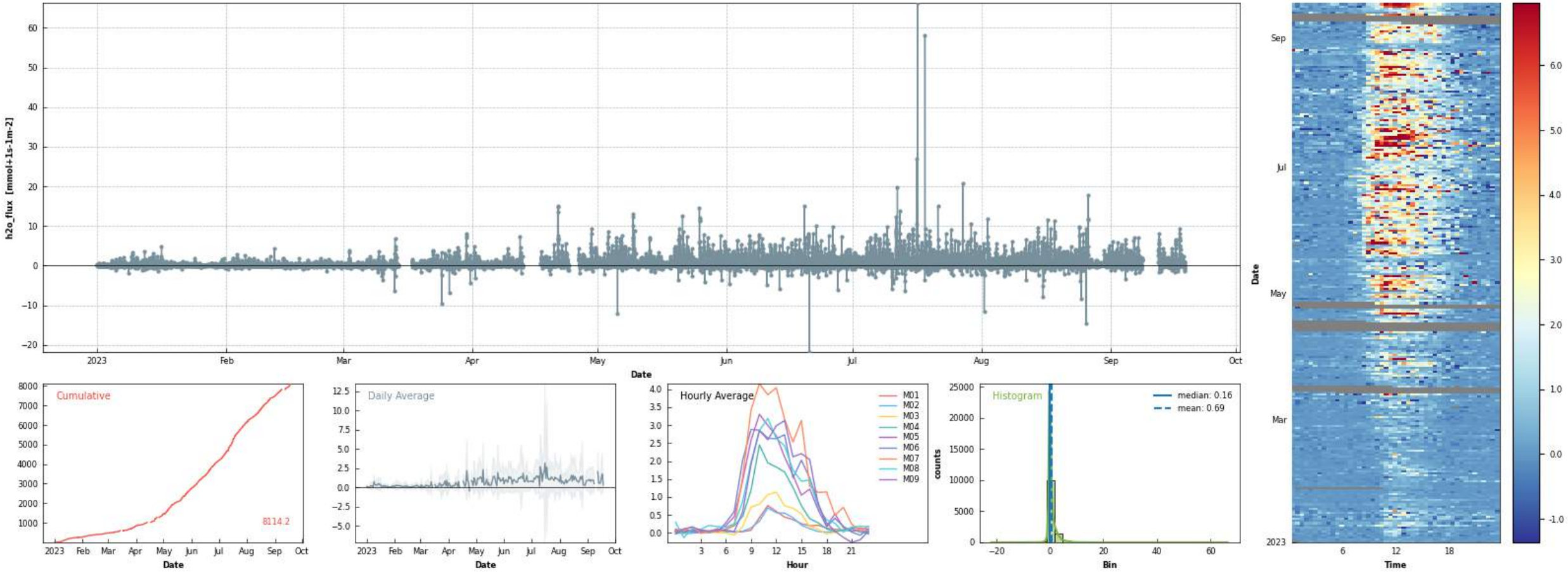






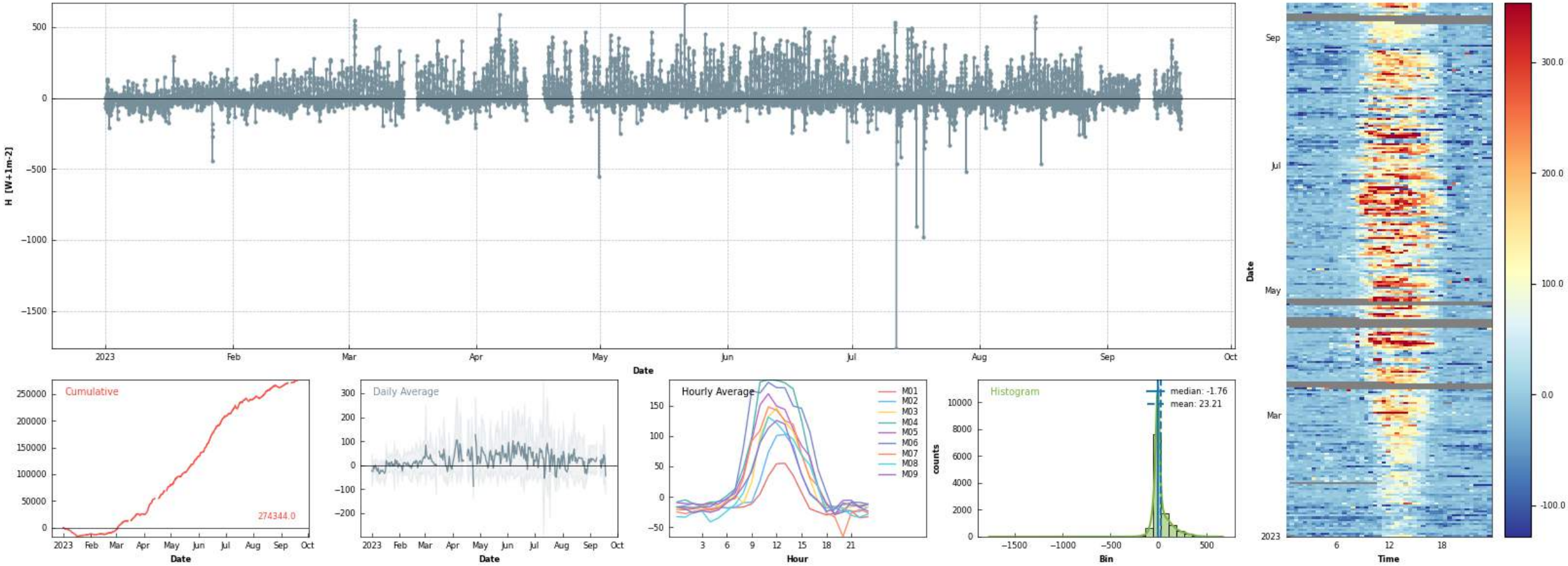
site info

CH-DAV H2O flux

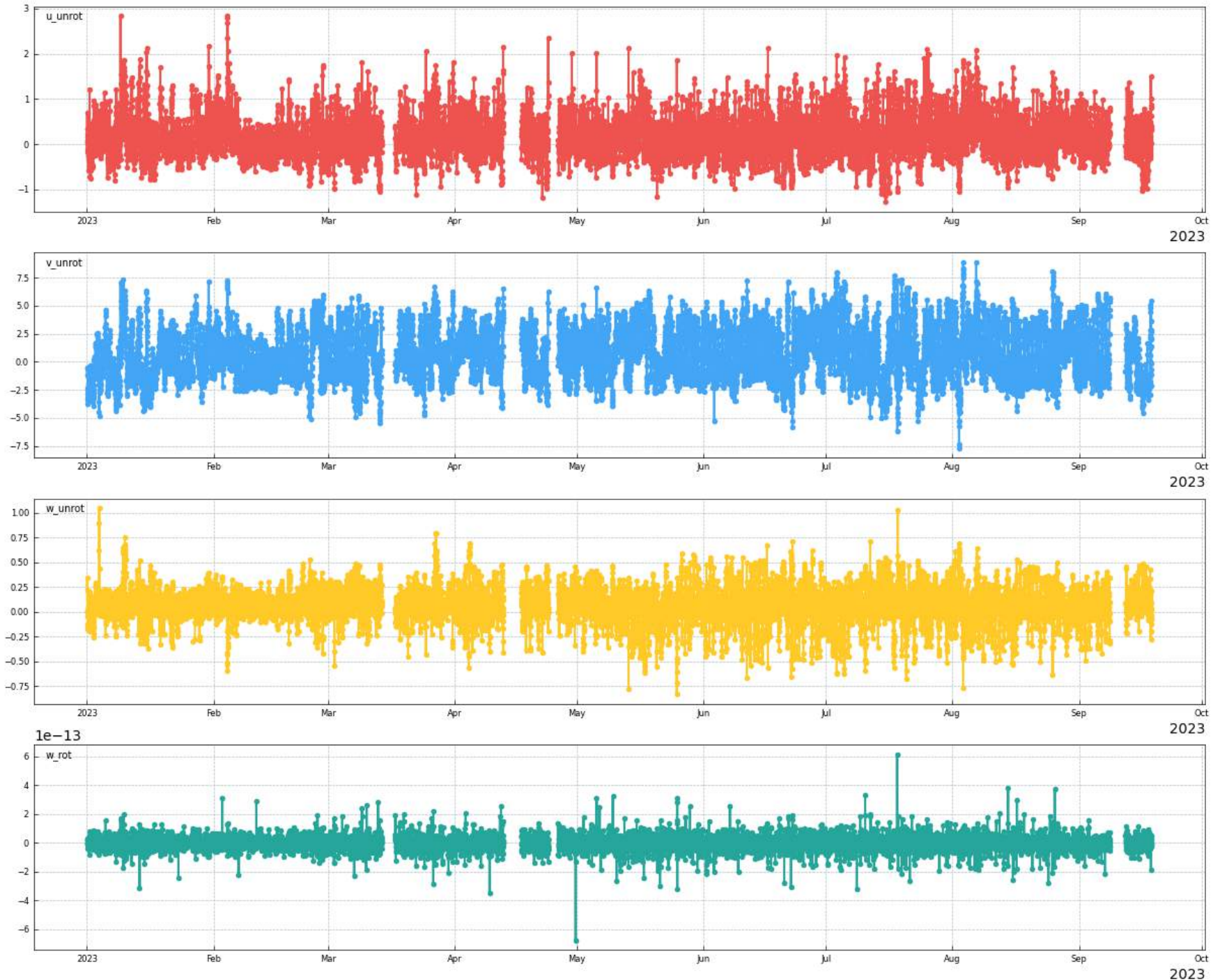


site info

CH-DAV H



site info


u_unrot
3
2
1
0
−1
2023
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
2023
v_unrot
7.5
5.0
2.5
0.0
−2.5
−5.0
−7.5
2023
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
2023
w_unrot
1.00
0.75
0.50
0.25
0.00
−0.25
−0.50
−0.75
2023
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
2023
1e−13
w_rot
6
4
2
0
−2
−4
−6
2023
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
2023

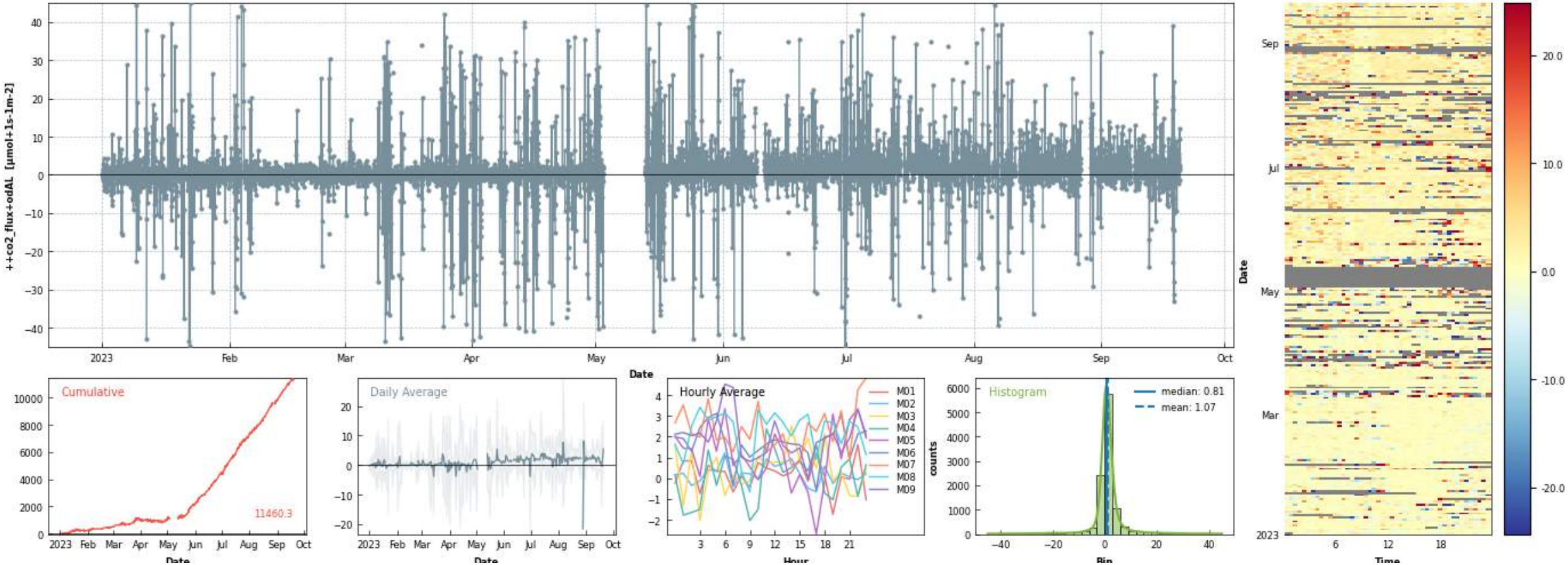
site info

CH-DAS

Photo: Luana Krebs

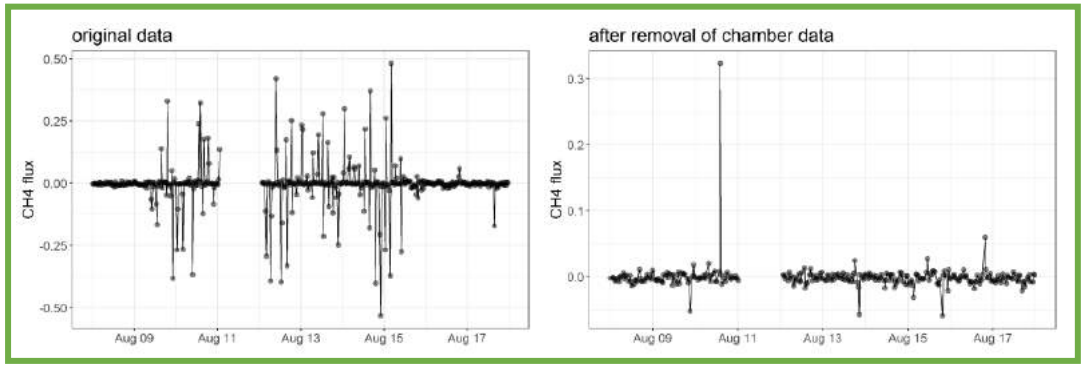
site info

CH-DAS CO2 flux

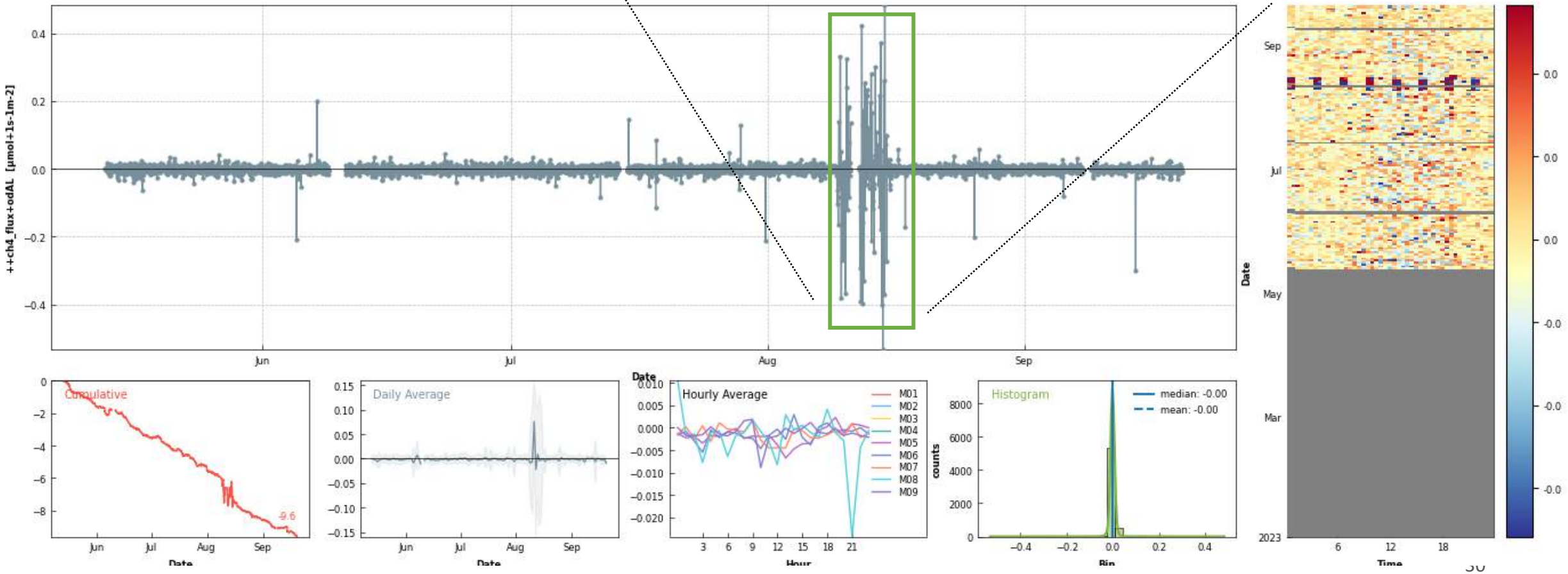


site info

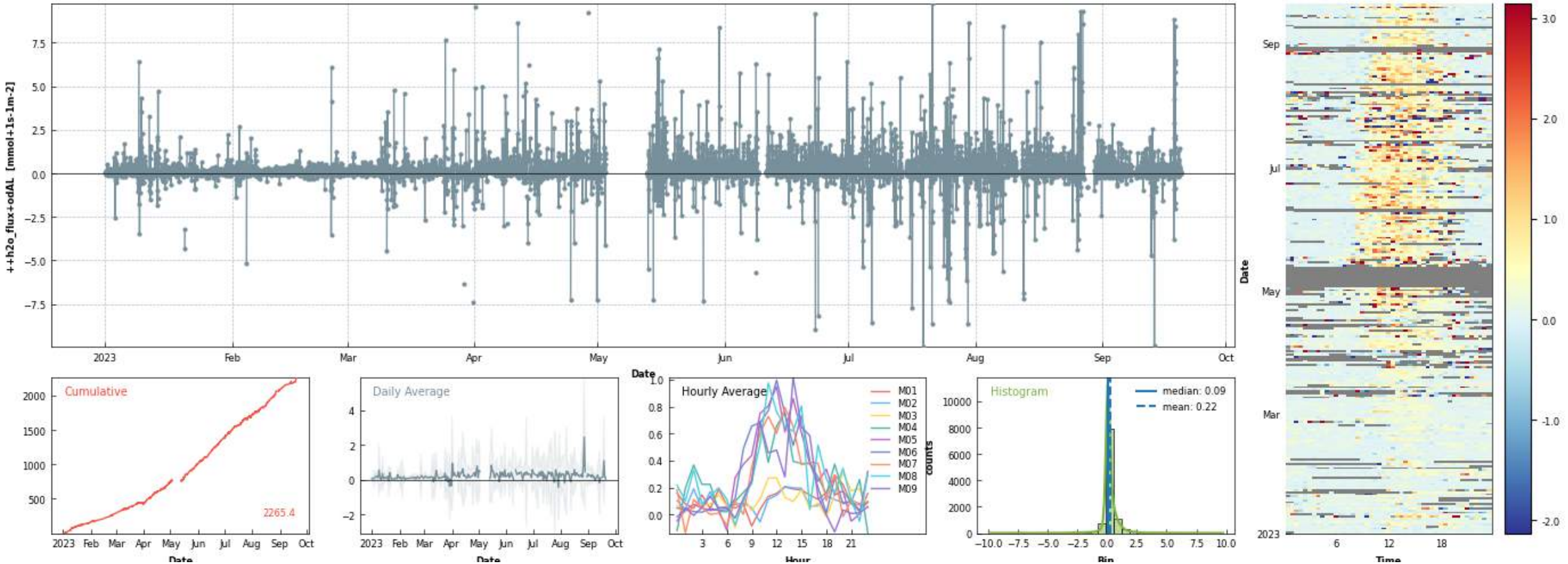
CH-DAS CH4 flux



Chamber FF3 was permanently closed between 09.-15. Aug

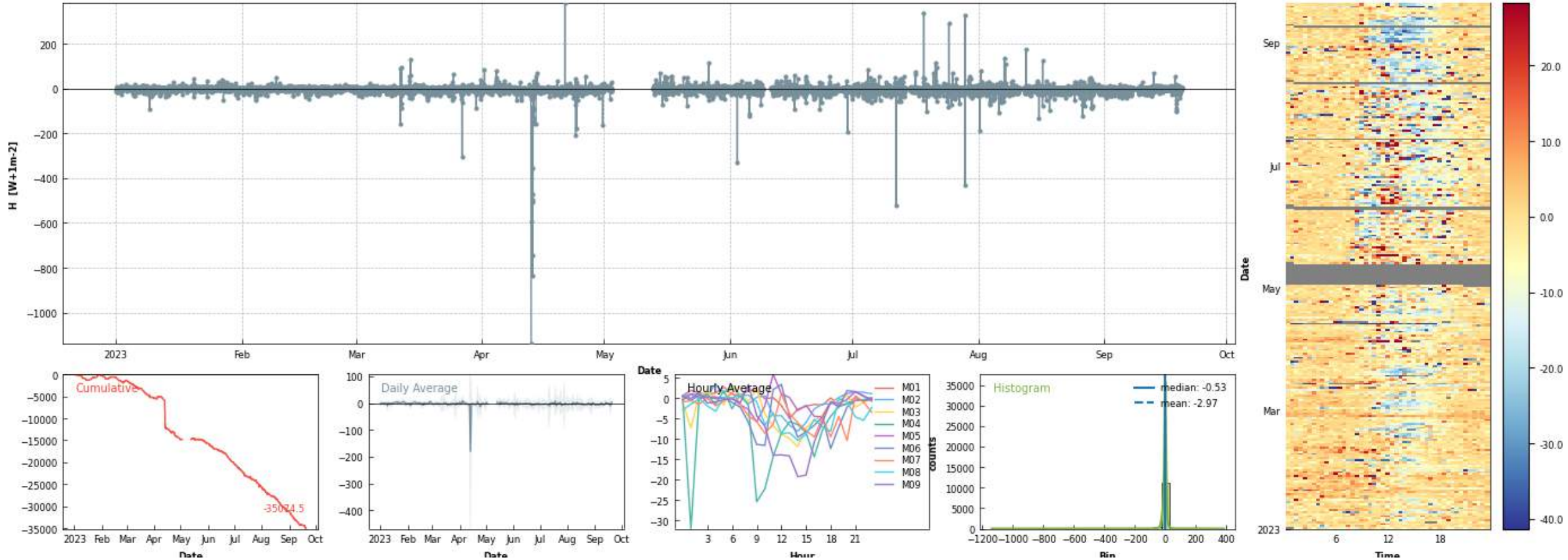


CH-DAS H2O flux



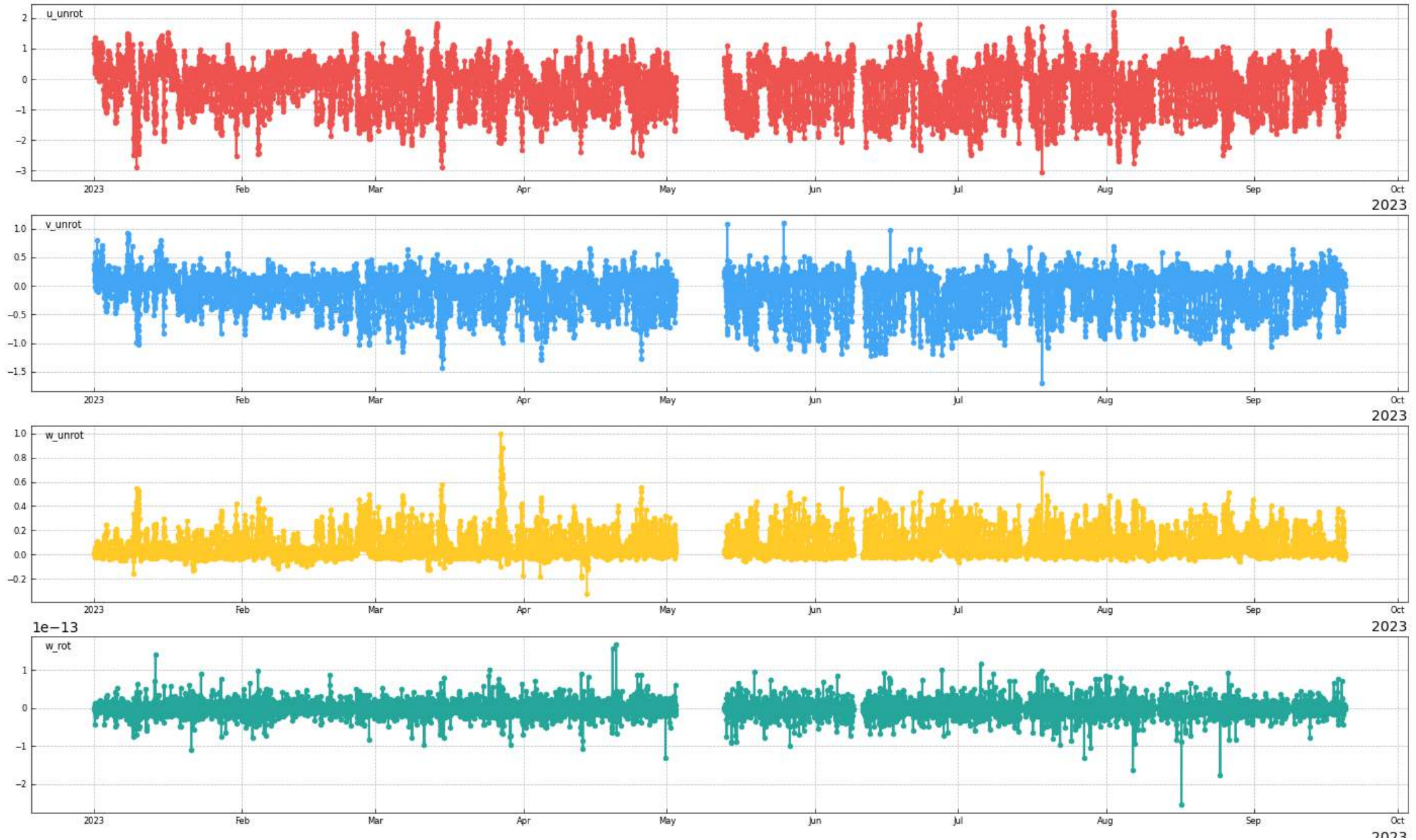
site info

CH-DAS H



site info

CH-DAS u, v, w



site info

CH-FRU

Photo: Lukas Hörtnagl

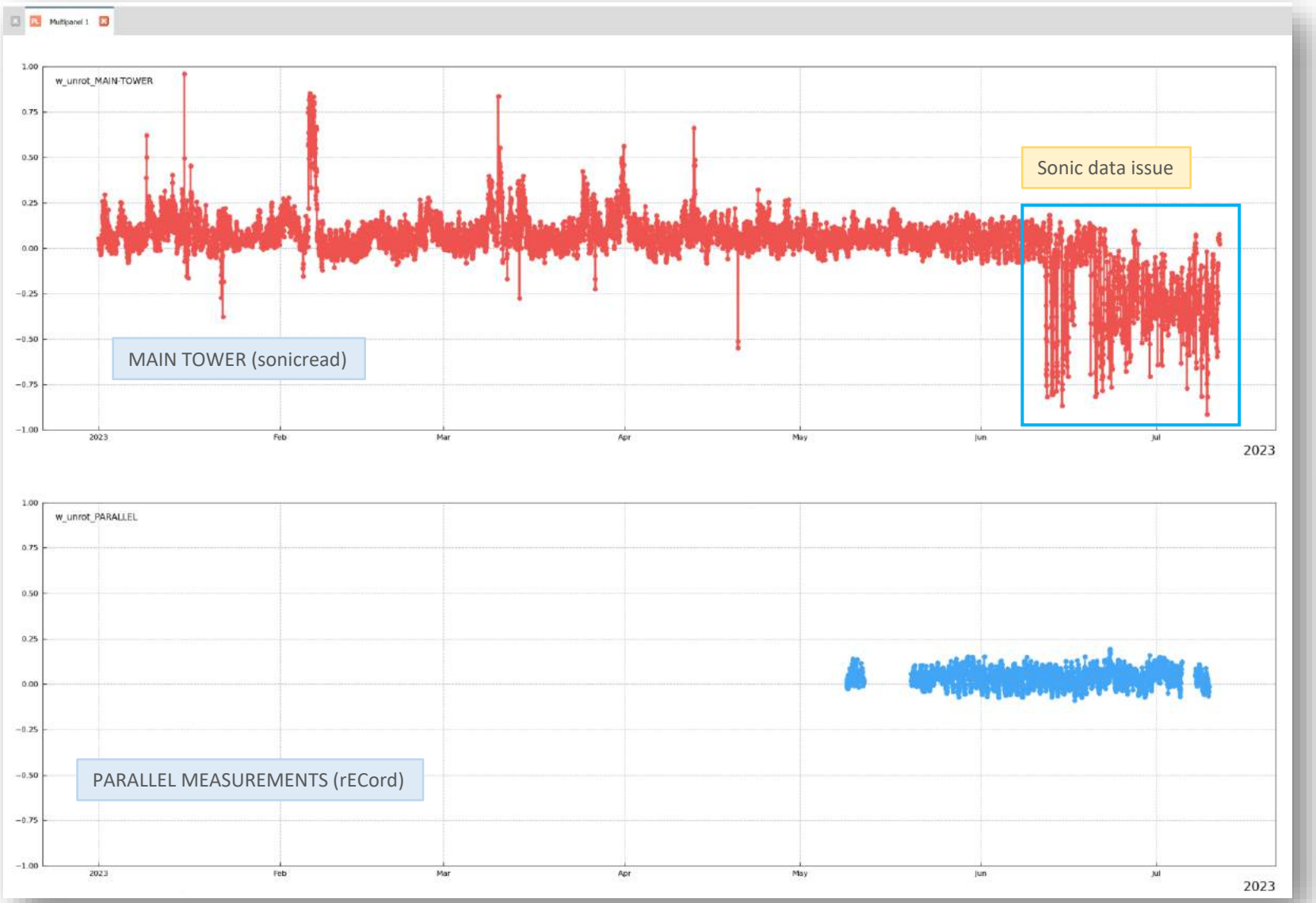
site info

CH-FRU

Sonic w

No quality checks applied

Slide from previous meeting



- Issues with sonic data started on 12 Jun 2023
- But sonic data from parallel measurements look good

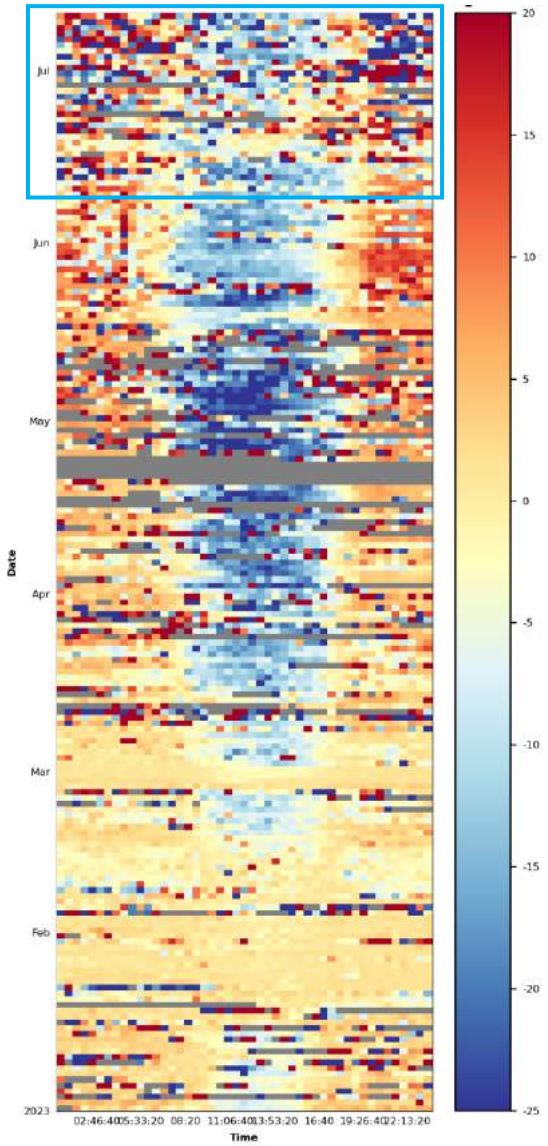
site info

CH-FRU CO2 flux

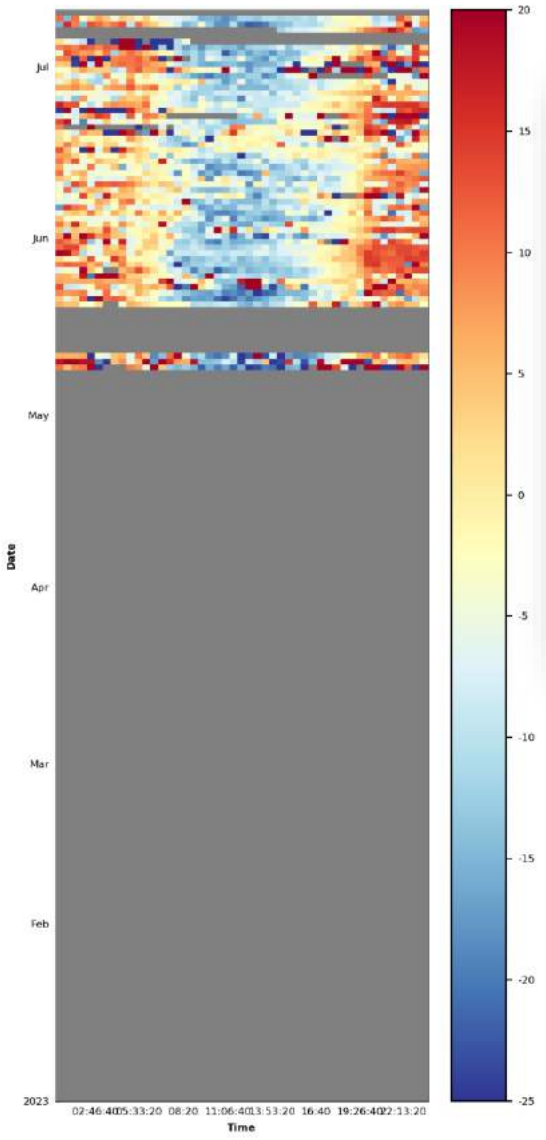
No quality checks applied

Slide from previous meeting

MAIN TOWER (sonicread)



PARALLEL MEASUREMENTS (rECord)



- Both systems measure similar fluxes under normal (no issues) conditions
- We can merge the two time series to one complete time series
- The parallel system replaces data from the main system from 12 Jun onwards (see next slide)

site info

CH-FRU CO2 flux

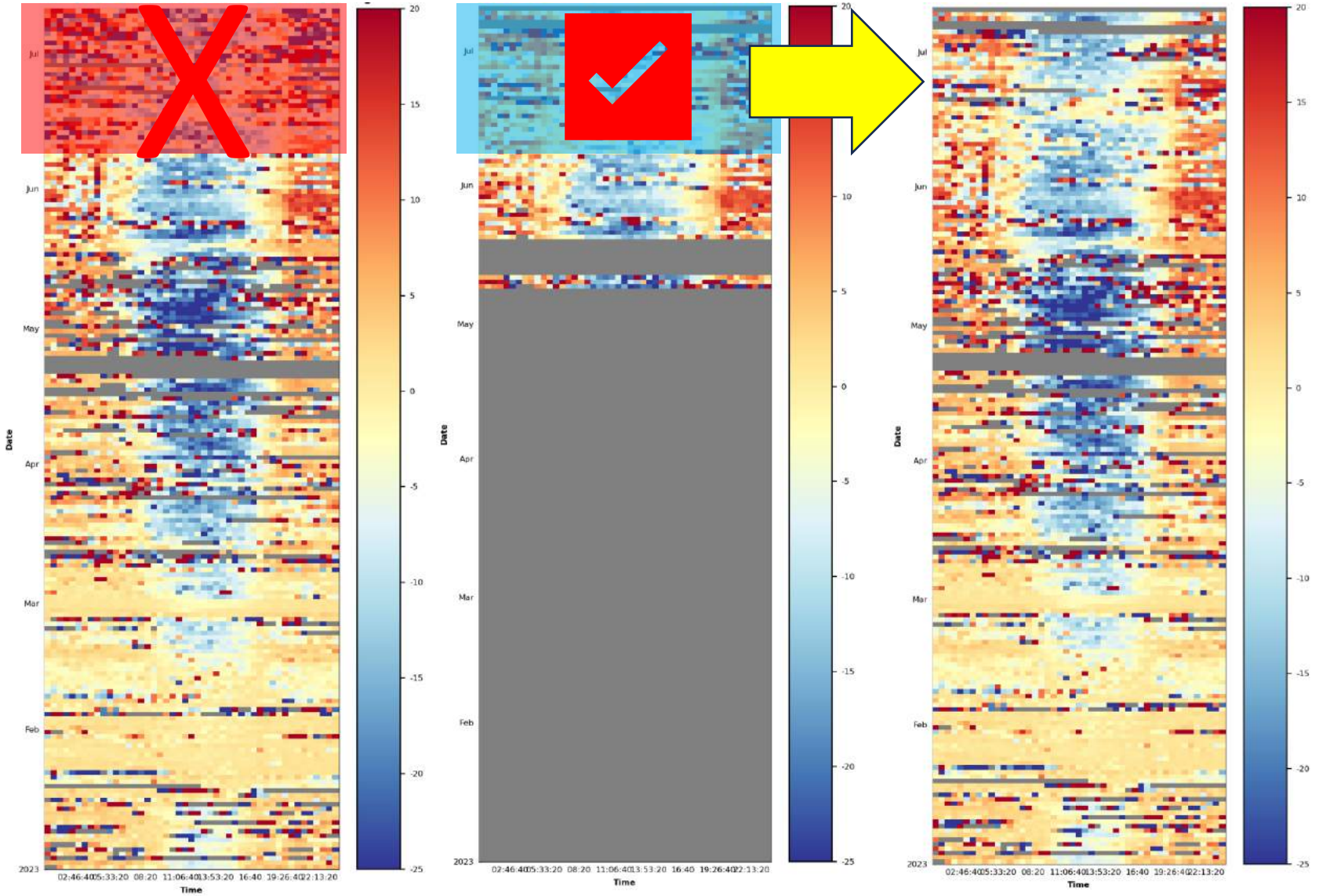
No quality checks applied

Slide from previous meeting

MAIN TOWER (sonicread)

PARALLEL MEASUREMENTS (rECord)

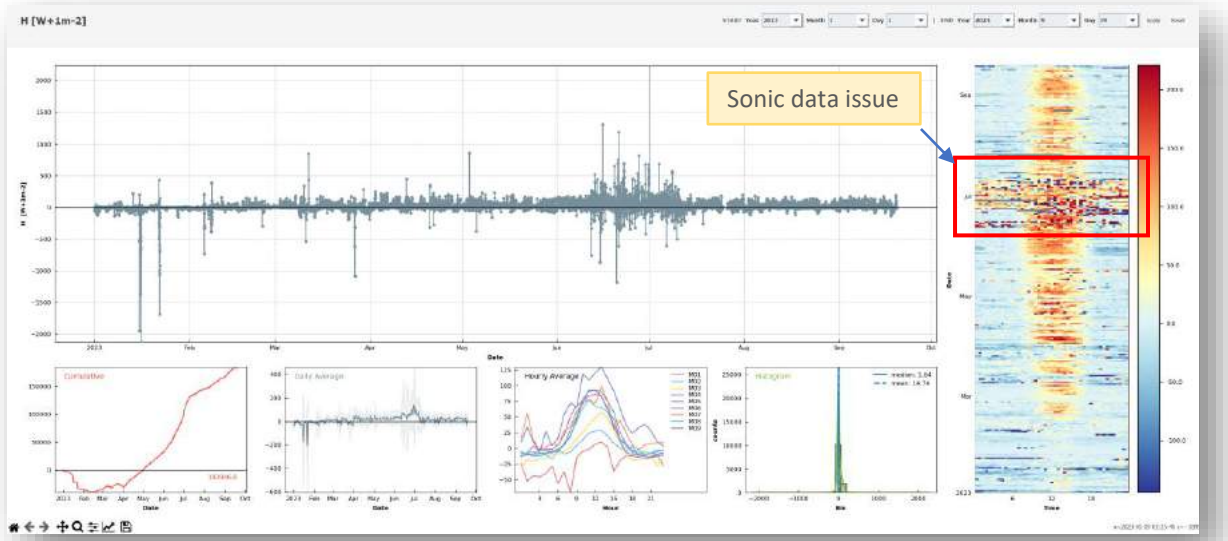
MAIN TOWER replaced with PARALLEL data from 12 Jun onwards

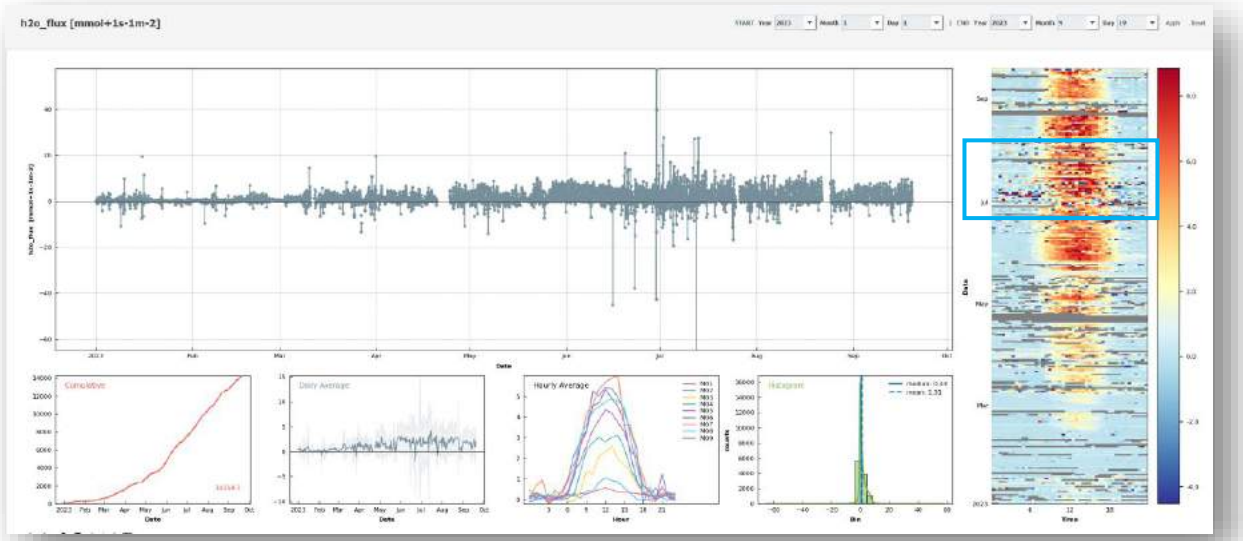


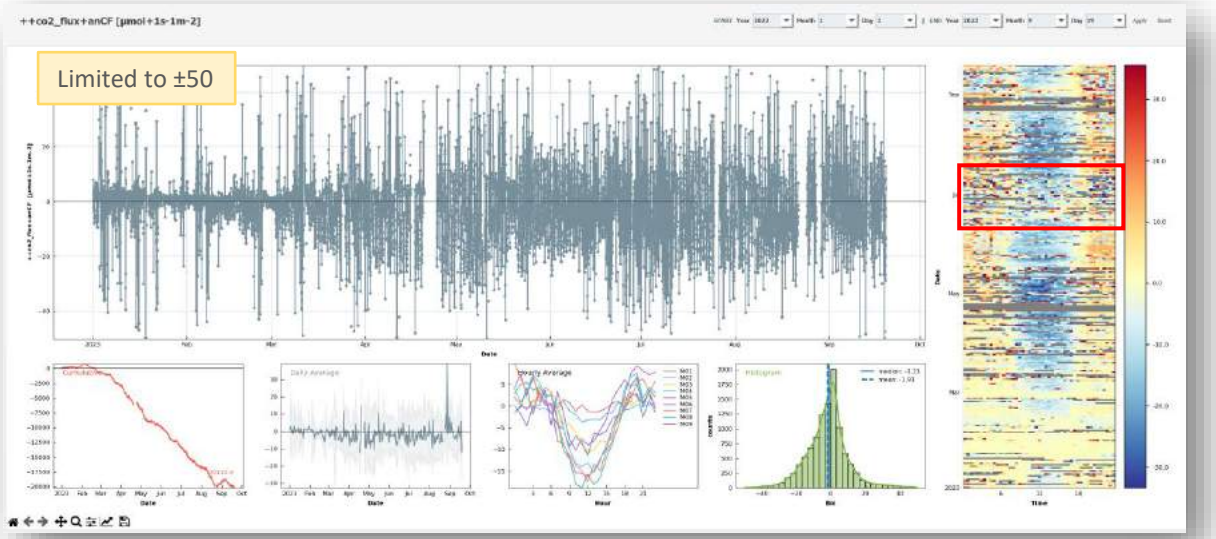
site info

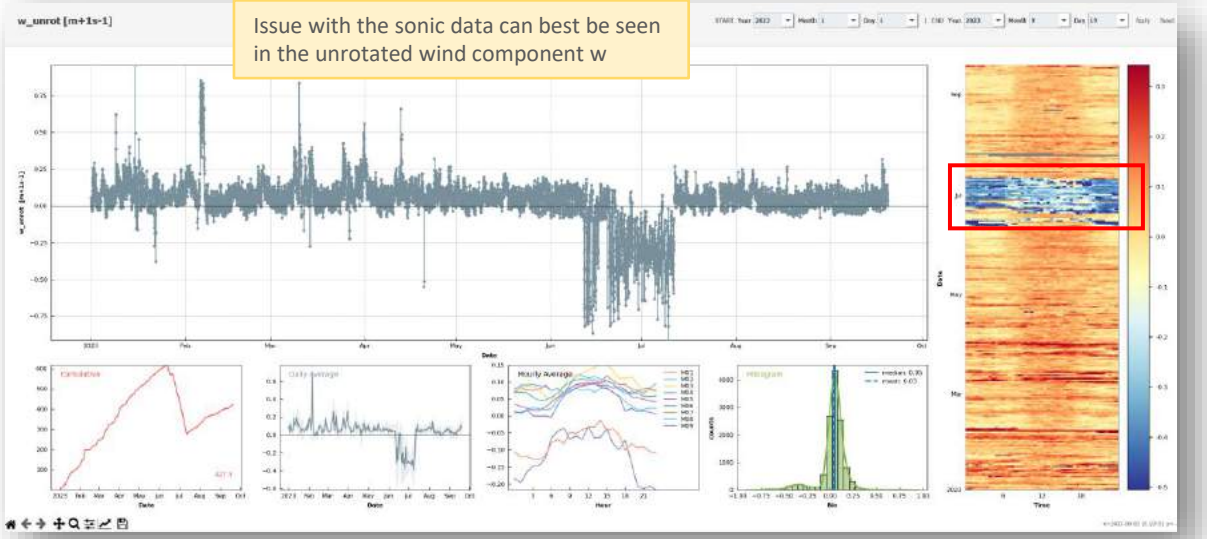
CH-FRU Fluxes H, H2O, CO2, w_unrot

MAIN TOWER (sonicread)









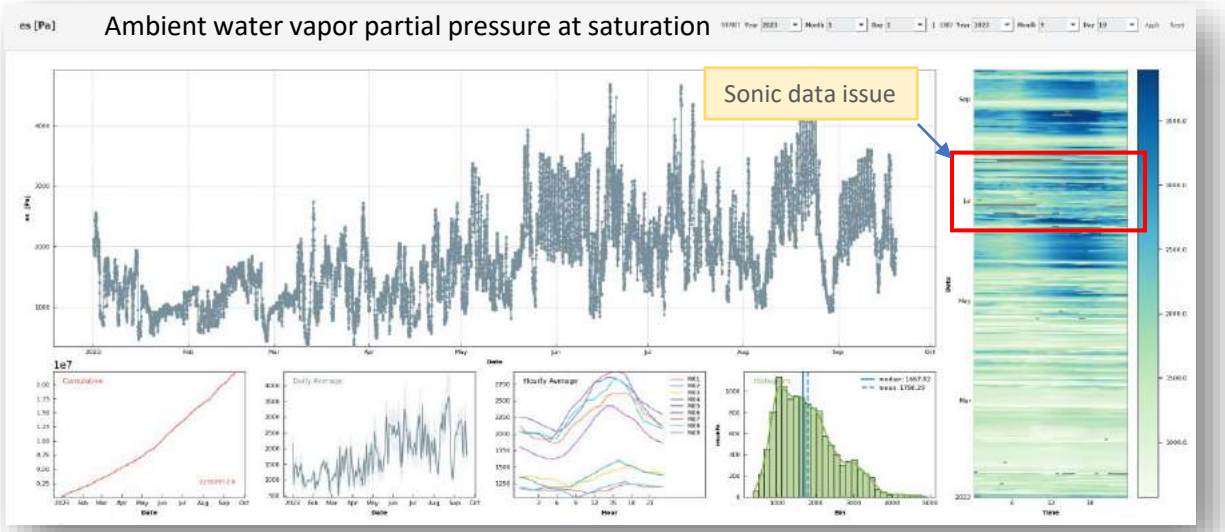
site info

CH-FRU

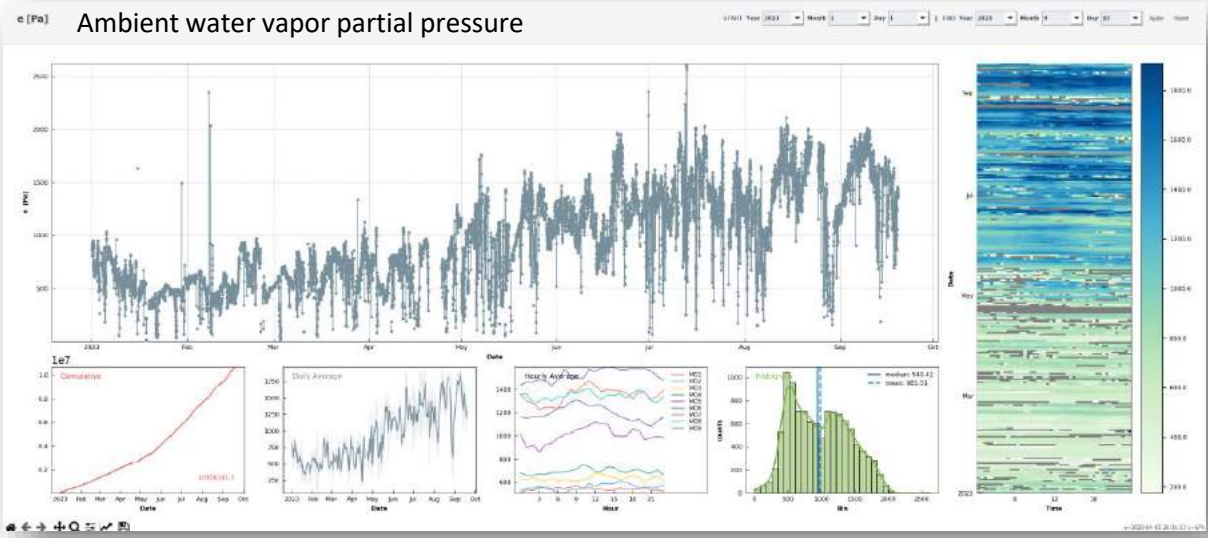
VPD = es - e

MAIN TOWER (sonicread)

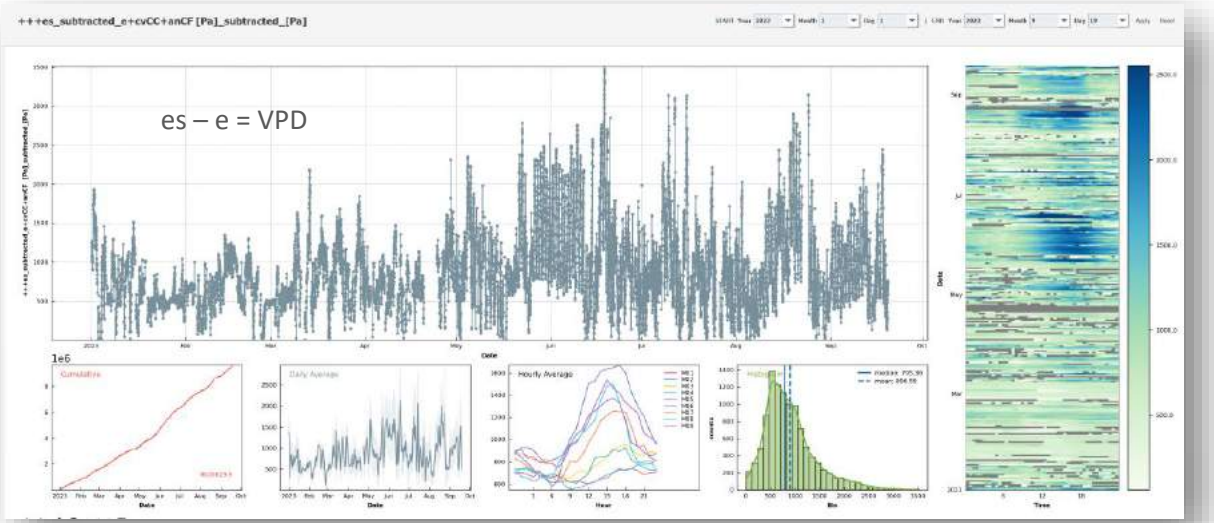
Ambient water vapor partial pressure at saturation



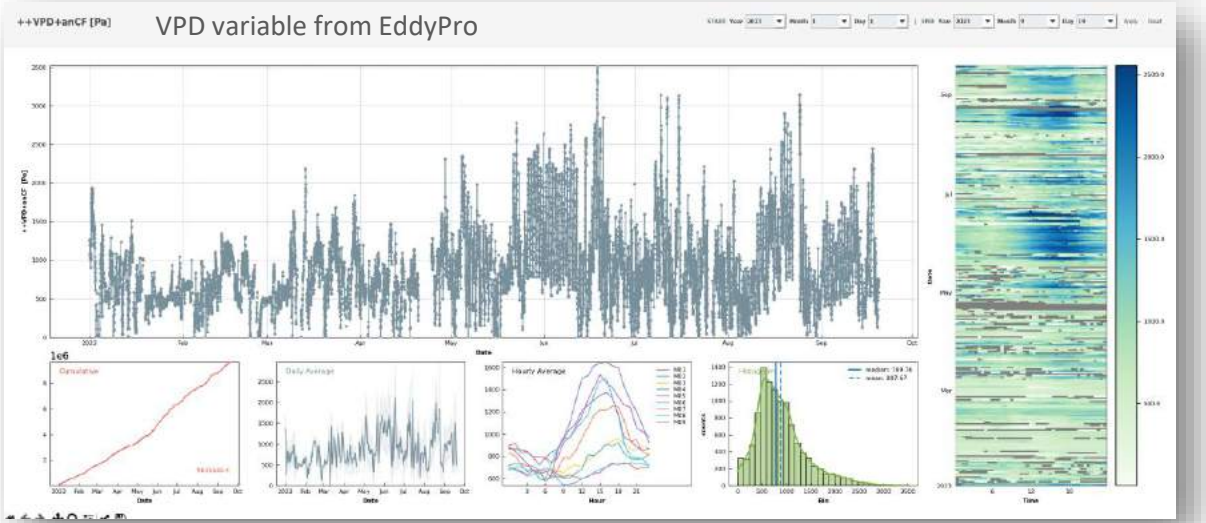
Ambient water vapor partial pressure



es – e = VPD



VPD variable from EddyPro



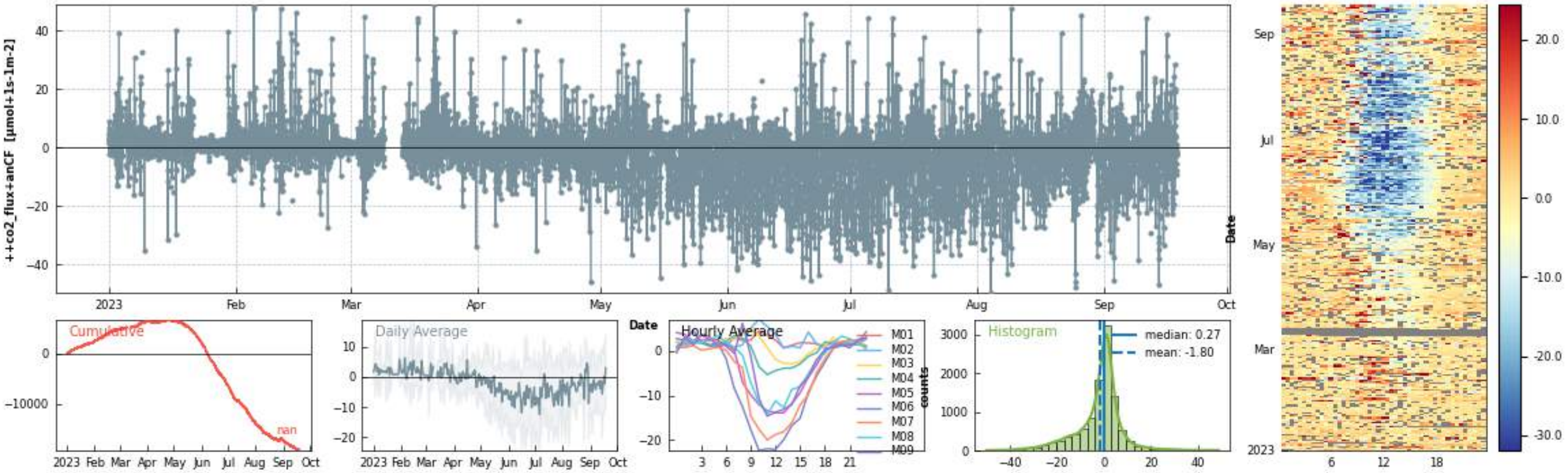
site info

CH-LAE

Photo: Markus Staudinger

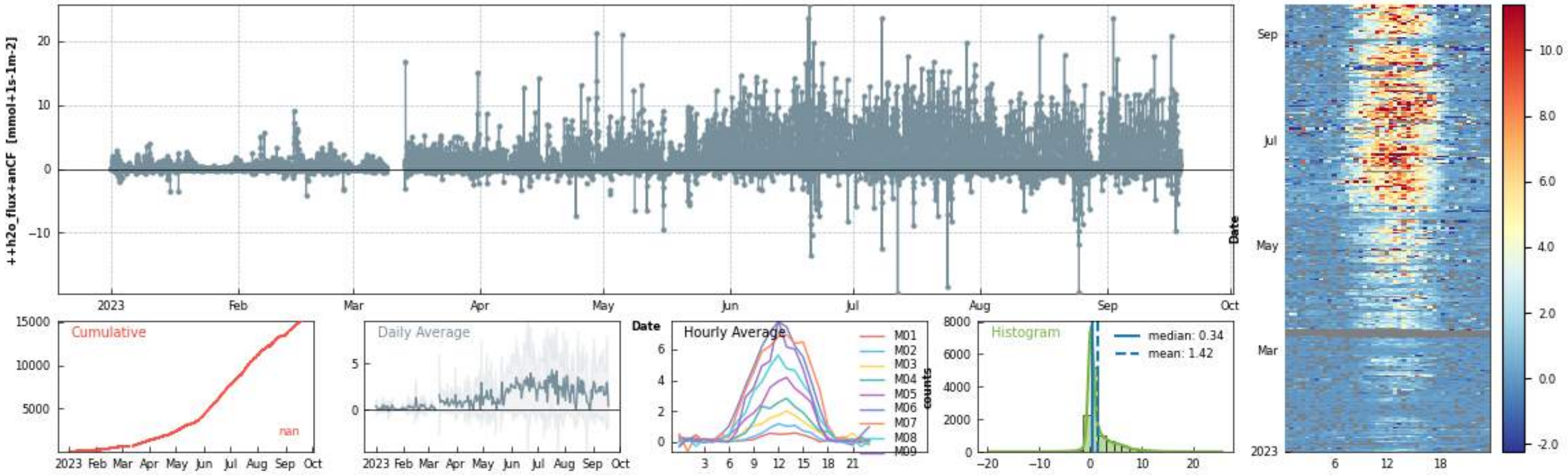
site info

CH-LAE CO2 flux



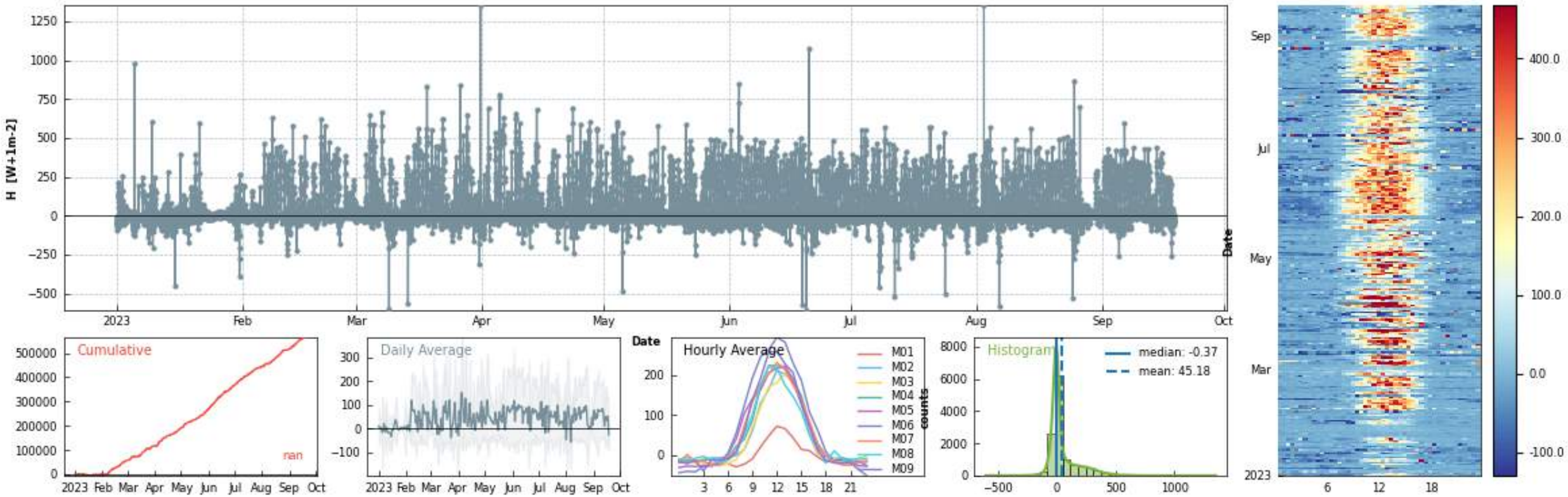
site info

CH-LAE H2O flux



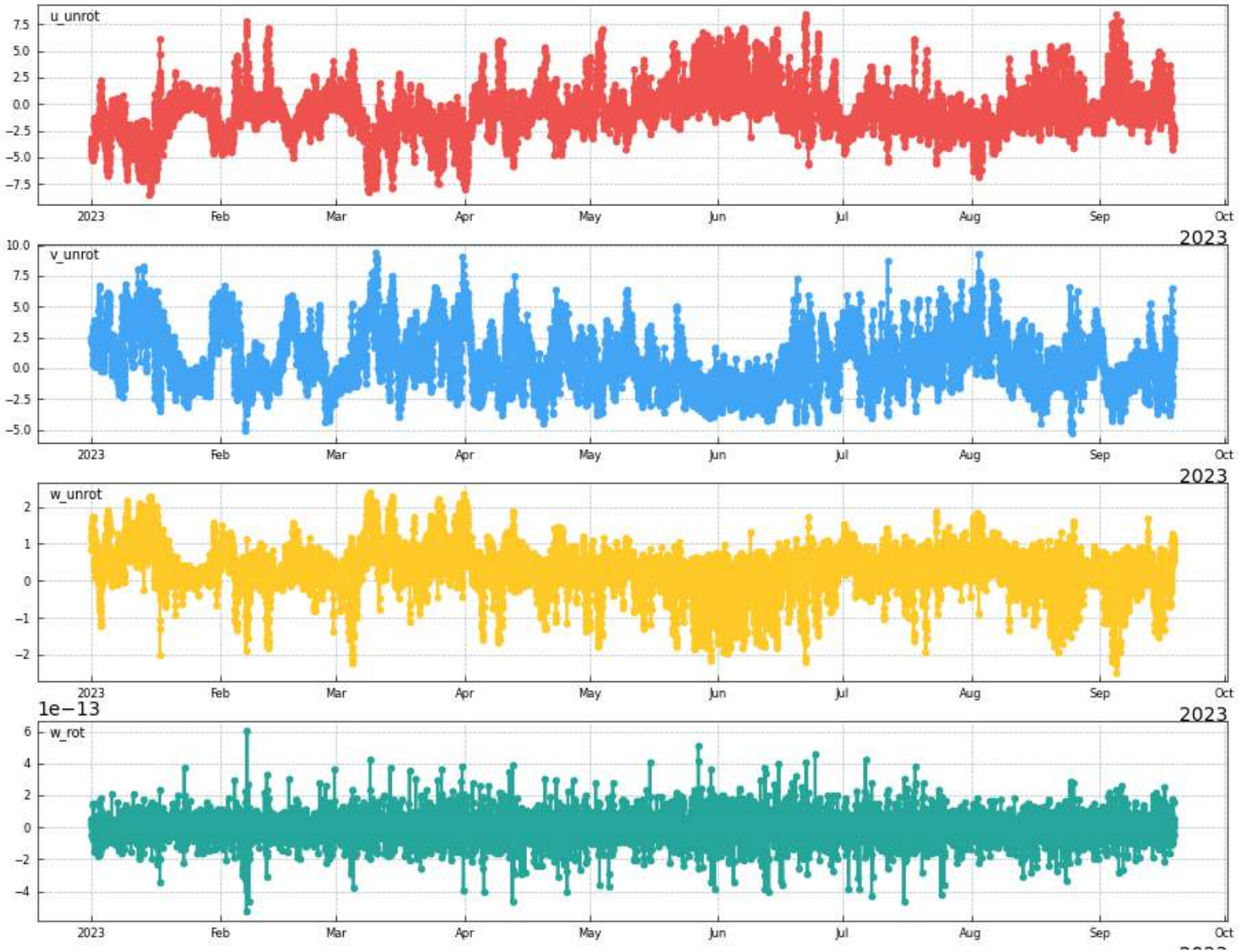
site info

Highest sensible heat flux in Swiss FluxNet



site info

CH-LAE u, v, w



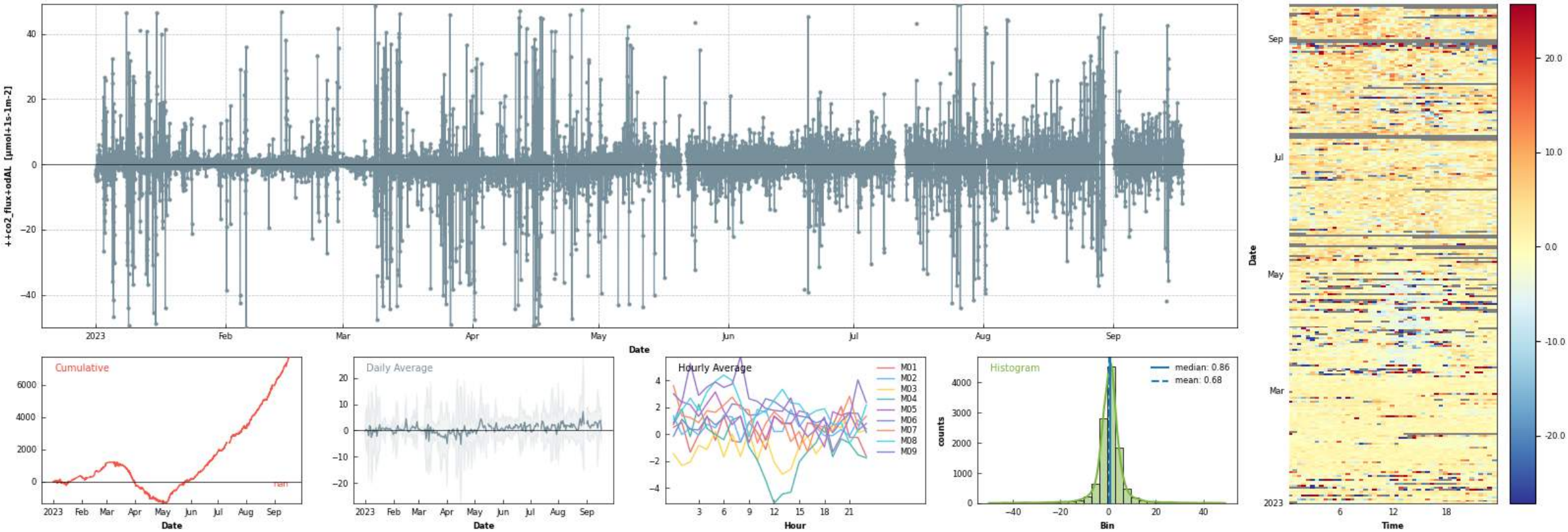
site info

CH-LAS

Photo: ETH GL Group

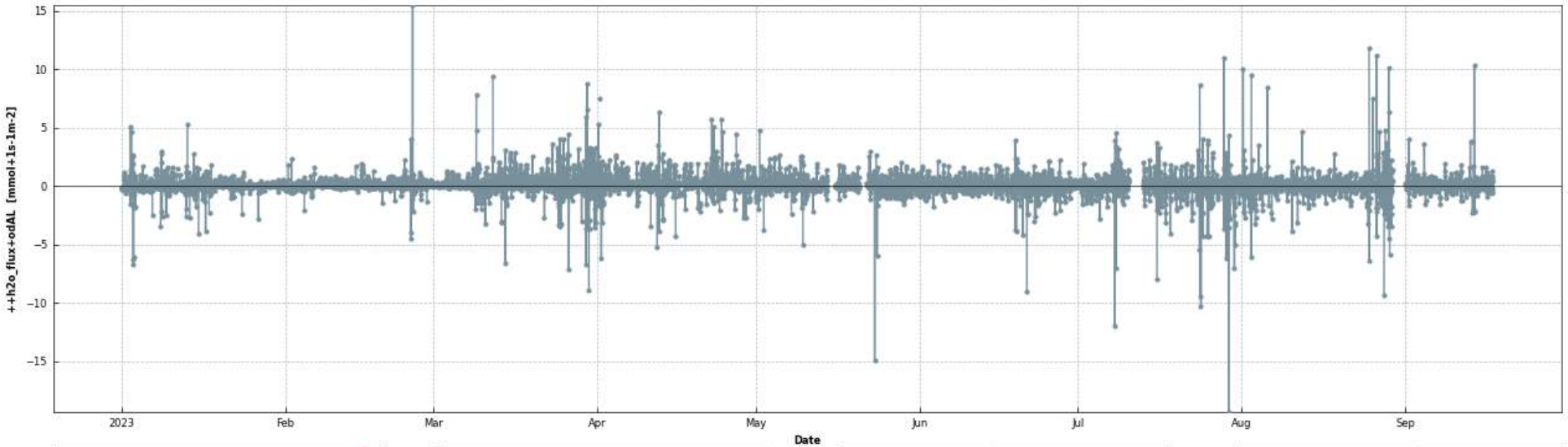
site info

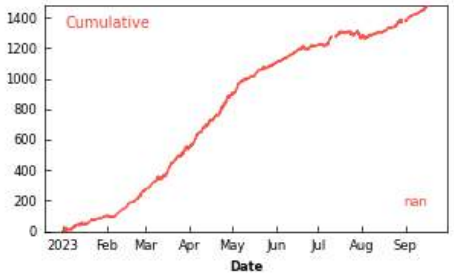
CH-LAS CO2 flux

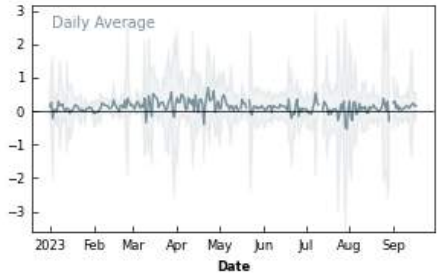


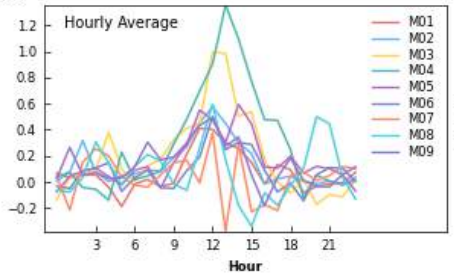
site info

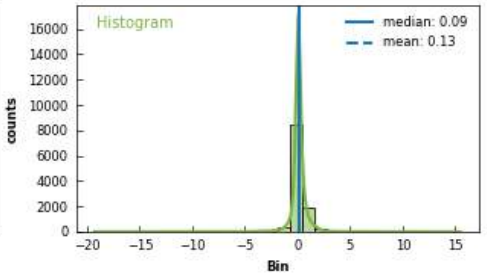
CH-LAS H2O flux

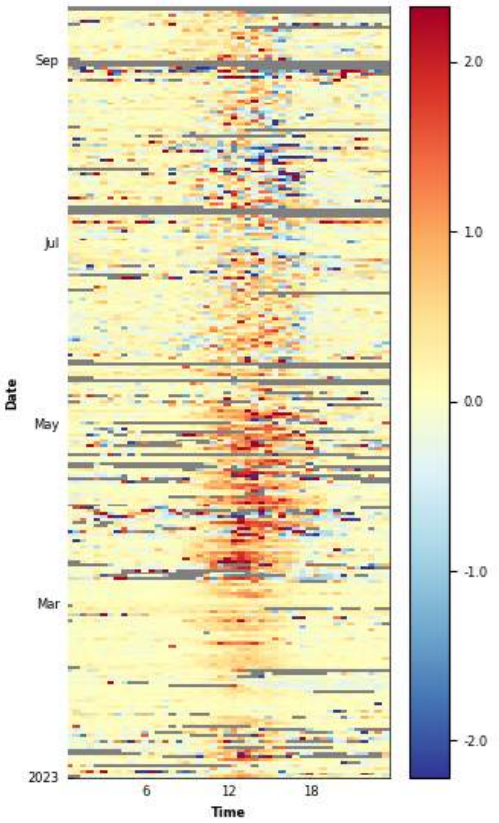






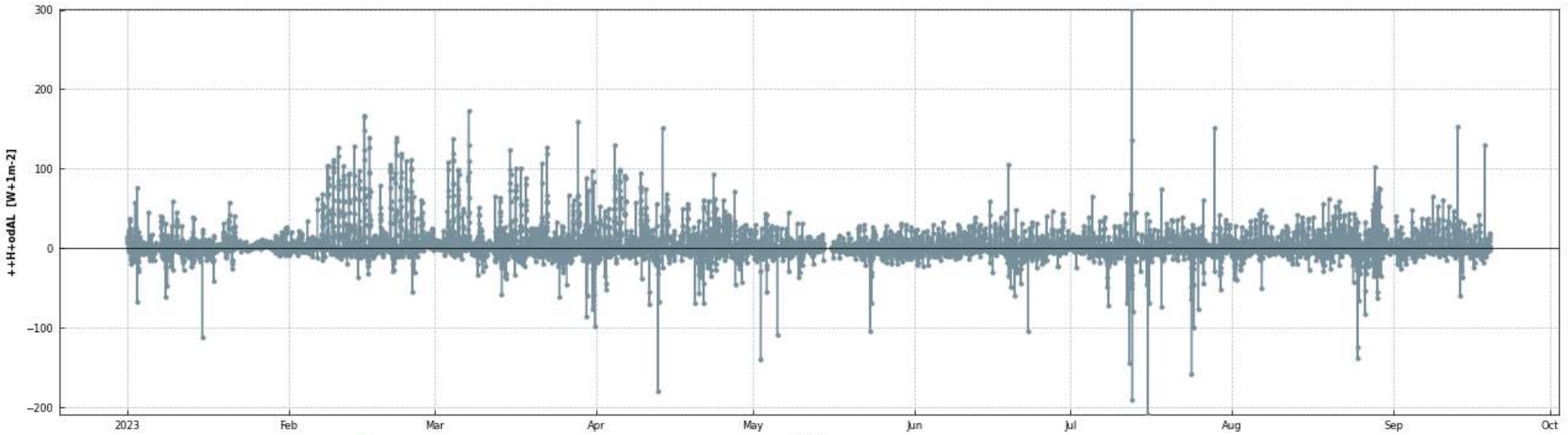


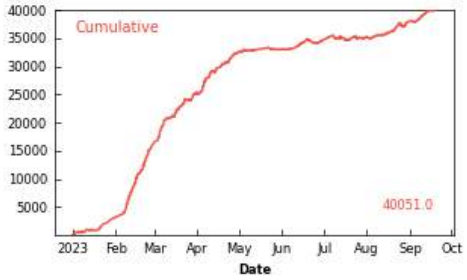


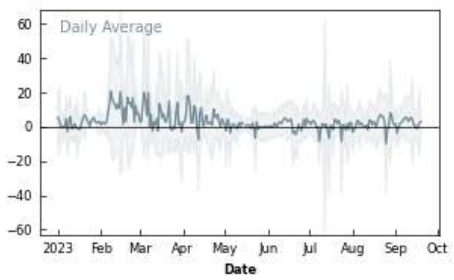


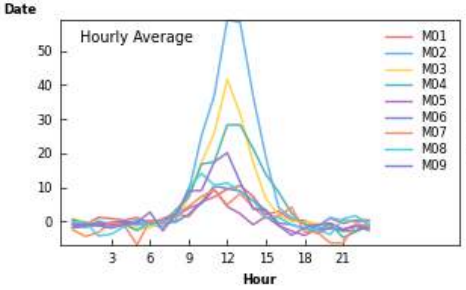
site info

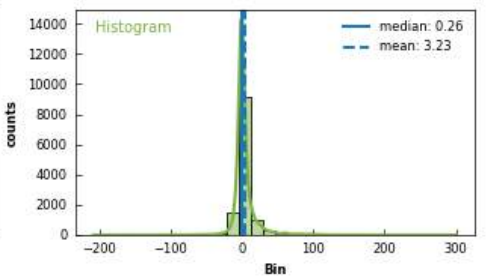
CH-LAS H

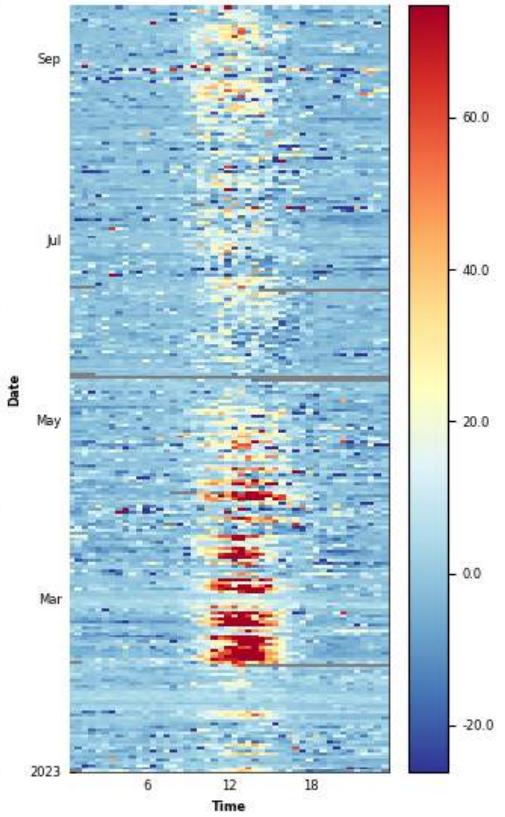






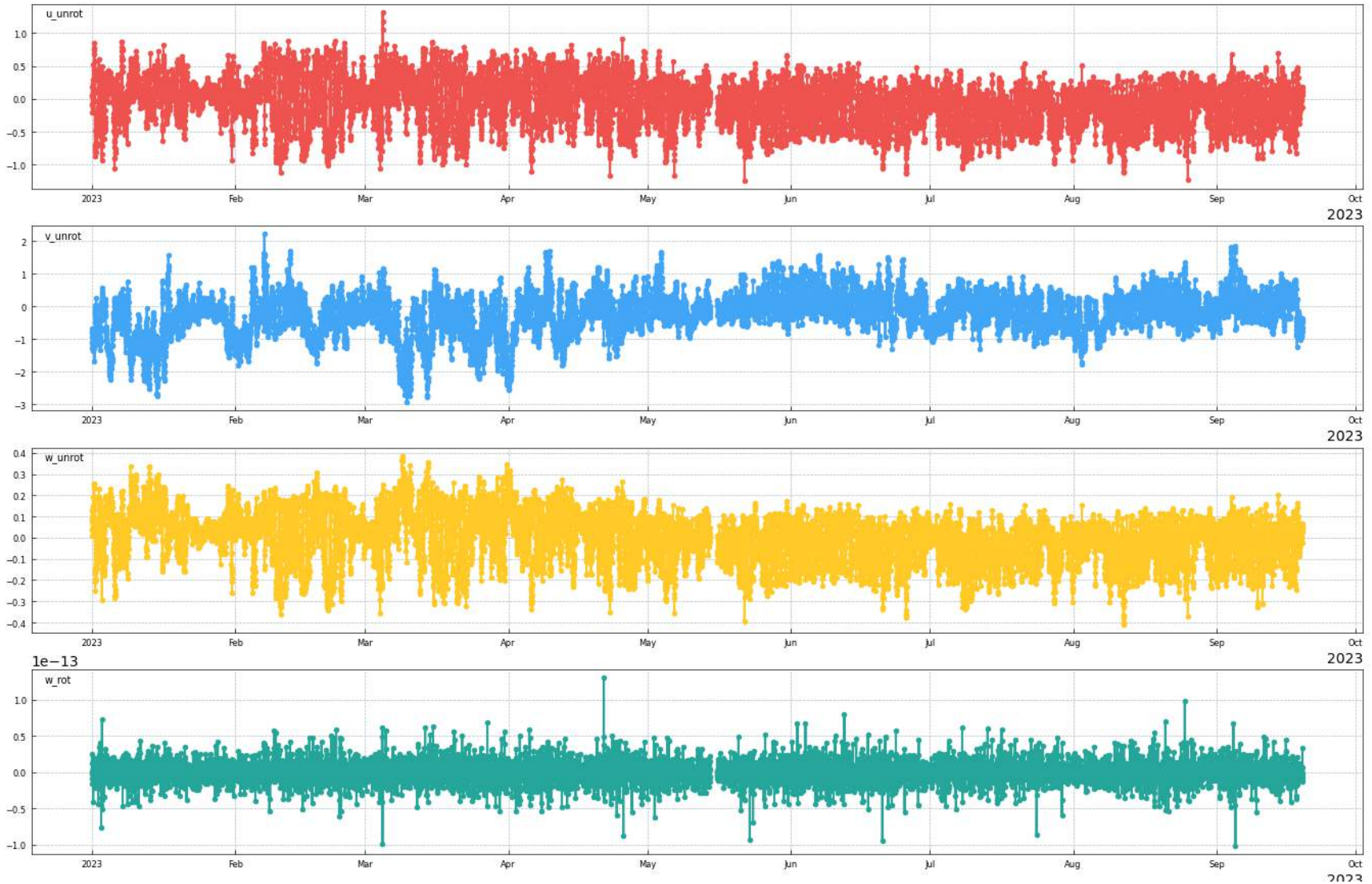






site info

CH-LAS u, v, w



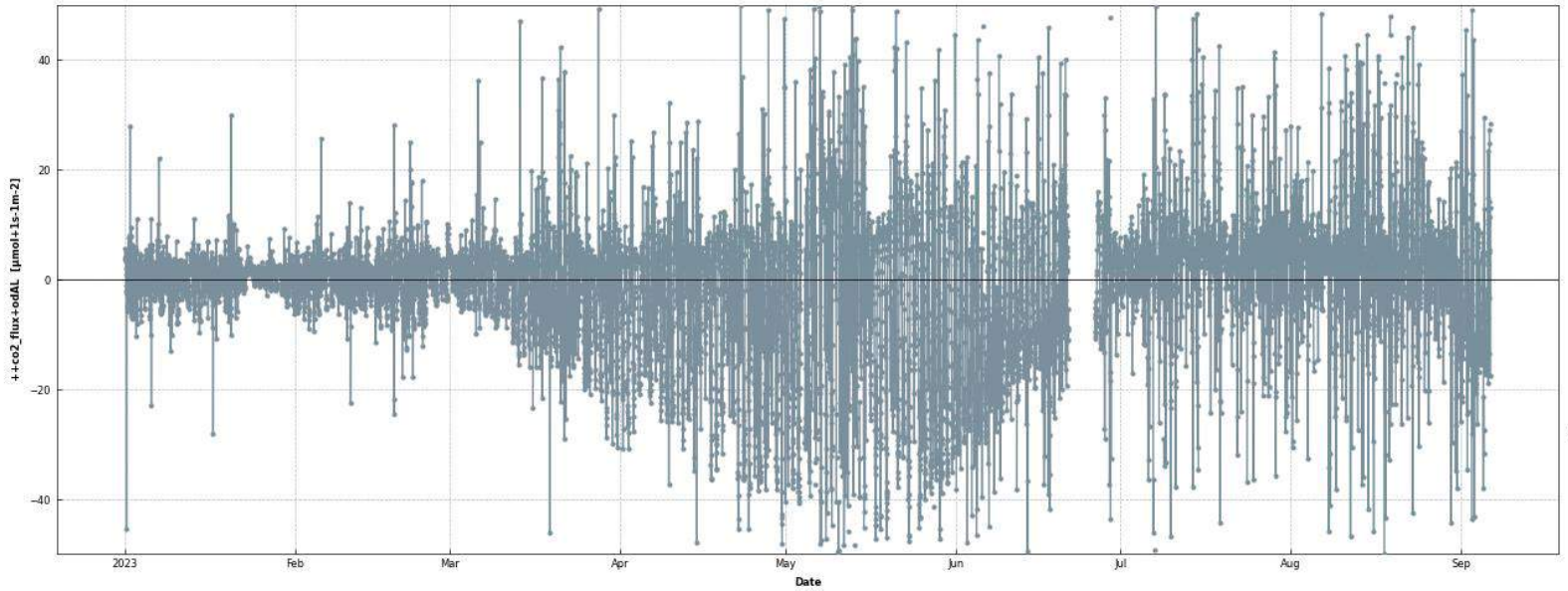
site info

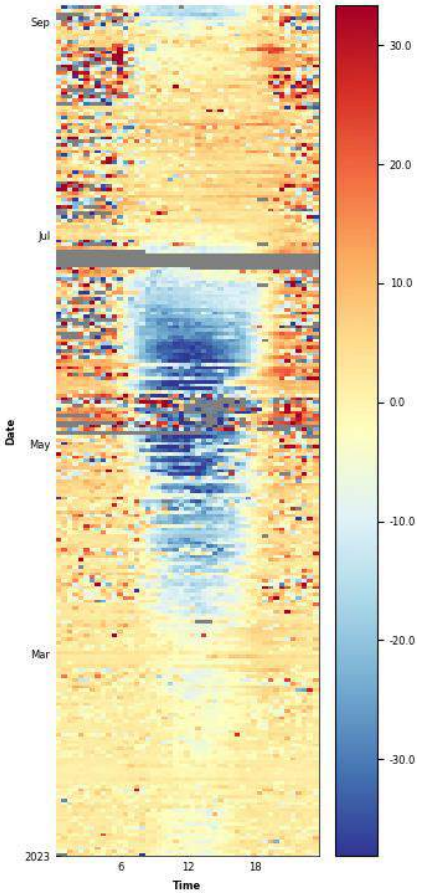
CH-OE2

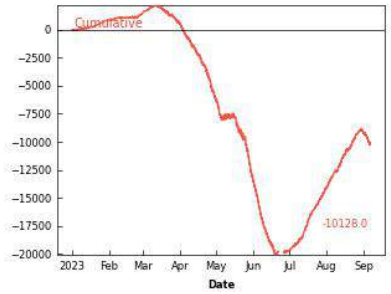
Photo: Regine Maier

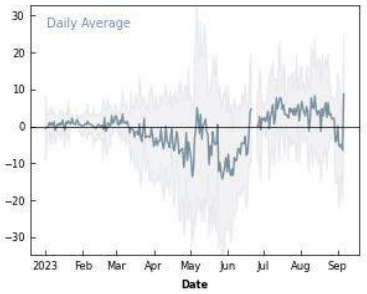
CH-OE2 CO2 flux

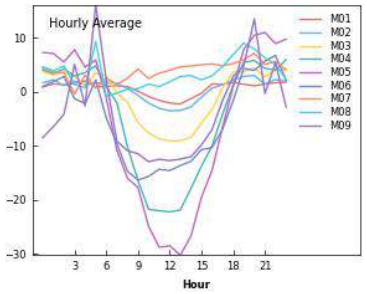
Absolute limits applied (-50, 50)

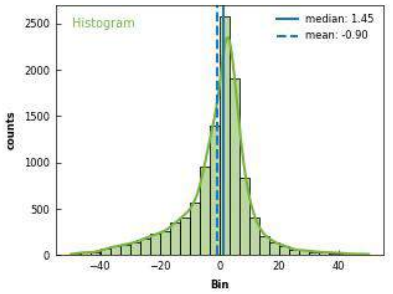








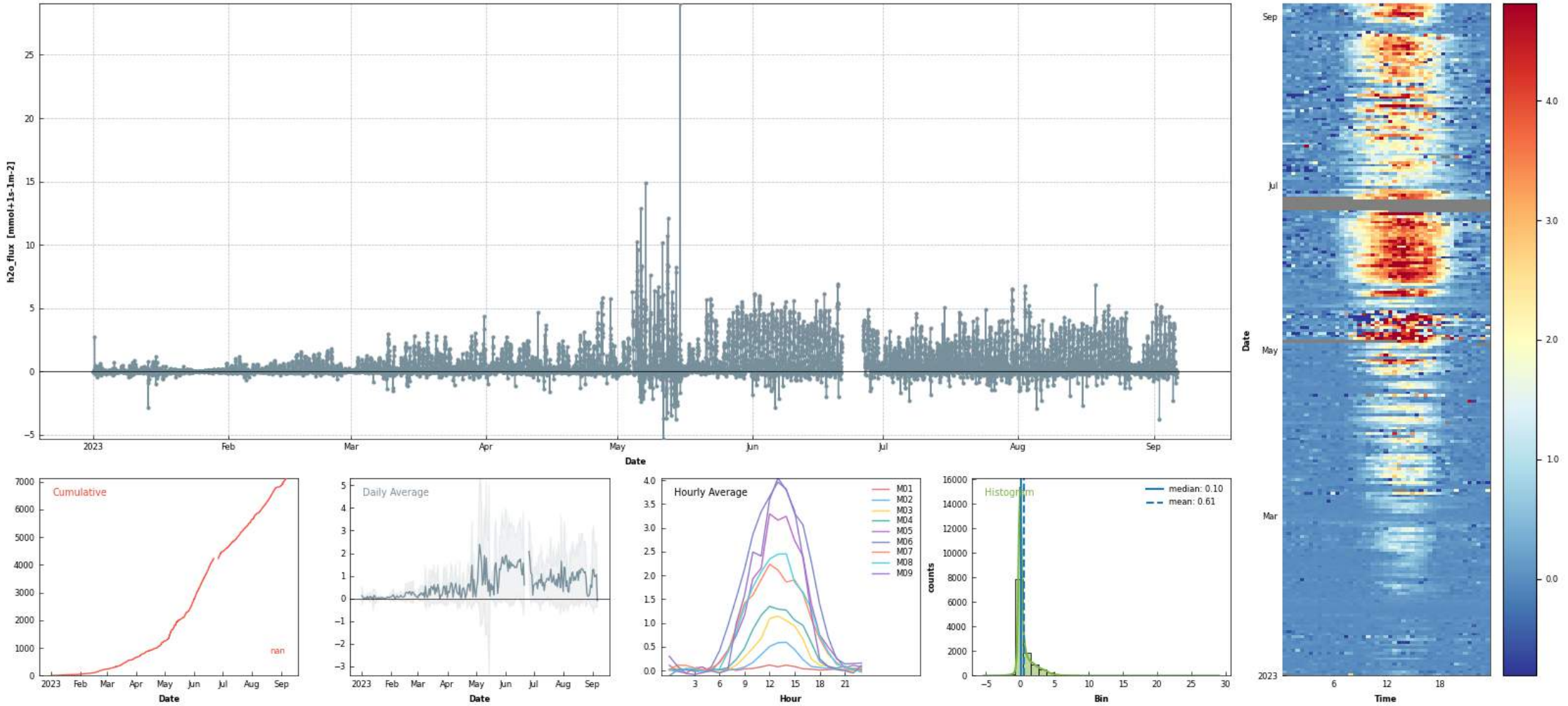




- 15.07 wheat harvest
- 18.07 soil cultivation
- 28.07 sowing of cover crop (mixture)

site info

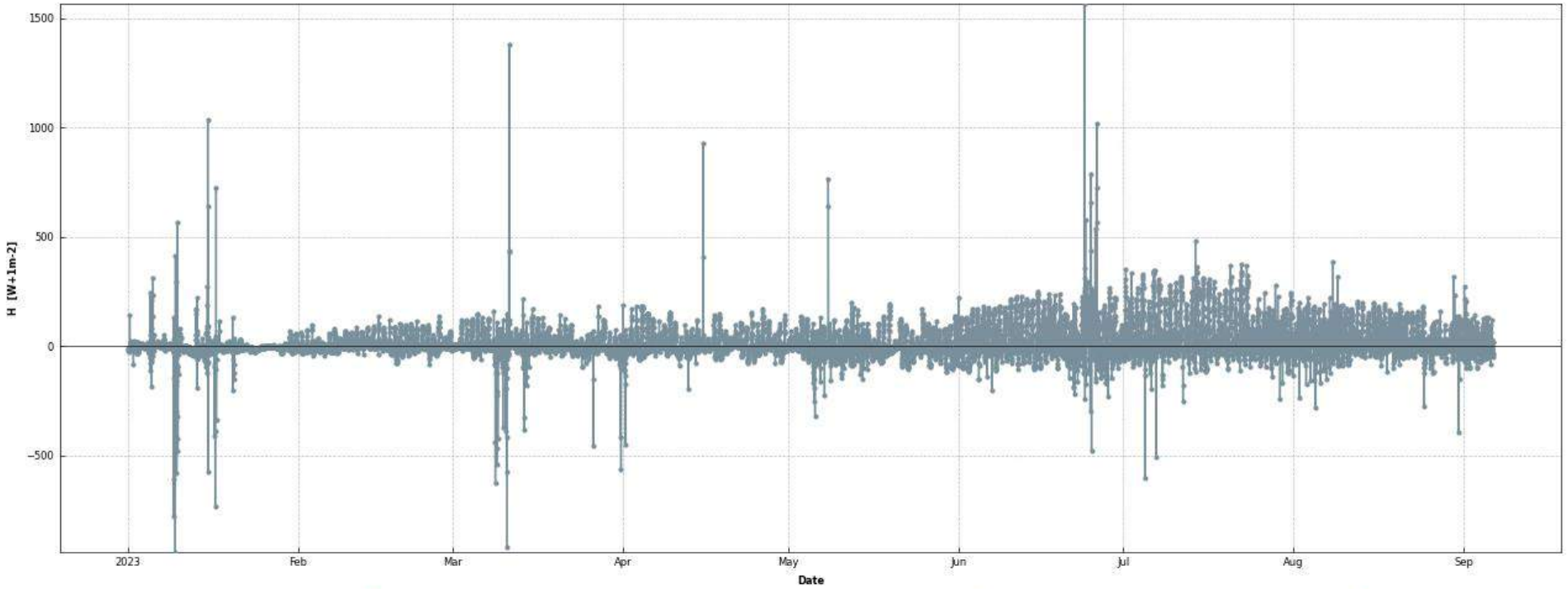
CH-OE2 H2O flux

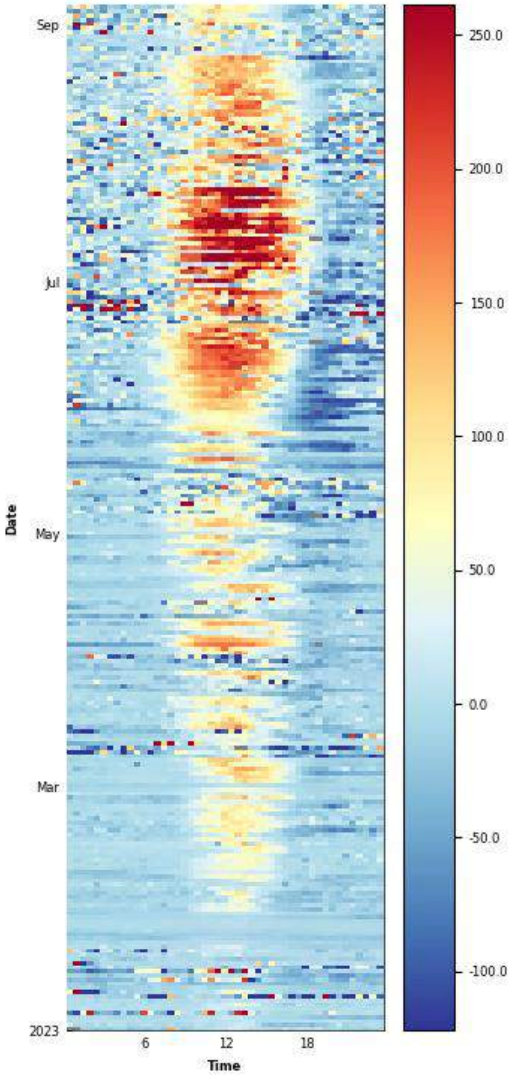


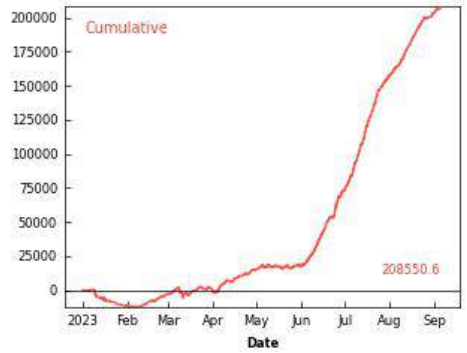
- 15.07 wheat harvest
- 18.07 soil cultivation
- 28.07 sowing of covercrop (mixture)

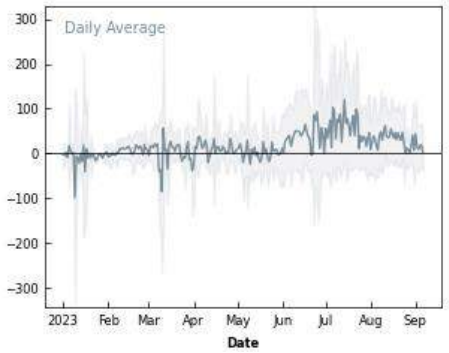
site info

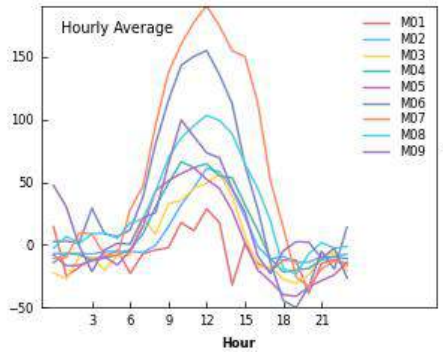
CH-OE2 H

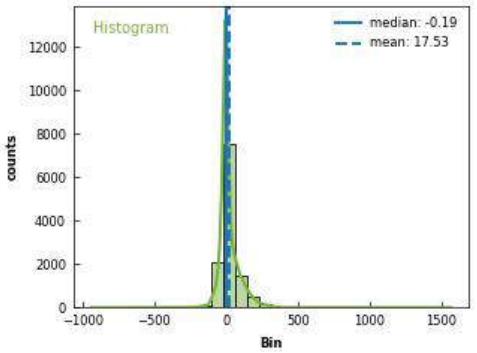








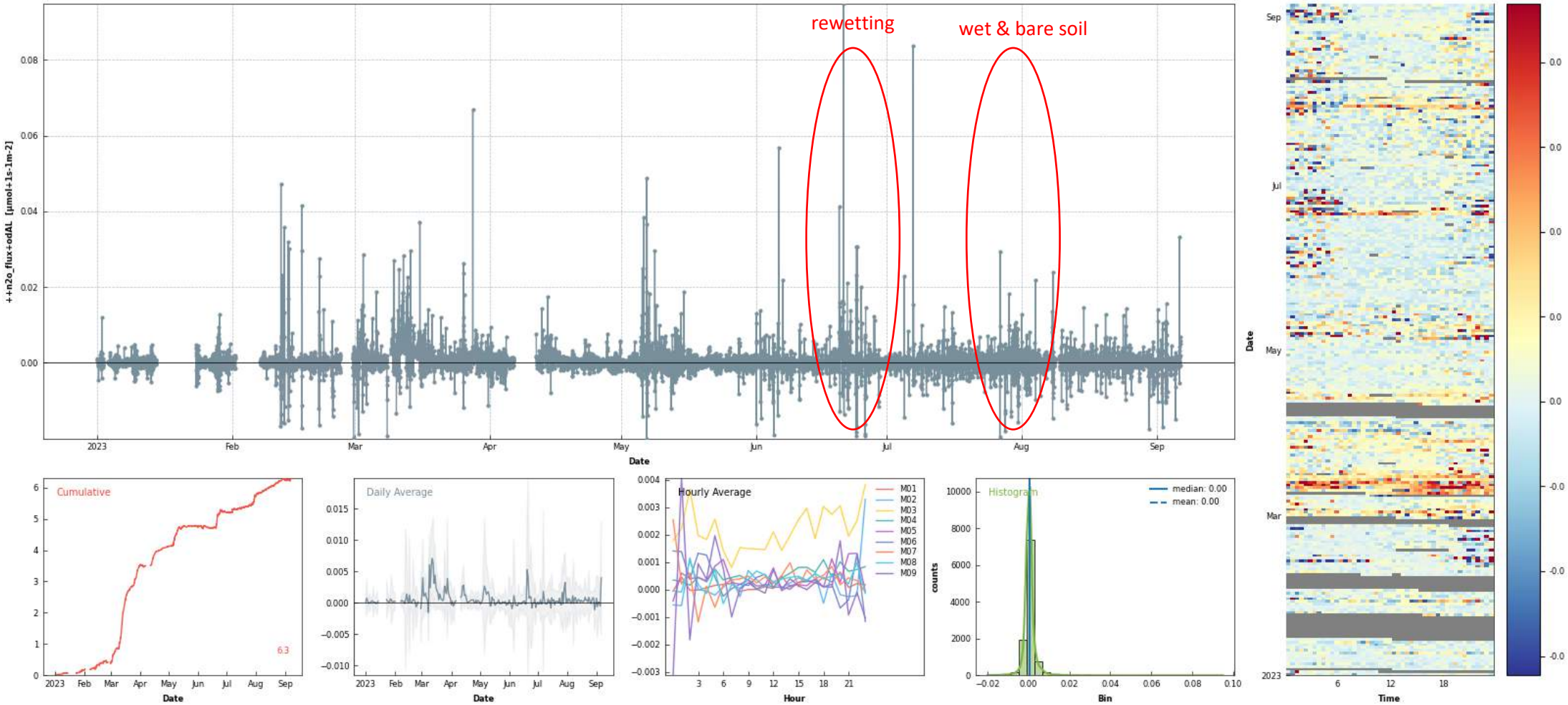




site info

CH-OE2 N2O flux

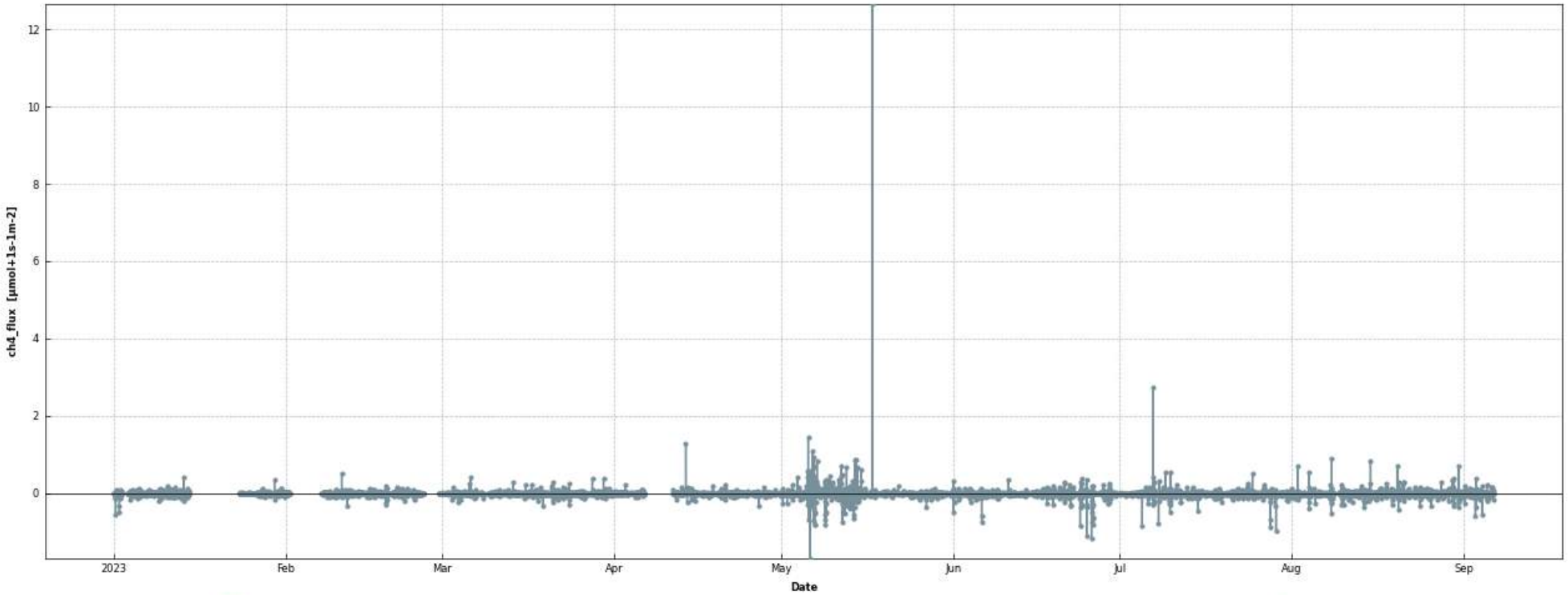
Absolute limits applied (-0.02, 0.1)

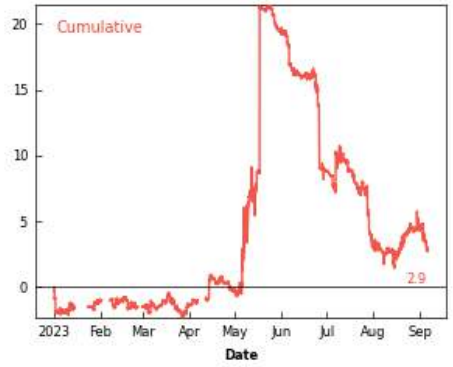


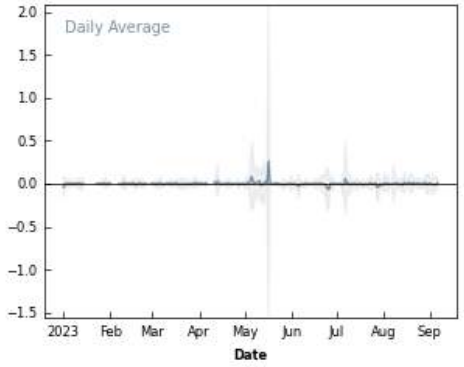
- 15.07 wheat harvest
- 18.07 soil cultivation
- 28.07 sowing of covercrop (mixture)

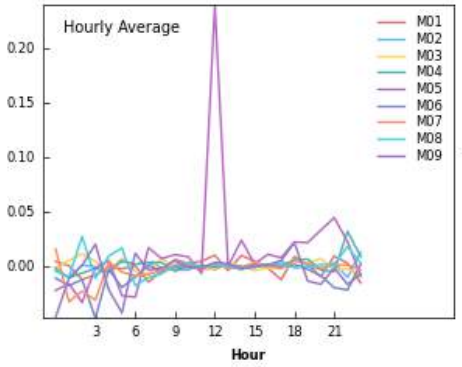
site info

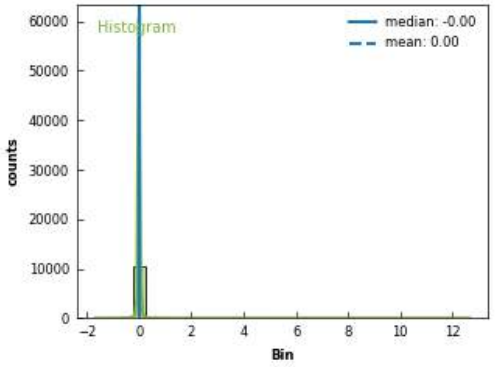
CH-OE2 CH4 flux

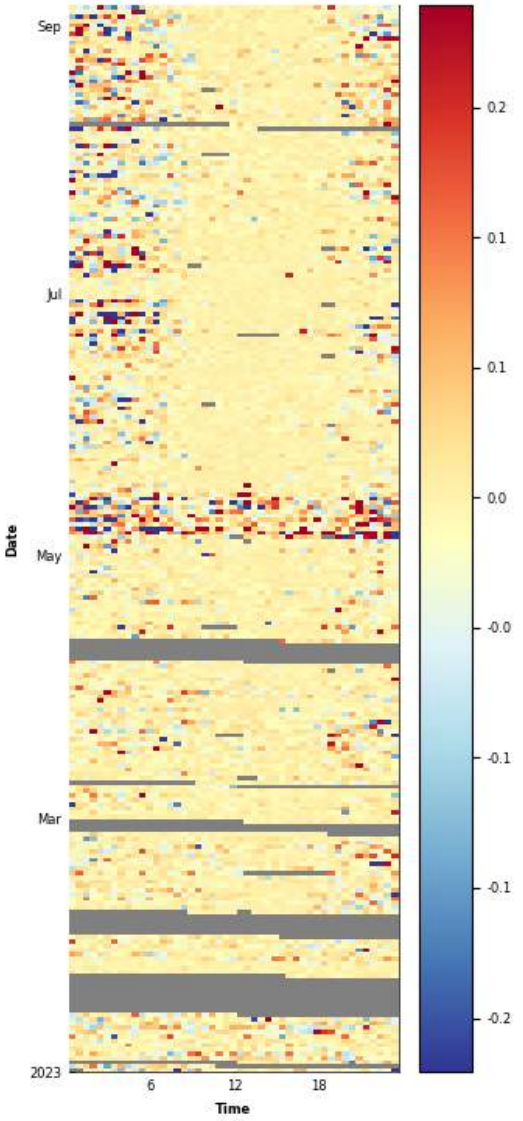






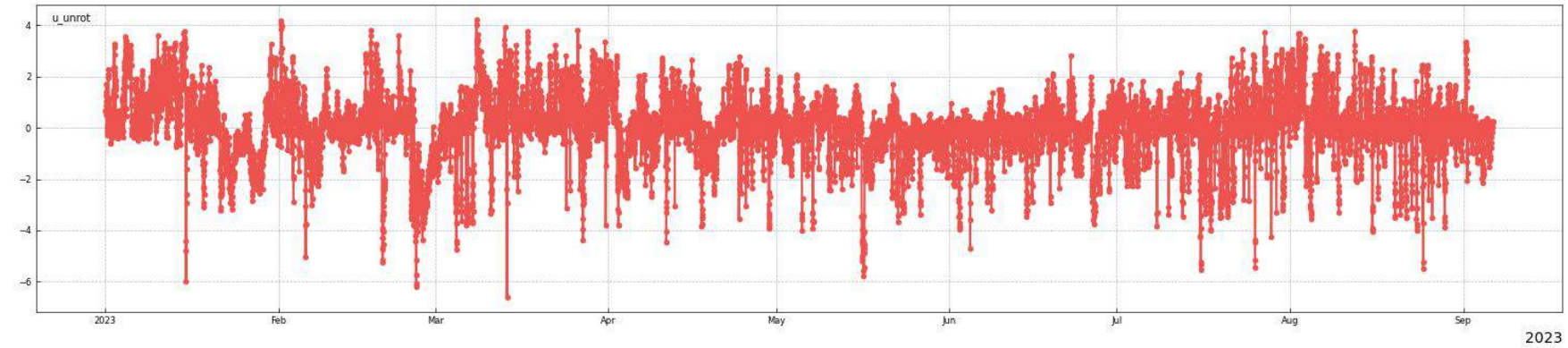




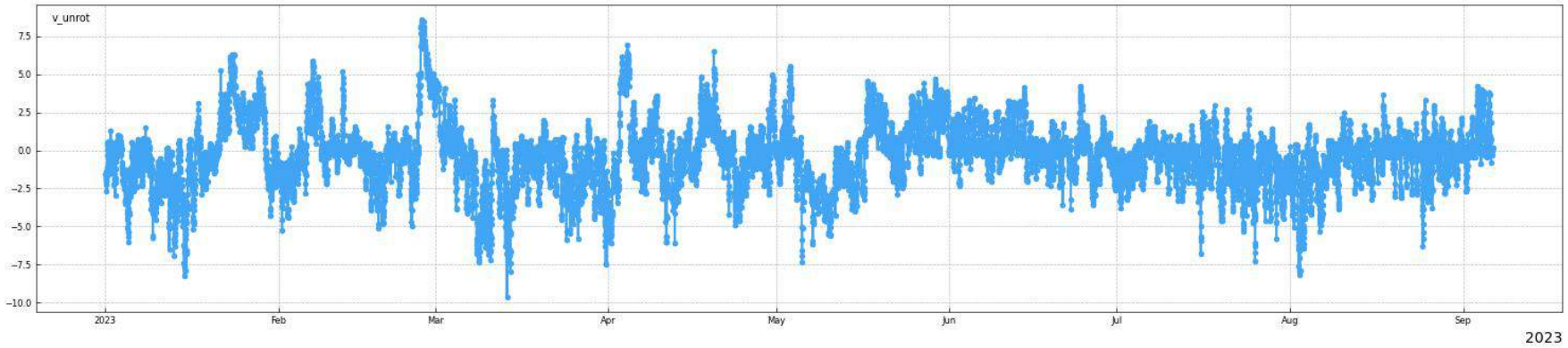


site info

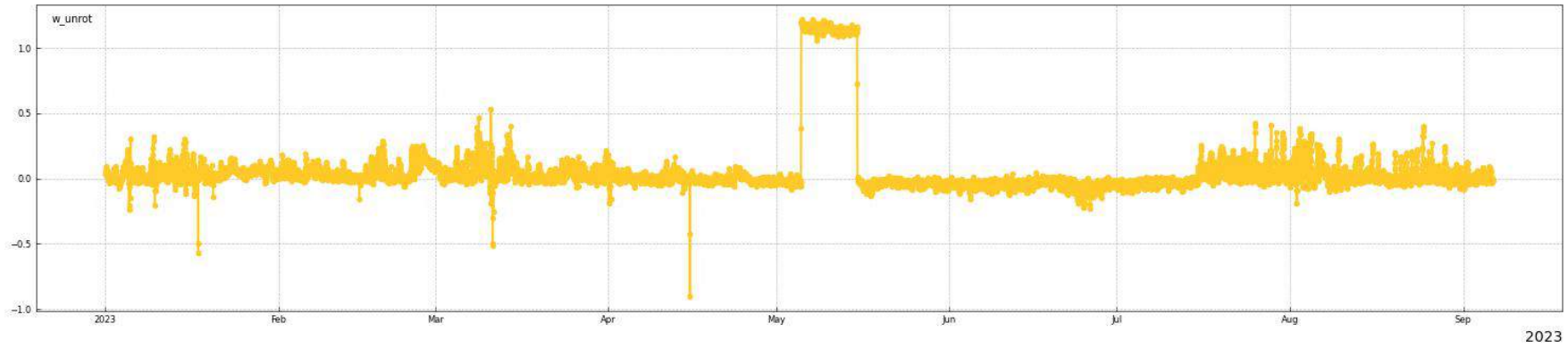
CH-OE2 u, v, w



2023



2023



2023

site info