QA/QC Meeting
11 Jan 2024

Participants: AS, PR, TB, PM, YW, LS, LK, IF, FT, LA, MR


Talking Points


ALL SITES
Recent webcam pictures


CH-AWS


CH-CHA


CH-DAV


CH-DAS


CH-FRU

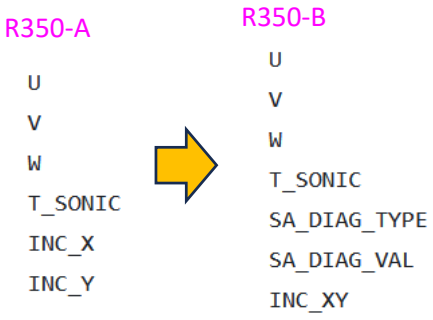

CH-LAE

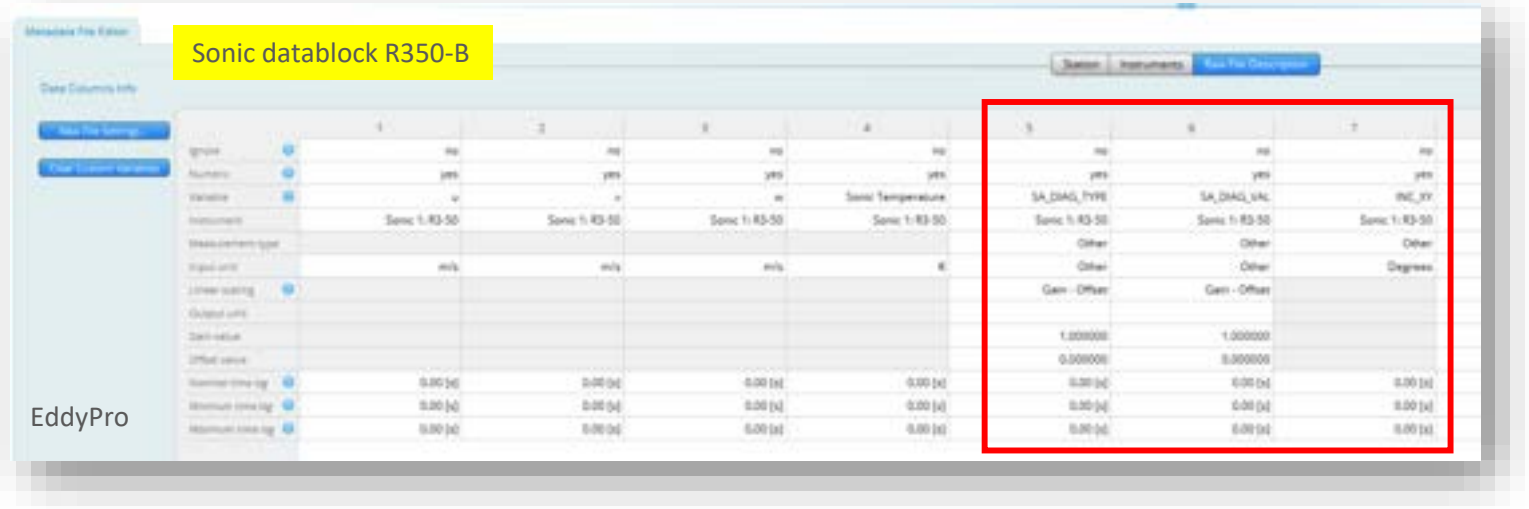

CH-LAS


CH-OE2

Talking Points

- At the moment several issues at once: GROUP-RDS needed to be re-installed → no automation; updates for one script requires updates of others (e.g. new Python version) → chain reaction;
- The VM GROUP RDS was reset and is currently updated. The calcs of autofluxes and autoconversions are interrupted but will be back soon. Update: still no automation. Difficulties with implementing permanent user that is not LH and running all the time. Permanent user must be set up by ISG. EddyPro not working. No FTP for webcam HTTPS. No Grasslandserver access for admin.
- Some EC raw data ASCII files were not completely correct and were deleted from the server. Affected sites are FRU (since 2017), OE2 (since 2021) and CHA (since 2021). The newest version of bico (v1.6.0) can convert these time periods correctly. Past flux calculations are NOT AFFECTED by this issue. Update: also affected are: CH-DAS and CH-LAS. Check the EC Raw Binary Format tables on SFNHP for affected time periods with sonic R350-B, e.g. CH-DAS. This requires minor adjustments to the .eddypro processing files.



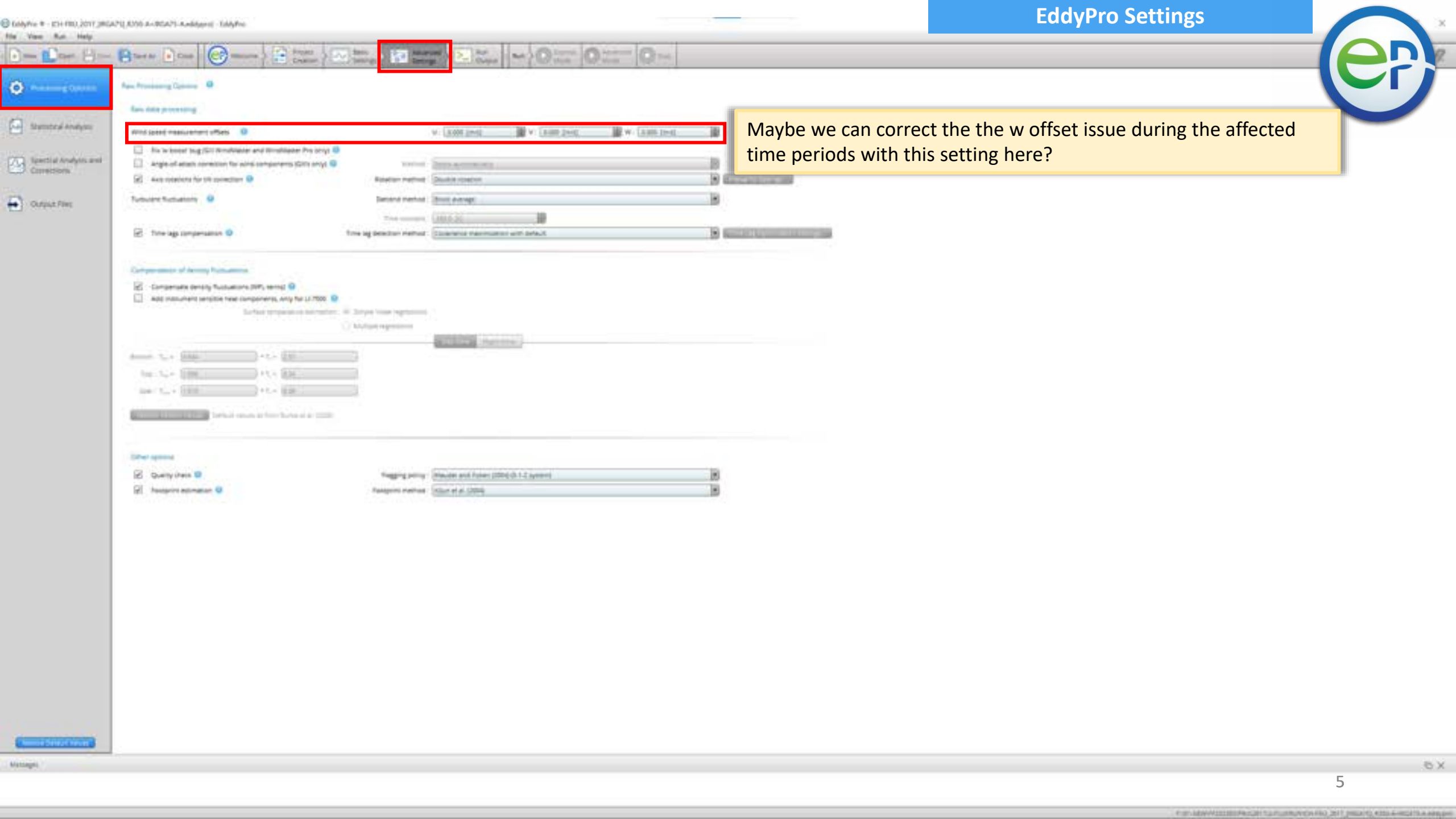


- **End of year**: LH will re-check all raw data uploads in database and re-upload, based on recent knowledge
- **New dates for 2024:** https://www.swissfluxnet.ethz.ch/index.php/data/meetings/qa-qc-meetings-monthly/
- Checking recent webcam images, SW_IN, VPD and TA, site overview; recent fluxes

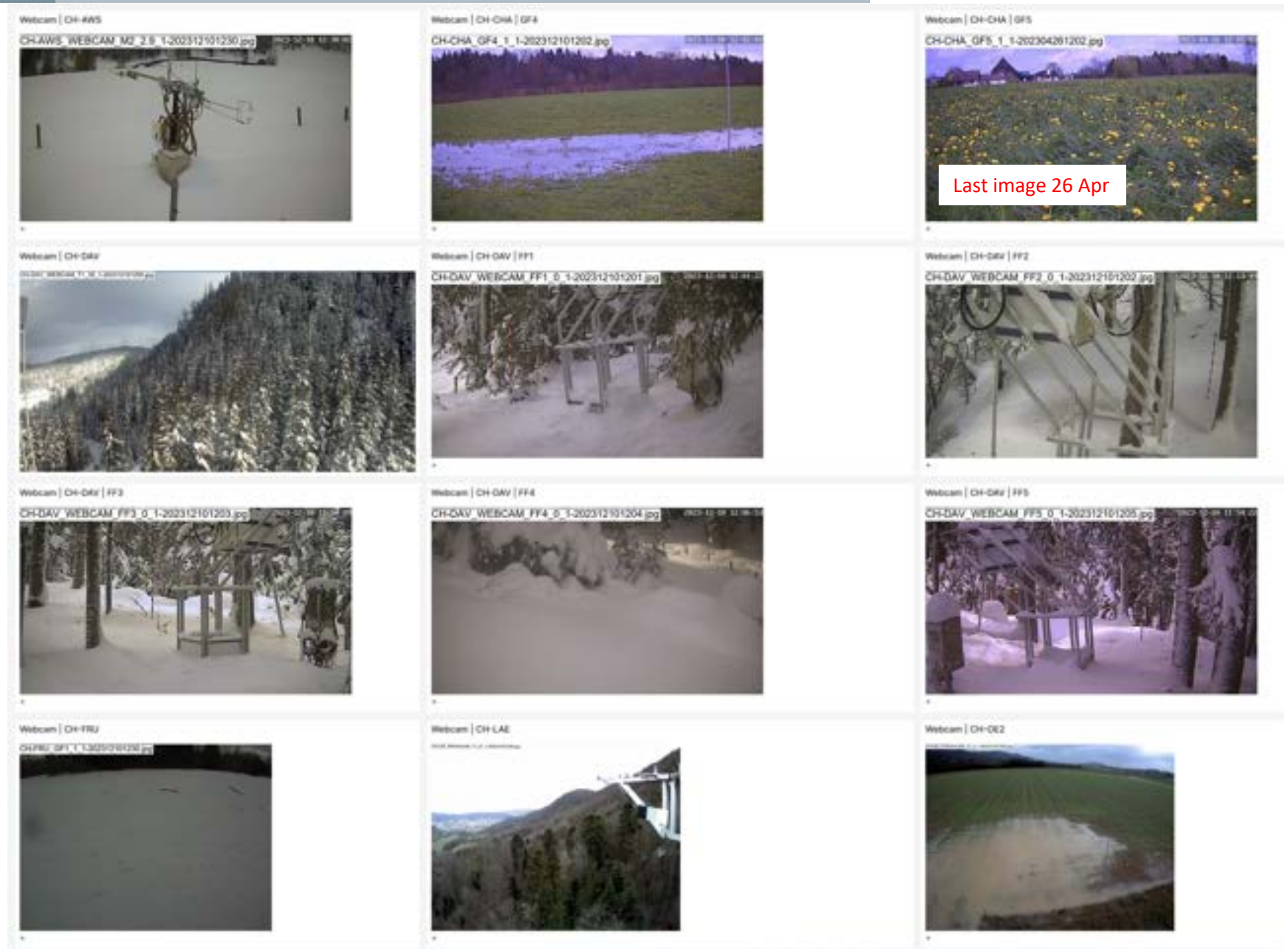
General Info

- **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 2024

EddyPro Settings



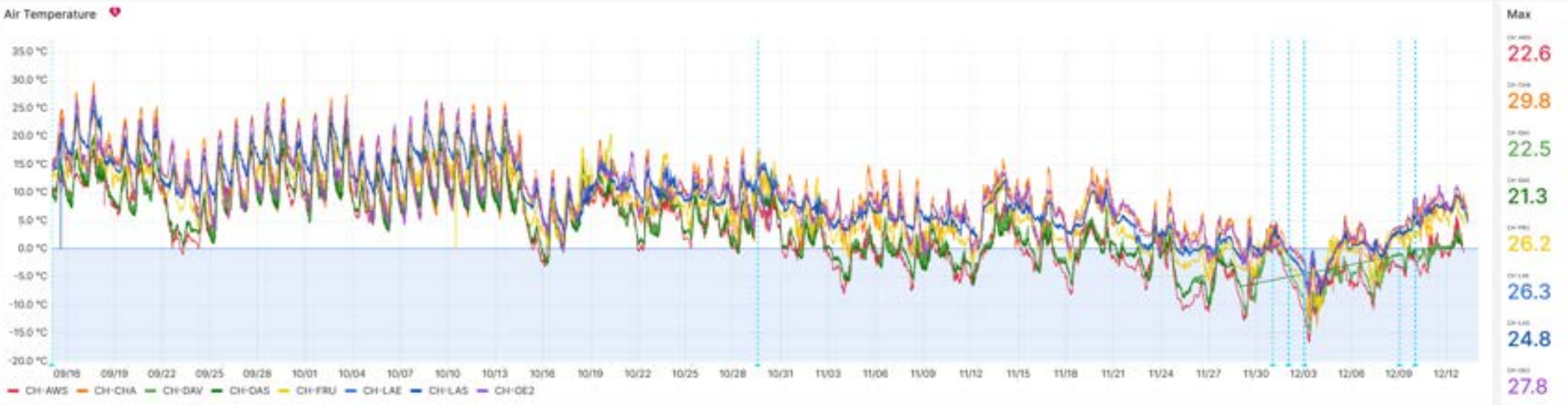
ALL SITES Recent webcam pictures



ALL SITES TA, SW_IN

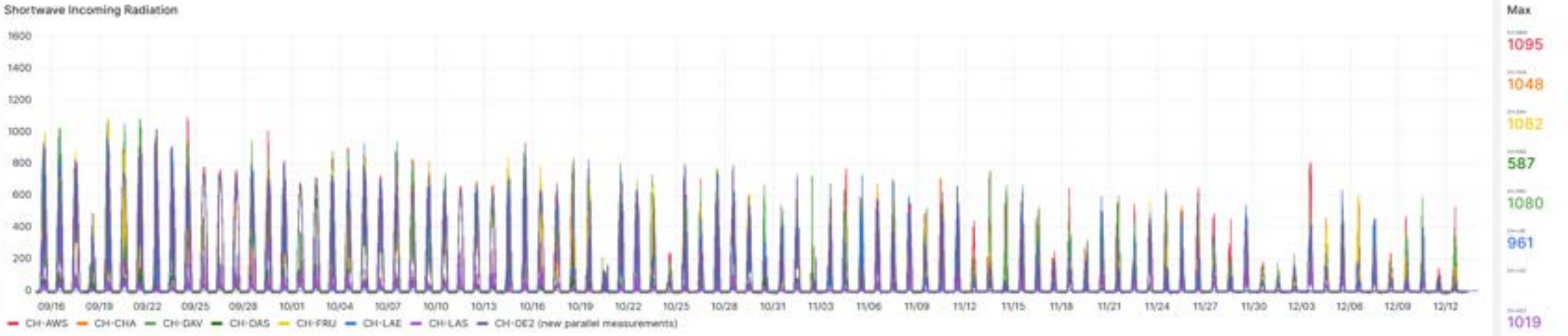
Air Temperature

- raw data
- no quality checks
- full resolution

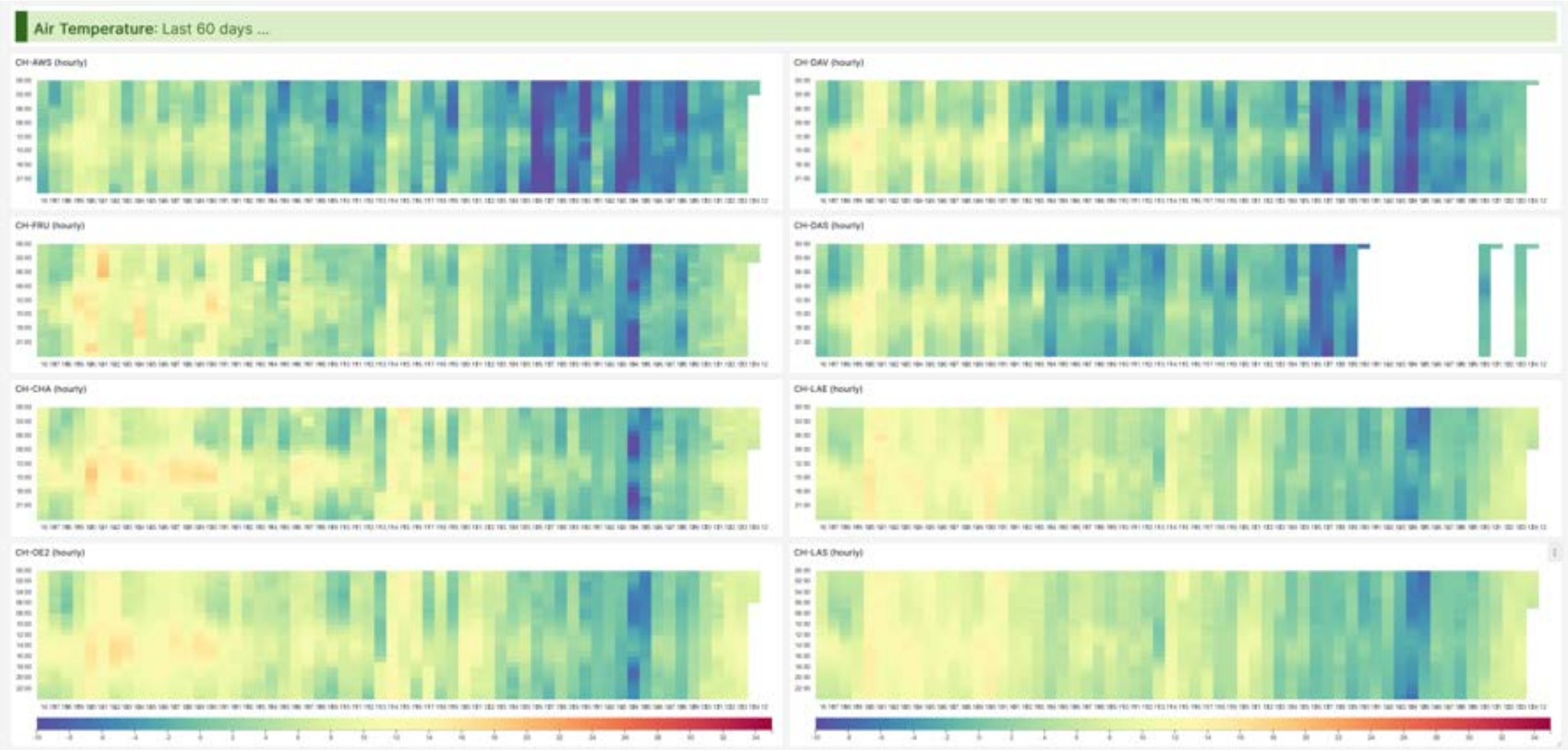


Shortwave Incoming Radiation

- raw data
- no quality checks
- full resolution

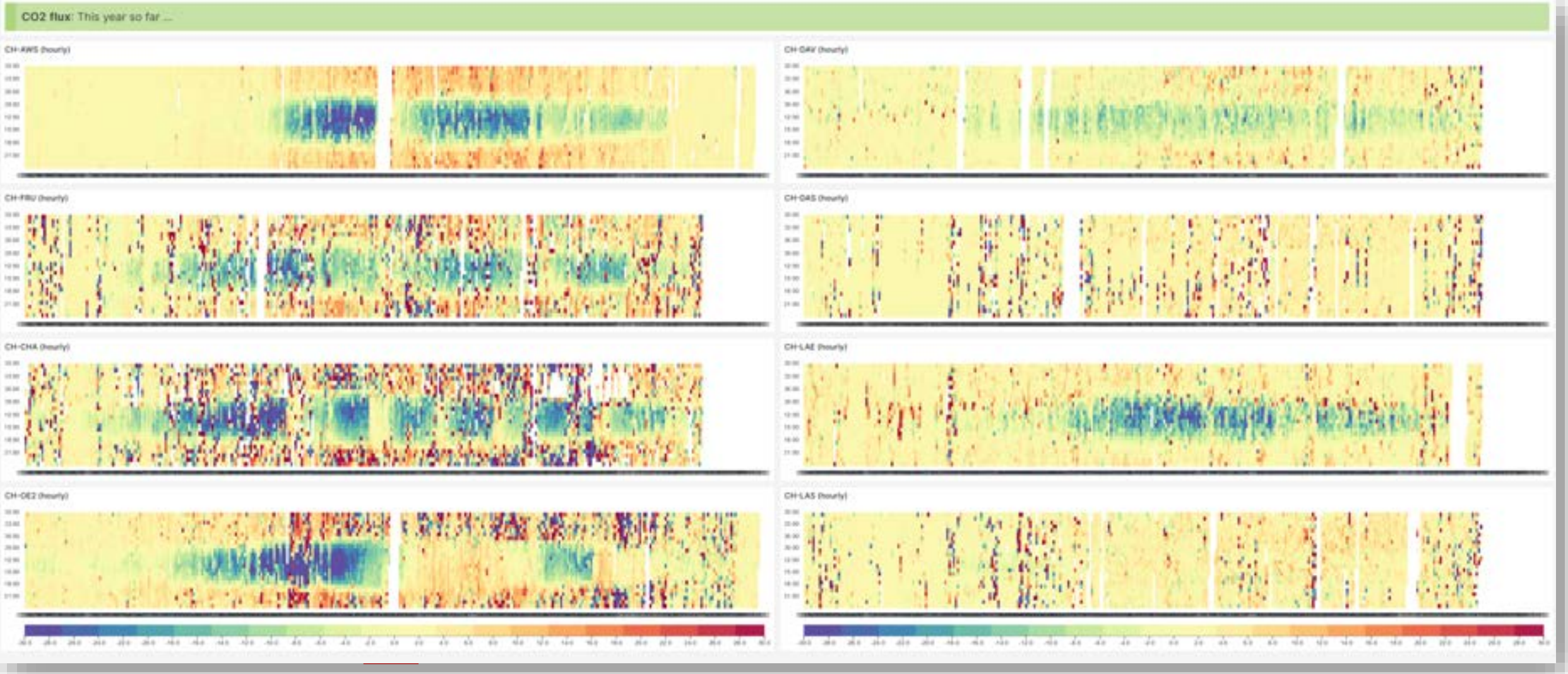


ALL SITES TA


Air Temperature: Last 60 days ...
CH-AWS (hourly)
CH-DAV (hourly)
CH-FRU (hourly)
CH-OAS (hourly)
CH-CHA (hourly)
CH-LAE (hourly)
CH-OE2 (hourly)
CH-LAS (hourly)

ALL SITES CO2 Fluxes

Not fully up-to-date, issues with database uploading script



ALL SITES Sensible Heat Fluxes (H)

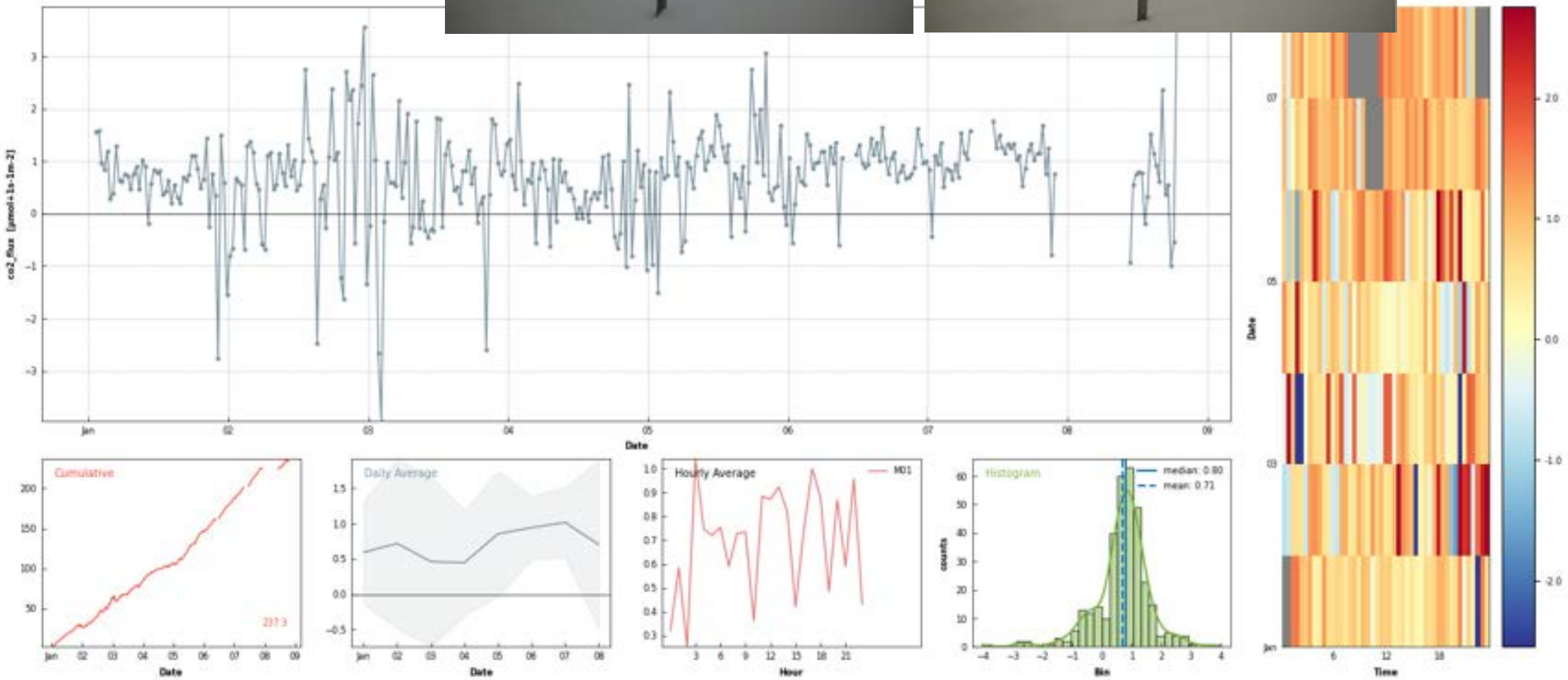
Not checked during this meeting

CH-AWS

Photo: Matthi Barthel

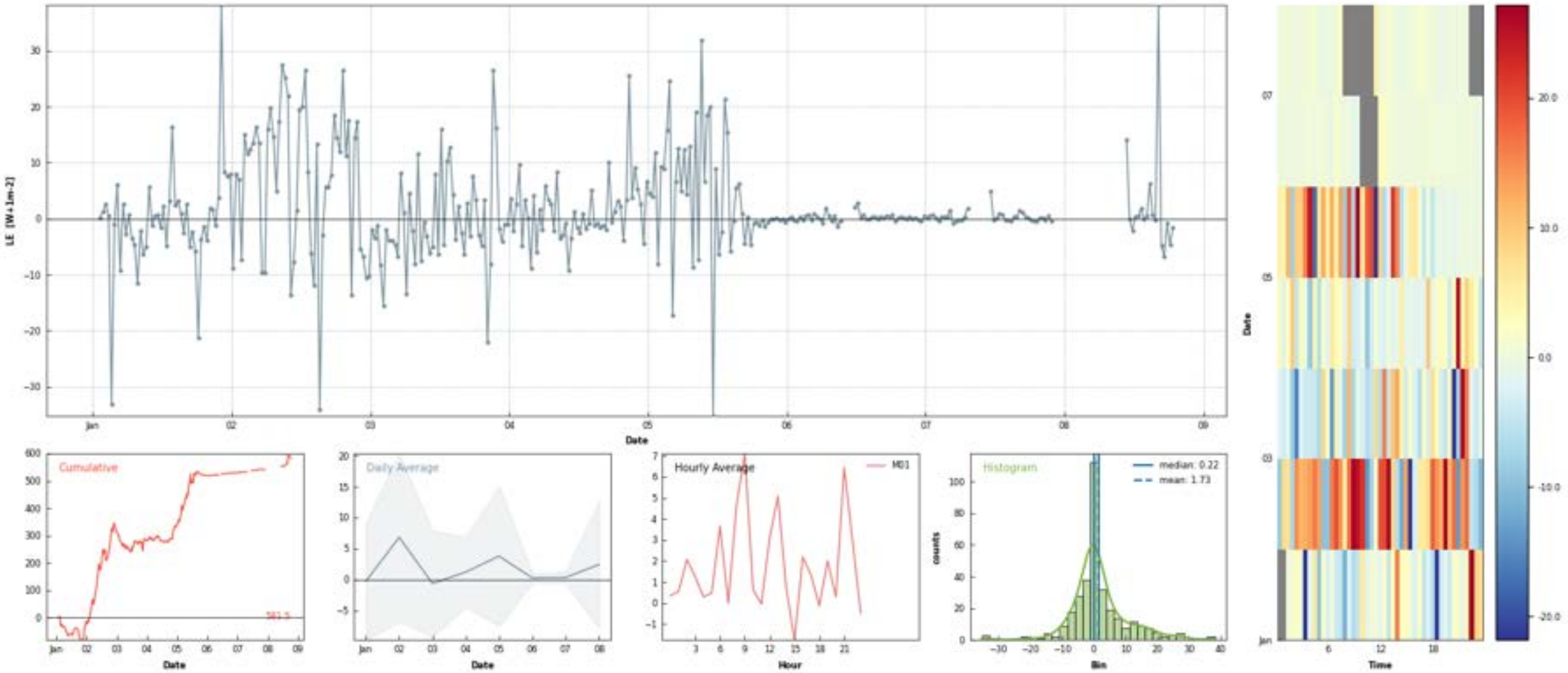
CH-AWS CO2 flux

Most beautiful site & fluxes



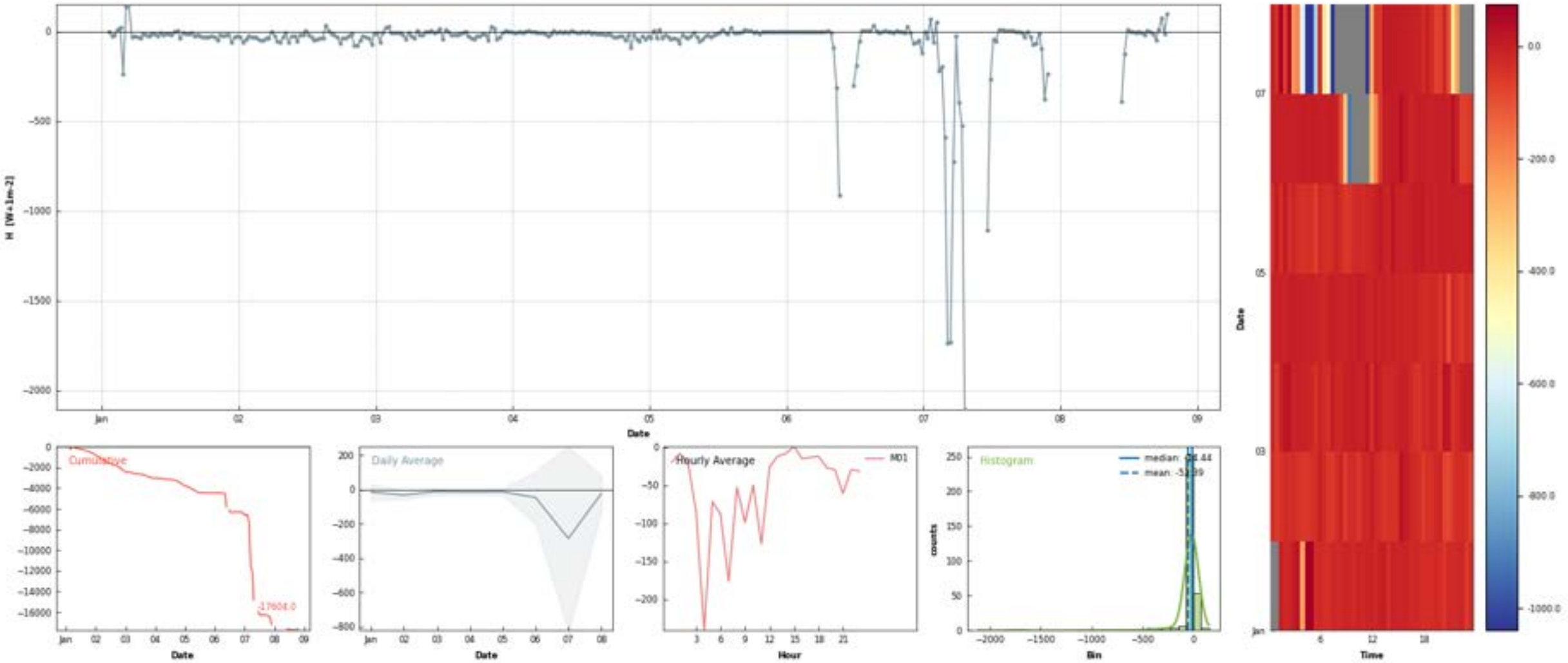
site info

CH-AWS LE



site info

CH-AWS H



site info

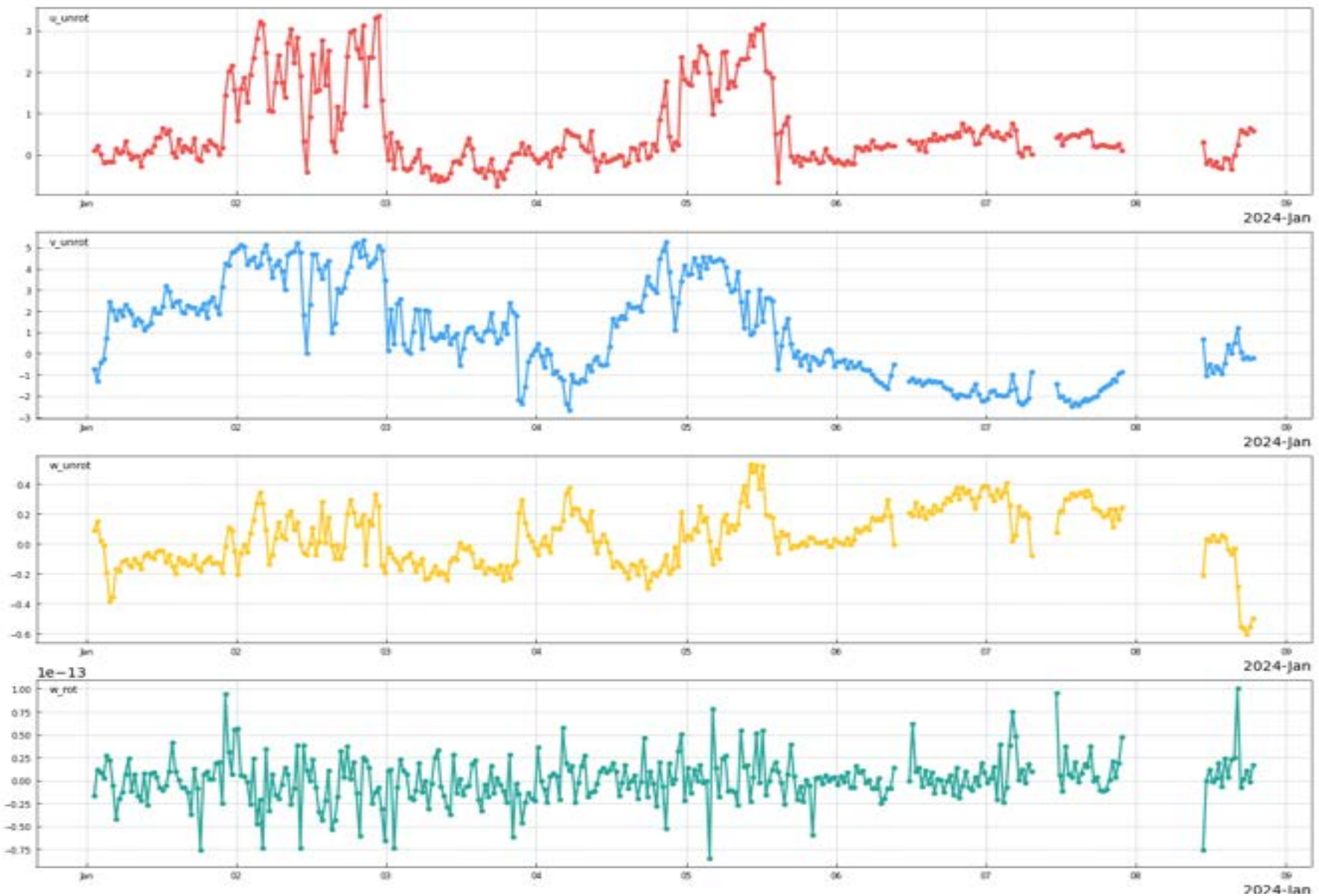
CH-AWS u, v, w

u_unrot

v_unrot

w_unrot

w_rot



site info

CH-CHA

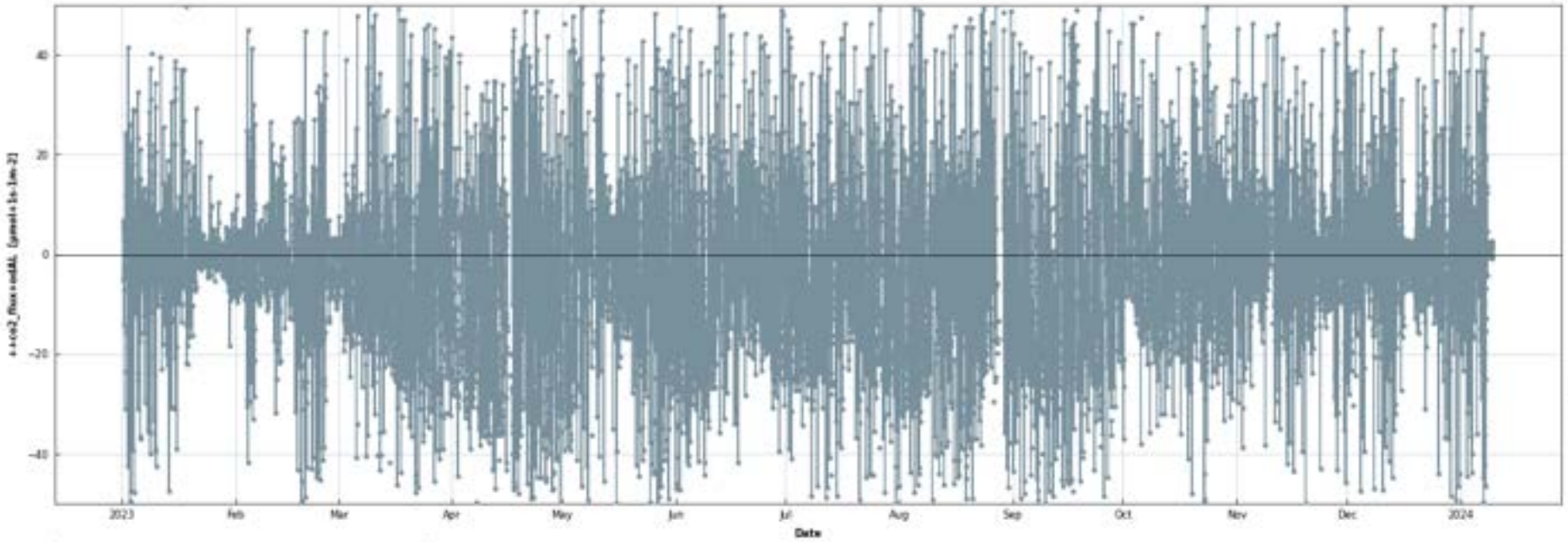
Photo: Lukas Hörtnagl

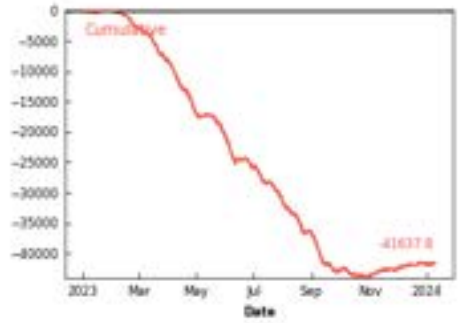
CH-CHA CO2 flux

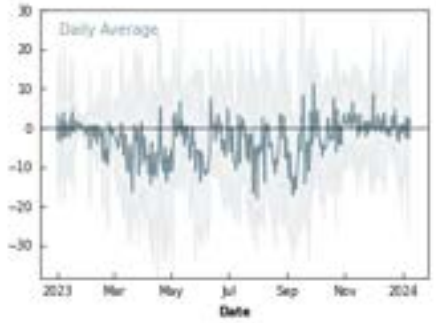
Snow :)

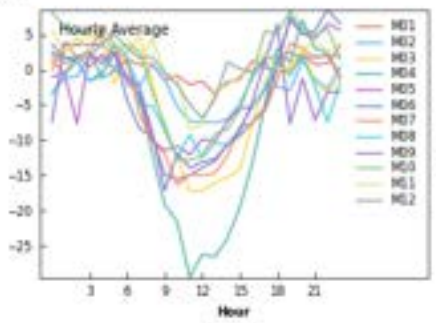
- 1st mowing: 2023.05.04
- 2nd mowing: 2023.06.11
- 3rd mowing: 2023.07.13
- 4th mowing: 2023.08.08
- 5th mowing: 2023.09.25
- 6th mowing: 2023.10.28

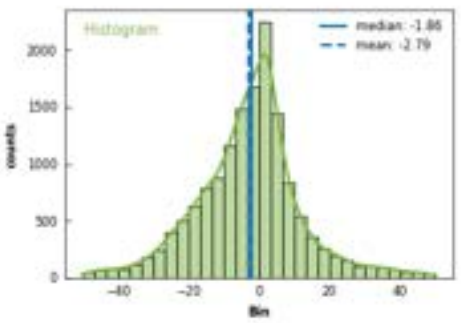
Eddypro processing file adjusted for the new raw data format (R350-B)

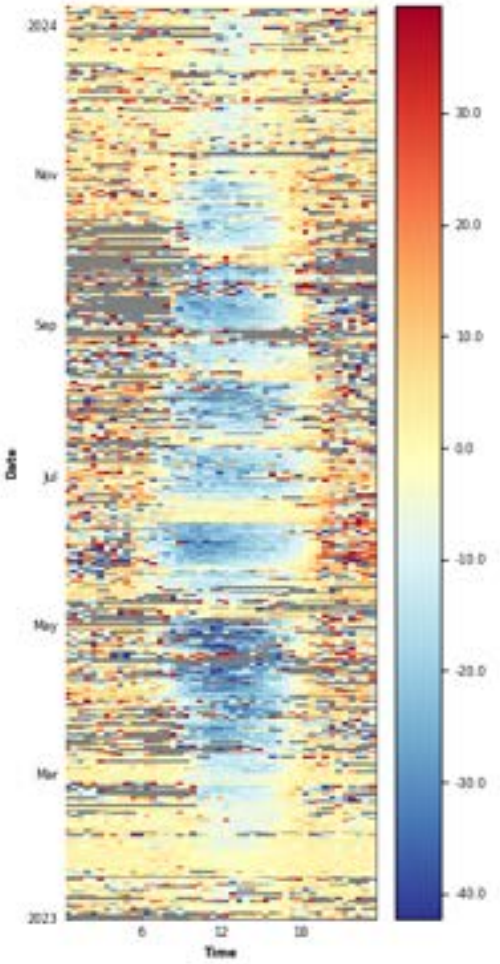






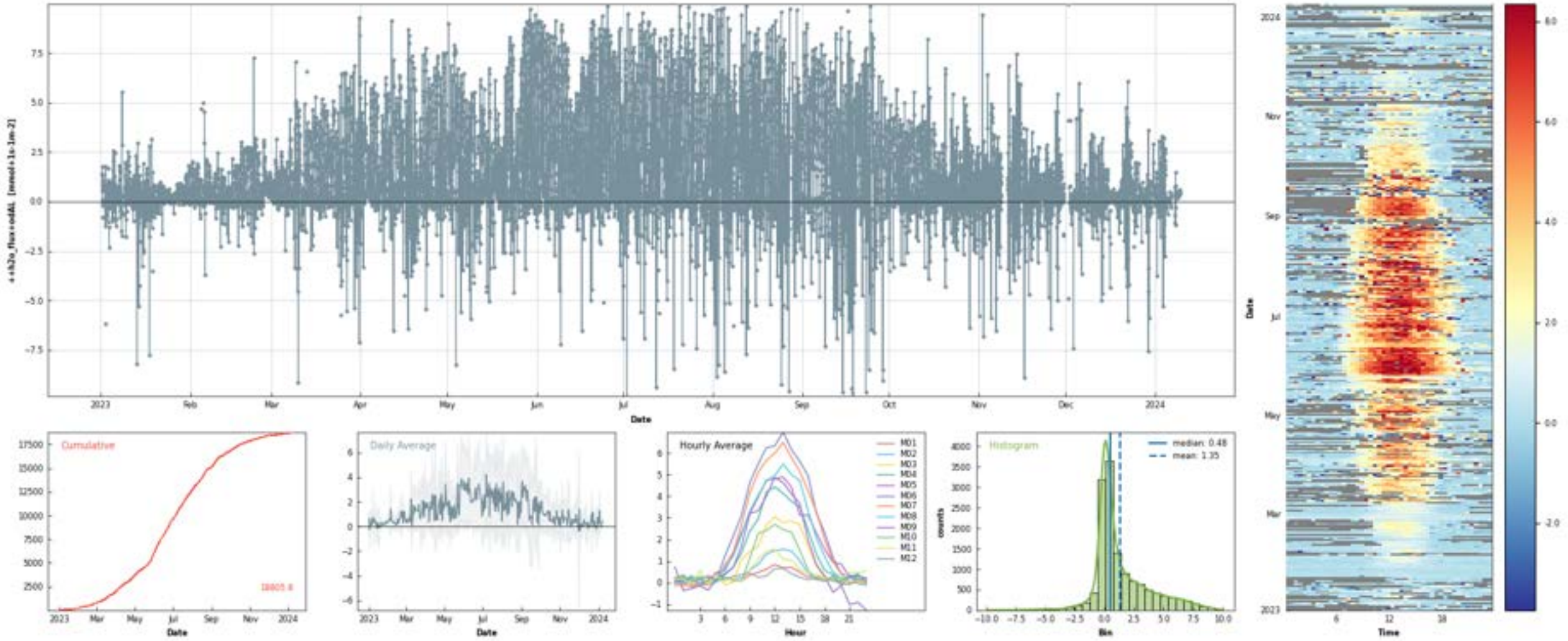






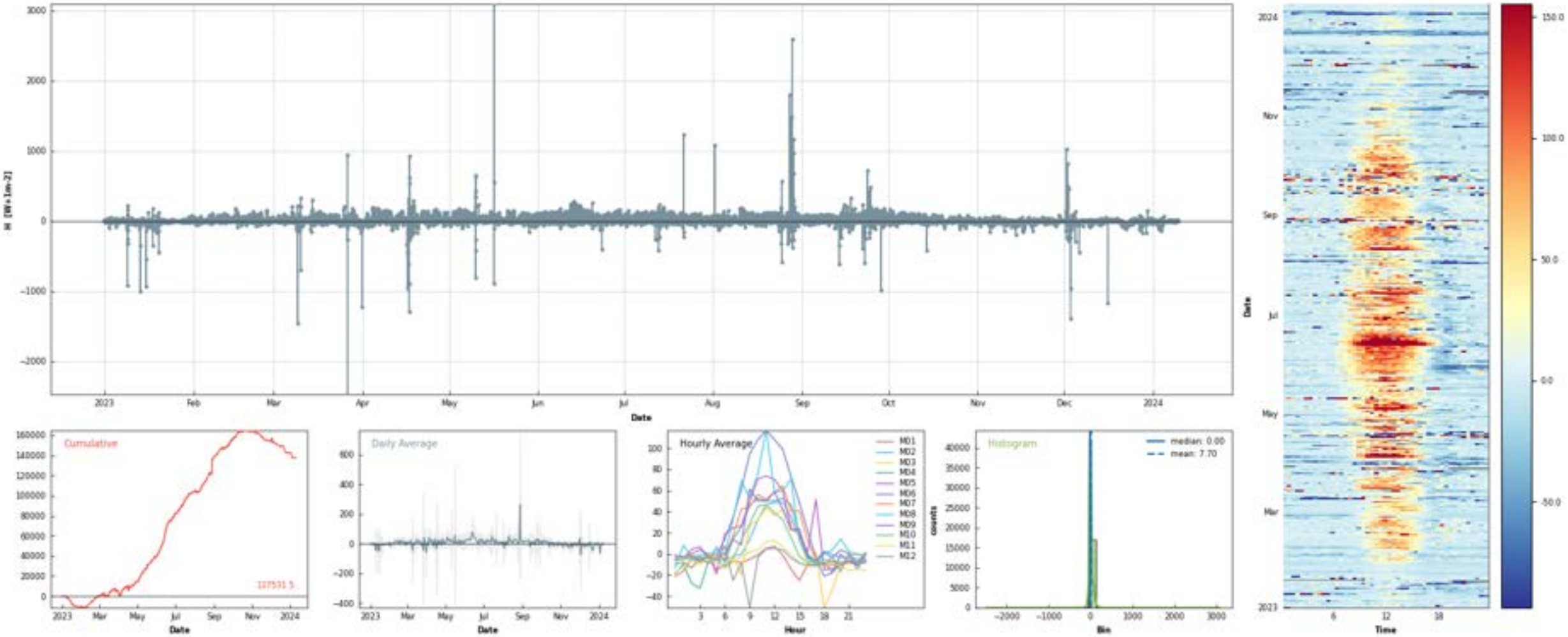
site info

CH-CHA H2O flux



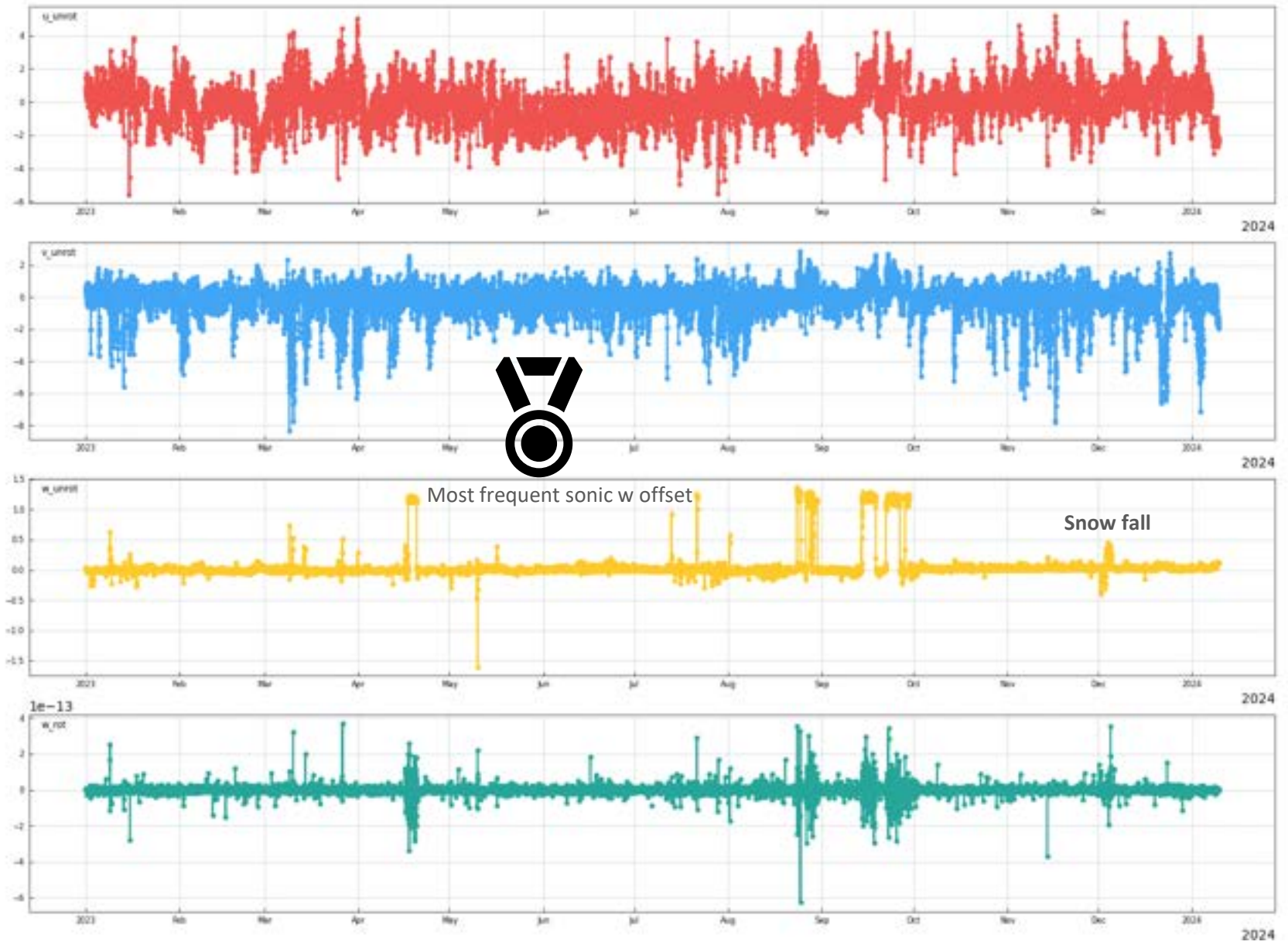
site info

CH-CHA H



site info

CH-CHA u,v,w



site info

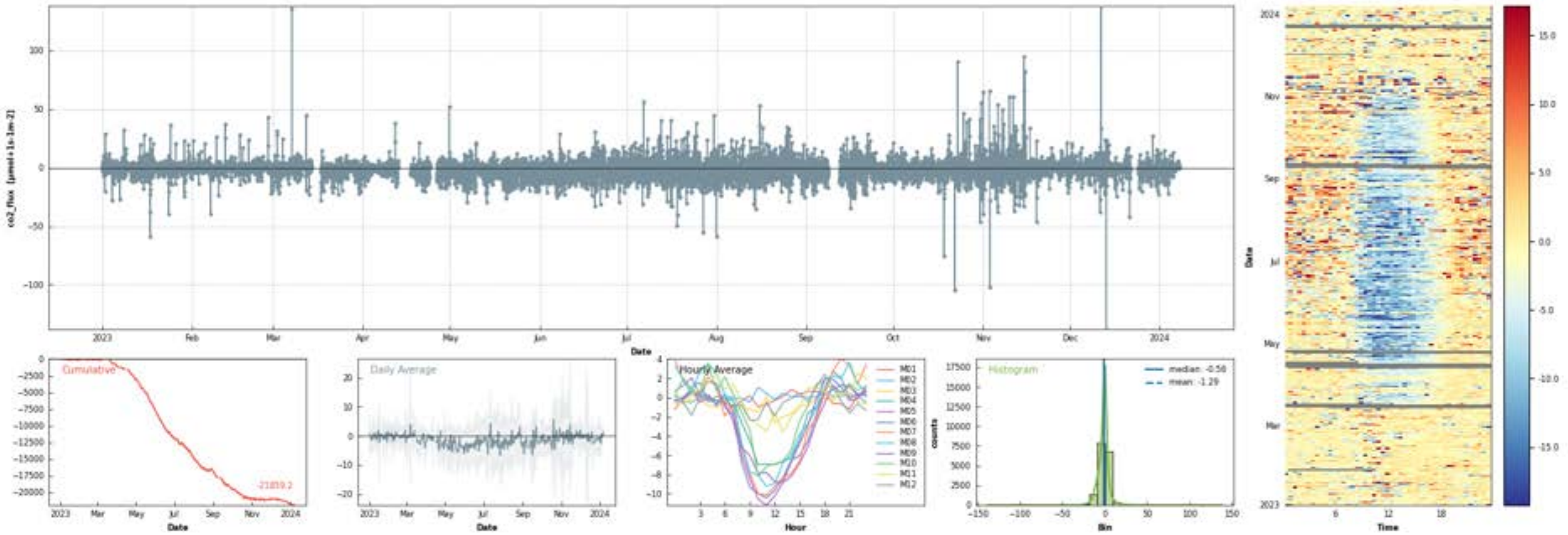
CH-DAV

Photo: Lukas Hörtnagl

site info

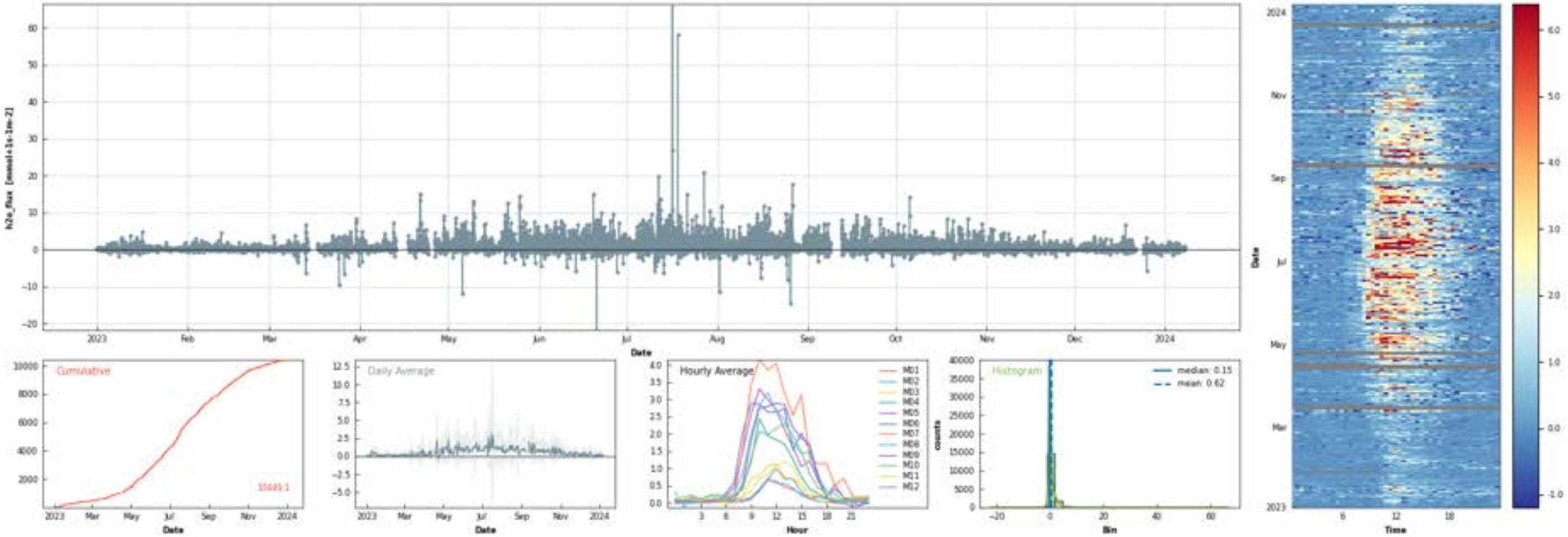
CH-DAV CO2 flux

- Year is complete with some data gaps (3-5 days duration, mostly due to sonic failure, gap in September due to blown fuse). Keep an eye on the sonic (sometimes needs a restart).
- Dormant season, snow cover



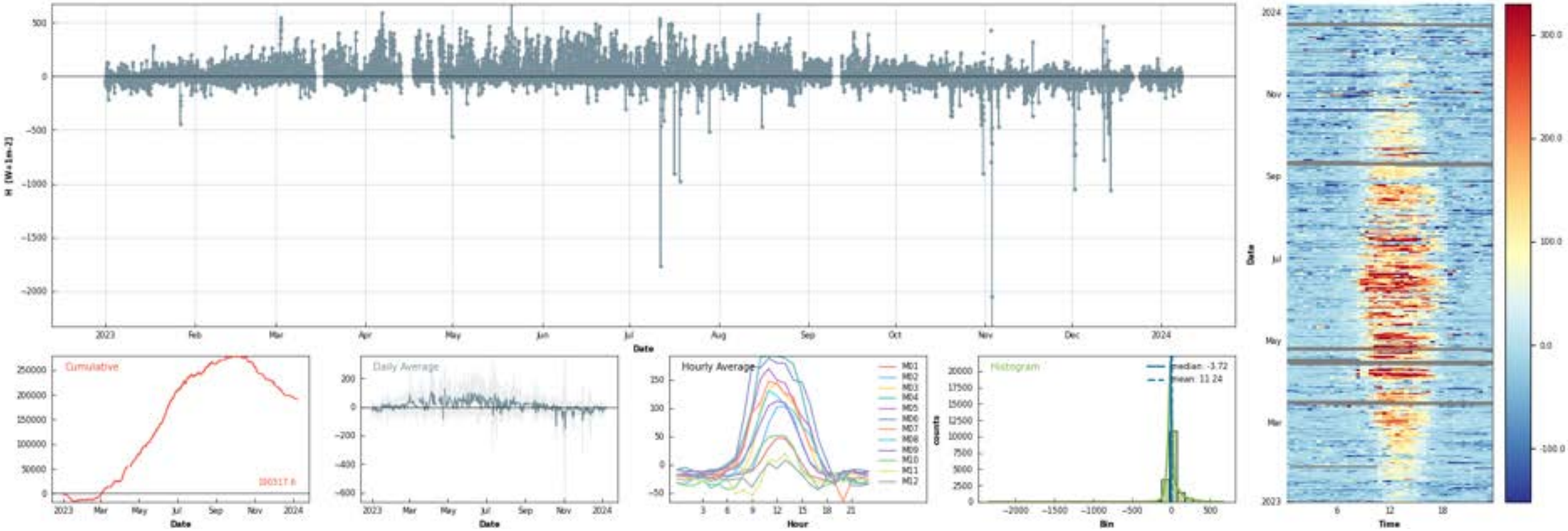
site info

CH-DAV H2O flux



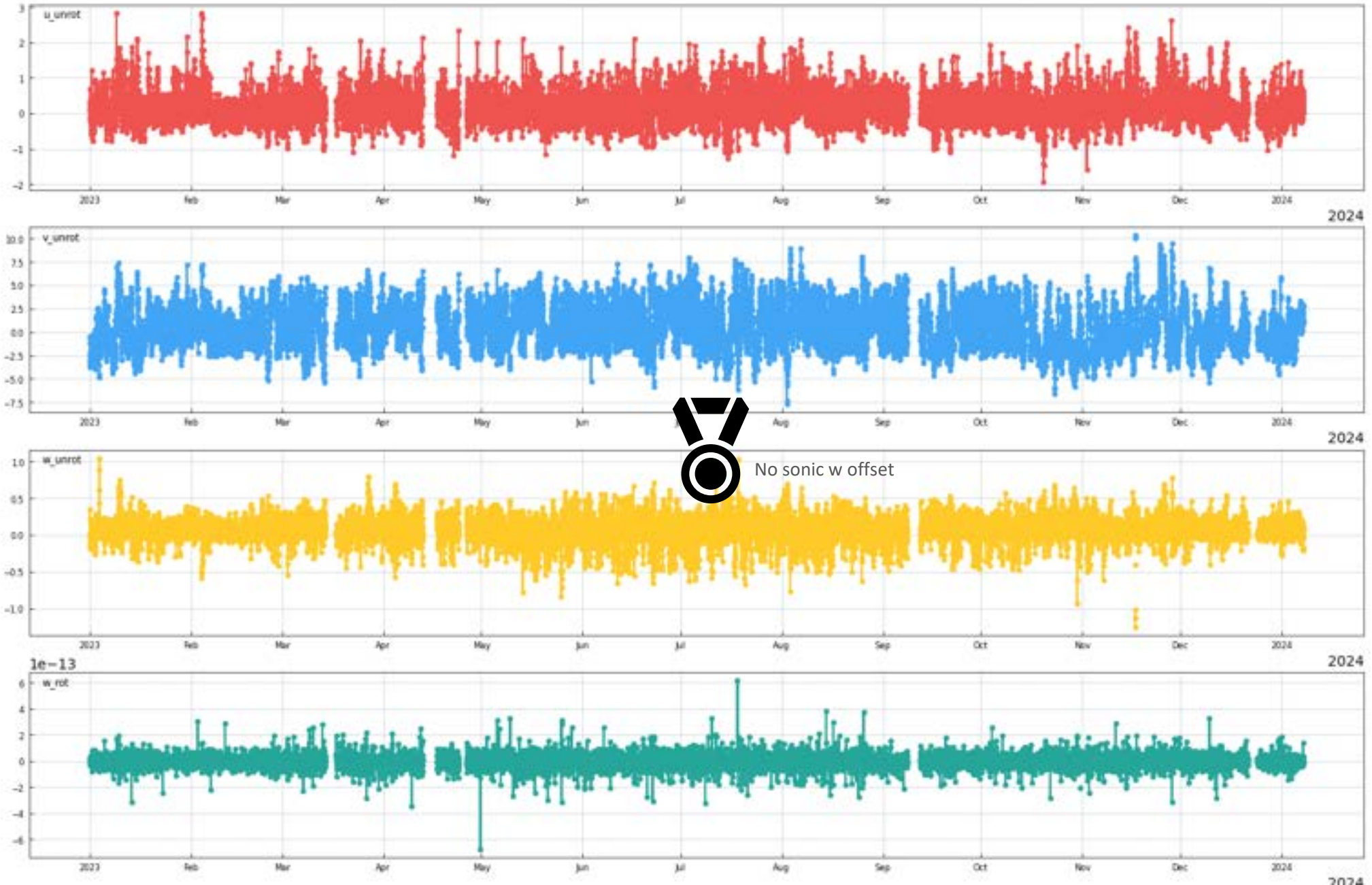
site info

CH-DAV H



site info

CH-DAV u, v, w



No sonic w offset

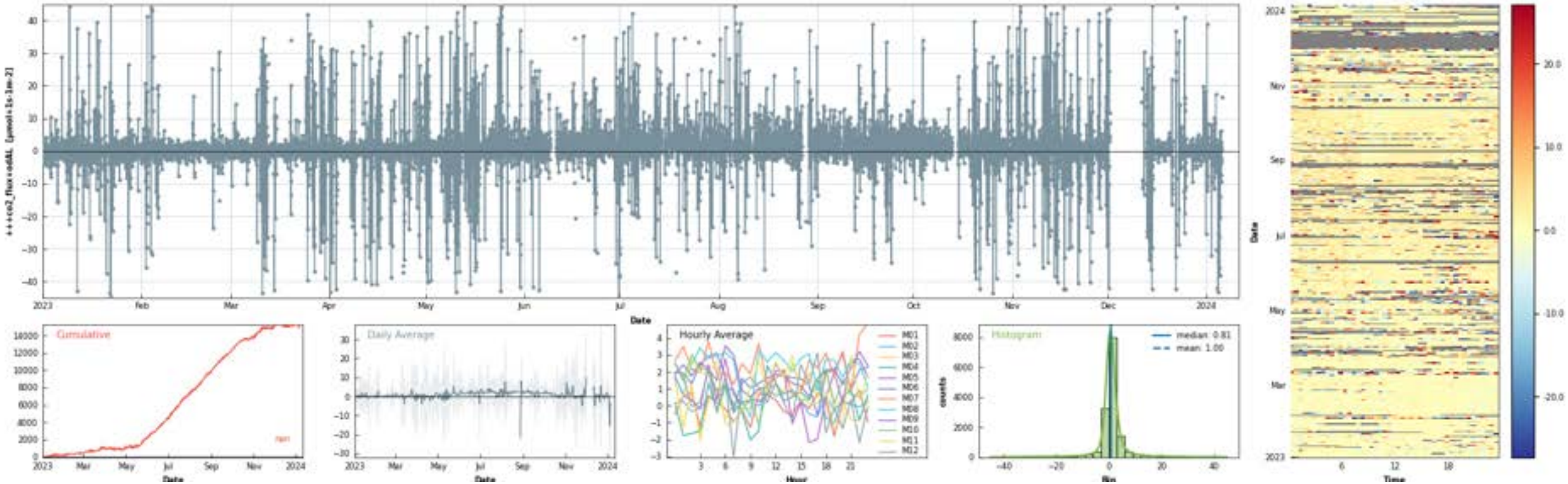
site info

CH-DAS

Photo: Luana Krebs

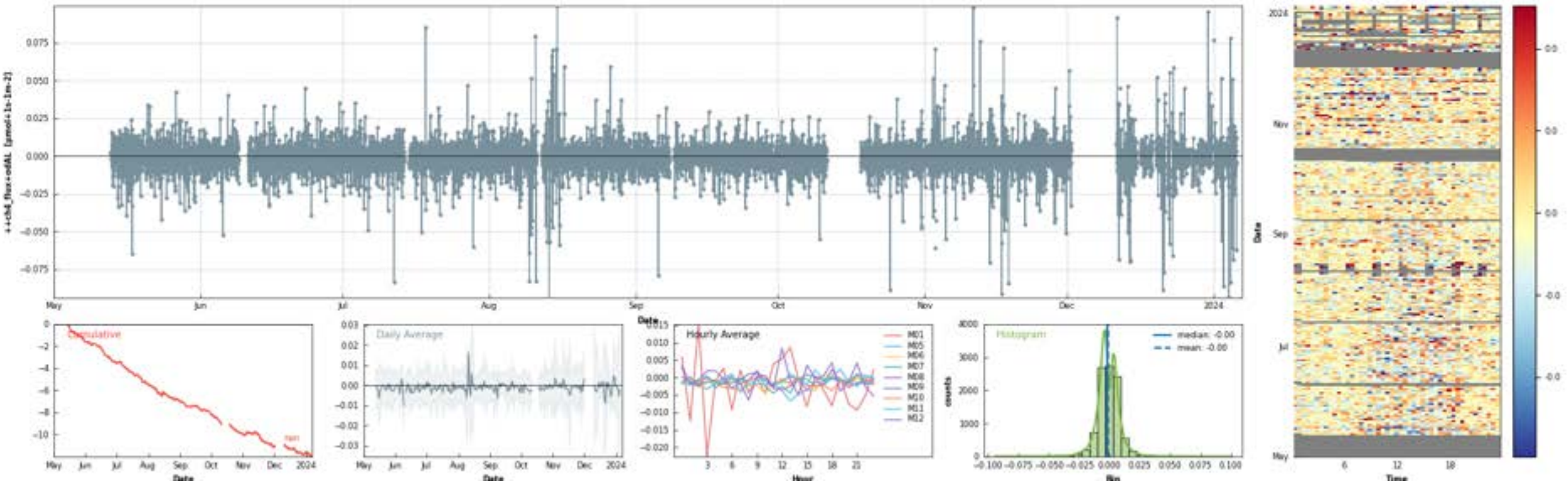
site info

CH-DAS CO2 flux



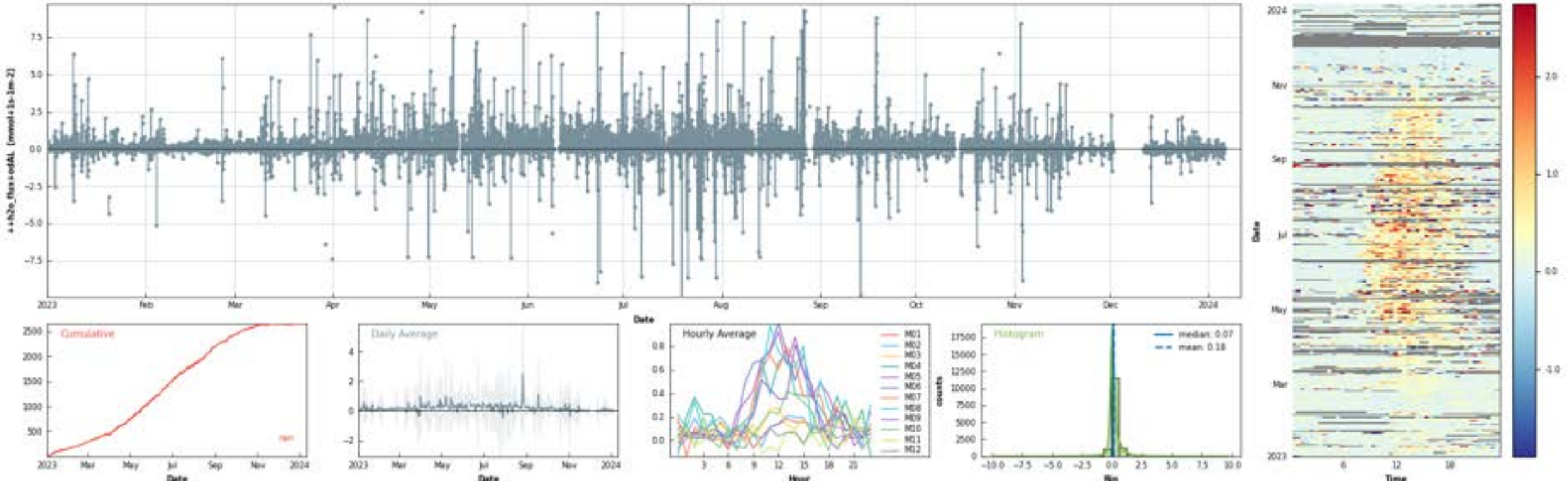
site info

CH-DAS CH4 flux



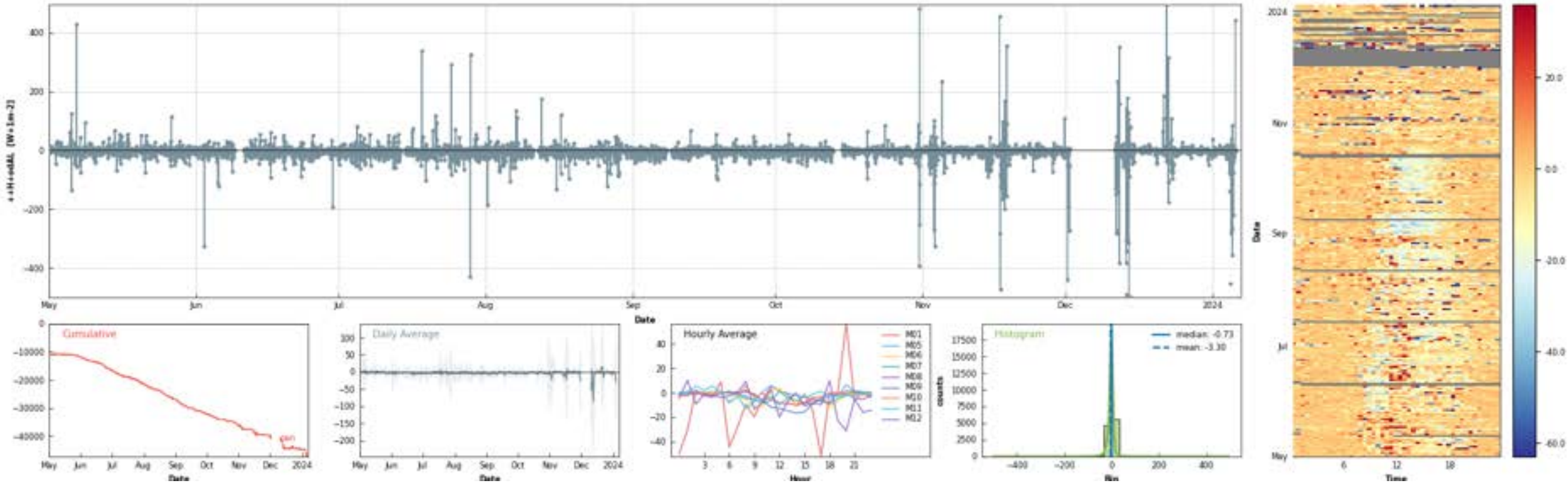
site info

CH-DAS H2O flux



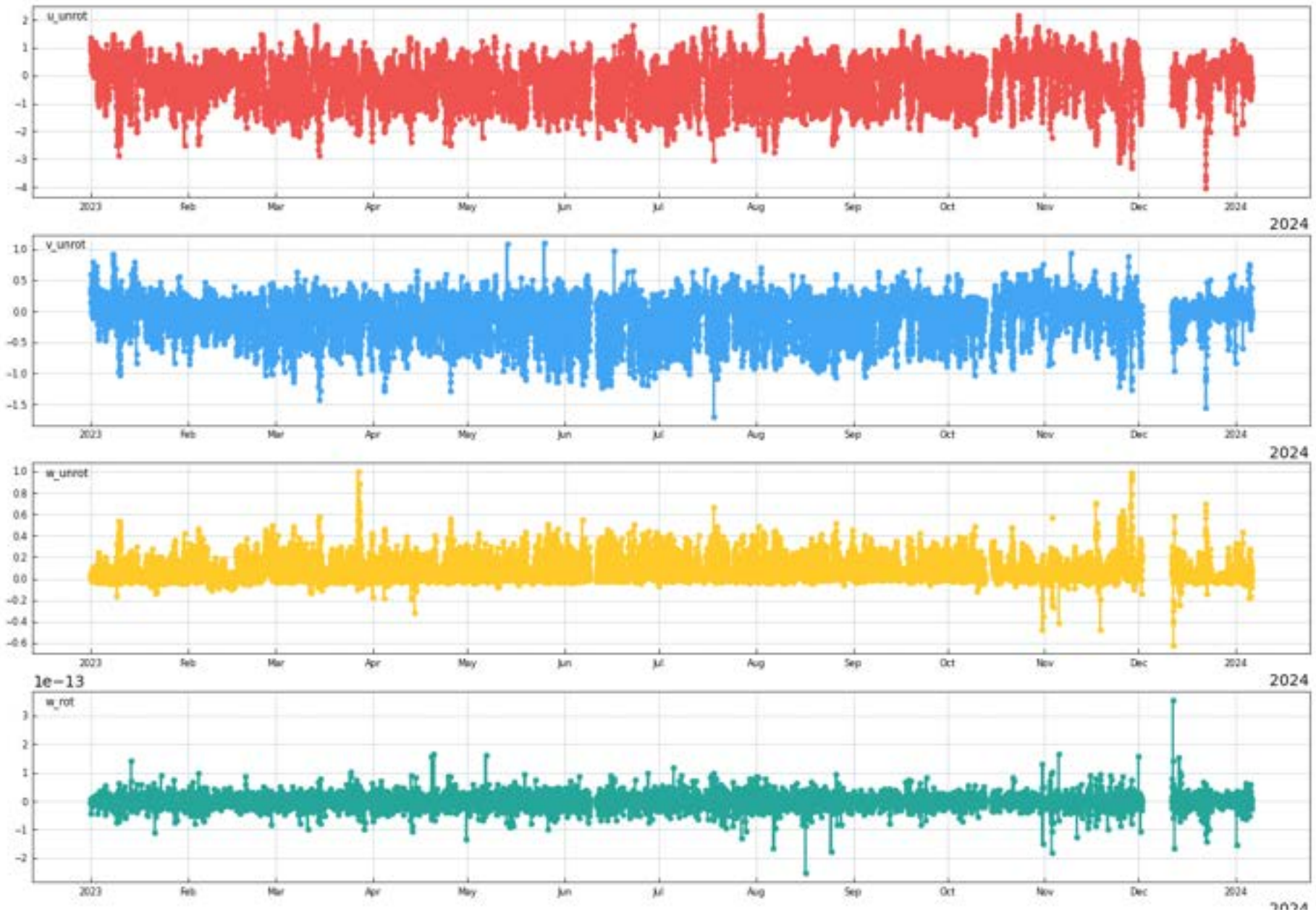
site info

CH-DAS H



site info

CH-DAS u, v, w



site info

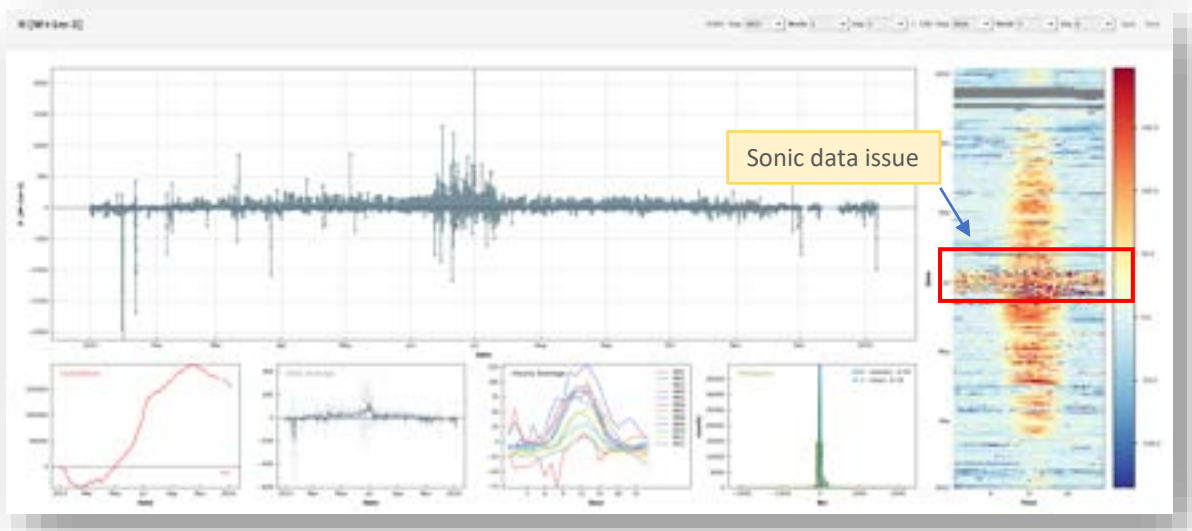
CH-FRU

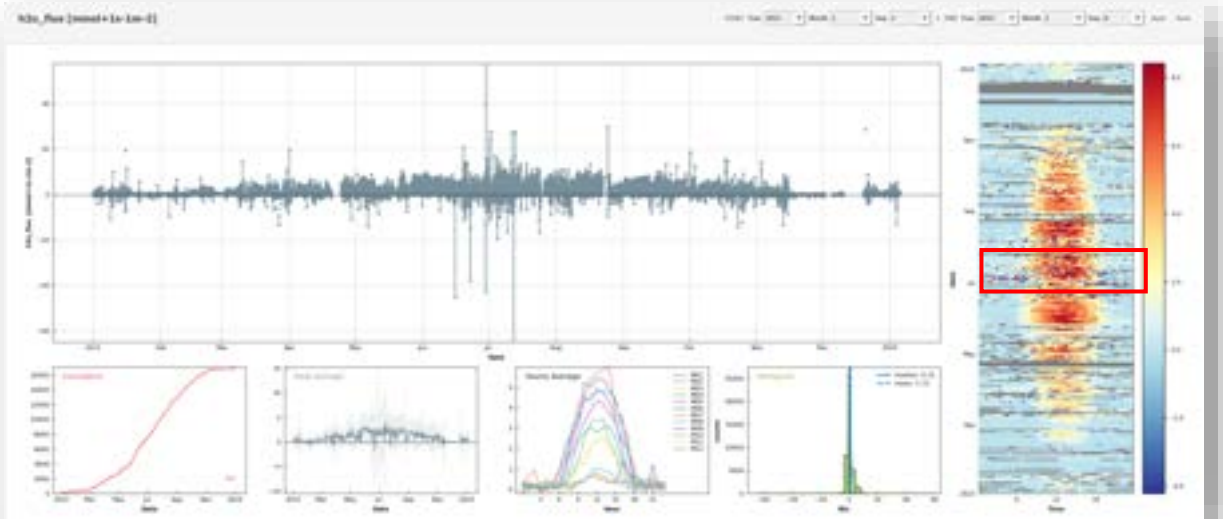
Photo: Lukas Hörtnagl

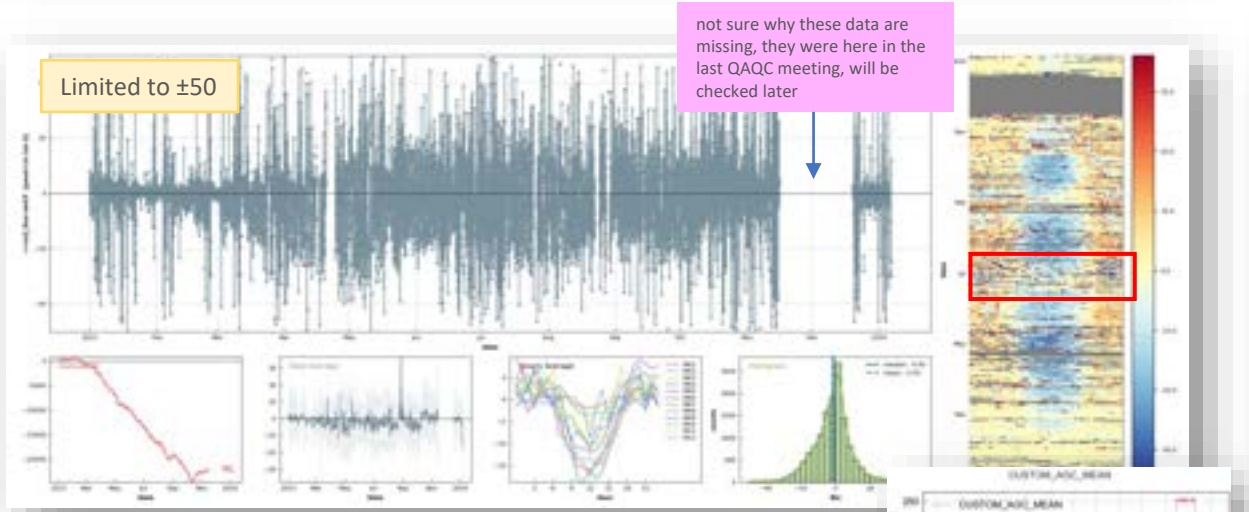
site info

CH-FRU Fluxes H, H2O, CO2, w_unrot

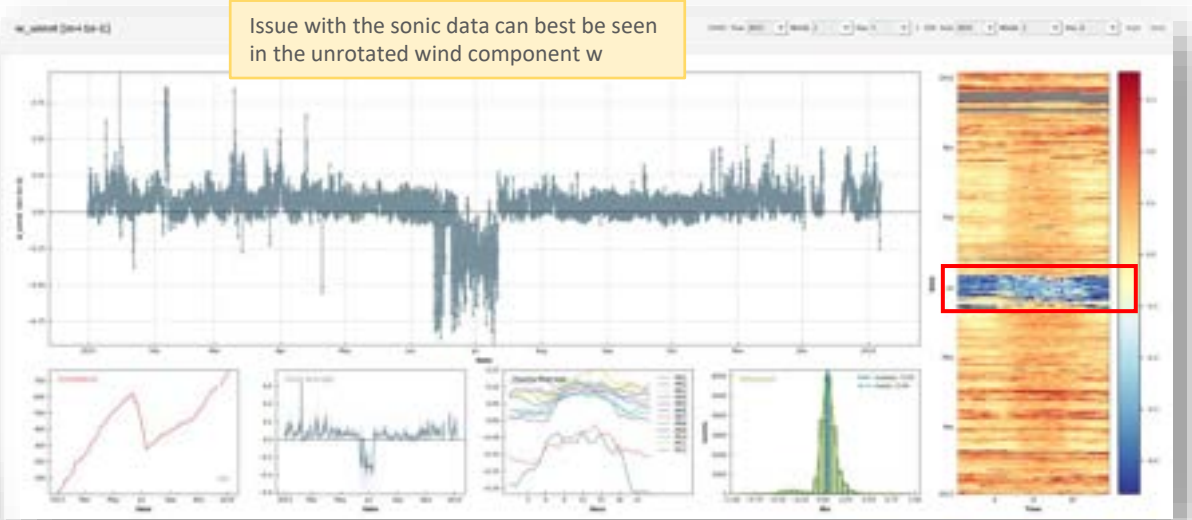
MAIN TOWER (sonicread)







Seems like the AGC was very high and thus the CO2 signal probably not good



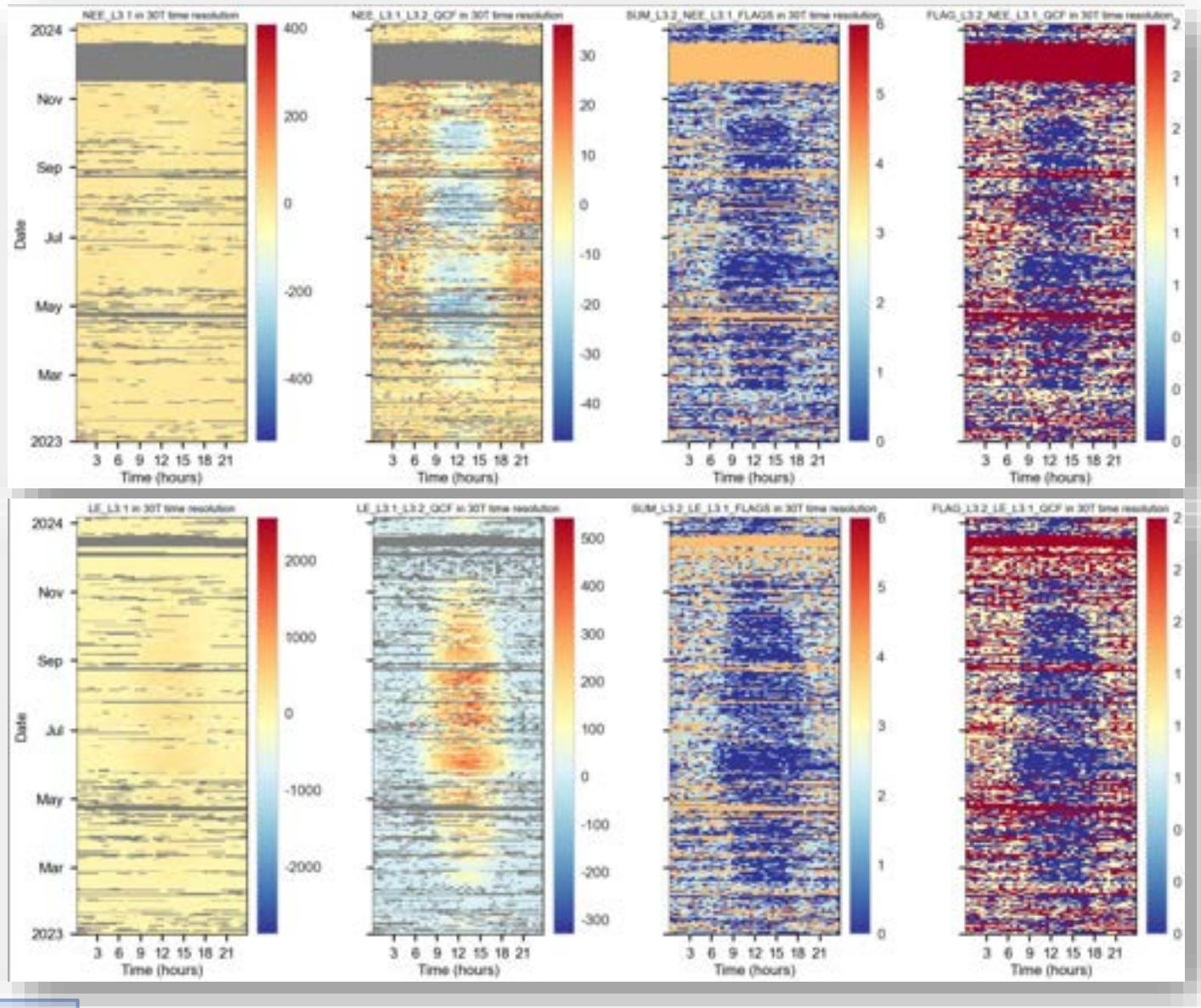
site info

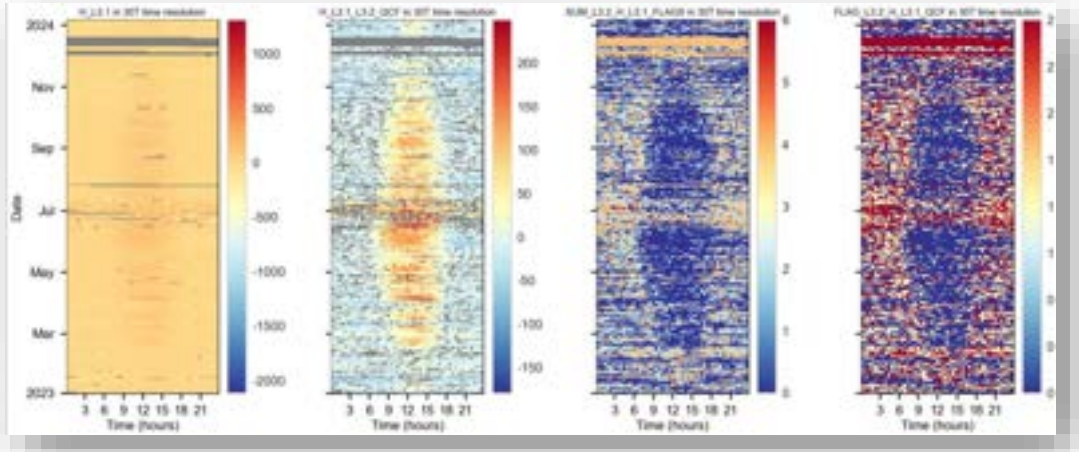
CH-FRU

Fluxes NEE, LE, H

MAIN TOWER (sonicread)

Quality-controlled fluxes with new notebook ***Quick Flux Processing Chain***





site info

CH-FRU

NEE and USTAR thresholds

MAIN TOWER (sonicread)

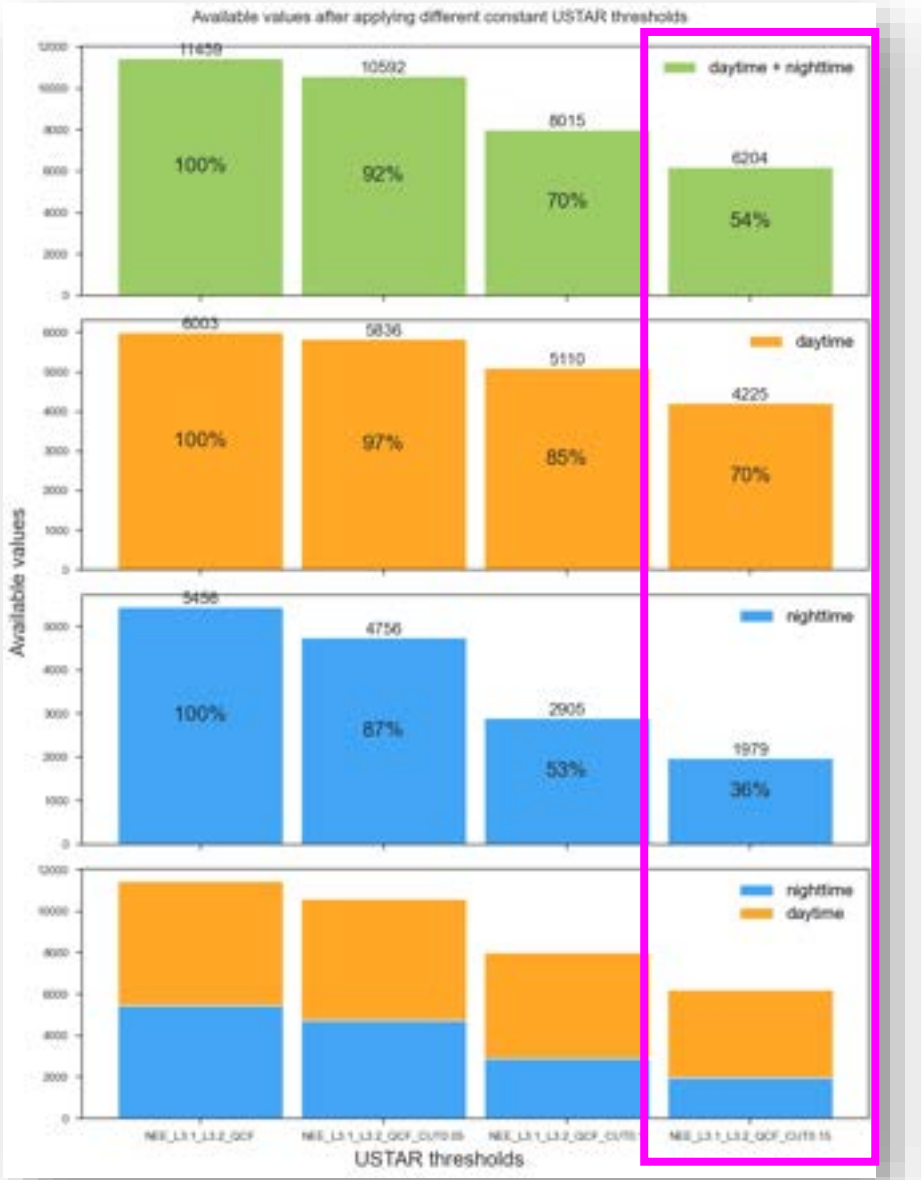
Quality-controlled fluxes with updated notebook ***Flux Processing Chain v5***

How many records of NEE are lost with different (constant) USTAR thresholds

CUT = constant USTAR threshold

Four scenarios
- no threshold
- 0.05
- 0.10
- 0.15

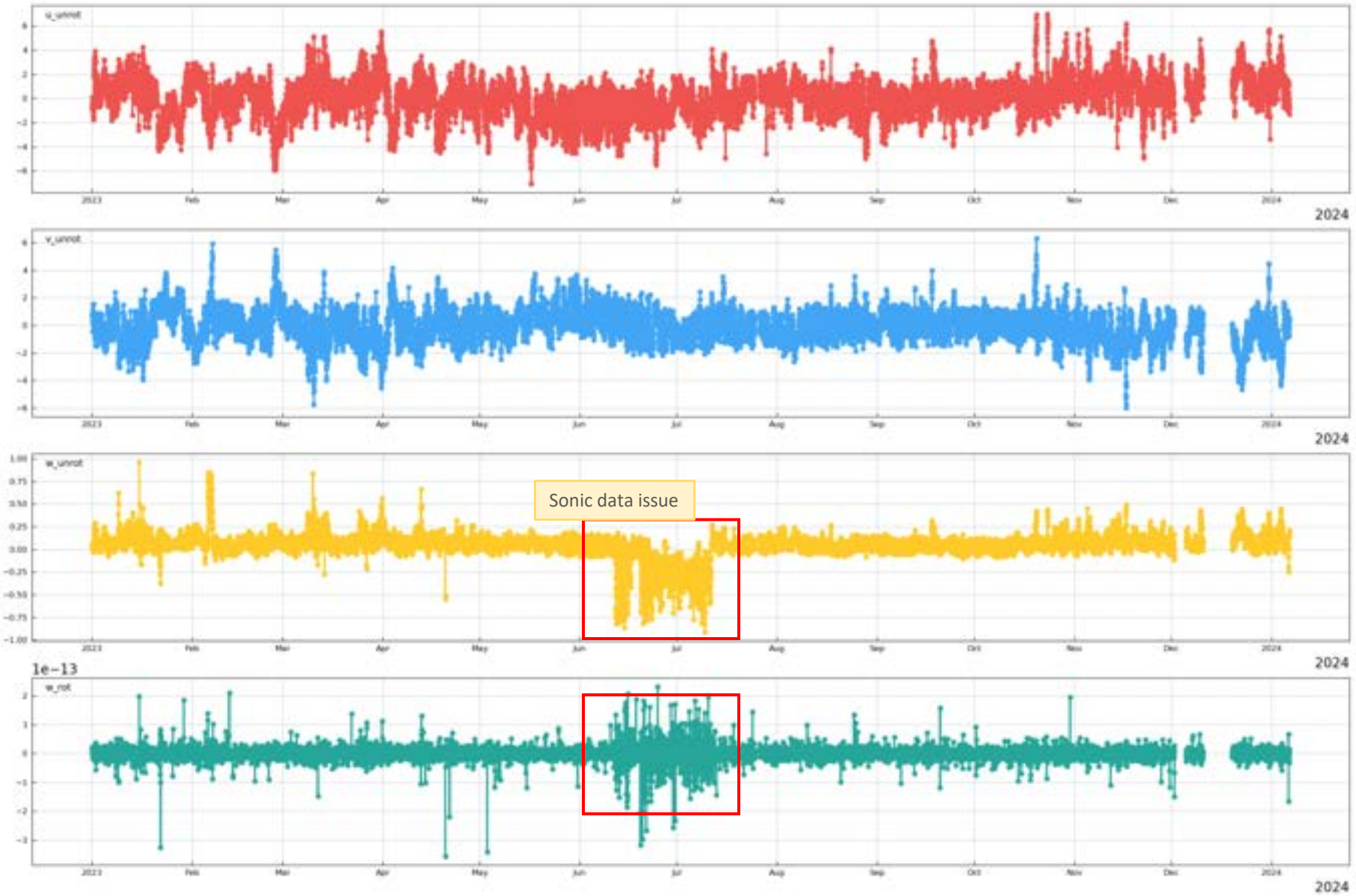
Typical value for FRU is approx. 0.07-0.09



After applying a constant threshold of 0.15, we have 70% daytime NEE and 36% nighttime NEE available, in total 54% of all data are available

site info

CH-FRU u, v, w



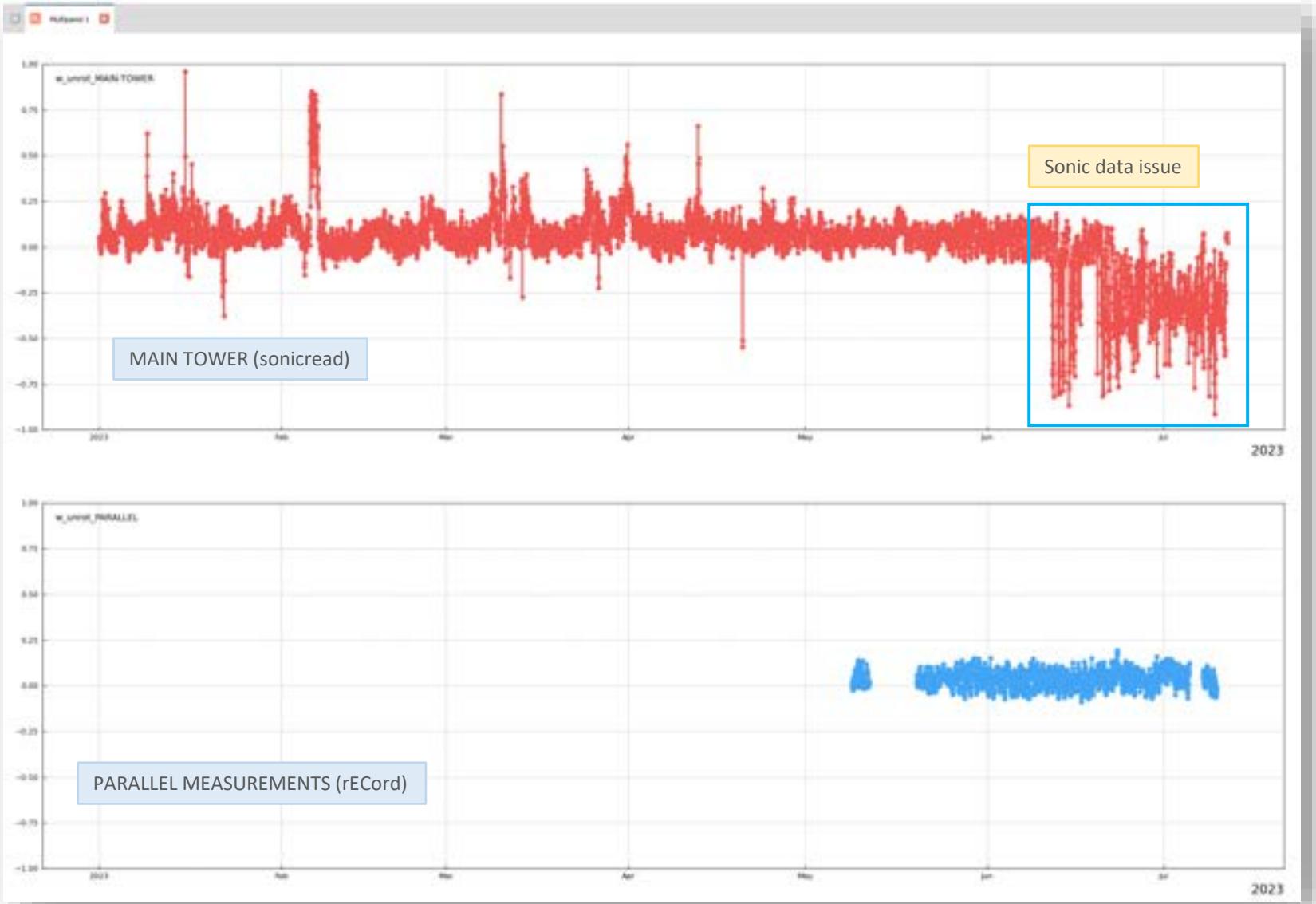
site info

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

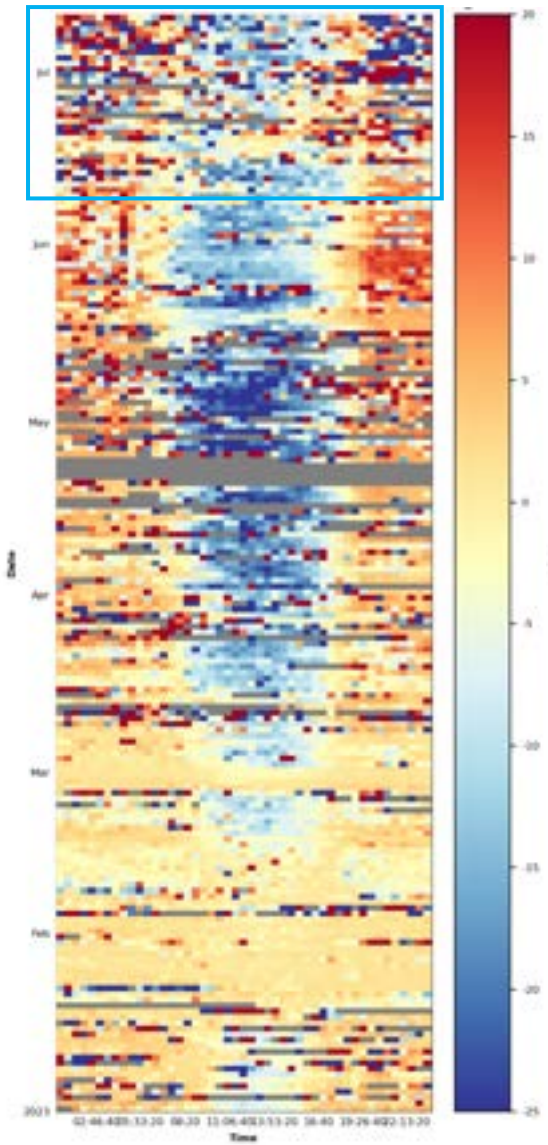
site info

CH-FRU CO2 flux

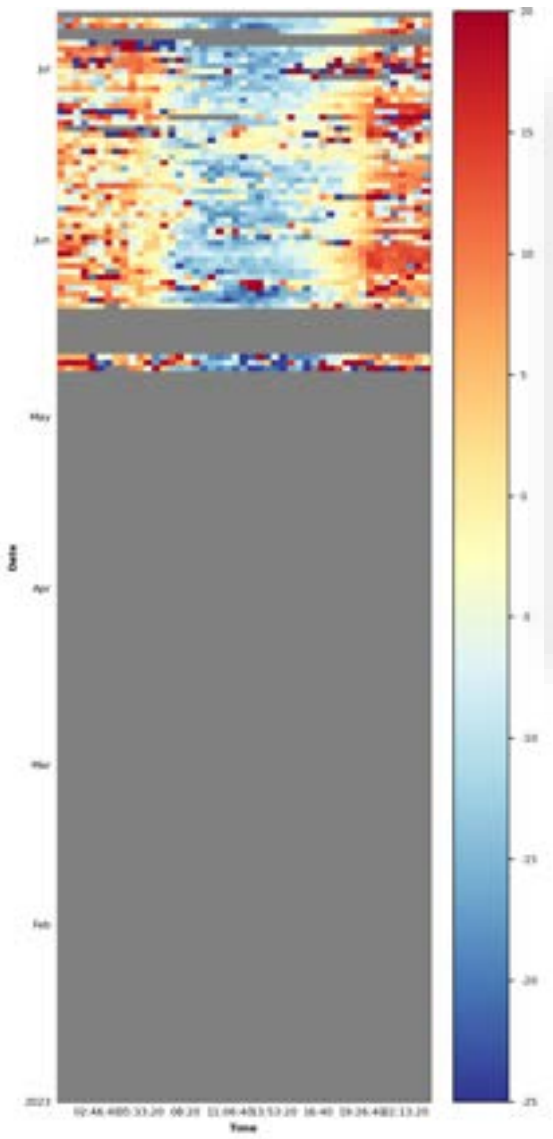
No quality checks applied

Slide from previous meeting

MAIN TOWER (sonicread)



PARALLEL MEASUREMENTS (rECord)



Sonic data issue

- 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)

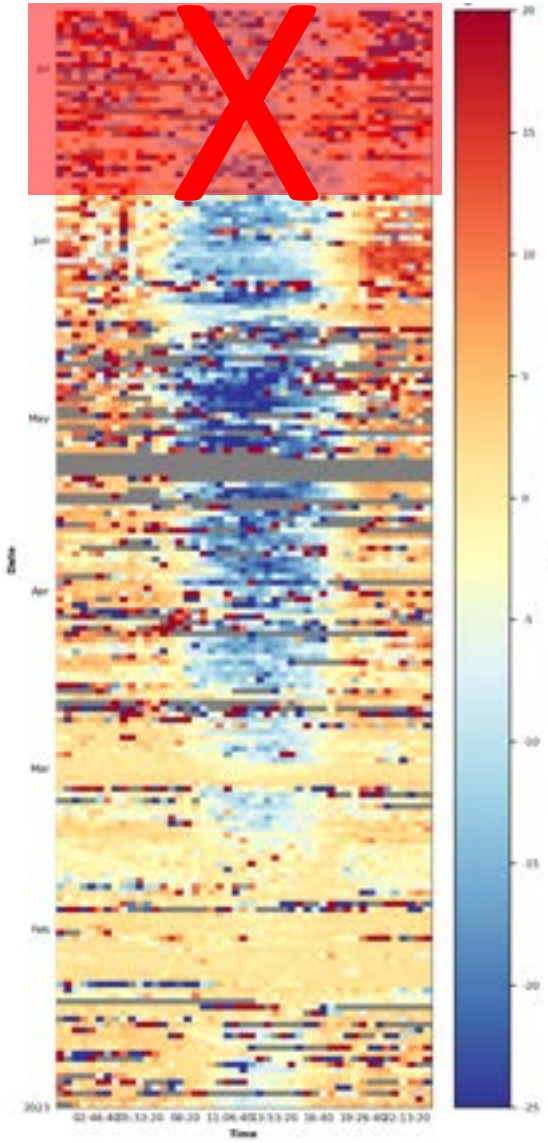
site info

CH-FRU CO2 flux

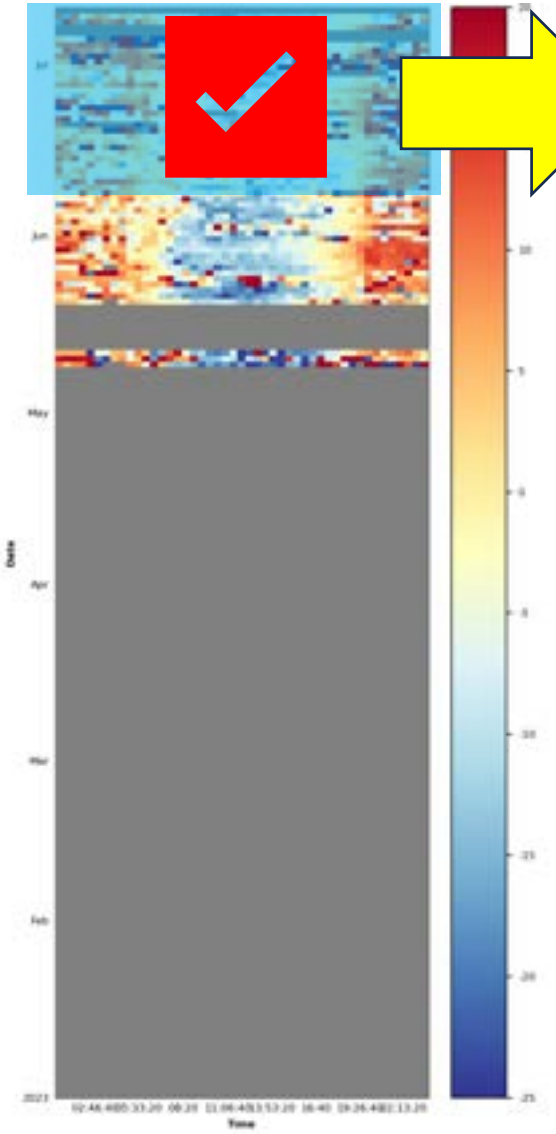
No quality checks applied

Slide from previous meeting

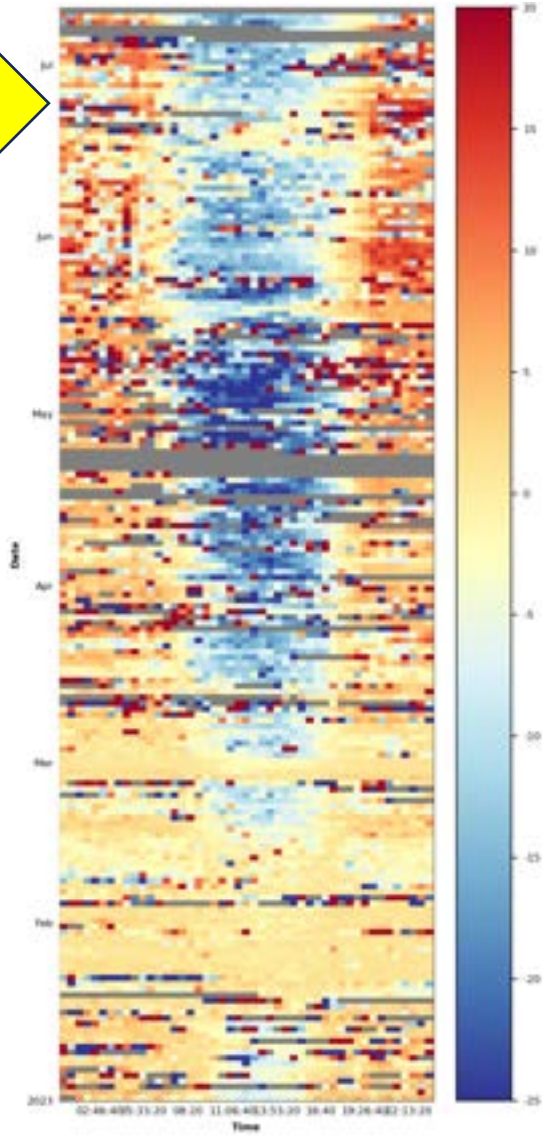
MAIN TOWER (sonicread)



PARALLEL MEASUREMENTS (rECord)



MAIN TOWER replaced with PARALLEL data from 12 Jun onwards



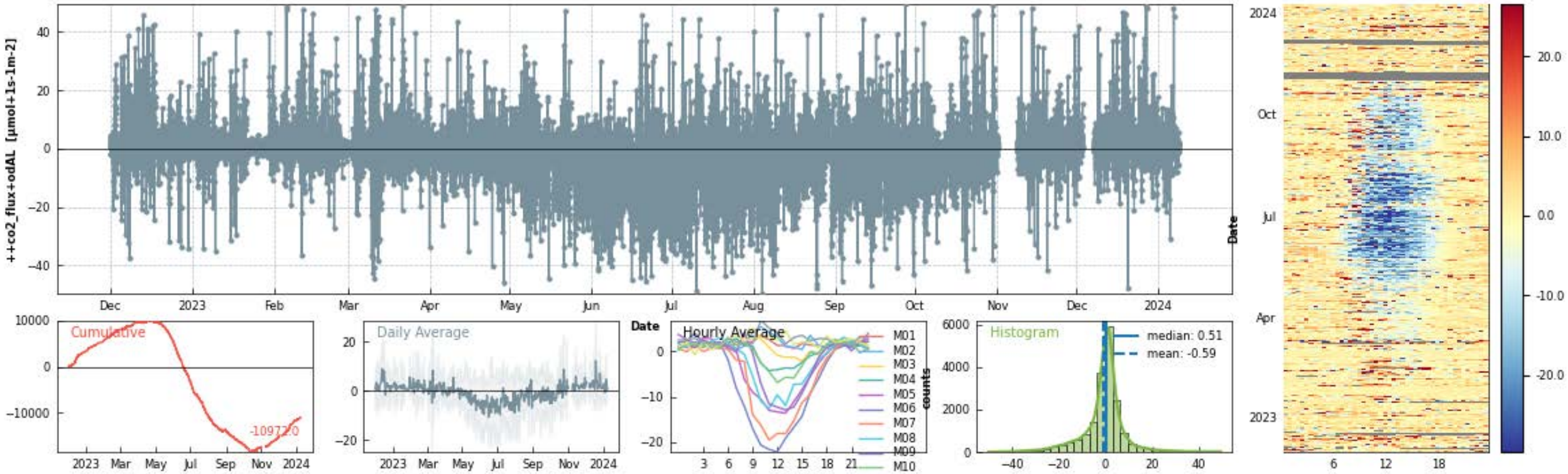
site info

CH-LAE

Photo: Markus Staudinger

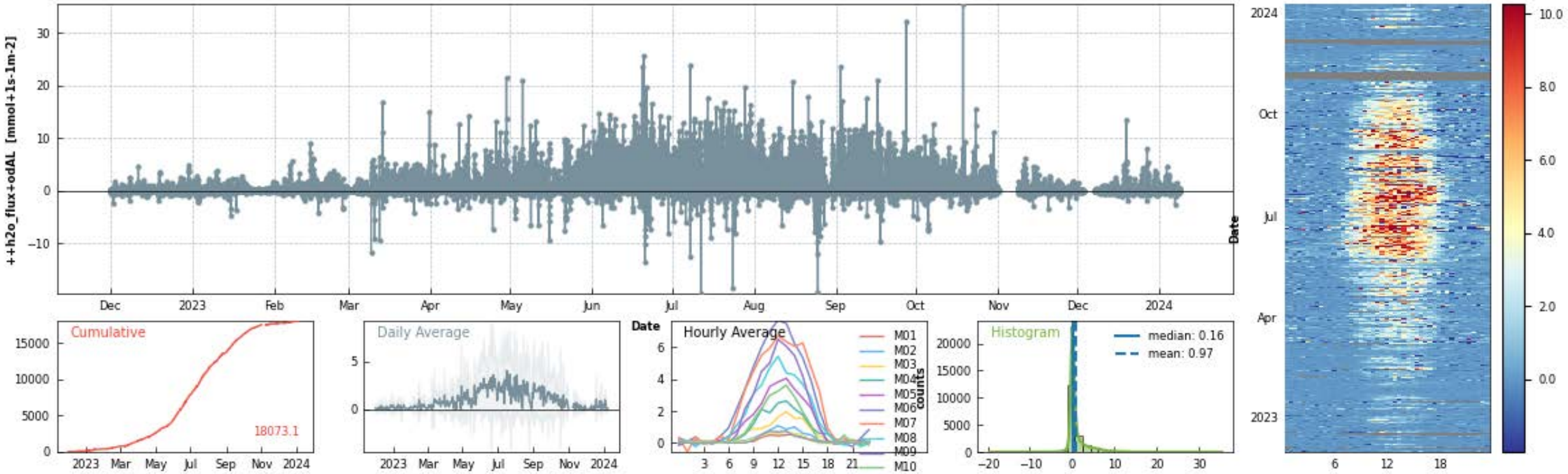
site info

CH-LAE CO2 flux



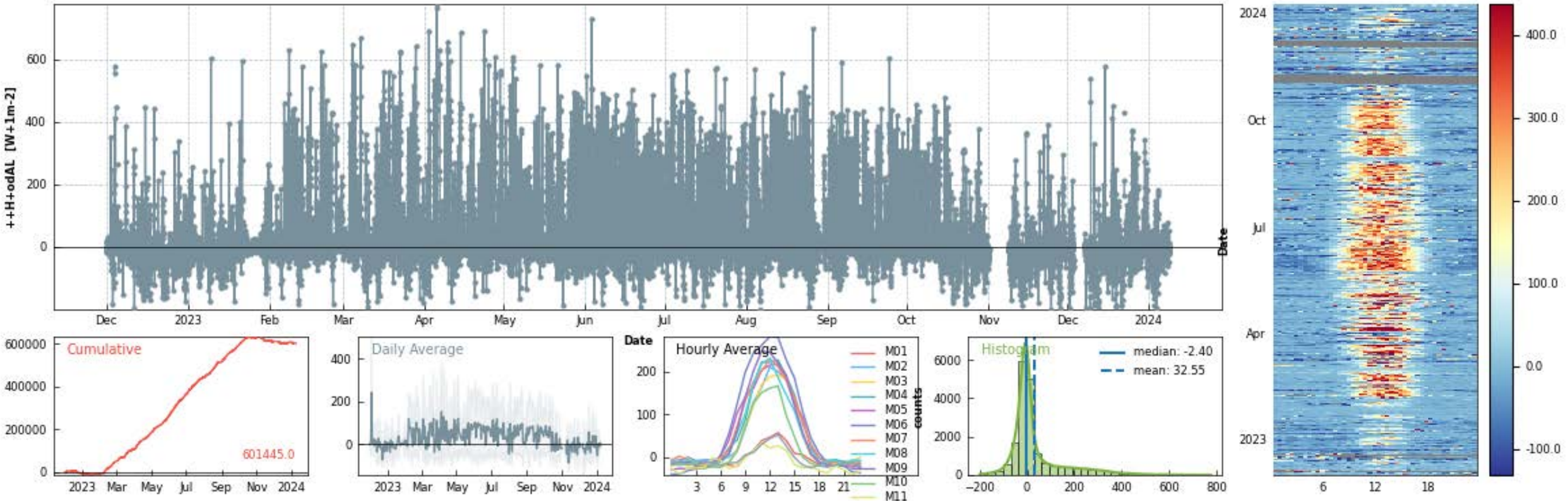
site info

CH-LAE H2O flux



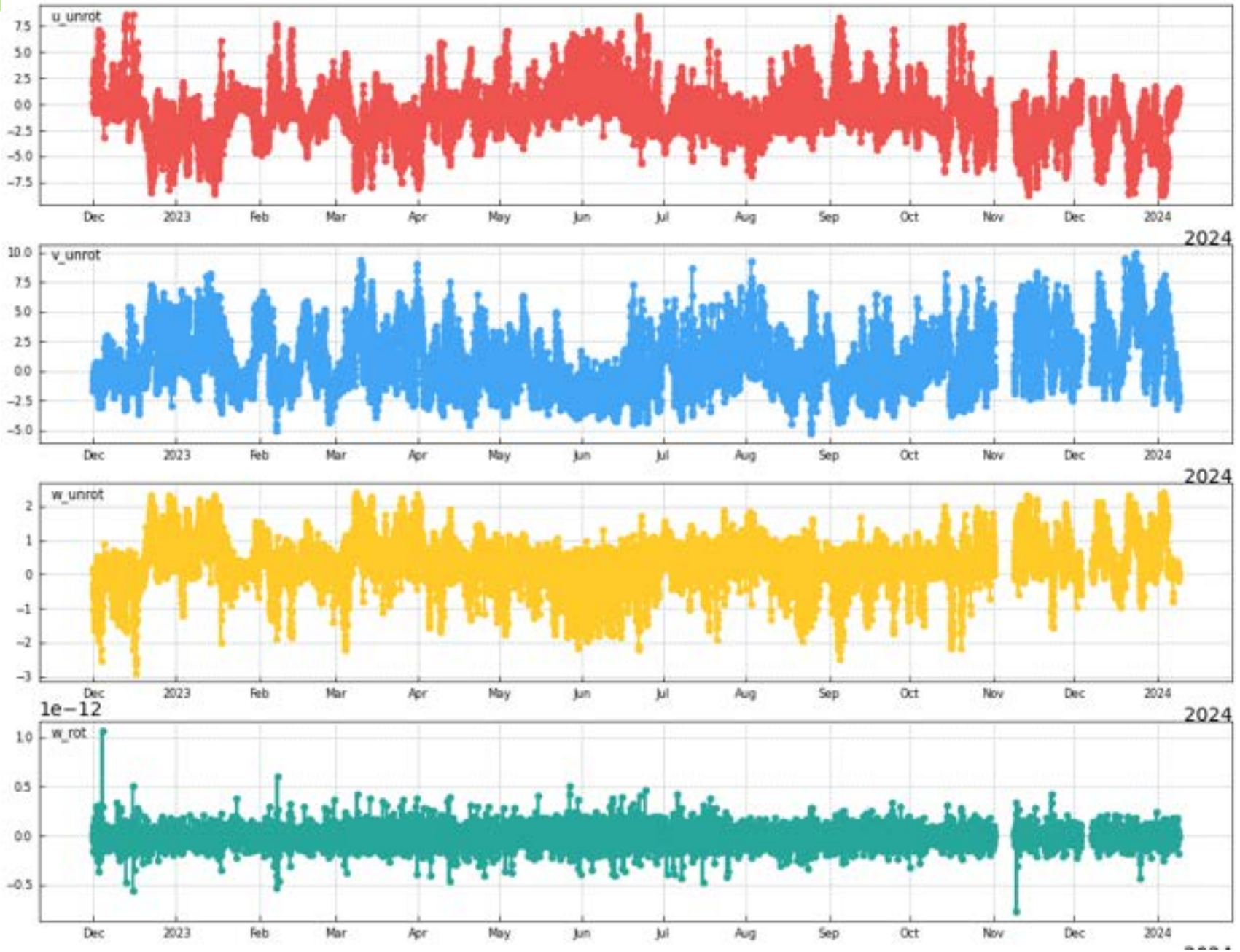
site info

CH-LAE H



site info

CH-LAE u, v, w



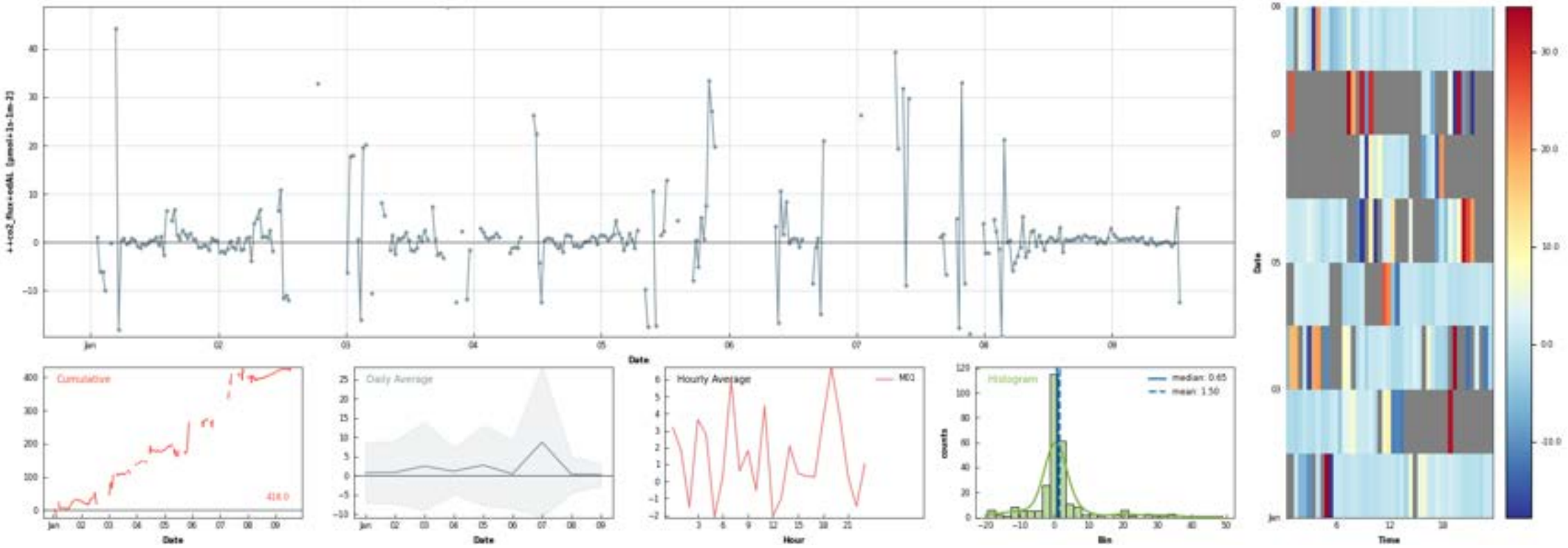
site info

CH-LAS

Photo: ETH GL Group

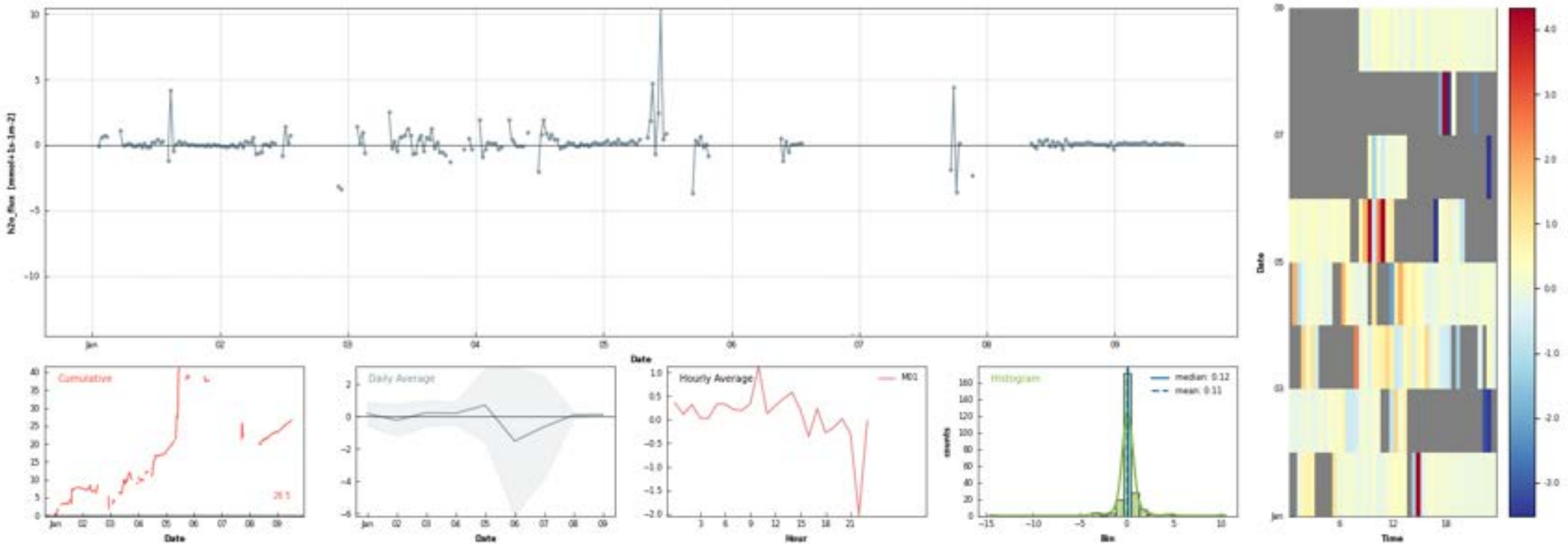
site info

CH-LAS CO2 flux



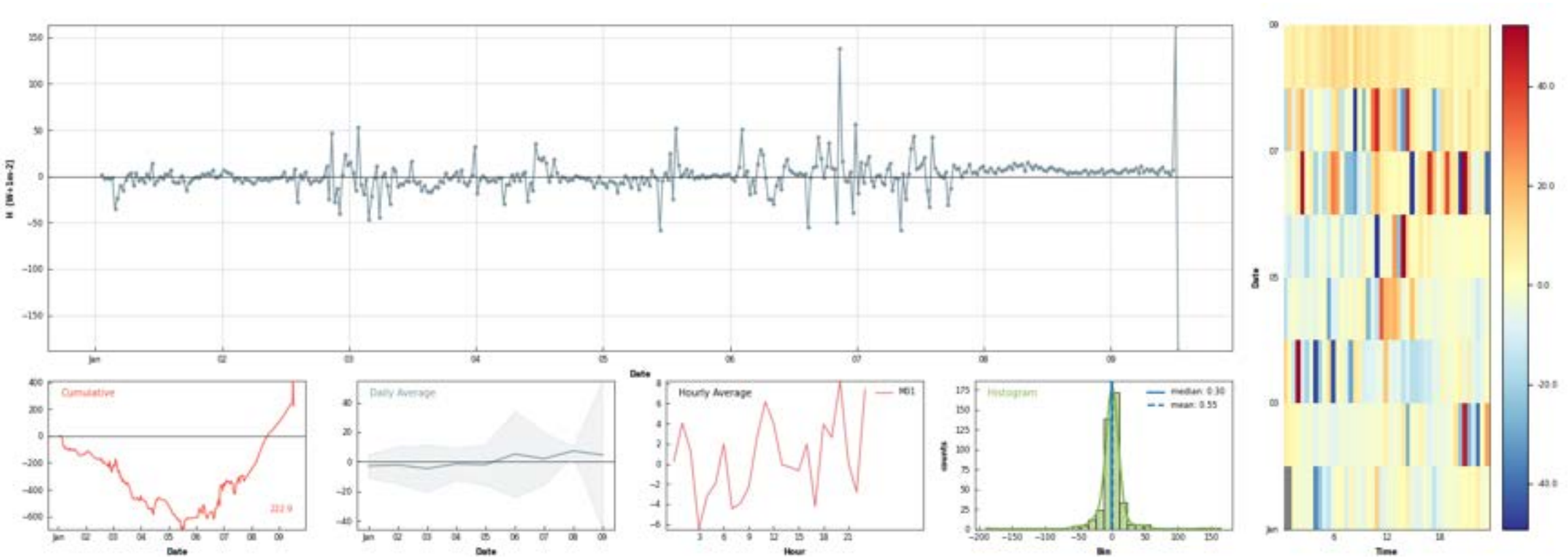
site info

CH-LAS H2O flux



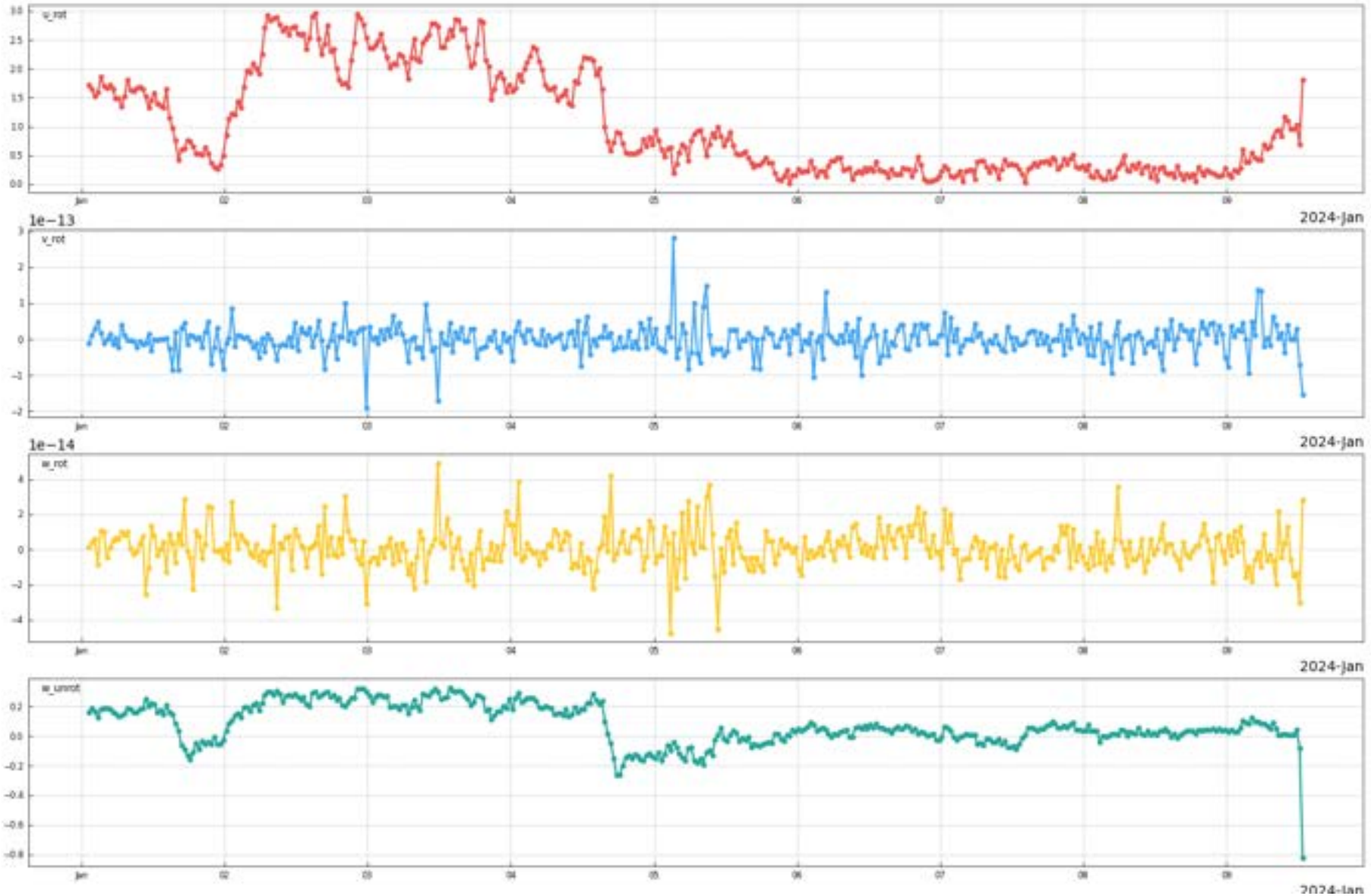
site info

CH-LAS H



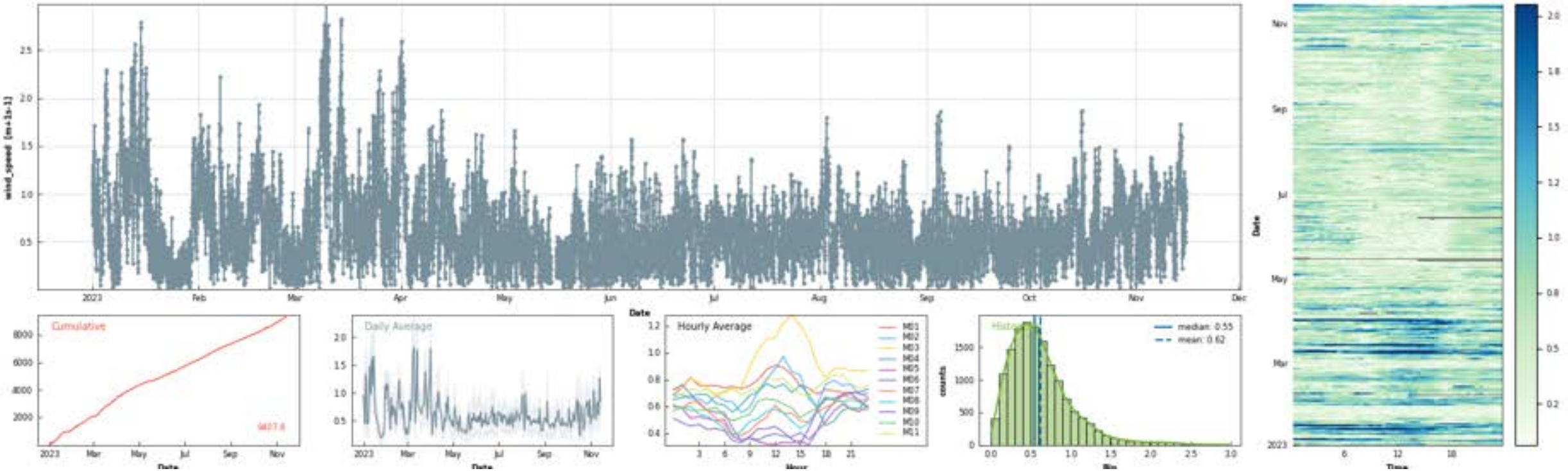
site info

CH-LAS u, v, w



site info

CH-LAS wind



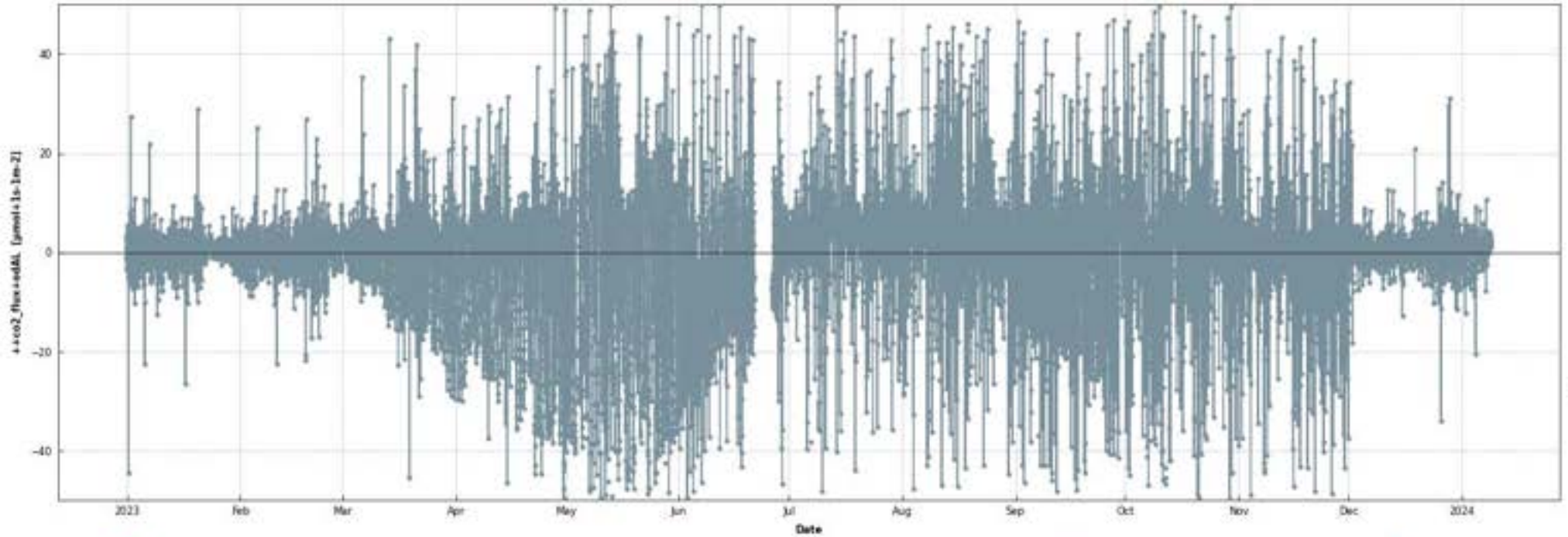
site info

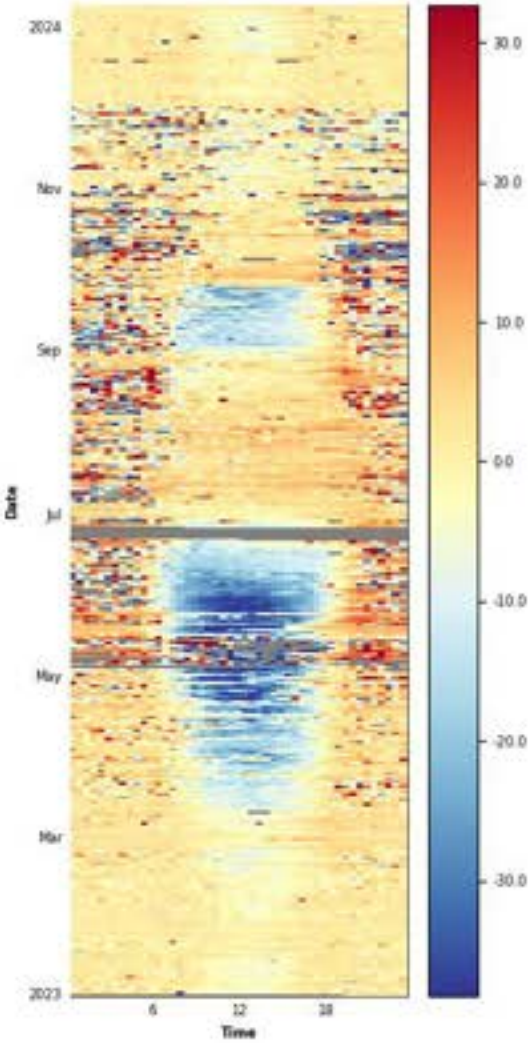
CH-OE2

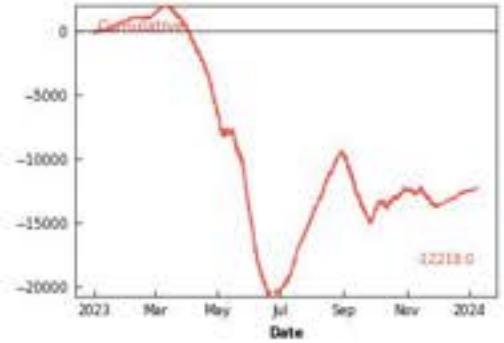
Photo: Regine Maier

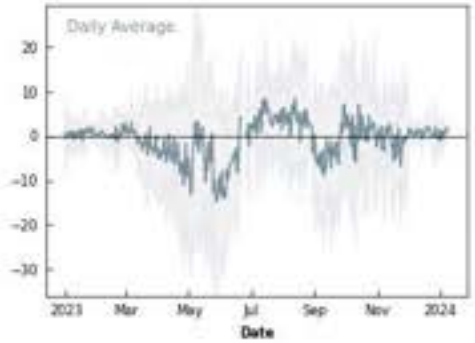
site info

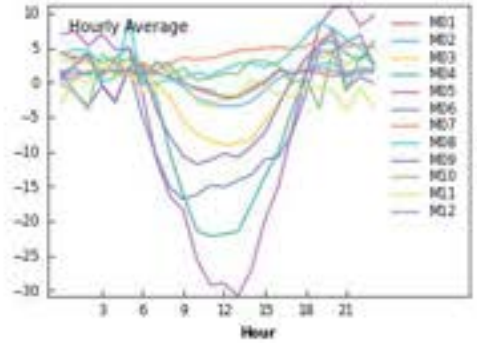
CH-OE2 CO2 flux

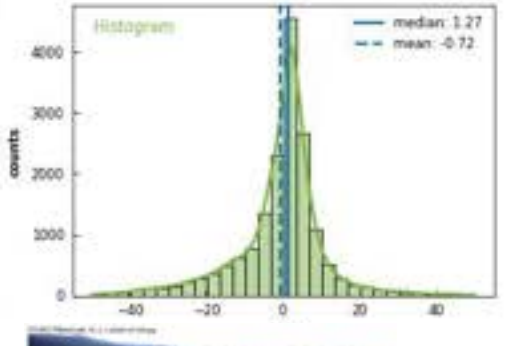










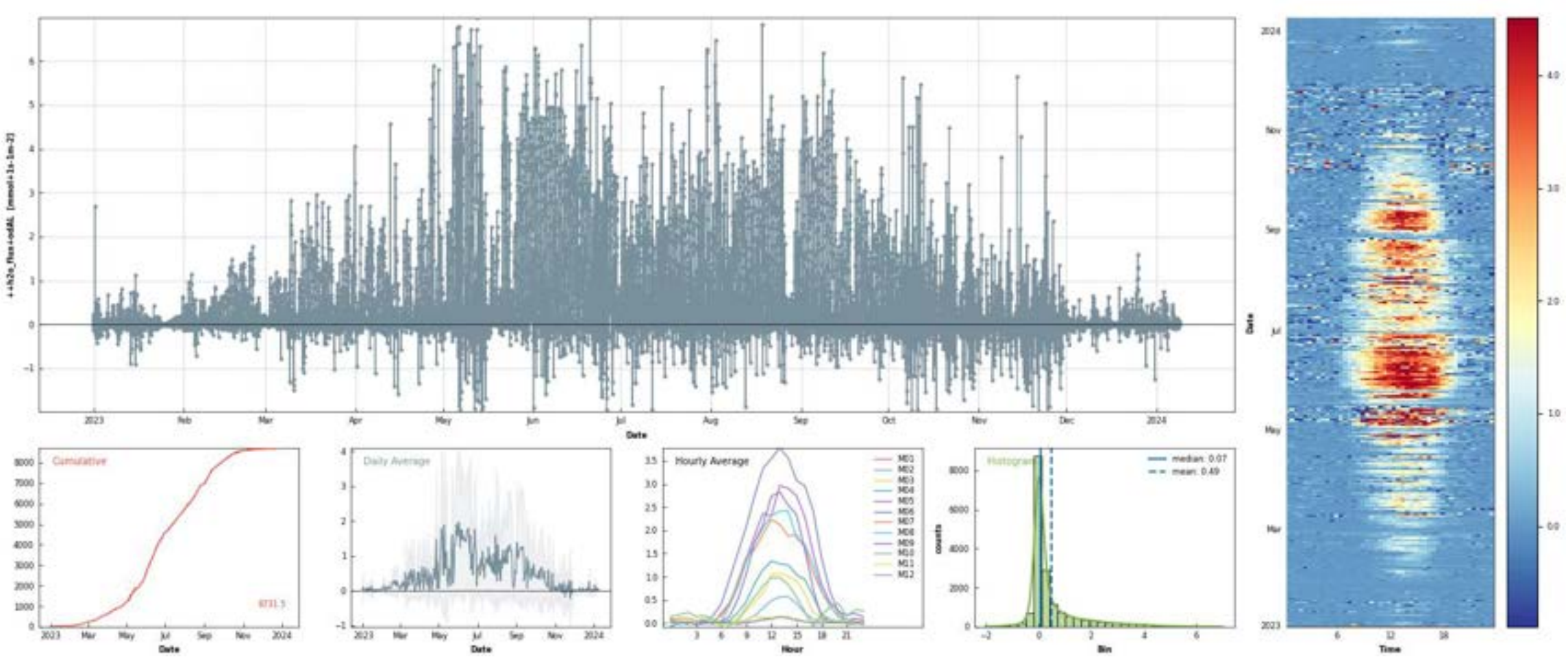


Absolute limits applied [-50, +50]

- 15 July wheat harvest
- 18 July soil cultivation
- 28 July sowing of cover crop (mixture)
- 25 September mulching of the cover crop
- 4 October sowing of winter barley

site info

CH-OE2 H2O flux

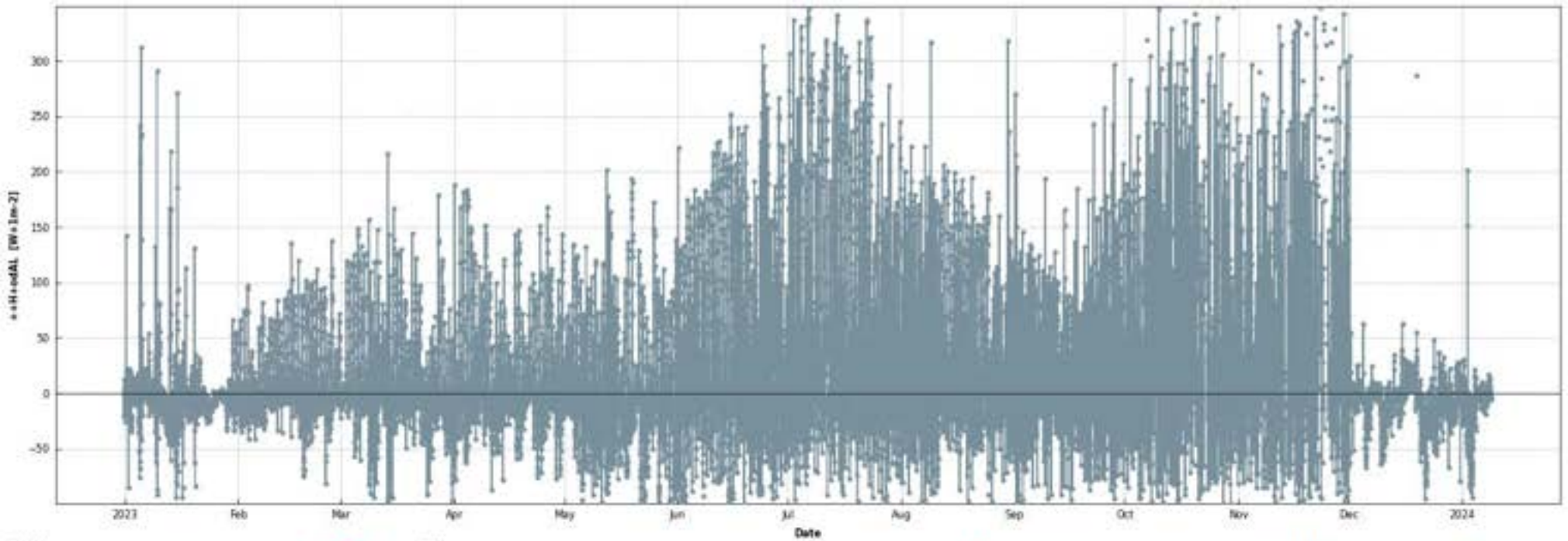


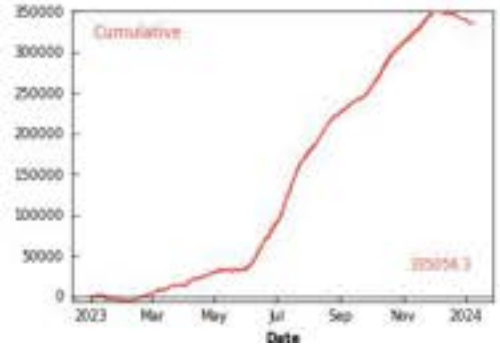
Absolute limits applied [-2, +7]

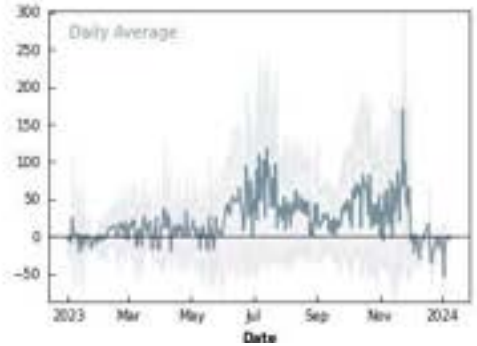
- 15 July wheat harvest
- 18 July soil cultivation
- 28 July sowing of cover crop (mixture)
- 25 September mulching of the cover crop
- 4 October sowing of winter barley

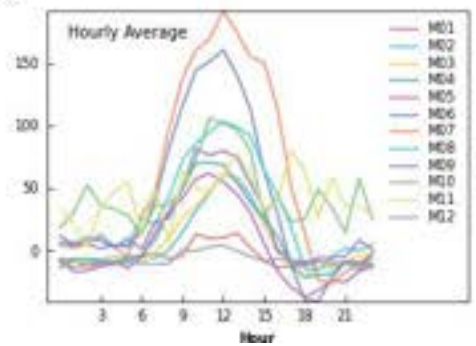
site info

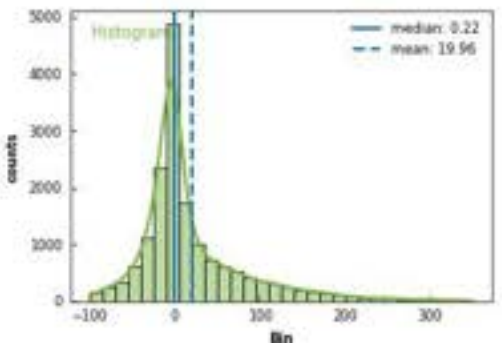
CH-OE2 H

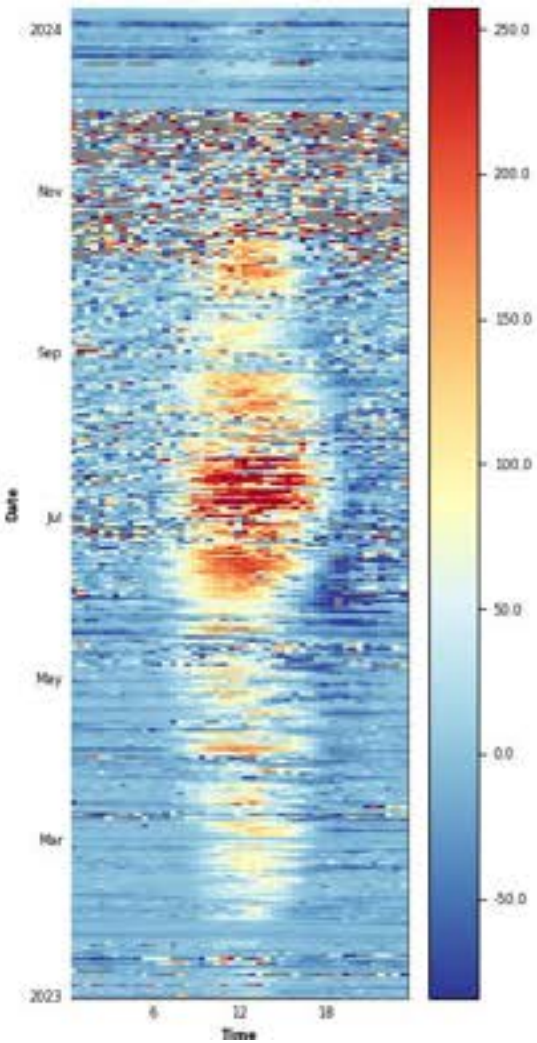








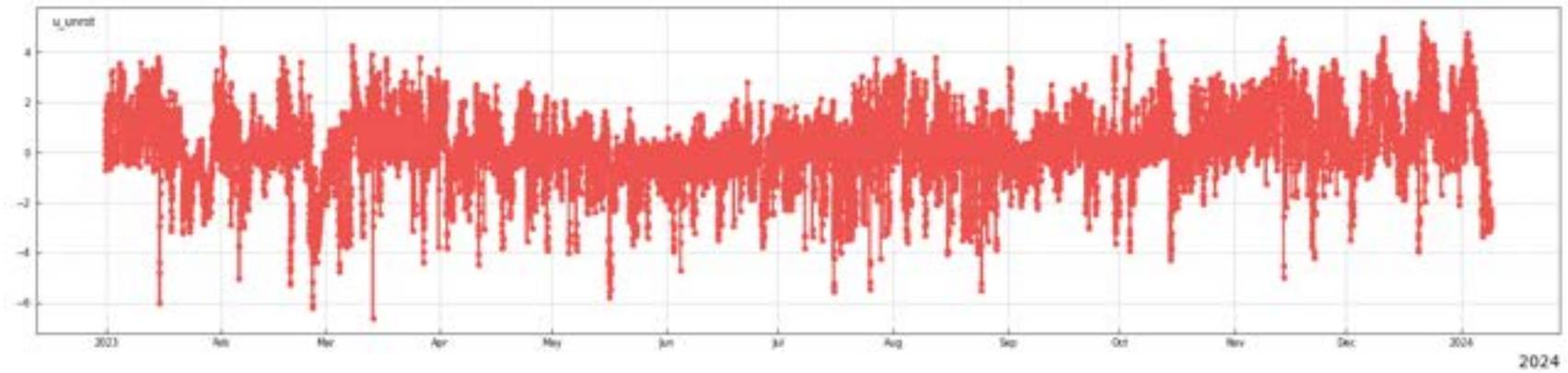


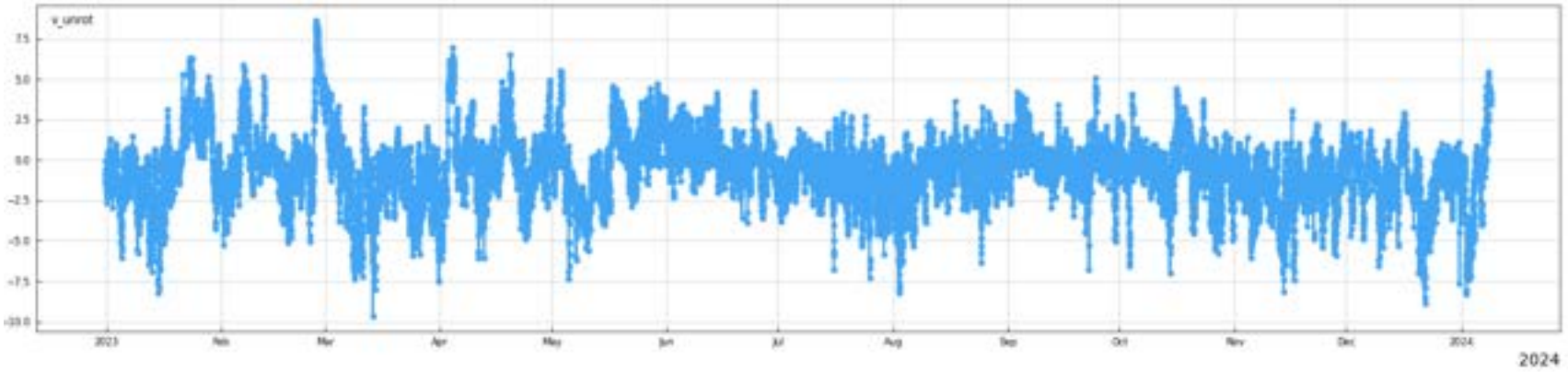


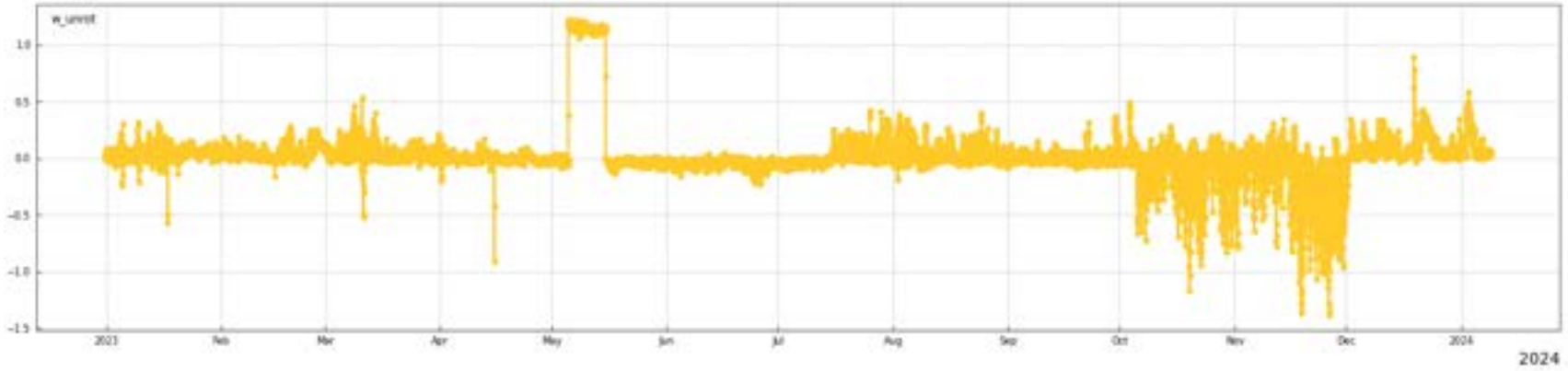
Absolute limits applied [-100, +350]

site info

CH-OE2 u, v, w

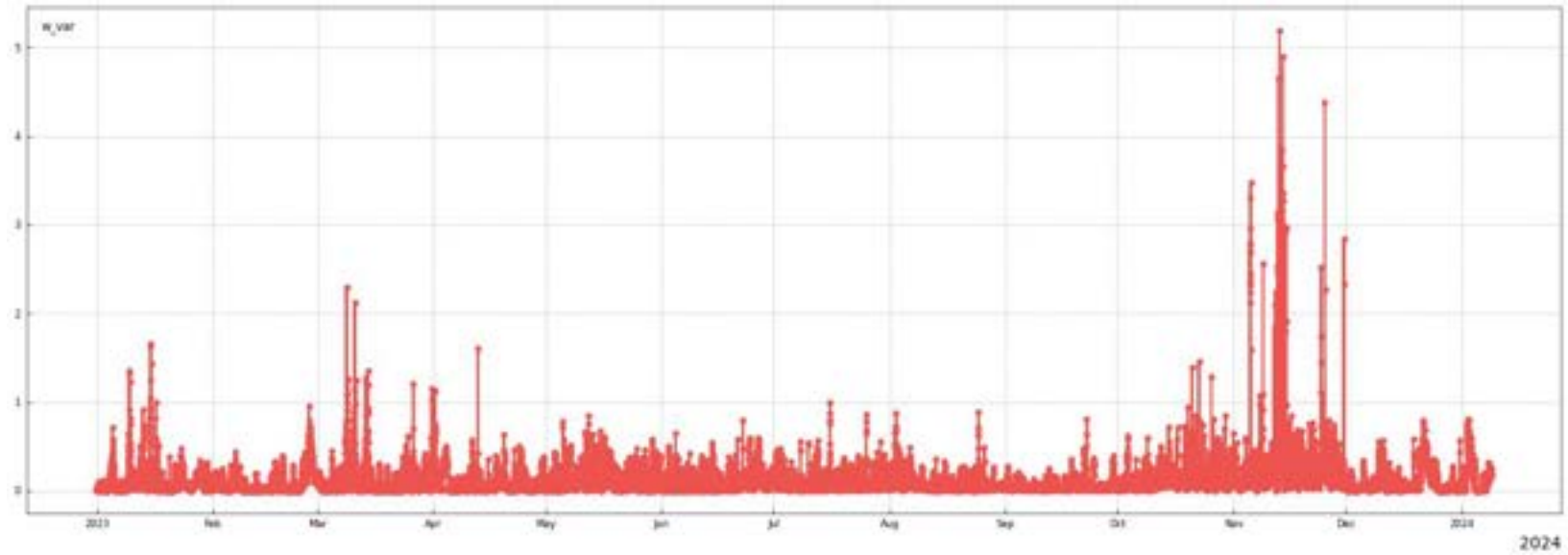


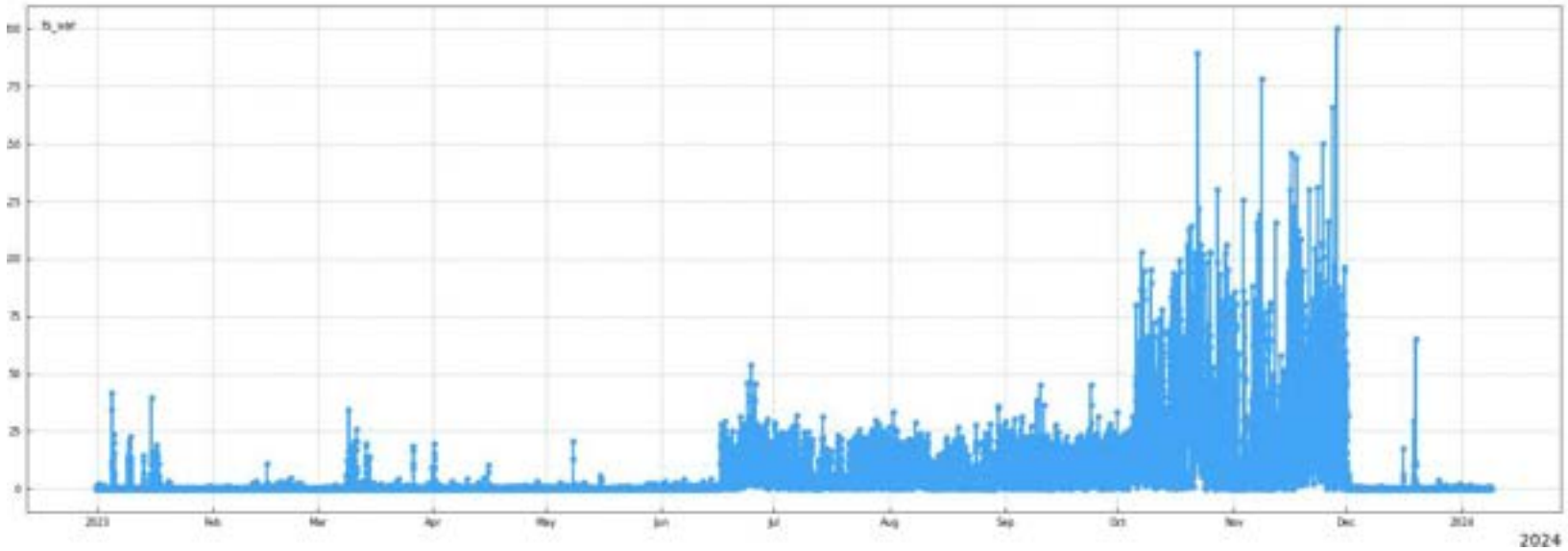




site info

CH-OE2 Variance of w and T (sonic)





site info