

# QA/QC Meeting

## 14 Dec 2023

Participants: LH, IF, LS, FT, YW, KMK, TB, PM, MR, PR (10)



# 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.**

|         |              |
|---------|--------------|
| R350-A  | R350-B       |
| U       | U            |
| V       | V            |
| W       | W            |
| T SONIC | T SONIC      |
| INC_X   | SA_DIAG_TYPE |
| INC_Y   | SA_DIAG_VAL  |
|         | INC_XY       |

→

**Sonic datablock R350-B**

The screenshot shows the EddyPro Metadata File Editor interface. The title bar says "Sonic datablock R350-B". The left sidebar lists variables: R350-A, R350-B, and EddyPro. The main area has tabs: "Data Columns Info" (selected), "Raw File Settings", and "Clear Custom Variables". The "Data Columns Info" tab displays a table with columns 1 through 7. Rows include: Ignore (no/no/no/no), Numeric (yes/yes/yes/yes), Variable (u/v/w/), Instrument (Sonic 1: R3-50/Sonic 1: R3-50/Sonic 1: R3-50/Sonic 1: R3-50), Measurement type (Sonic Temperature), Input unit (m/s/m/s/m/s/K), Linear scaling (0.00 [s]/0.00 [s]/0.00 [s]/0.00 [s]), Output unit (0.00 [s]/0.00 [s]/0.00 [s]/0.00 [s]), Gain value (0.000000/0.000000/0.000000/0.000000), Offset value (0.000000/0.000000/0.000000/0.000000), Nominal time lag (0.00 [s]/0.00 [s]/0.00 [s]/0.00 [s]), Minimum time lag (0.00 [s]/0.00 [s]/0.00 [s]/0.00 [s]), and Maximum time lag (0.00 [s]/0.00 [s]/0.00 [s]/0.00 [s]). A red box highlights the columns for variables 5, 6, and 7, which correspond to the variables listed in the R350-B column above. The "Raw File Description" tab is visible at the top right.

- 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\_Chamaus\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](#)



File View Run Help

New Open Save Save As Close EP Welcome Project Creation Basic Settings Advanced Settings Run Output Run Express Mode Advanced Mode Stop

**Processing Options**

Raw data processing

Wind speed measurement offsets U: 0.000 [m/s] V: 0.000 [m/s] W: 0.000 [m/s]

Fix 'w boost' bug (Gill WindMaster and WindMaster Pro only)

Angle-of-attack correction for wind components (Gill's only)

Axis rotations for tilt correction

Turbulent fluctuations

Time lags compensation

Compensation of density fluctuations

Compensate density fluctuations (WPL terms)

Add instrument sensible heat components, only for LI-7500

Surface temperature estimation:

Day time Night time

Bottom:  $T_{air} = 0.944 * T_s + 2.57$

Top:  $T_{air} = 1.005 * T_s + 0.24$

Spar:  $T_{air} = 1.010 * T_s + 0.35$

Restore Default Values Default values as from Burba et al. (2008)

Other options

Quality check

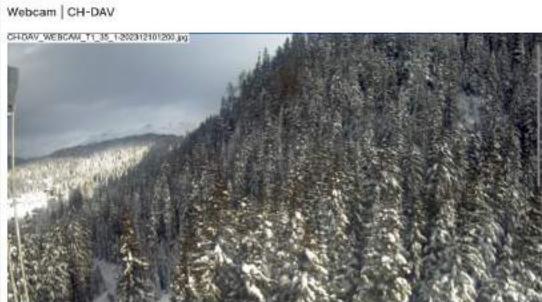
Footprint estimation

Plagging policy: Mauder and Foken (2004) (0-1-2 system)

Footprint method: Kijun et al. (2004)

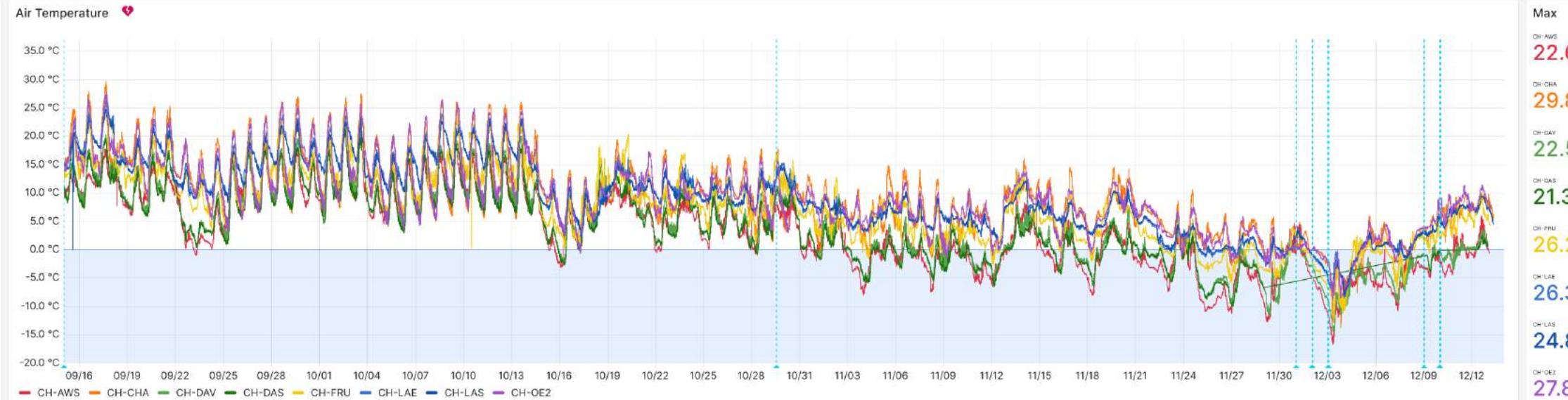
Restore Default Values

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

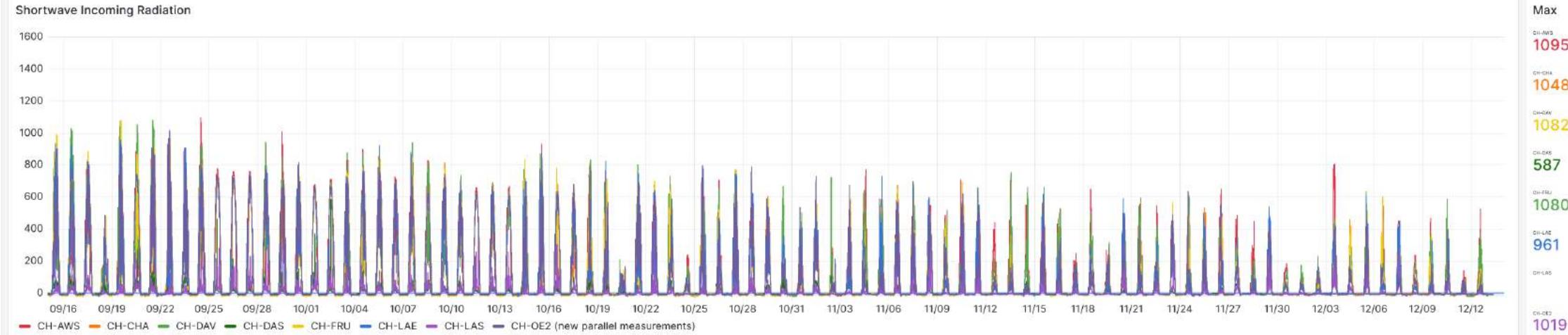


**Air Temperature**

- raw data
- no quality checks
- full resolution

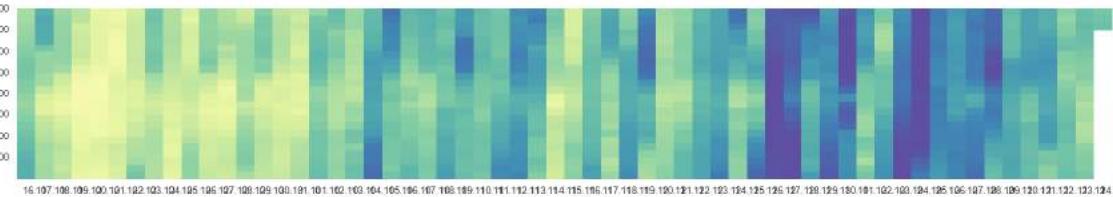
**Shortwave Incoming Radiation**

- raw data
- no quality checks
- full resolution

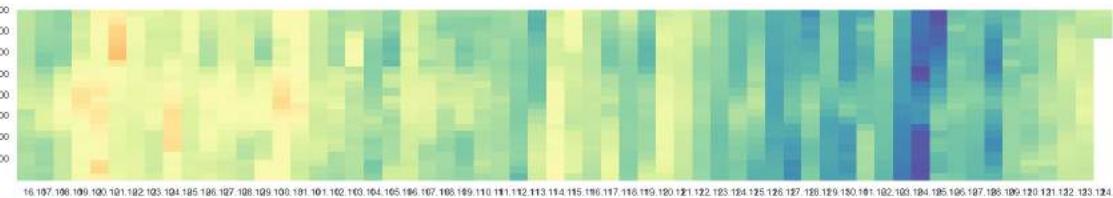


### Air Temperature: Last 60 days ...

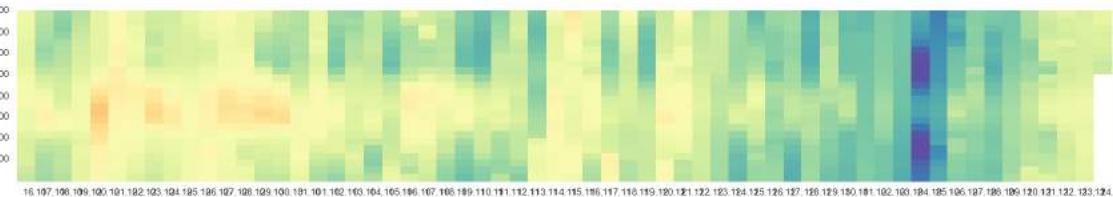
CH-AWS (hourly)



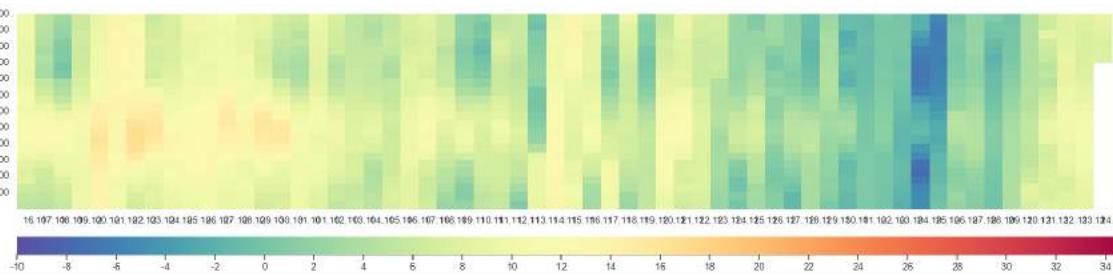
CH-FRU (hourly)



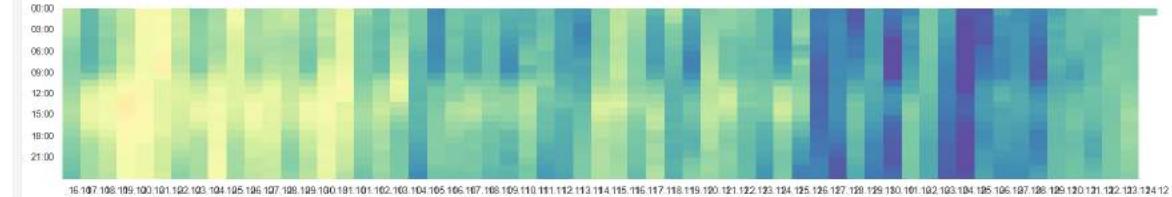
CH-CHA (hourly)



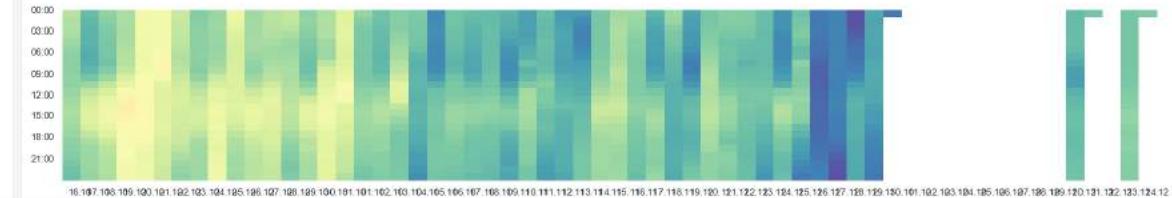
CH-OE2 (hourly)



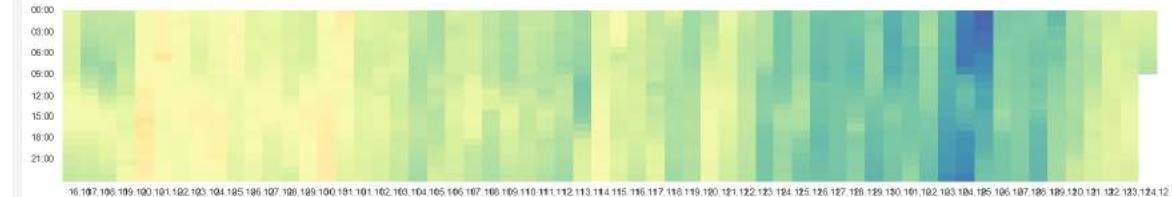
CH-DAV (hourly)



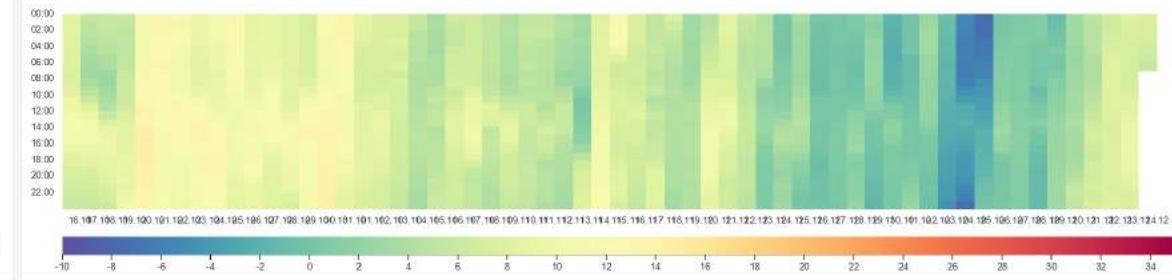
CH-DAS (hourly)



CH-LAE (hourly)



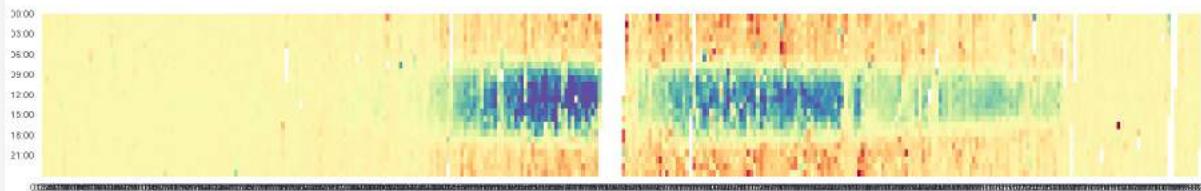
CH-LAS (hourly)



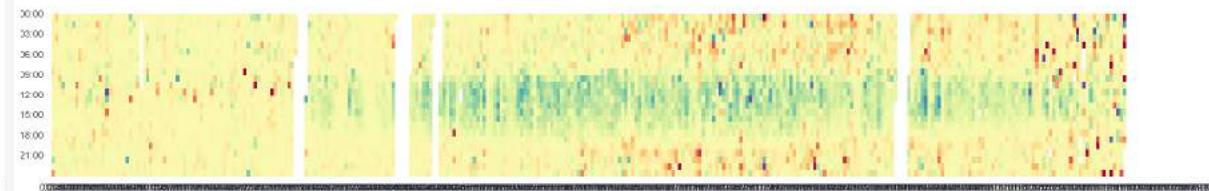
Not fully up-to-date, issues with database uploading script

CO2 flux: This year so far ...

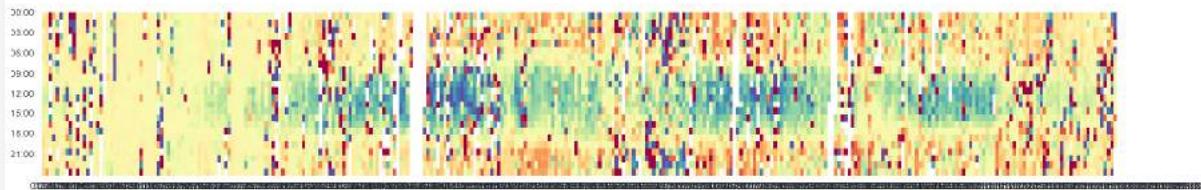
CH-AWS (hourly)



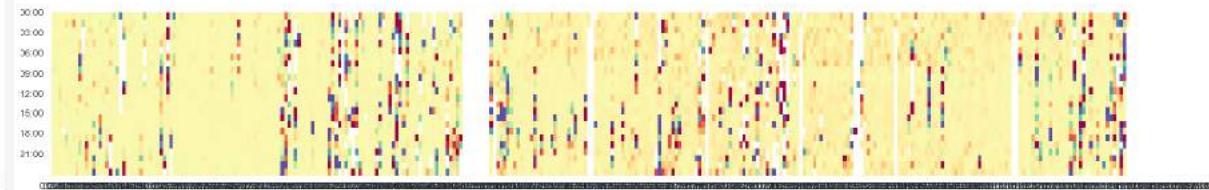
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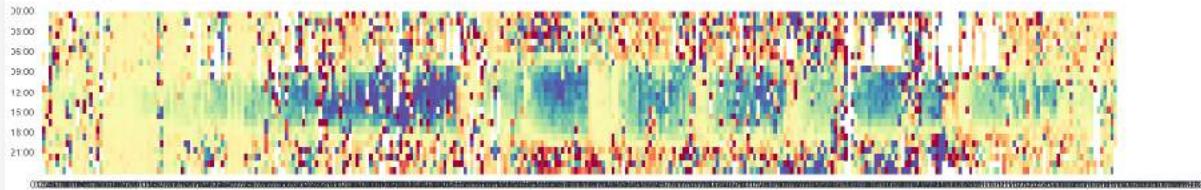
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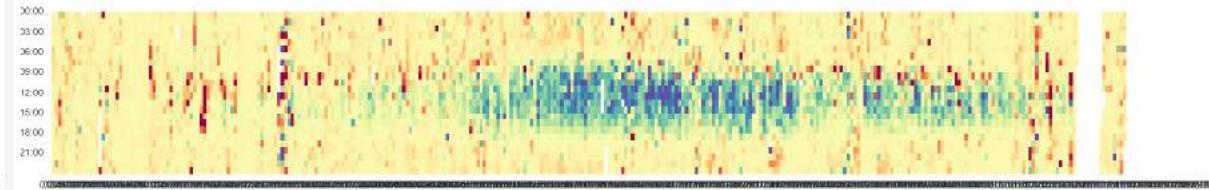
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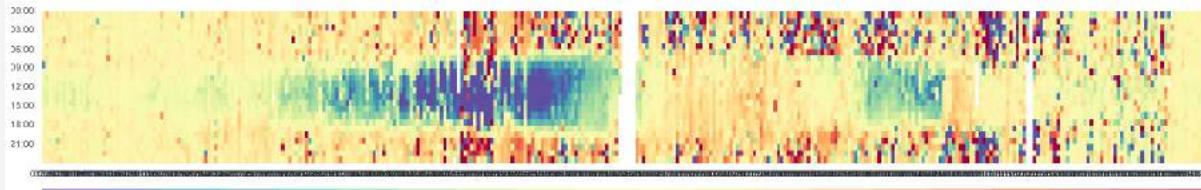
CH-CHA (hourly)



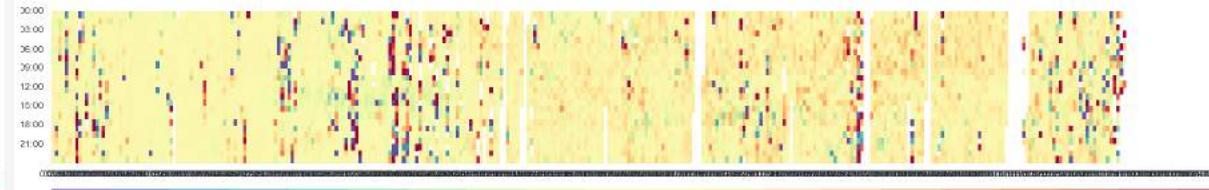
CH-LAE (hourly)



CH-OE2 (hourly)



CH-LAS (hourly)

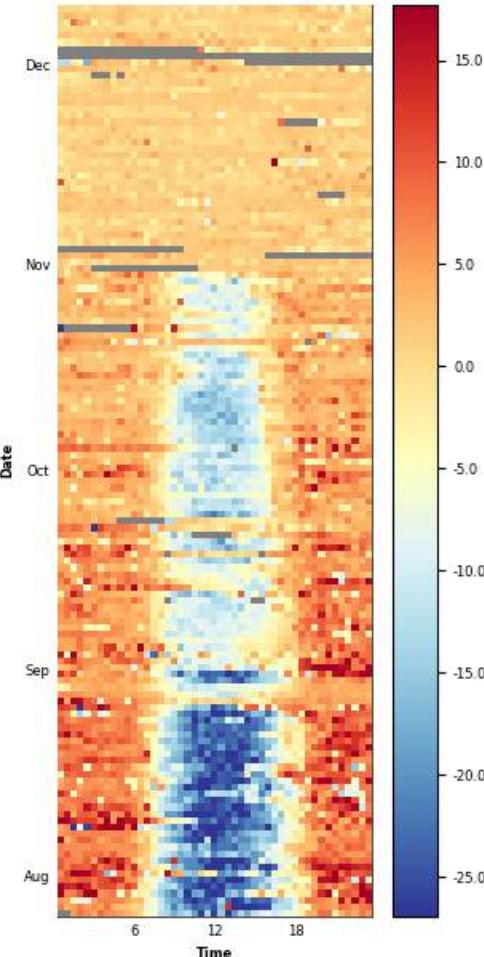
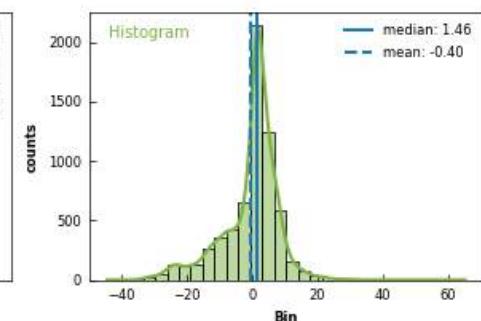
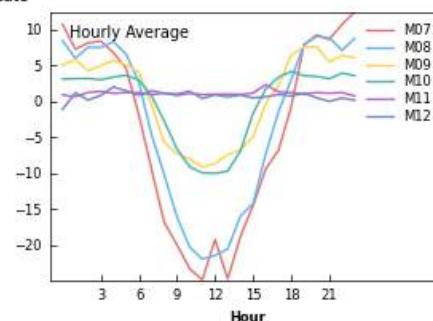
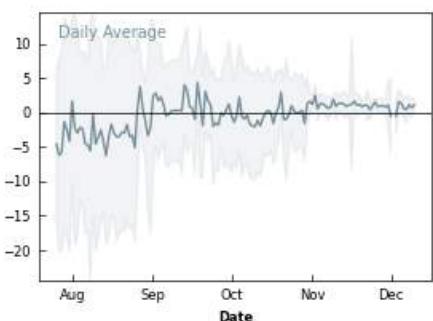
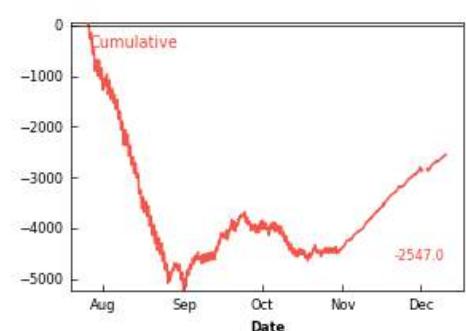
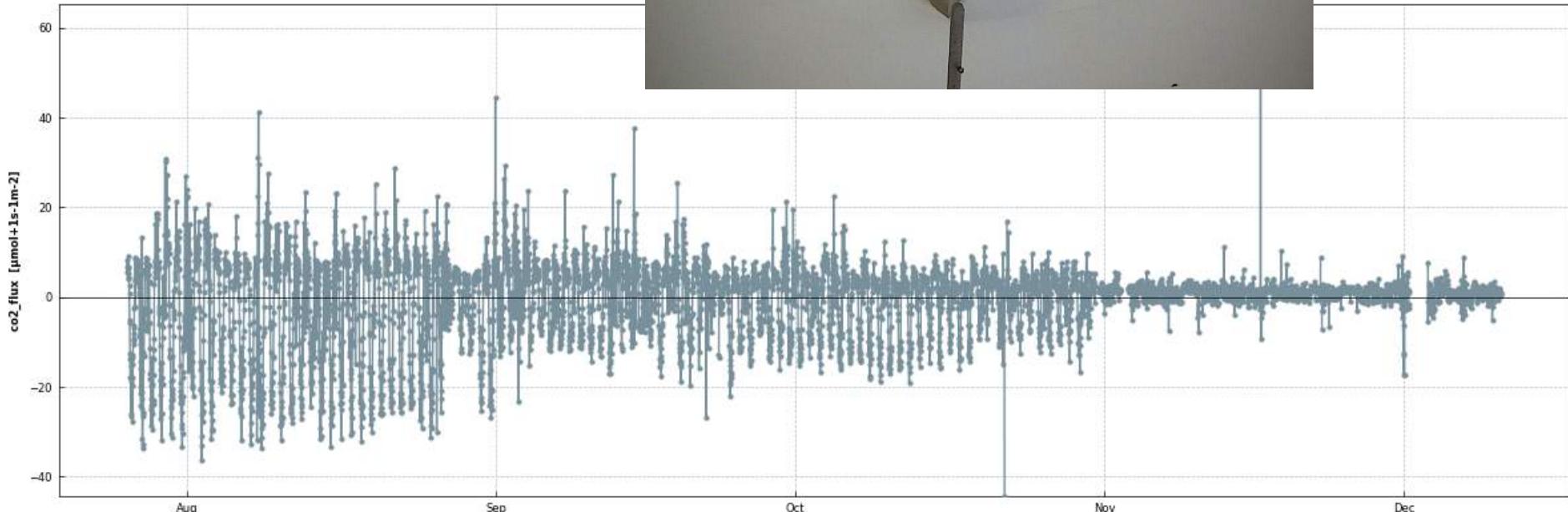


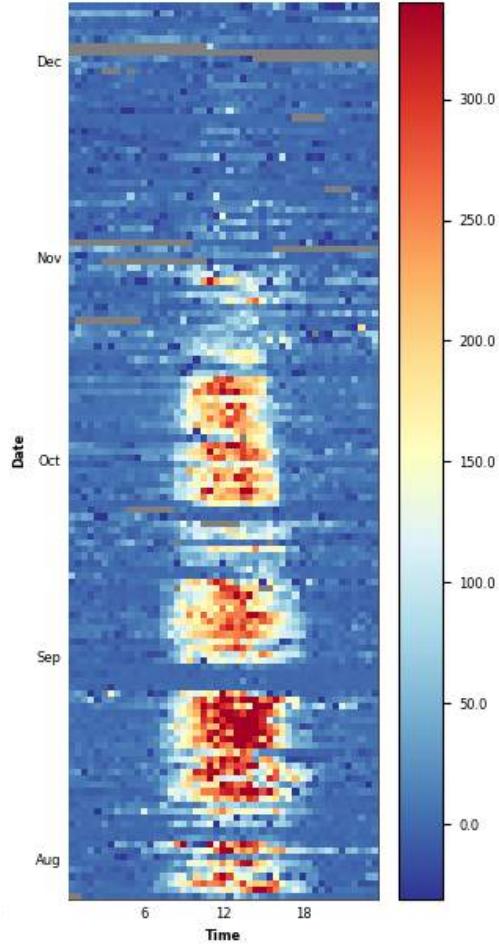
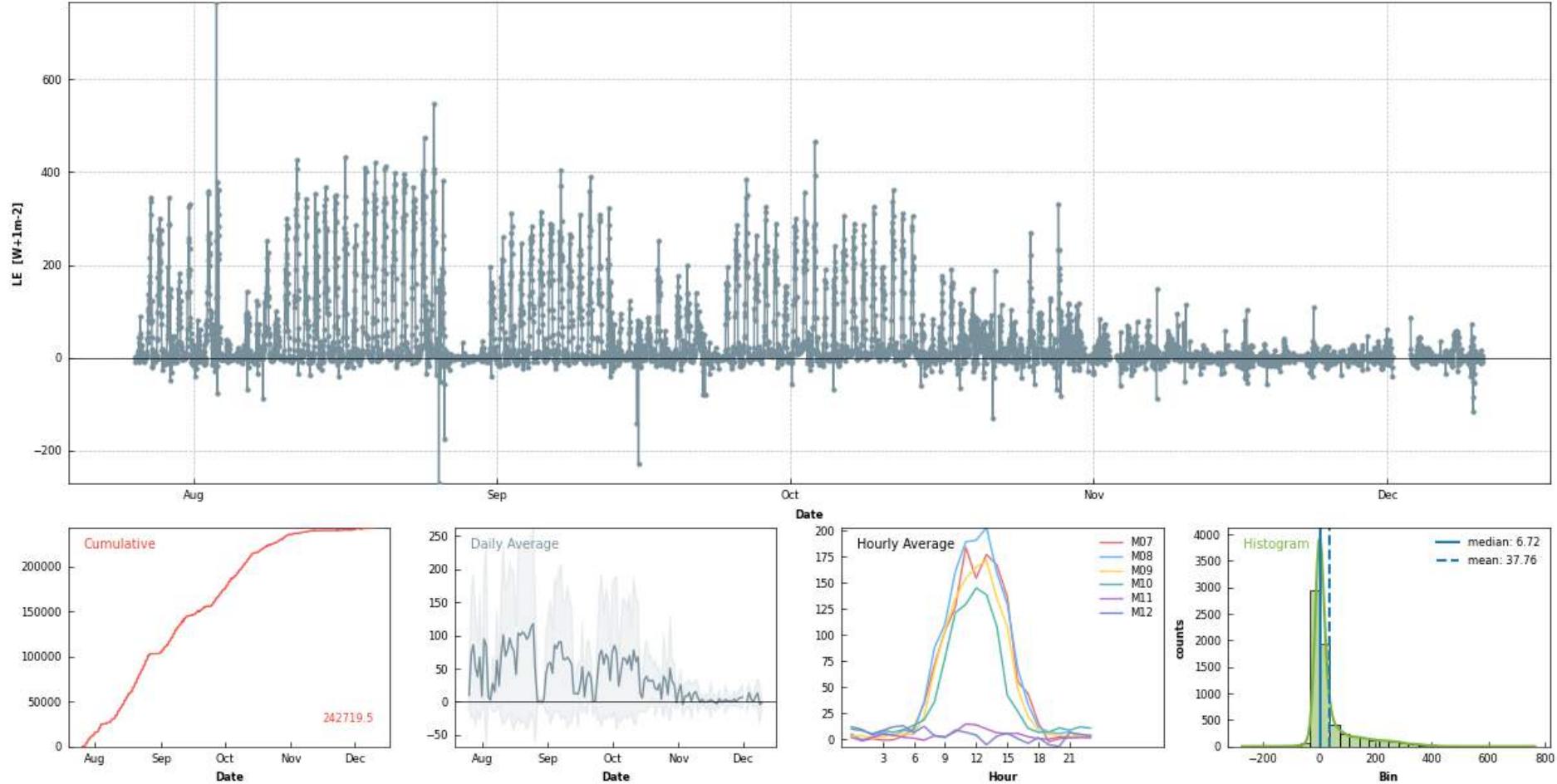
Not checked during this meeting



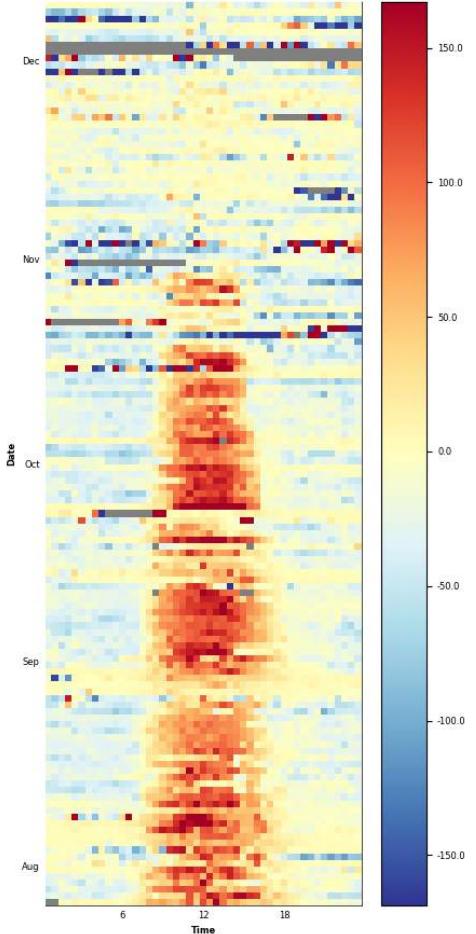
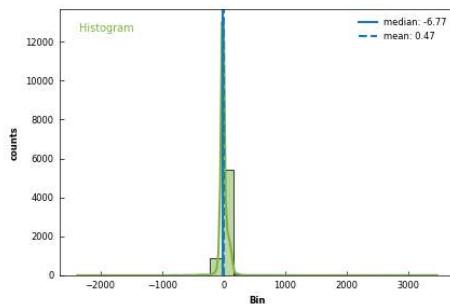
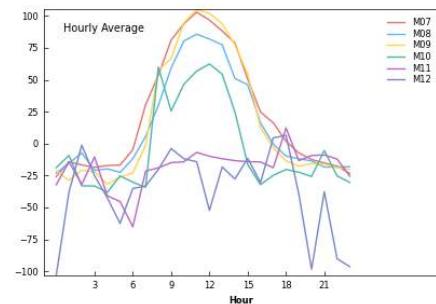
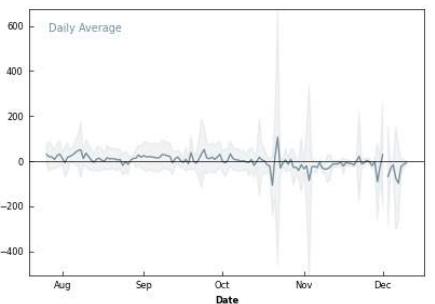
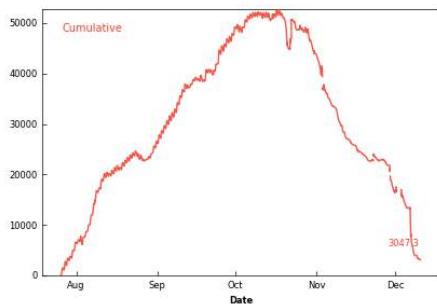
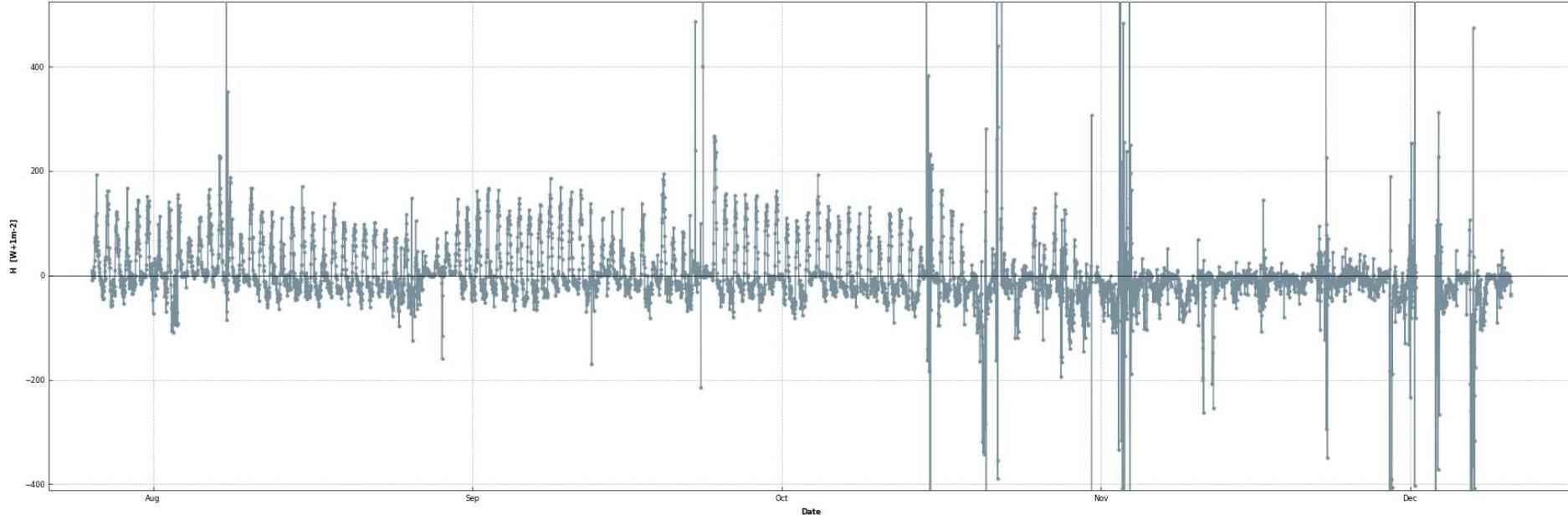


Most beautiful site &amp; fluxes





Snowfall causes high scatter,  
problem with sonic 1.-3.12



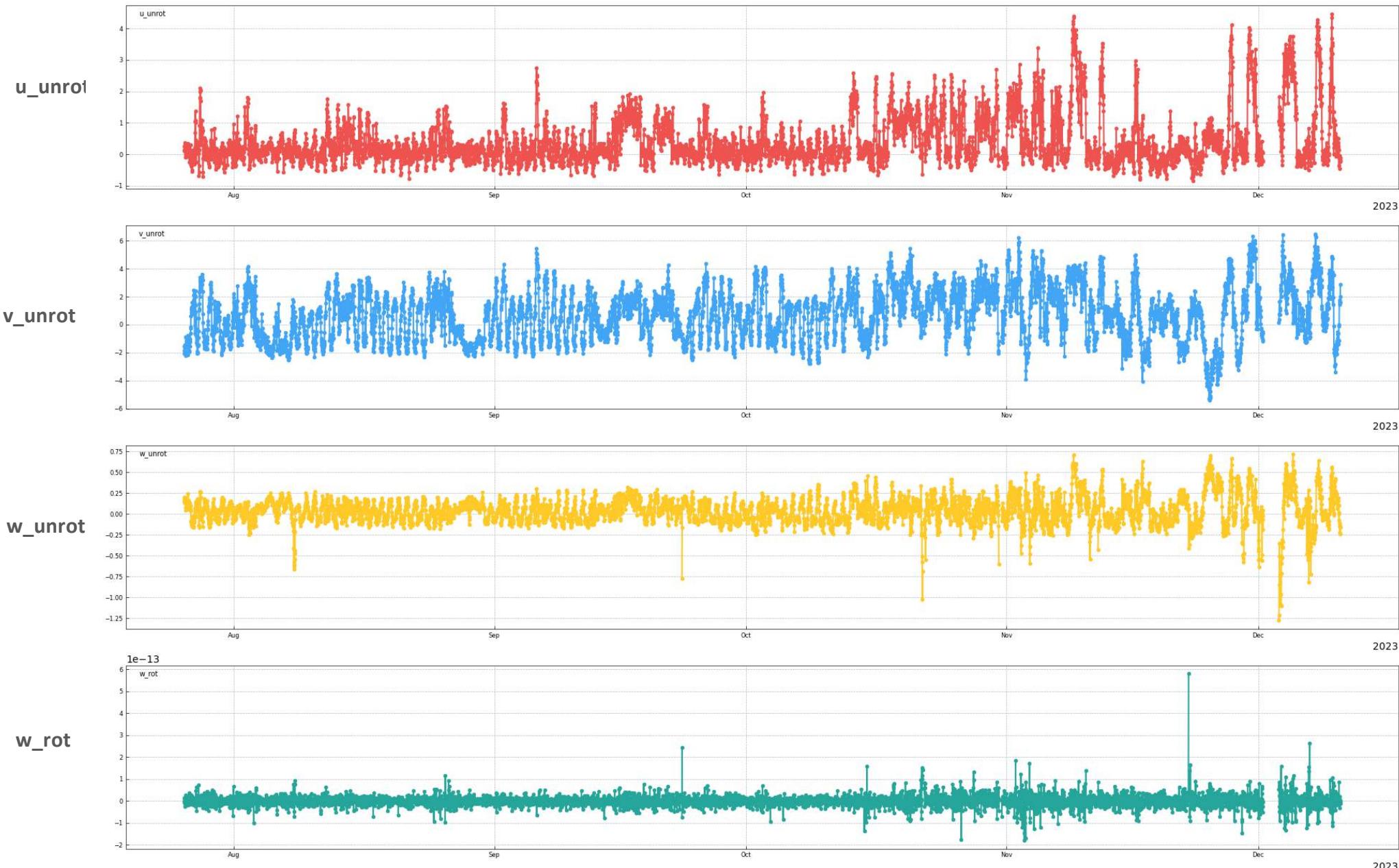


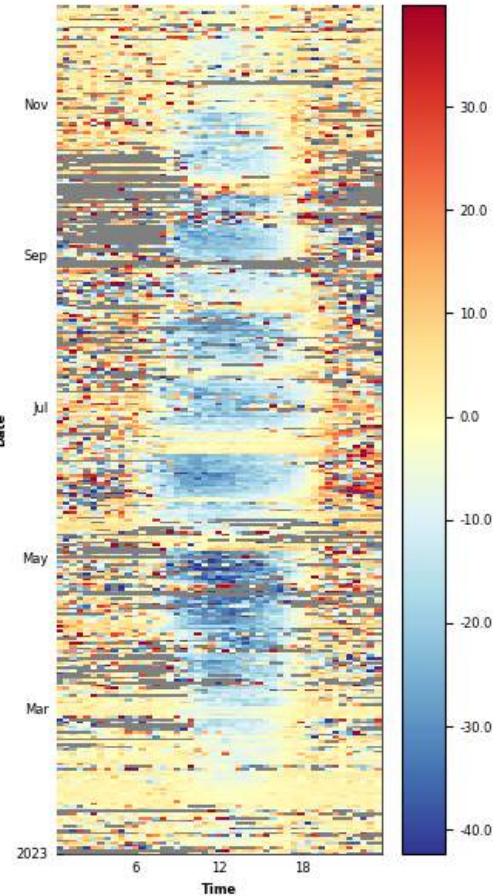
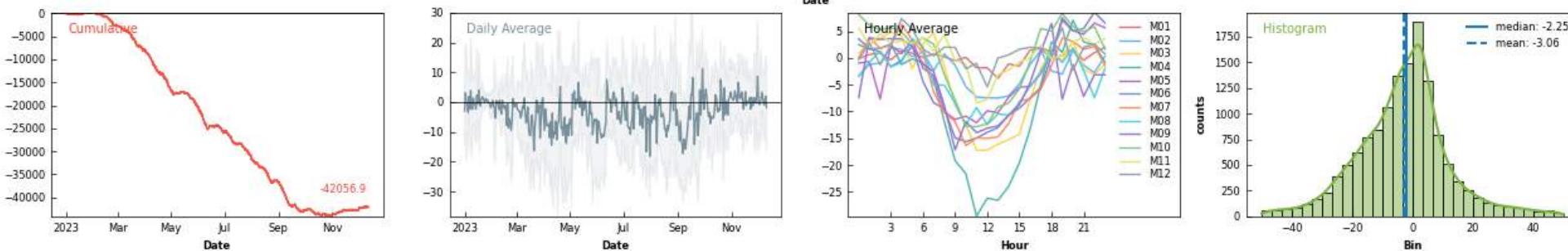
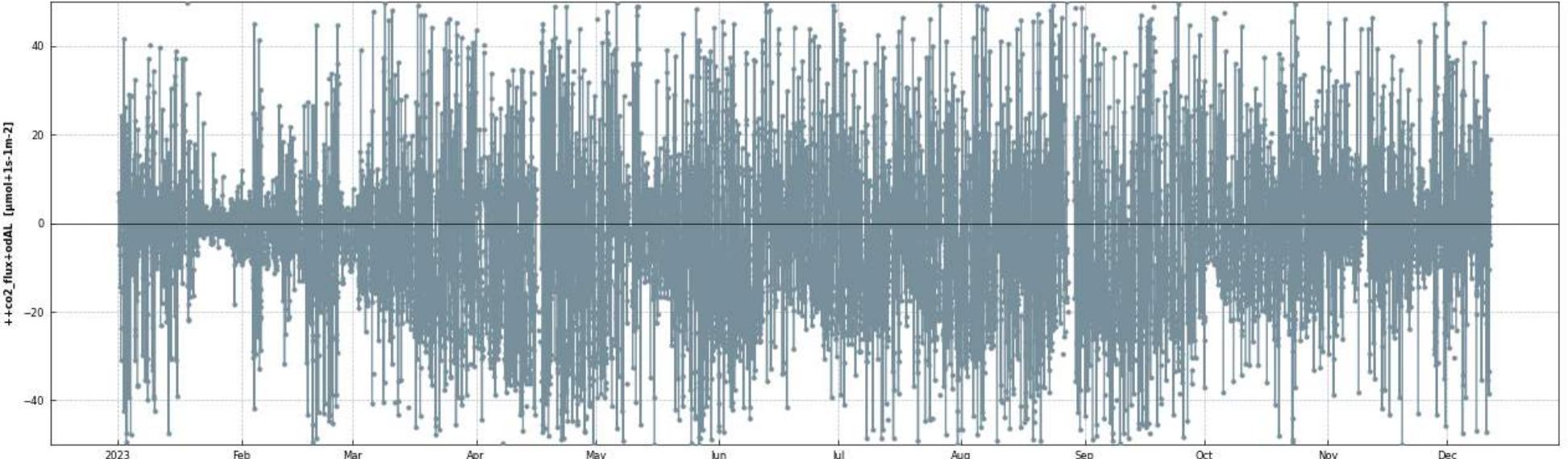


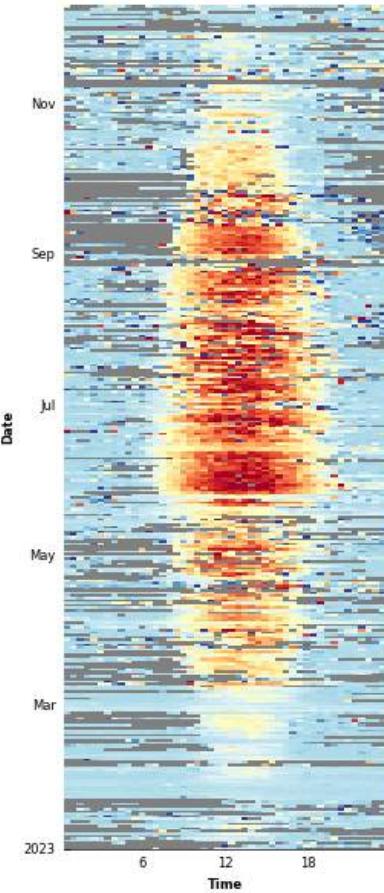
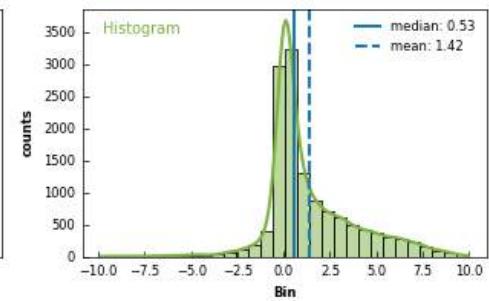
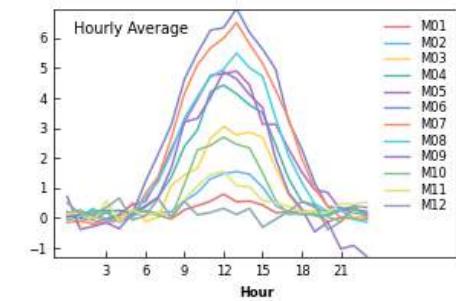
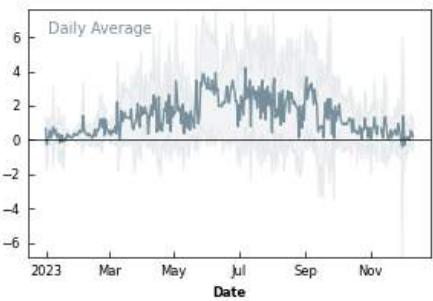
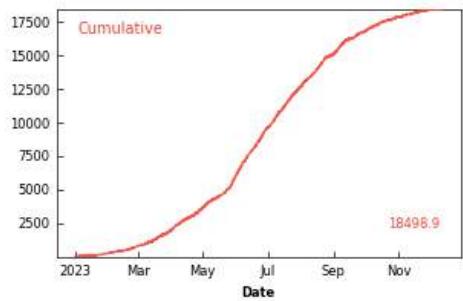
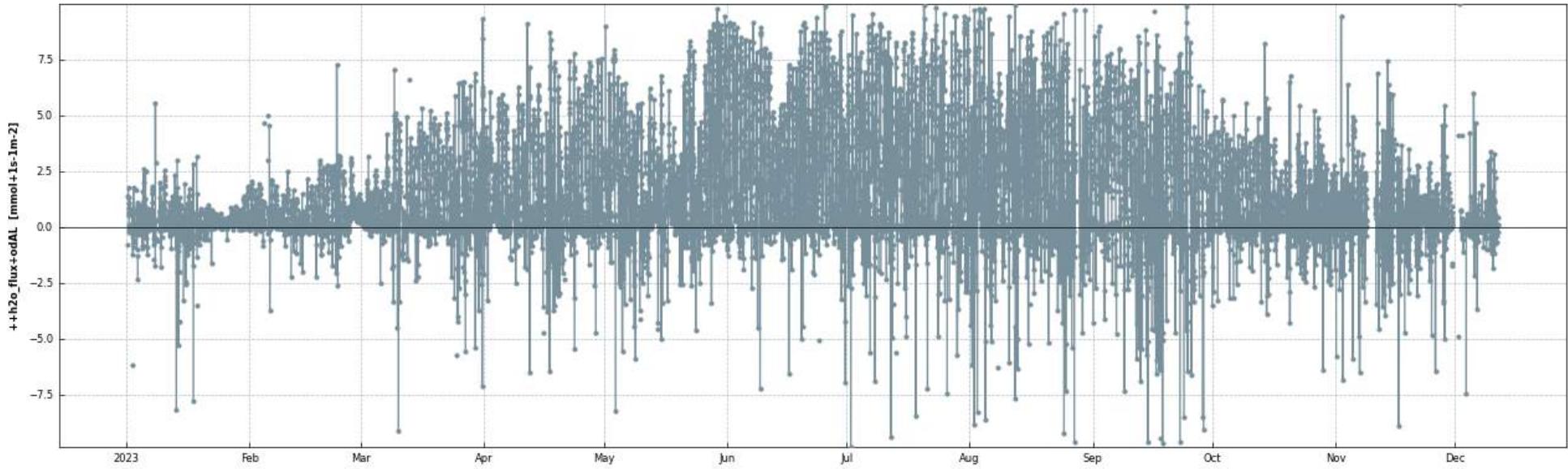
Photo: Lukas Hörtnagl

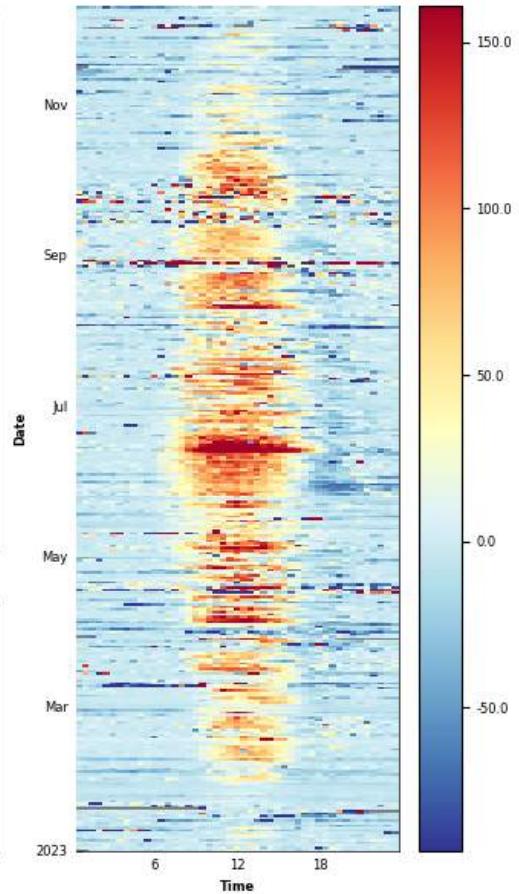
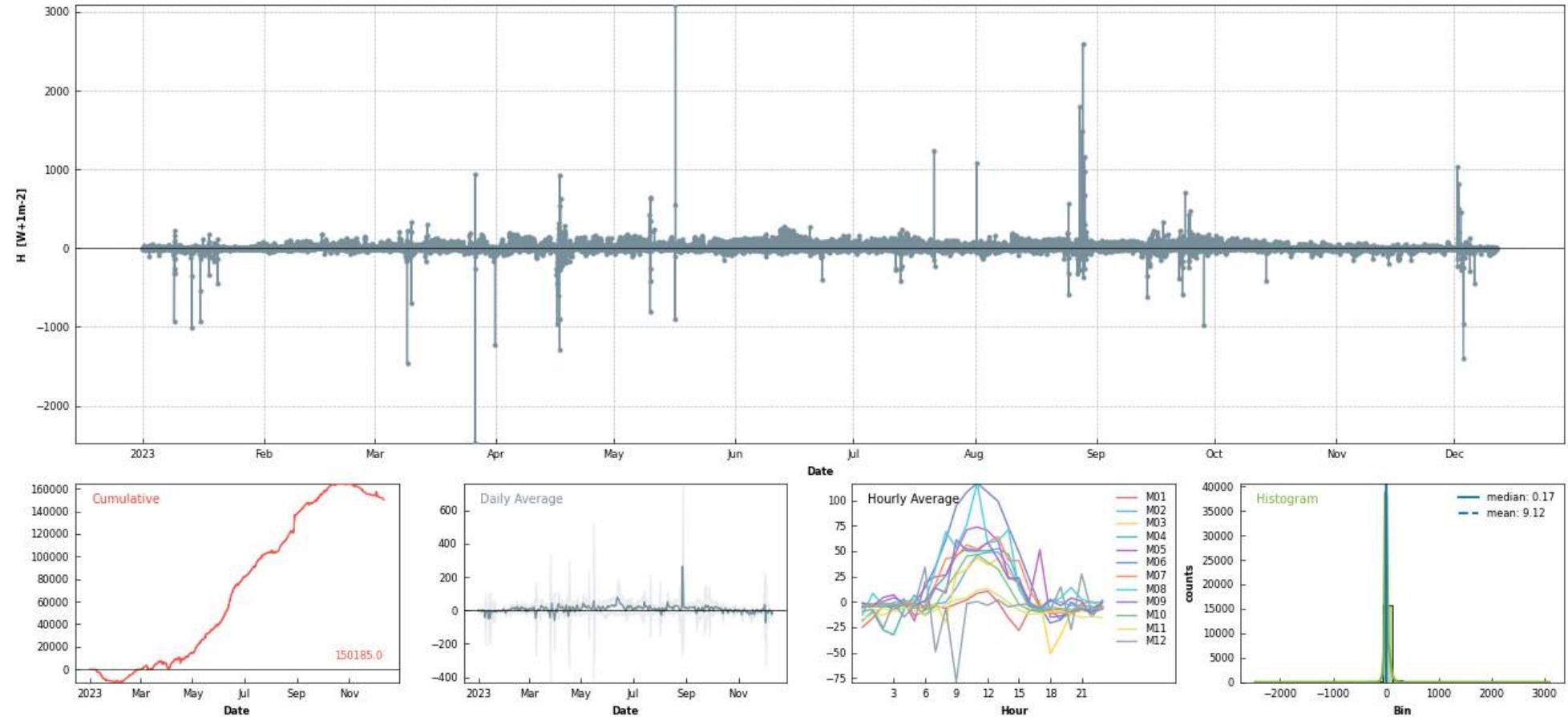


- 1st mowing: 2023.05.04
- 2nd mowing: 2023.06.11
- 3rd mowing: 2023.07.13
- 4th mowing: 2023.08.08
- 5th mowing: 2023.09.25
- 6th mowing: 2023.10.28

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







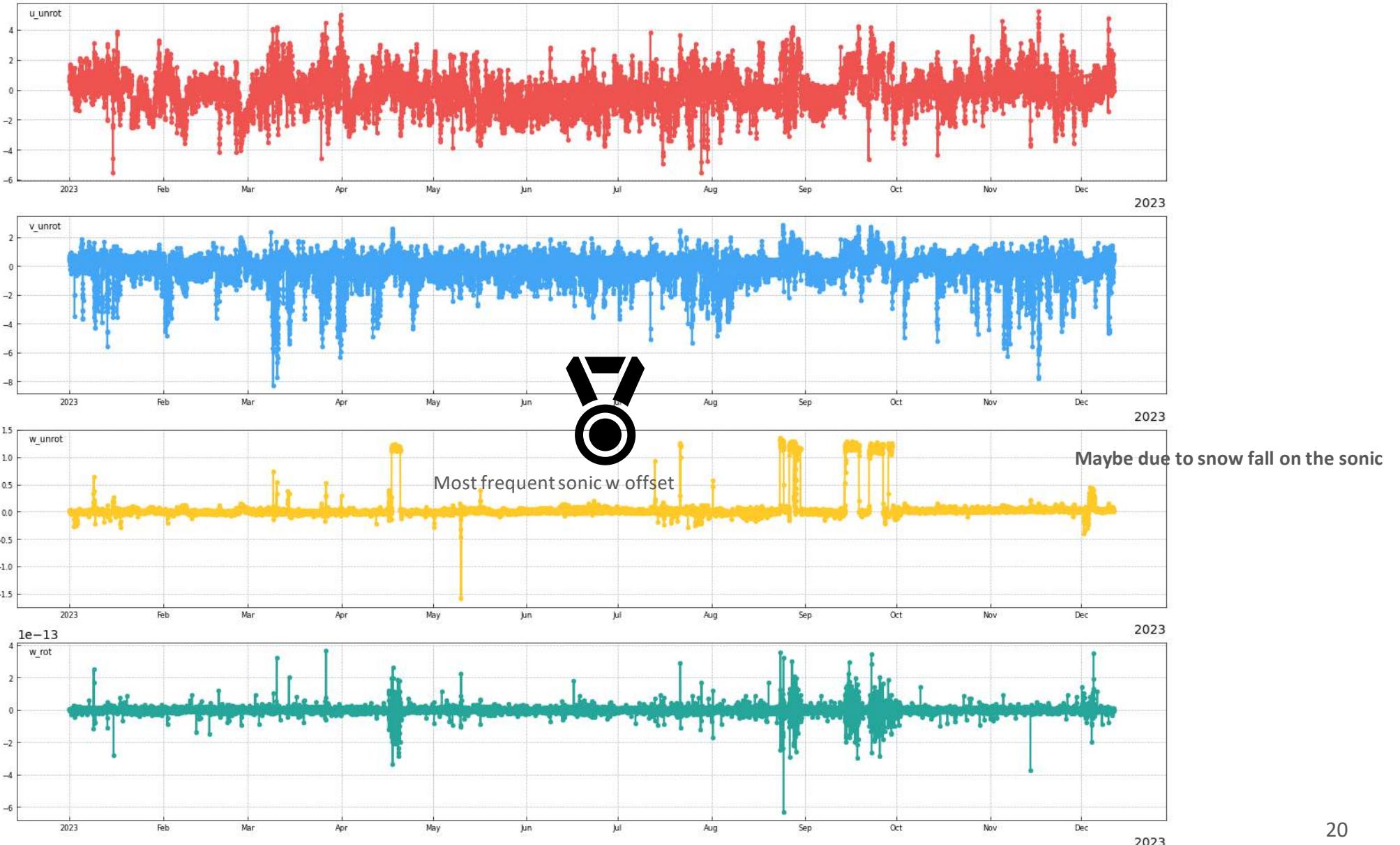
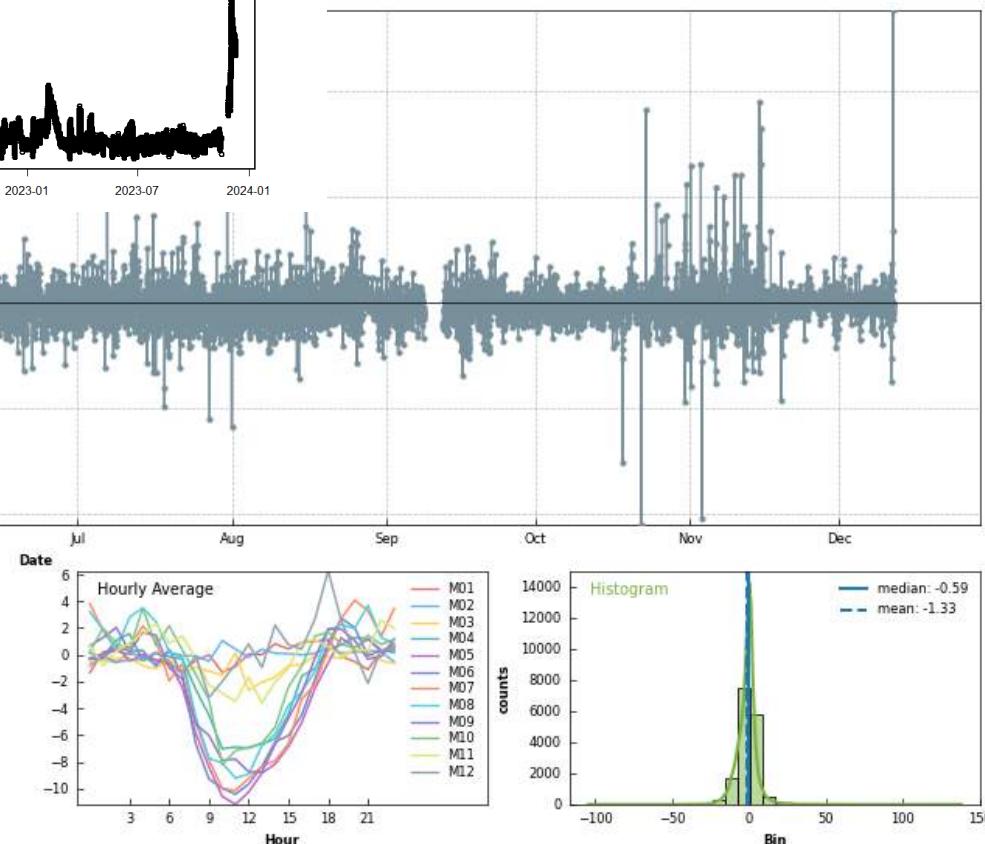
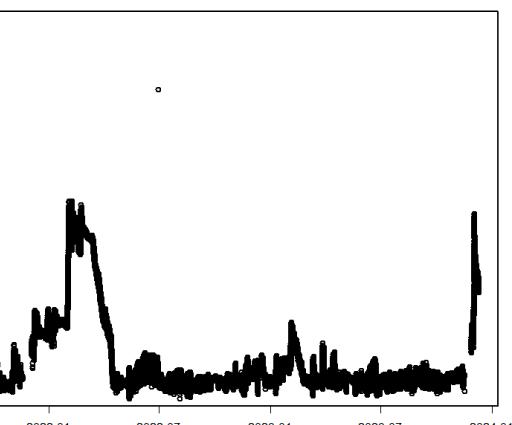
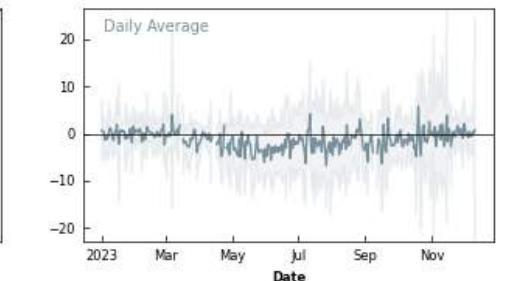
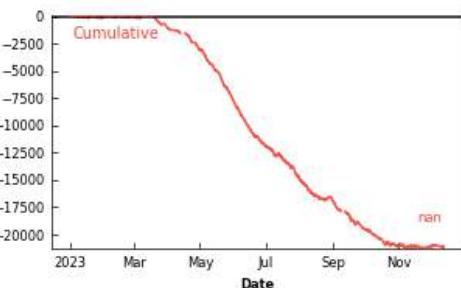
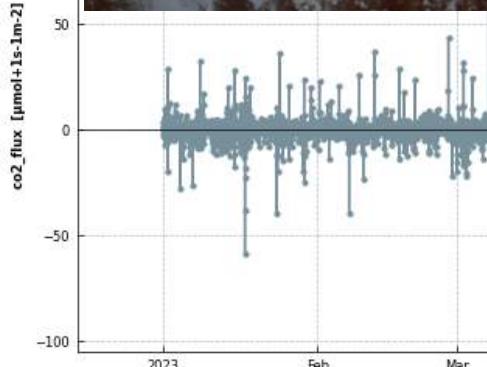
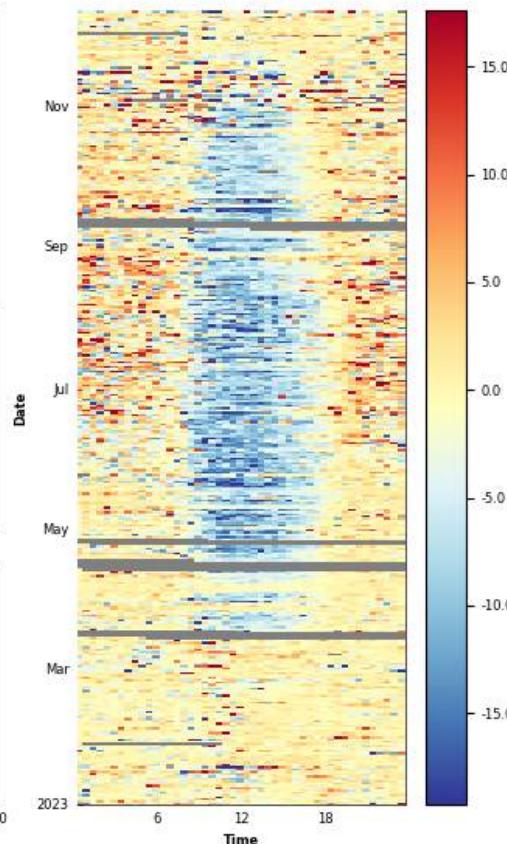


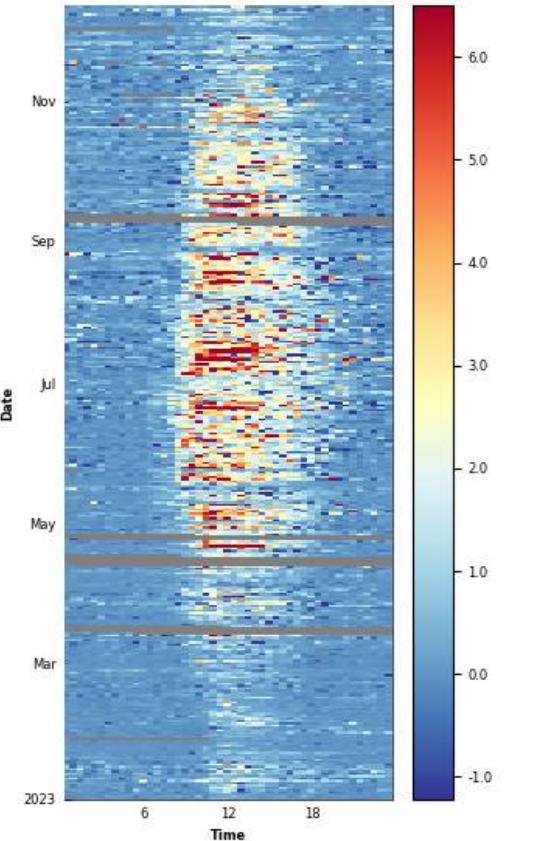
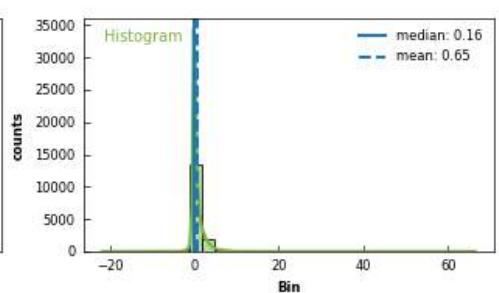
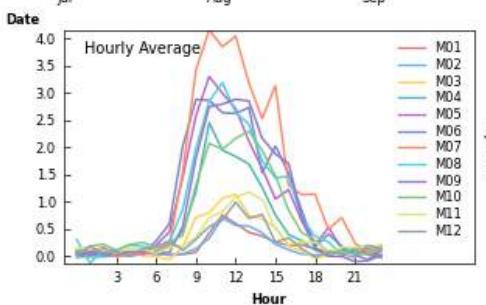
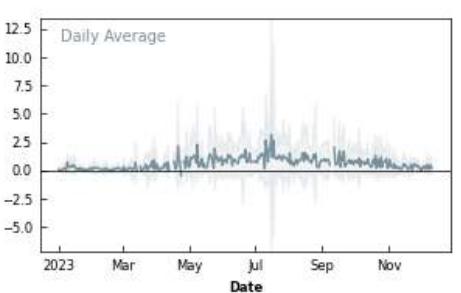
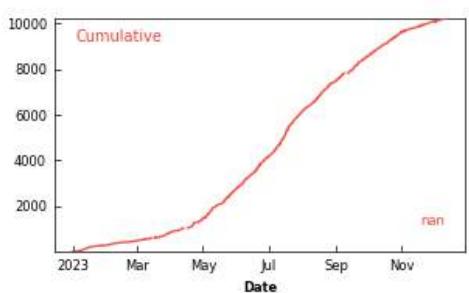
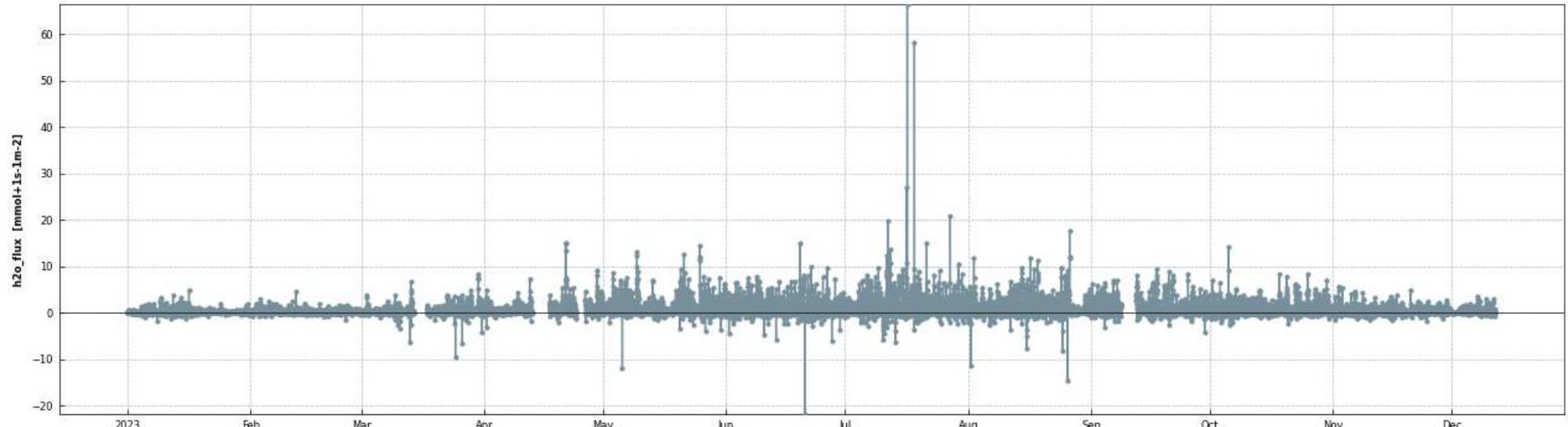


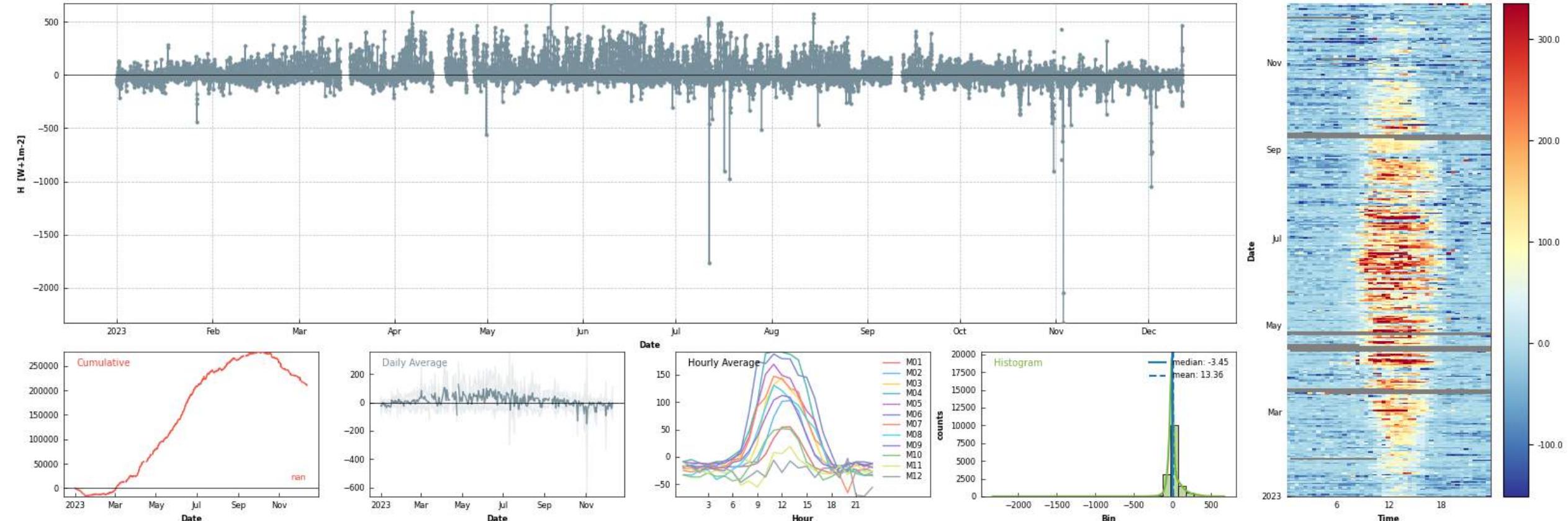
Photo: Lukas Hörtnagl

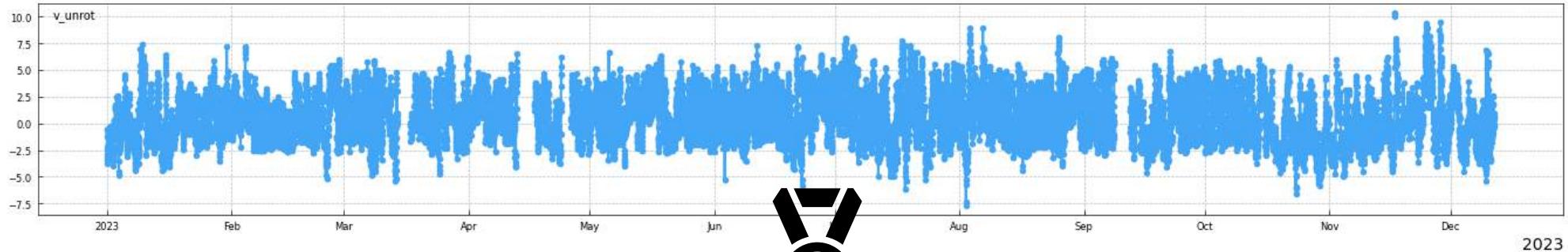
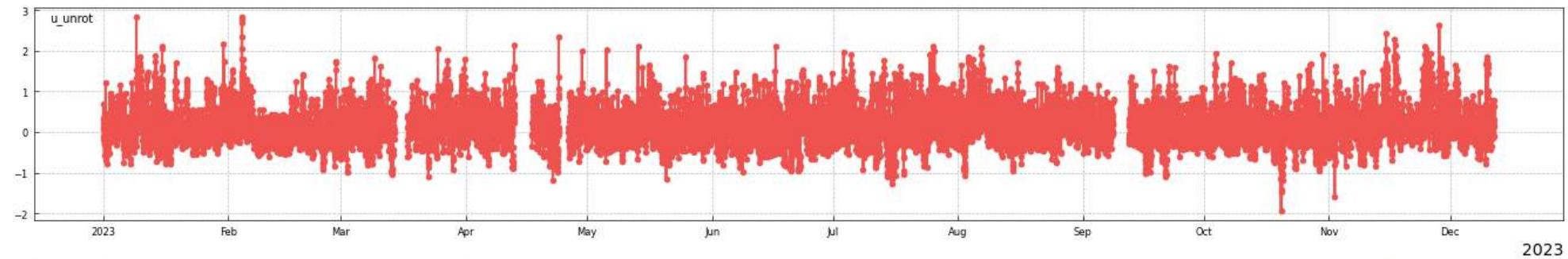


- Noisy period end of October, beginning of November. Bad weather?
- Snow cover









No sonic w offset

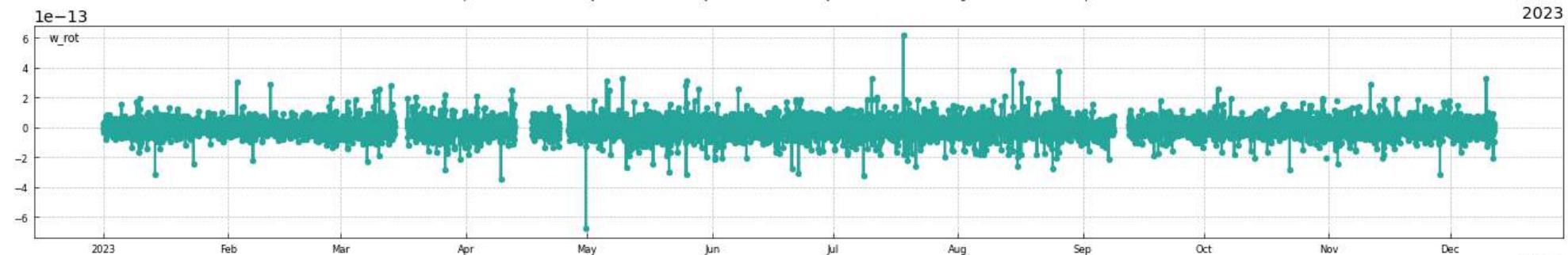
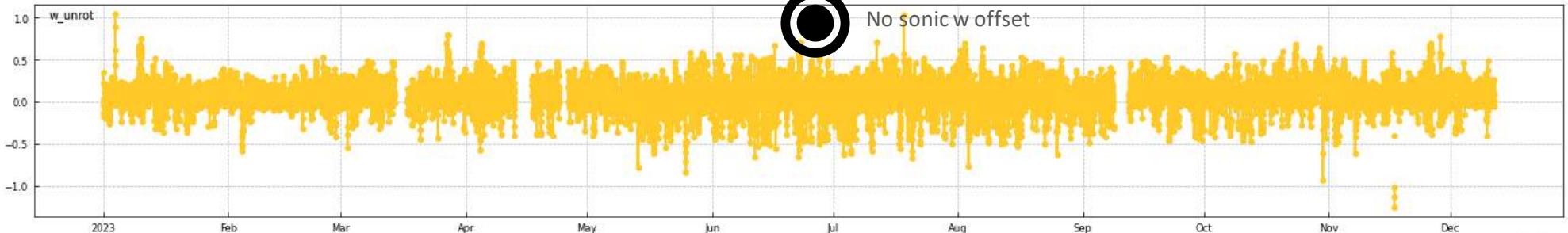


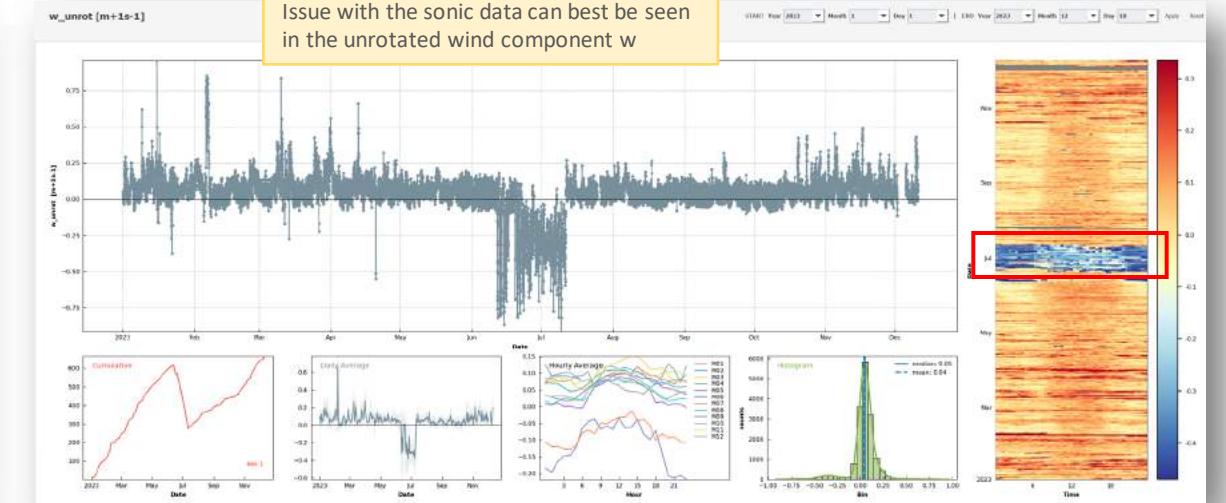
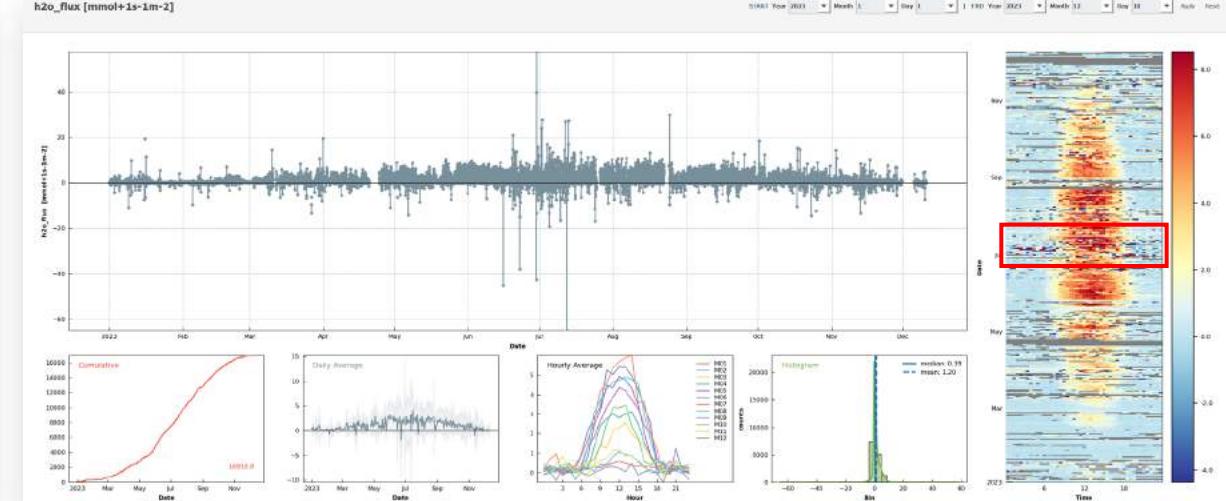
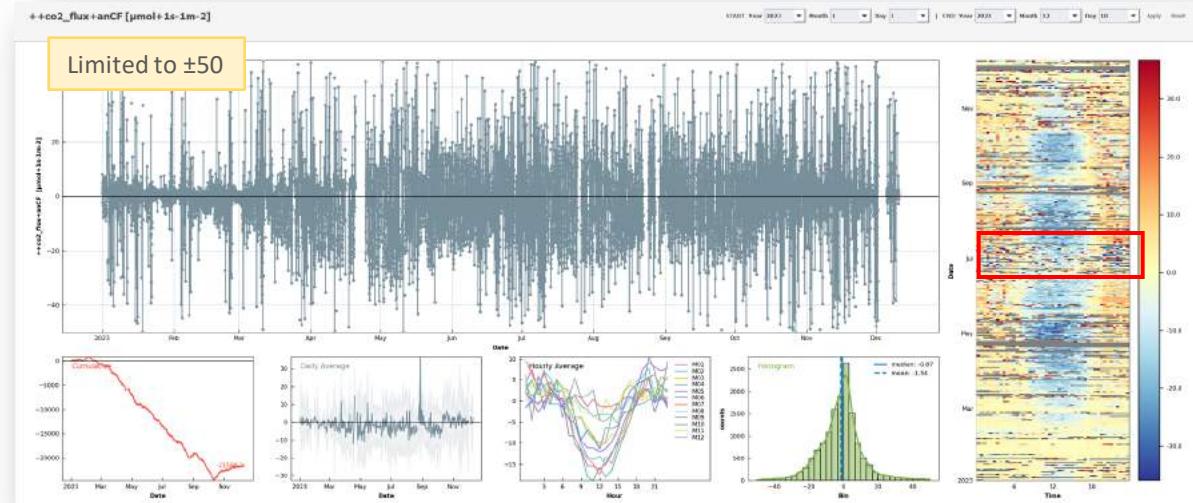
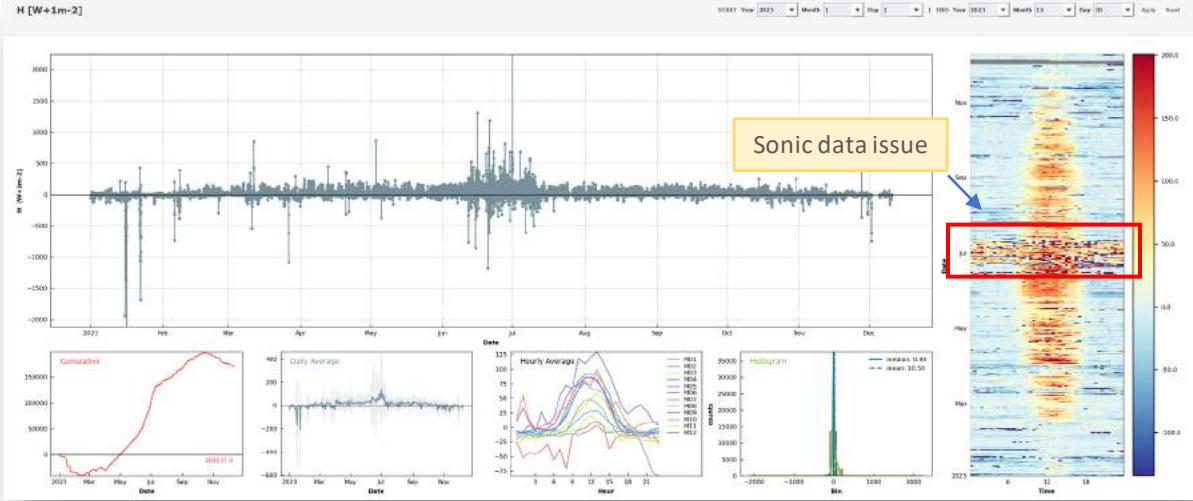


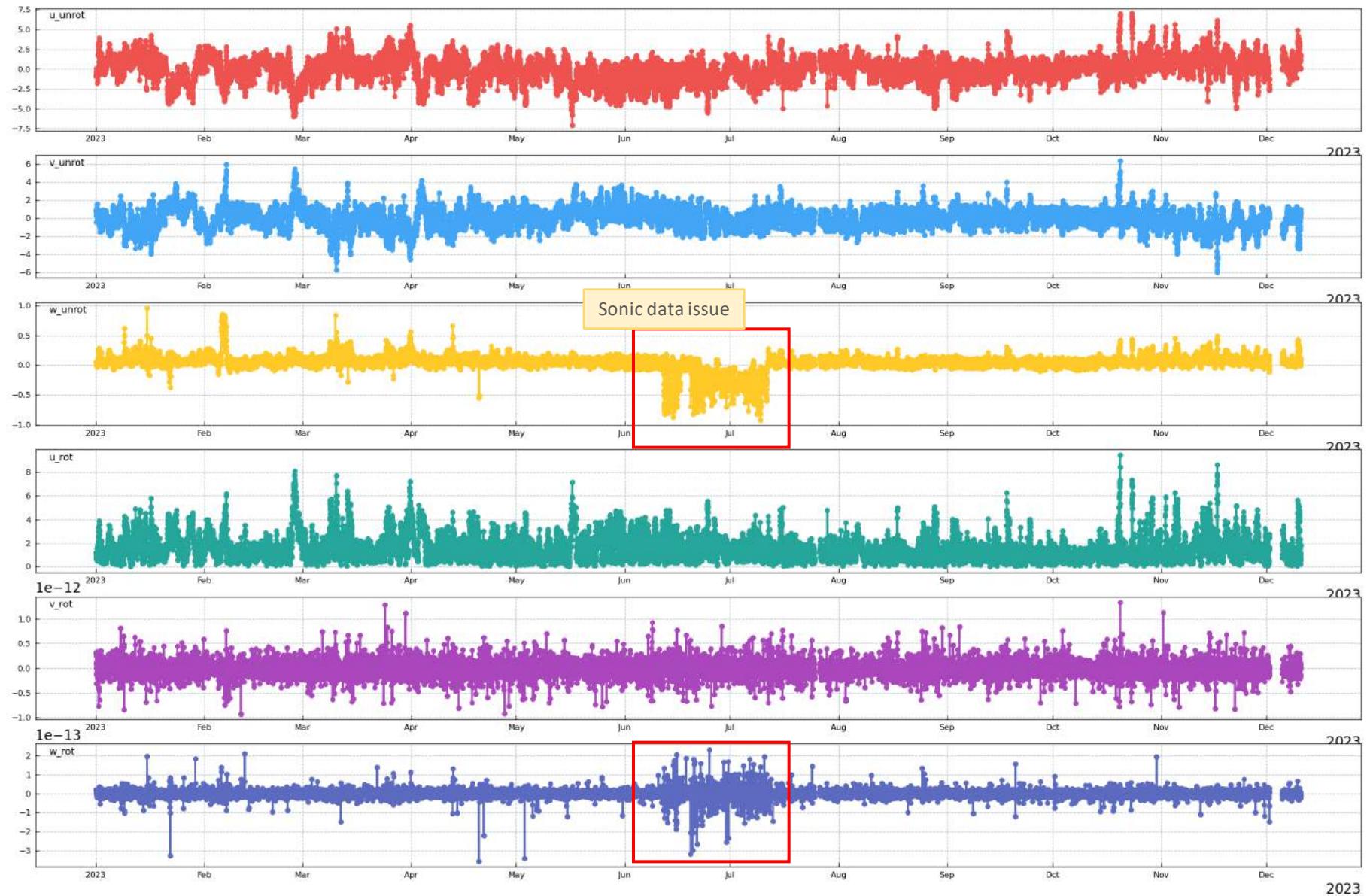
Photo: Luana Krebs

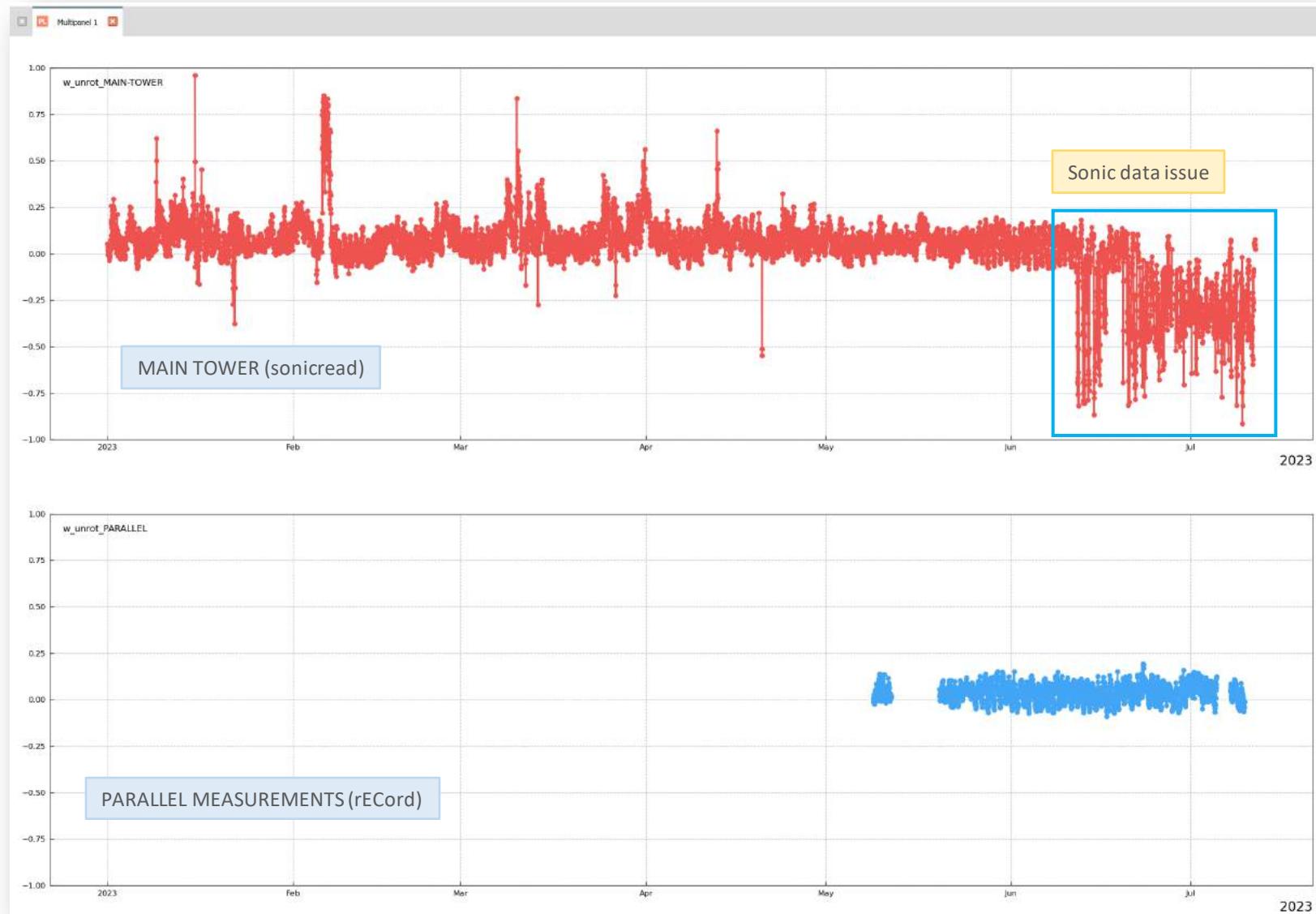
Not checked during this meeting



Photo: Lukas Hörtnagl



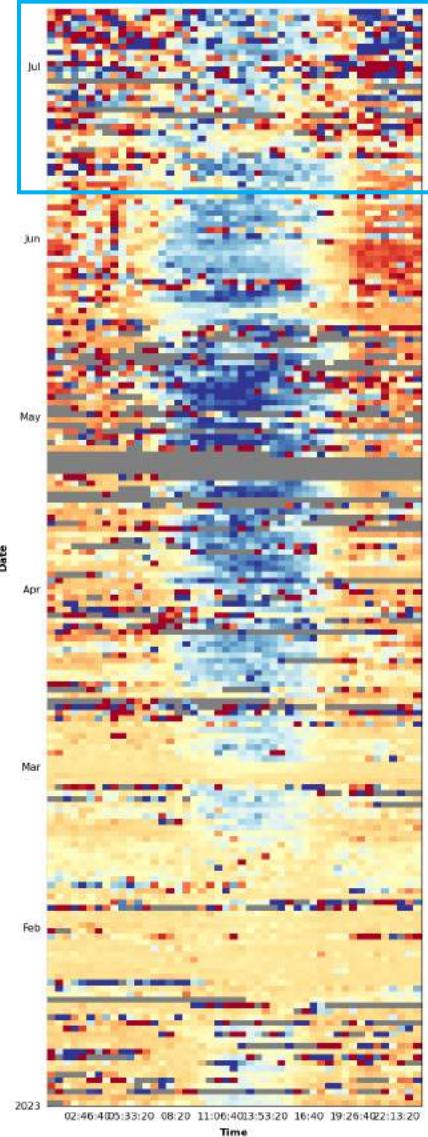




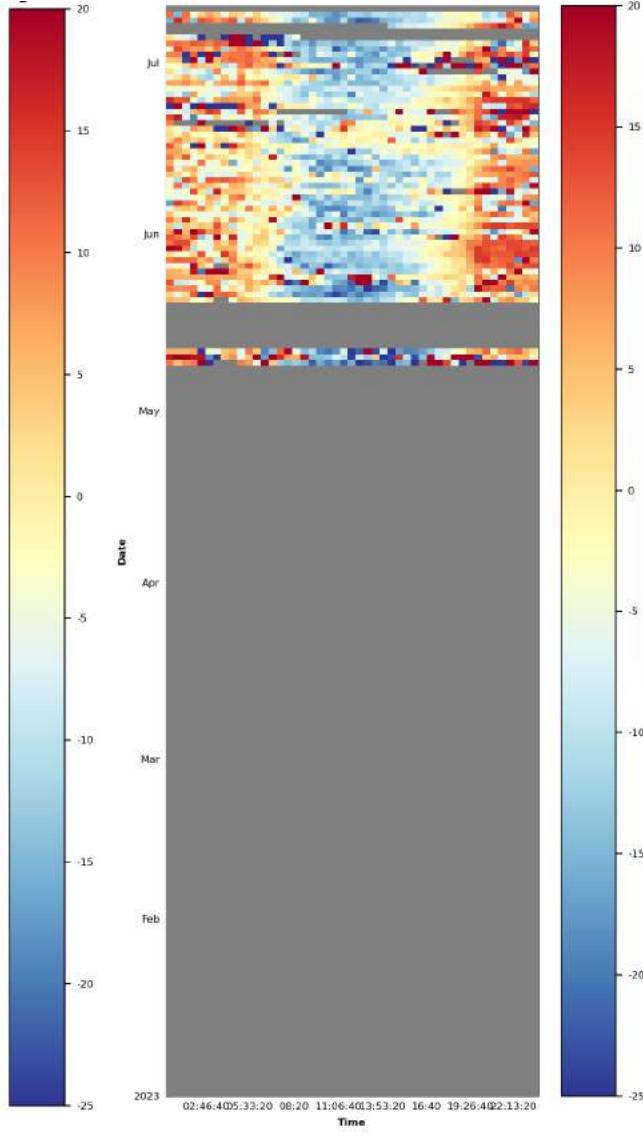
- Issues with sonic data started on 12 Jun 2023
- But sonic data from parallel measurements look good



MAIN TOWER (sonicread)

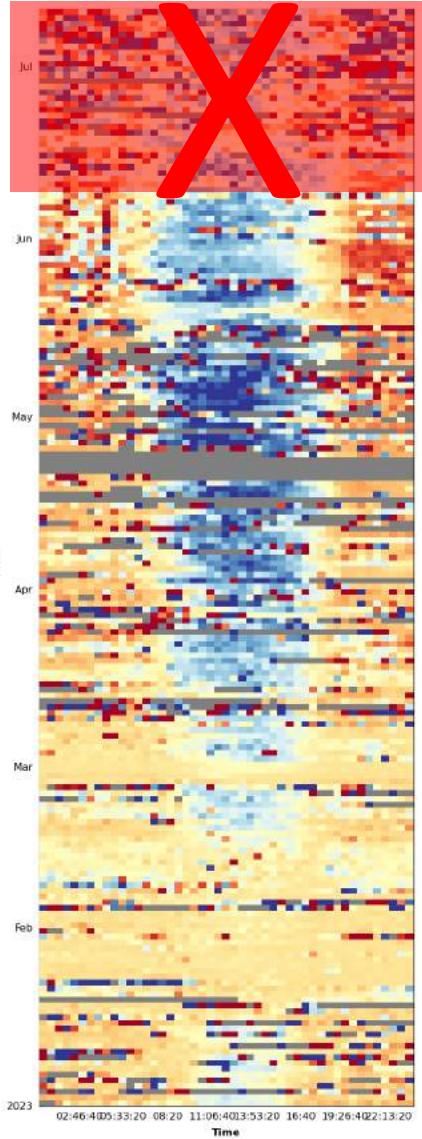


PARALLEL MEASUREMENTS (rECord)



- 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)

MAIN TOWER (sonicread)



PARALLEL MEASUREMENTS (rECord)

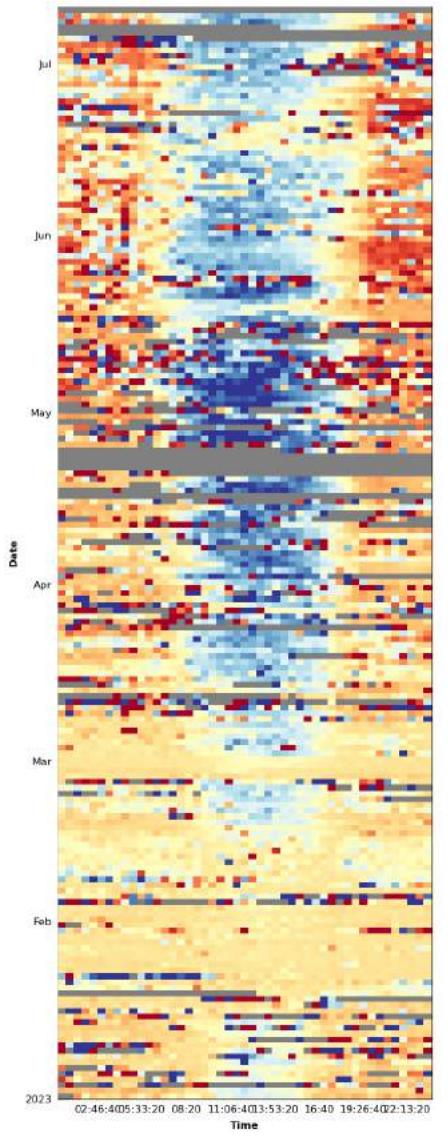
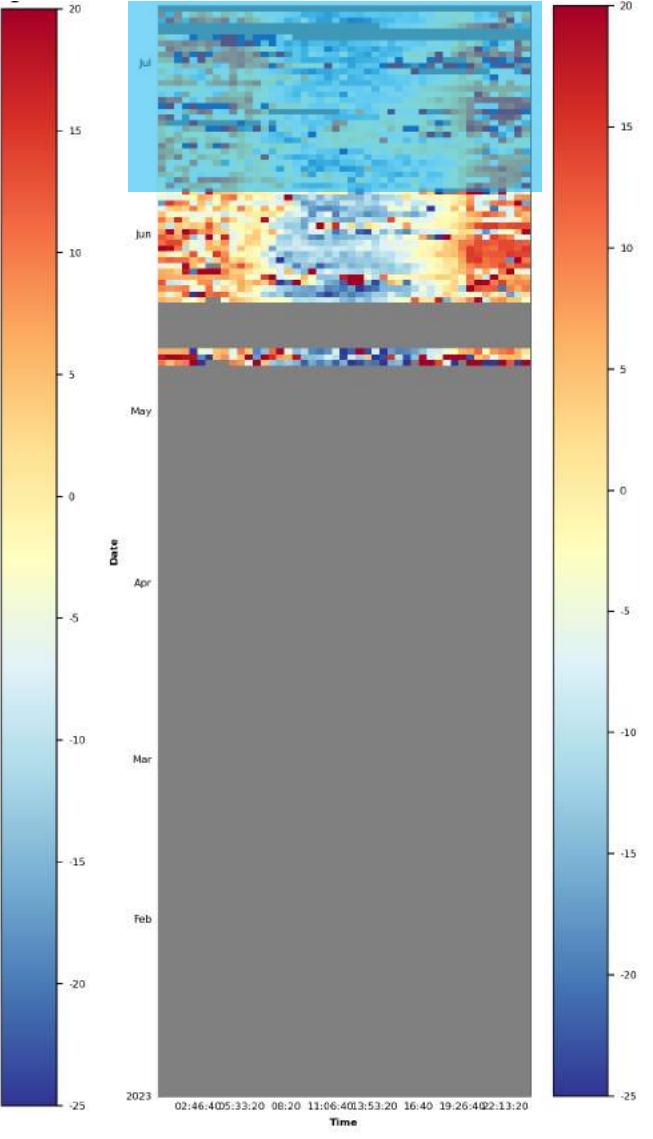




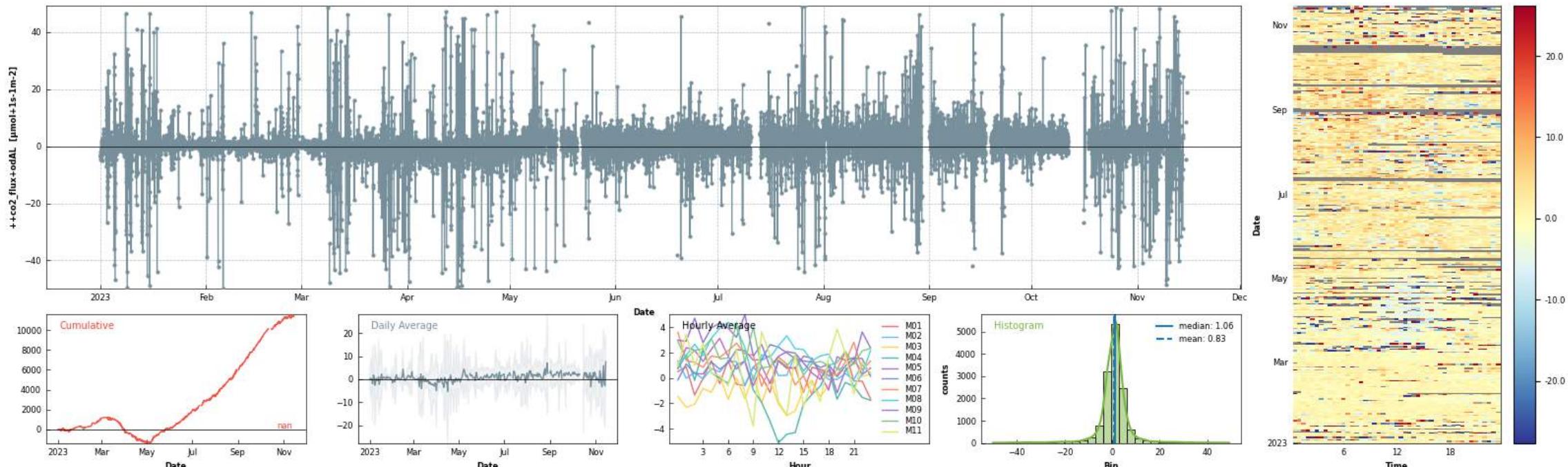
Photo: Markus Staudinger

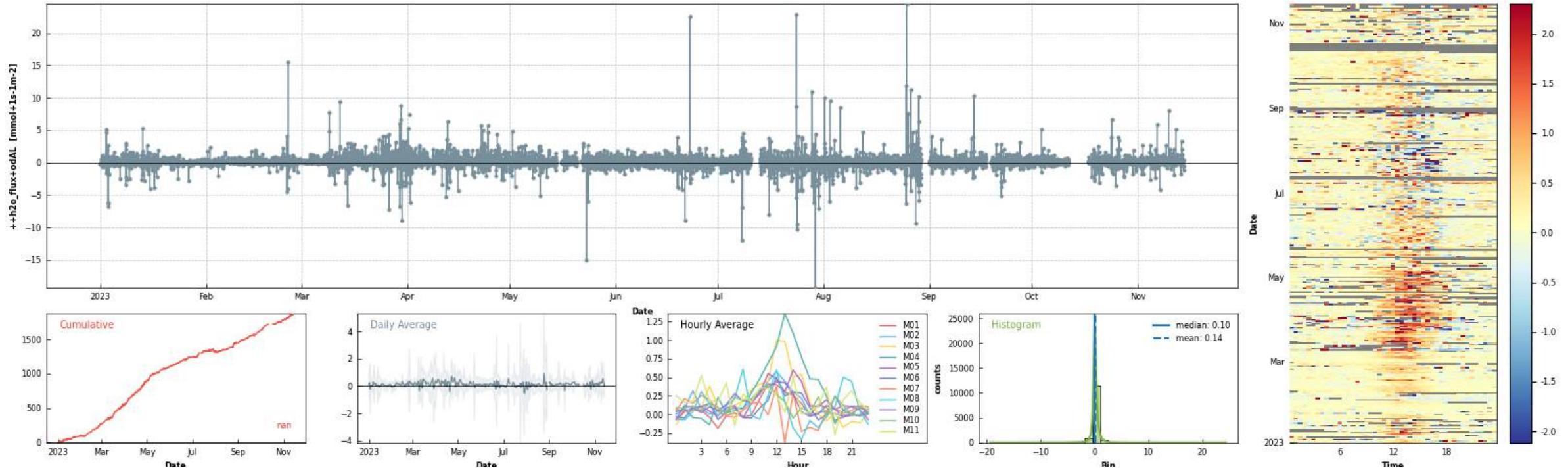
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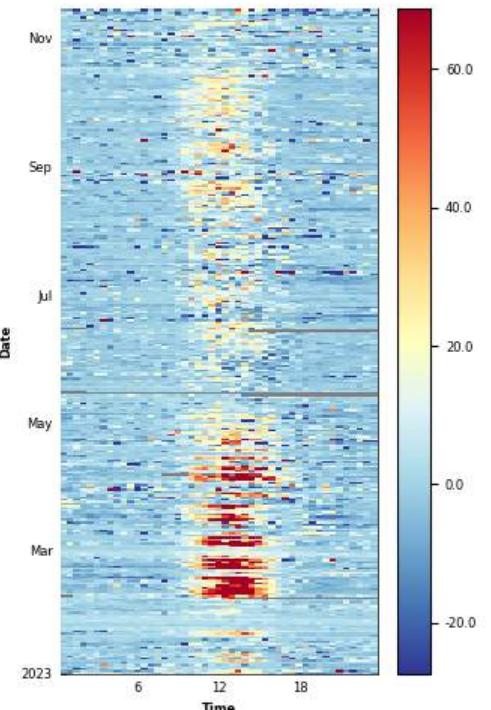
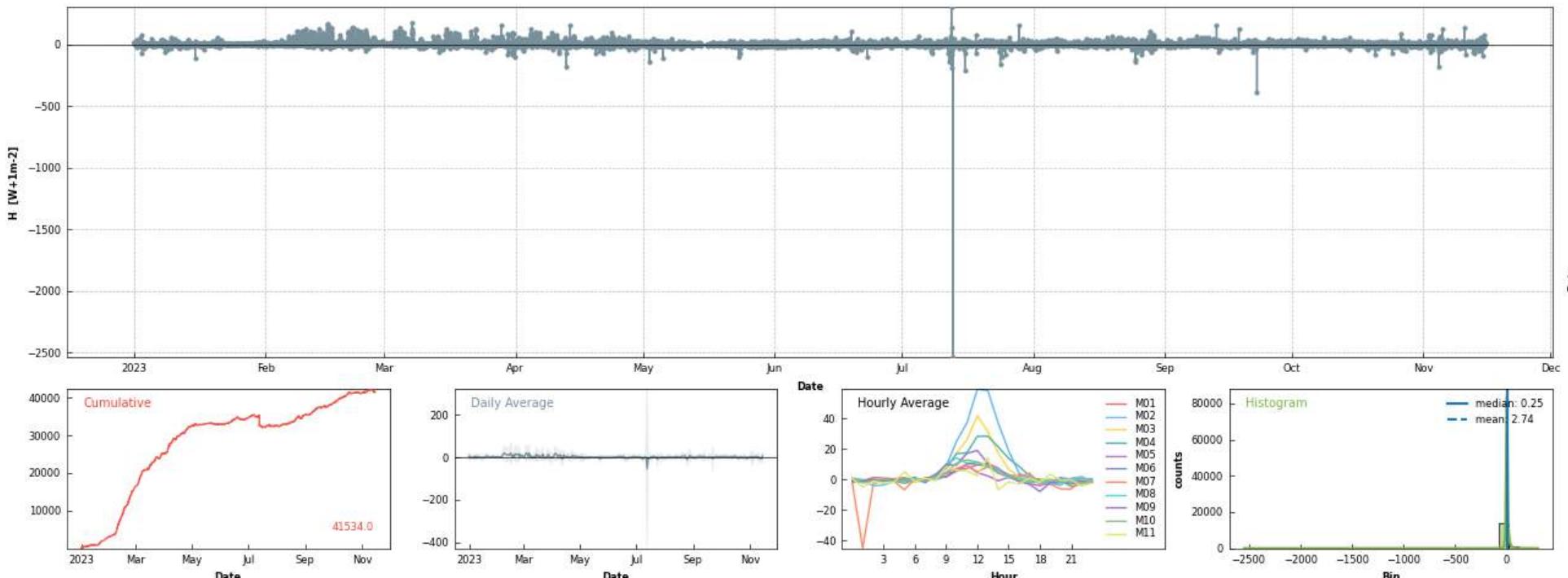


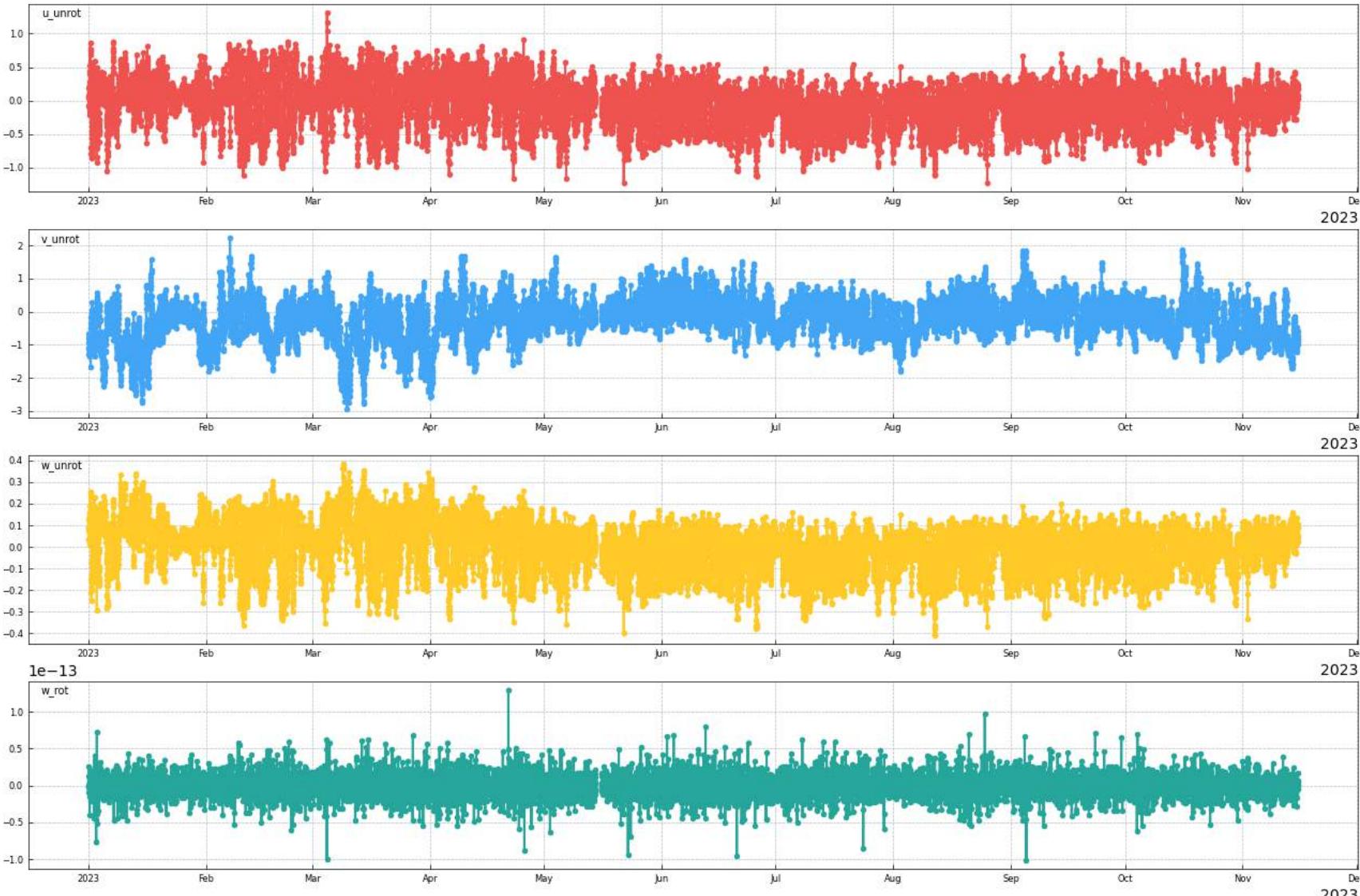
Photo: ETH GL Group

43.









No sonic w offset

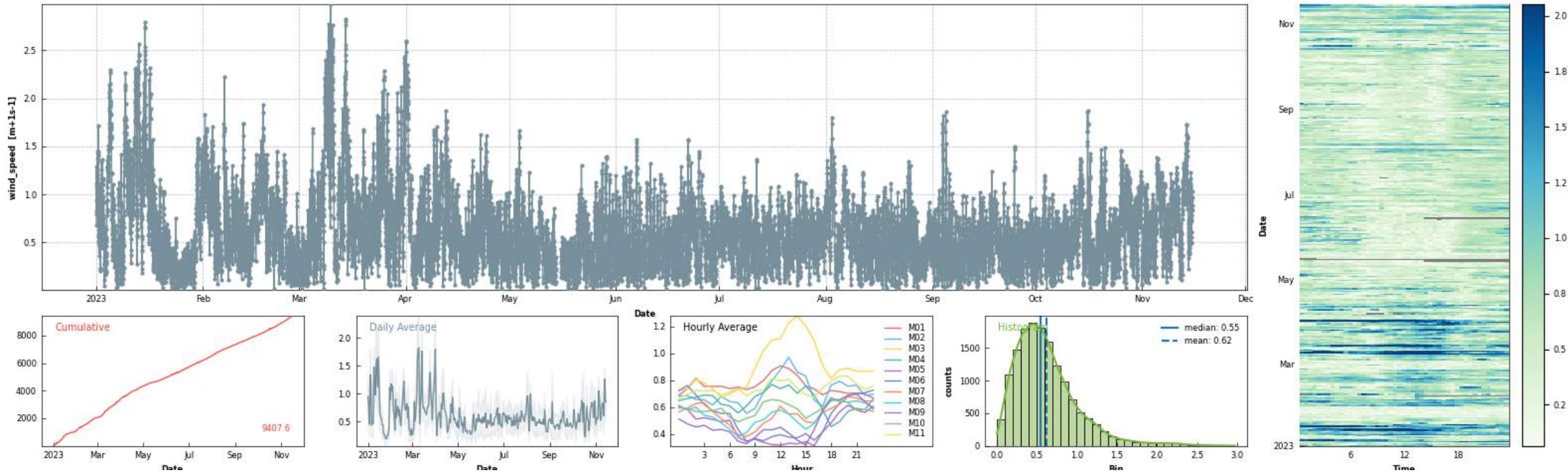
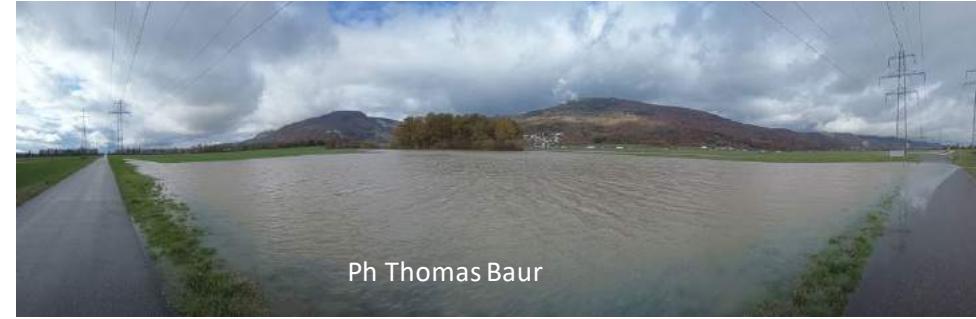
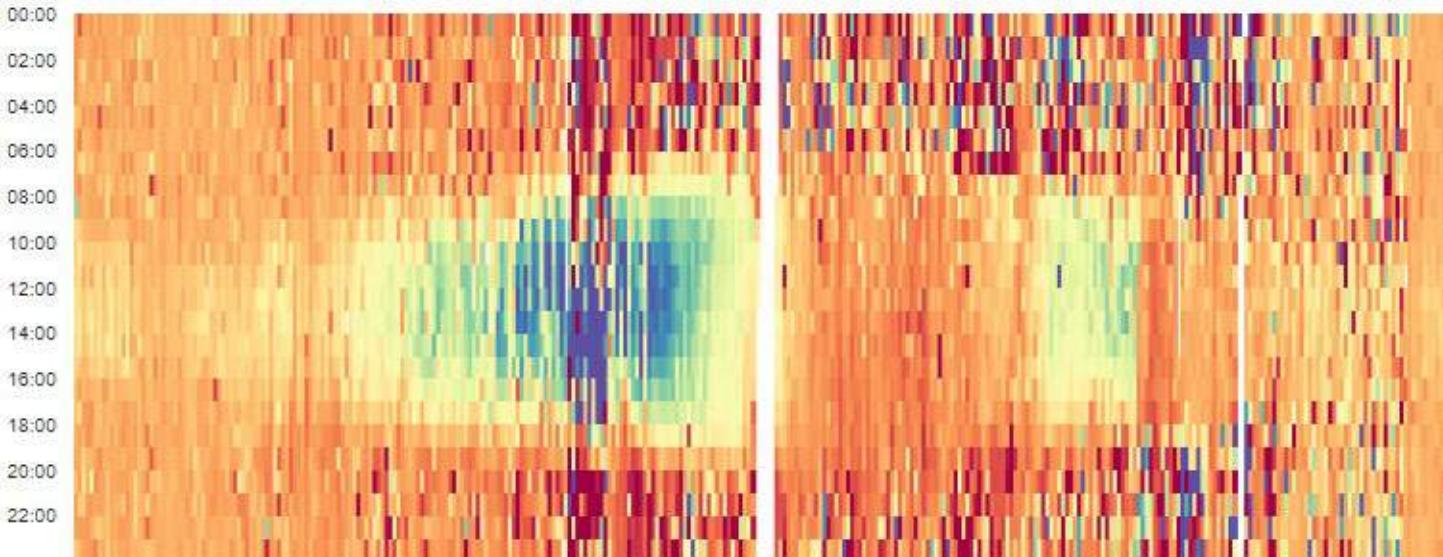
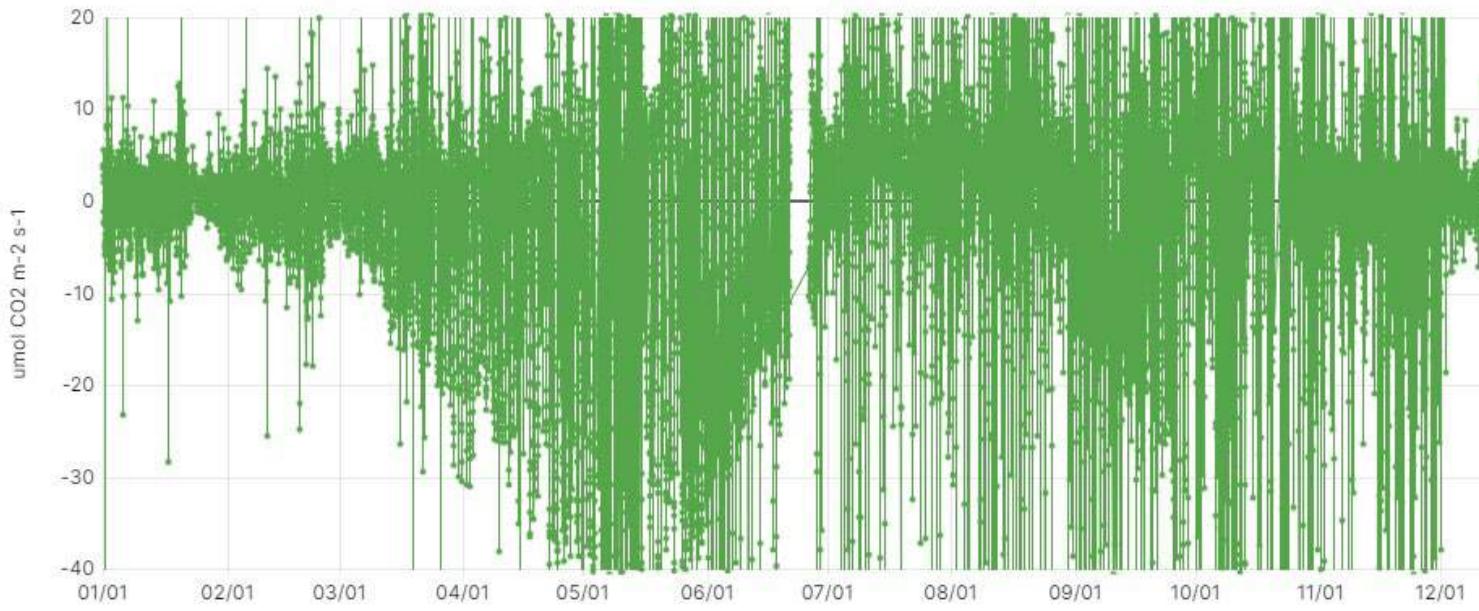


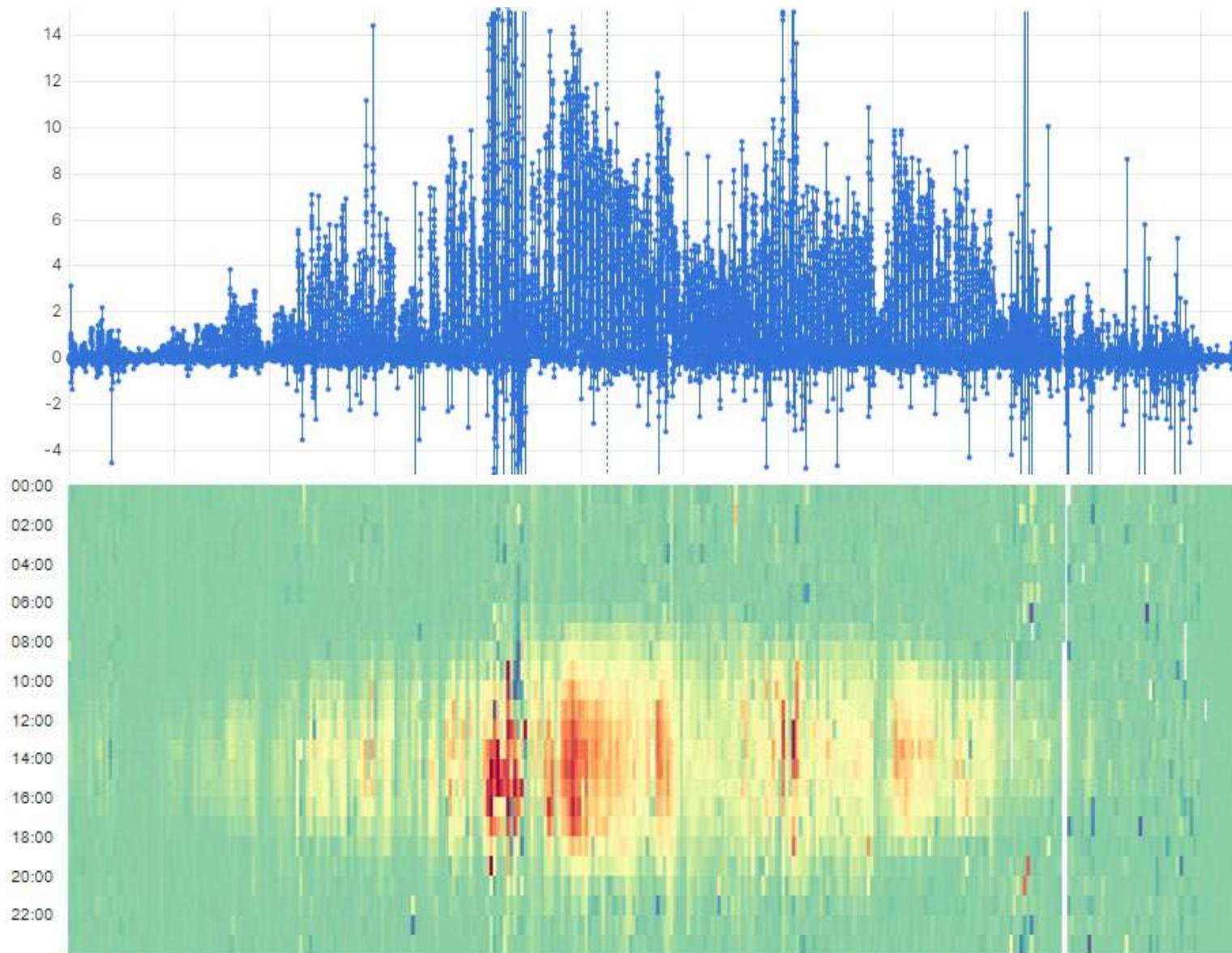


Photo: Regine Maier

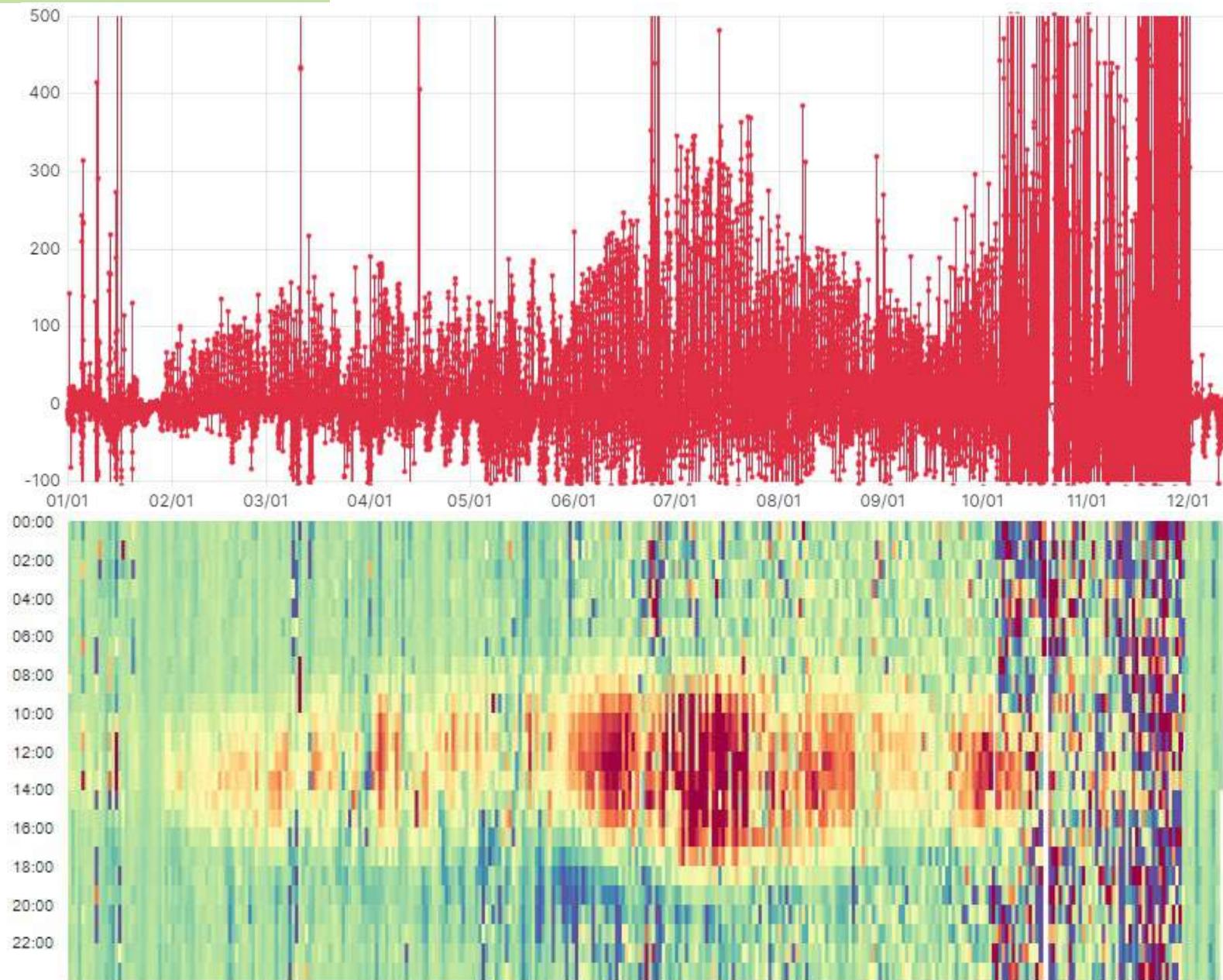


- 15 July wheat harvest
- 18 July soil cultivation
- 28 July sowing of cover crop (mixture)
- 25 September mulching of the cover crop
- 4 October sowing of winter barley

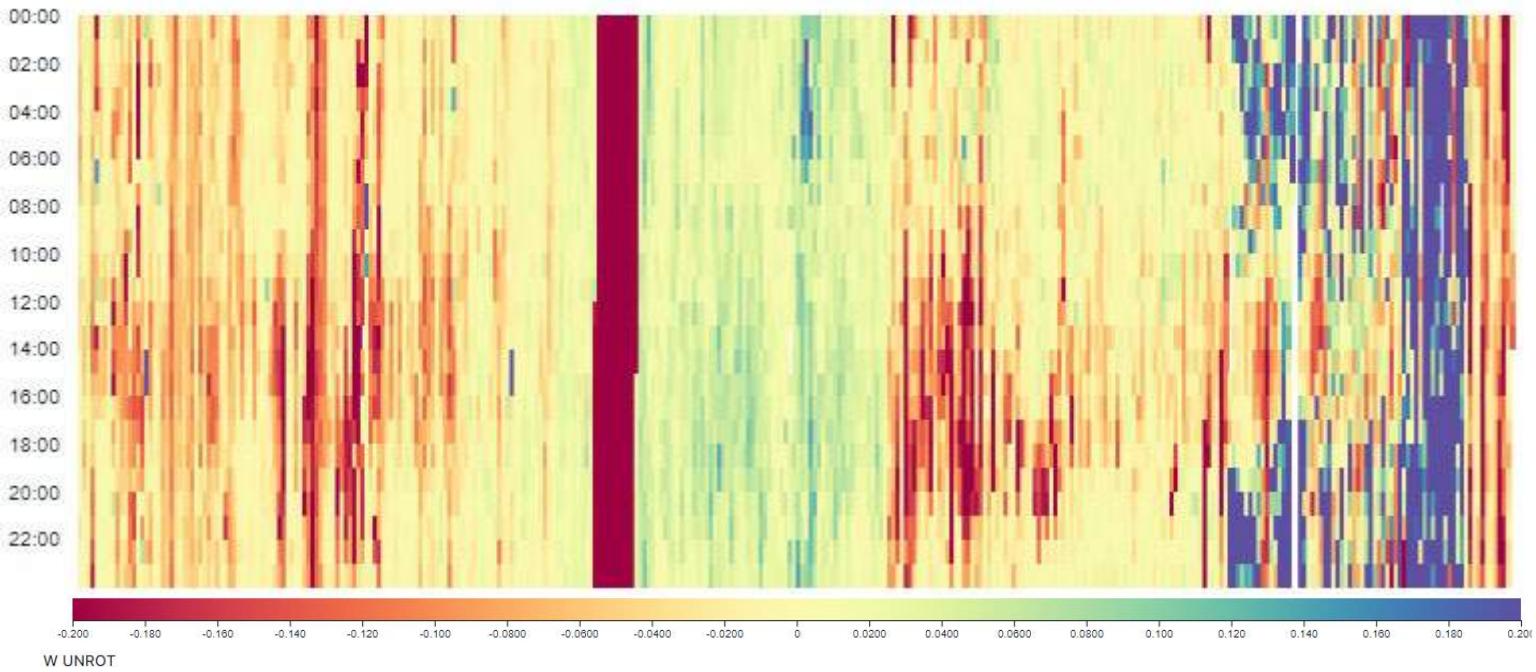




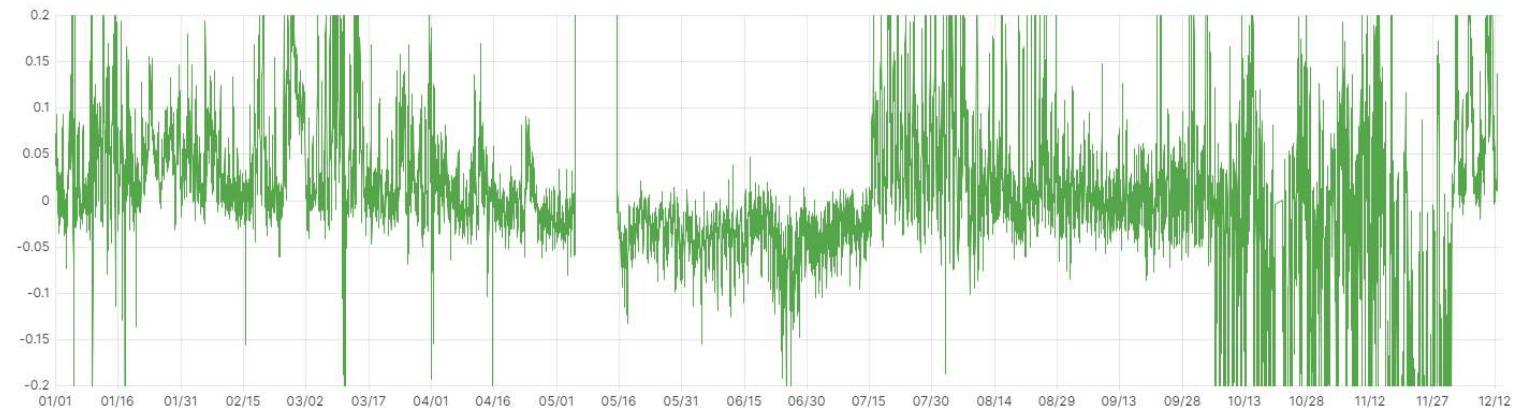
- 15 July wheat harvest
- 18 July soil cultivation
- 28 July sowing of cover crop (mixture)
- 25 September mulching of the cover crop
- 4 October sowing of winter barley



W\_UNROT



Most diverse color  
for w finger print



Noisiest fluxes