Temperature and Power Supply analysis on SciFi

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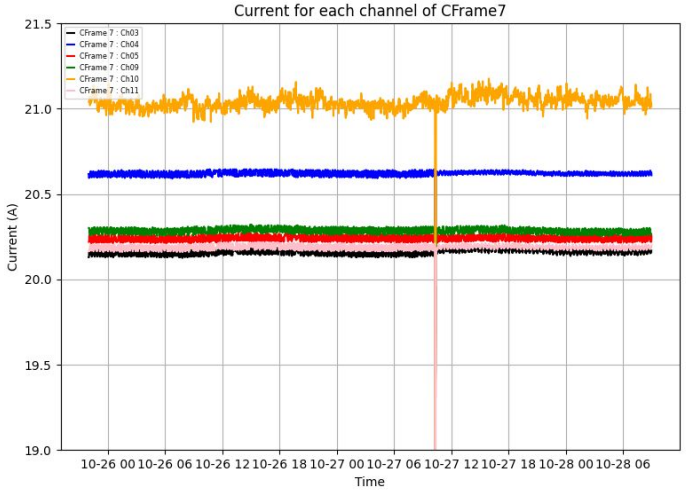
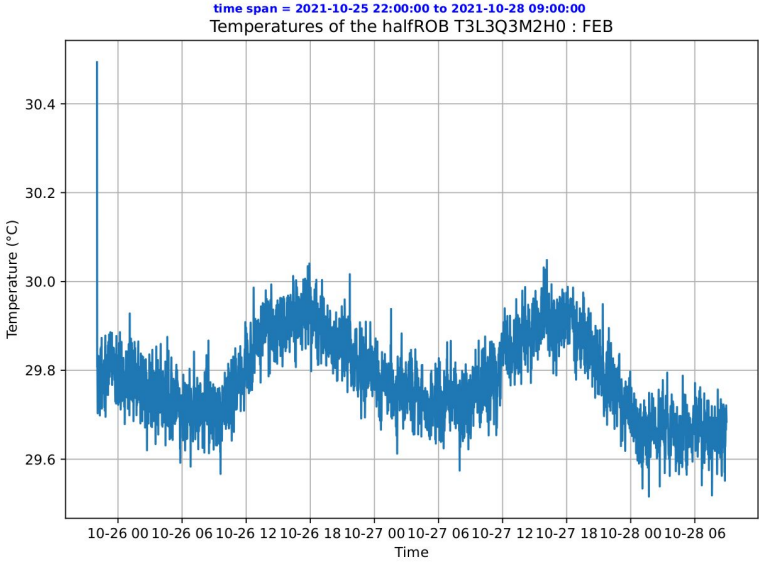
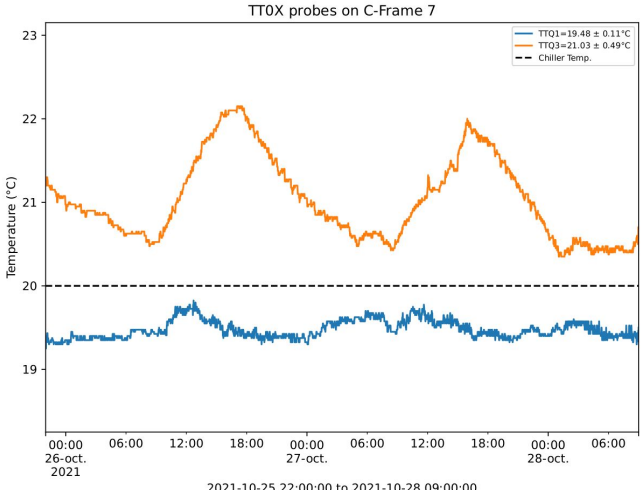
LPC LHCb Group Meeting – 10 December 2021

- CFRAME 1 and 2 in the pit
  - can’t access Board Temperature
  - can access probes in cooling system
    - difference (out-in) really high : around 6-7 degrees when the maximum during CFRAME2 commisioning was 4° in the worst case.
  - Is this an issue with the Boards temperatures in thr pit or with the cooling system ?

- To double check this, we would like to look at power consumption during the commissioning and then compare it to the one in the pit, to see if it is equivalent or not and if we can conclude about the Board Temperature

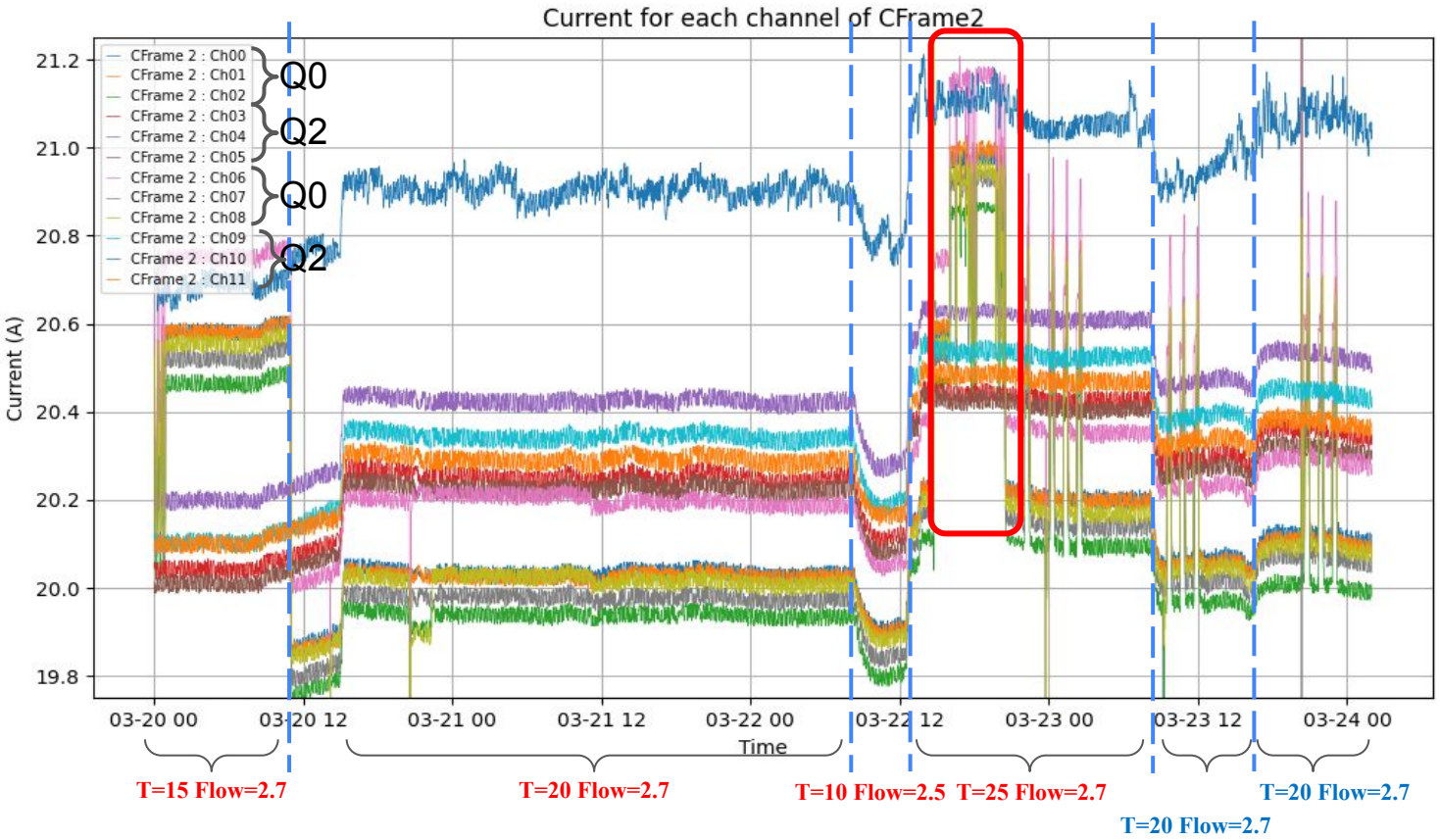






-> Here, CFRAME7, at the end of commissioning (only Q3 because Q1 was under test)
-> Board temperature have a small variation due to room temp. var. but Current still stable. It seems the correlation between Power Consumption and Temperature, if it exist, is really tiny

To see if the absence of correlation is only due to a small Temperature variation, I look at the effect when we have bigger variation -> The tests that were done on Cooling for CFRAME 2



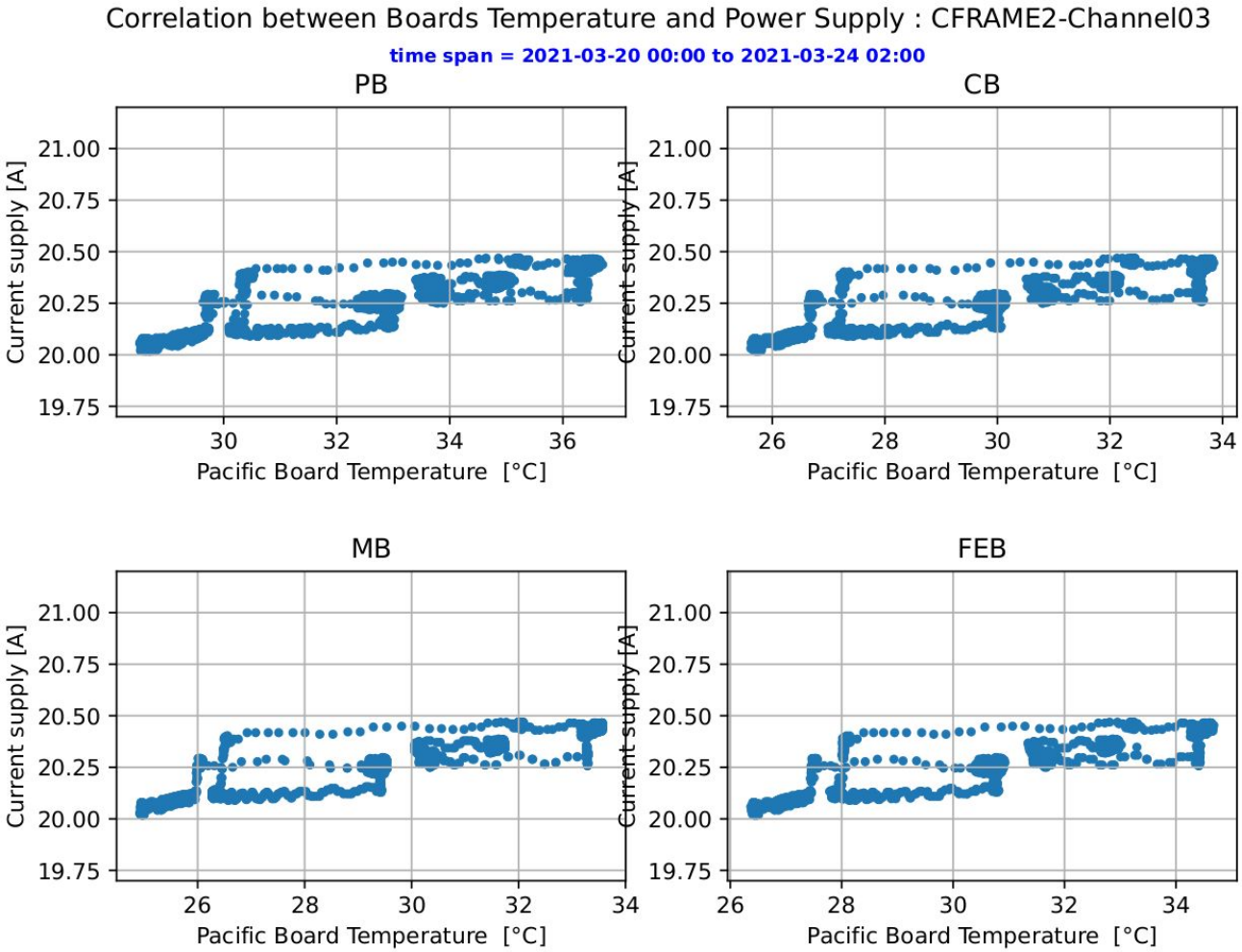
Constant Voltage

↓ P=UxI

Current value

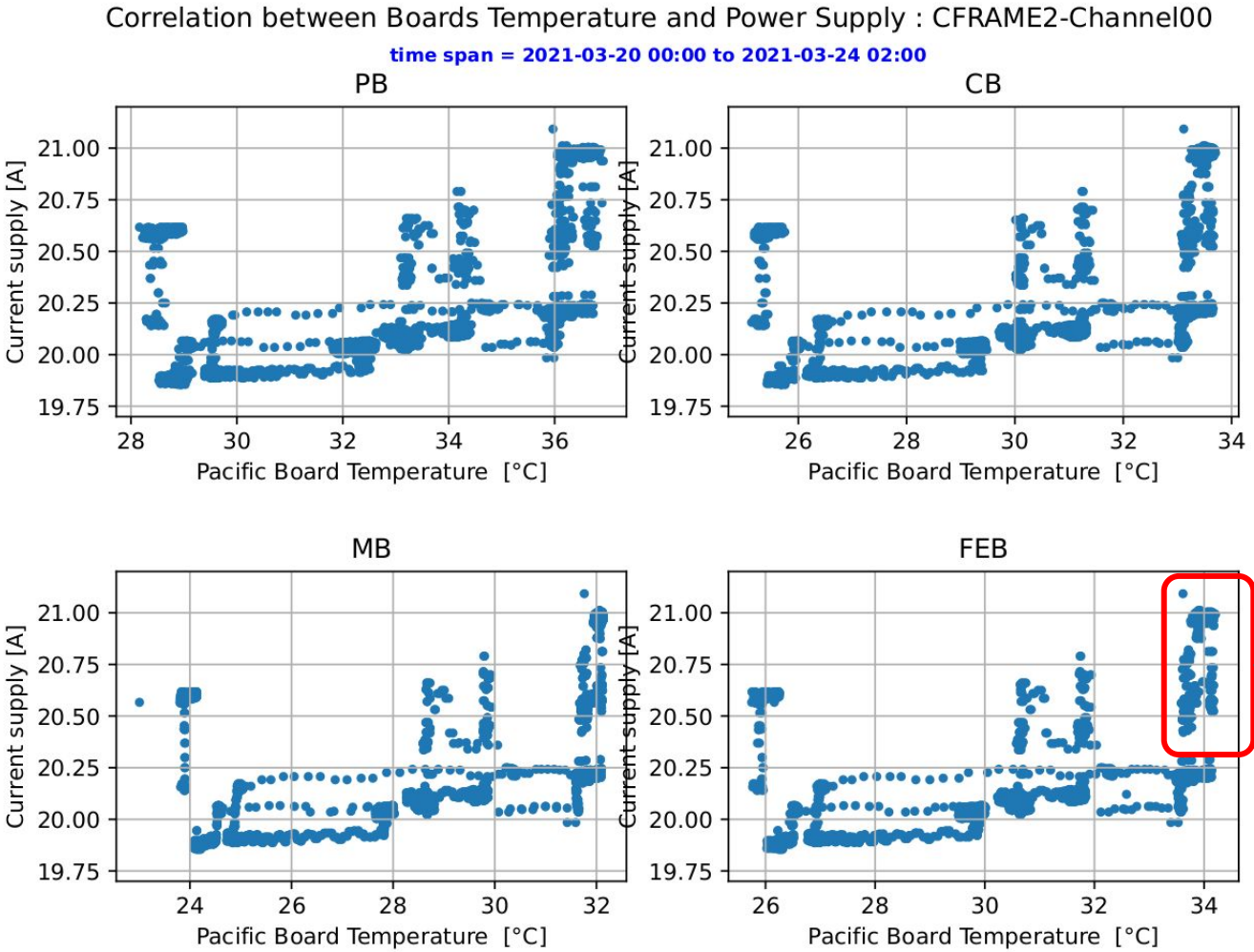
~

Power Consumption



-> same for other channels Q0

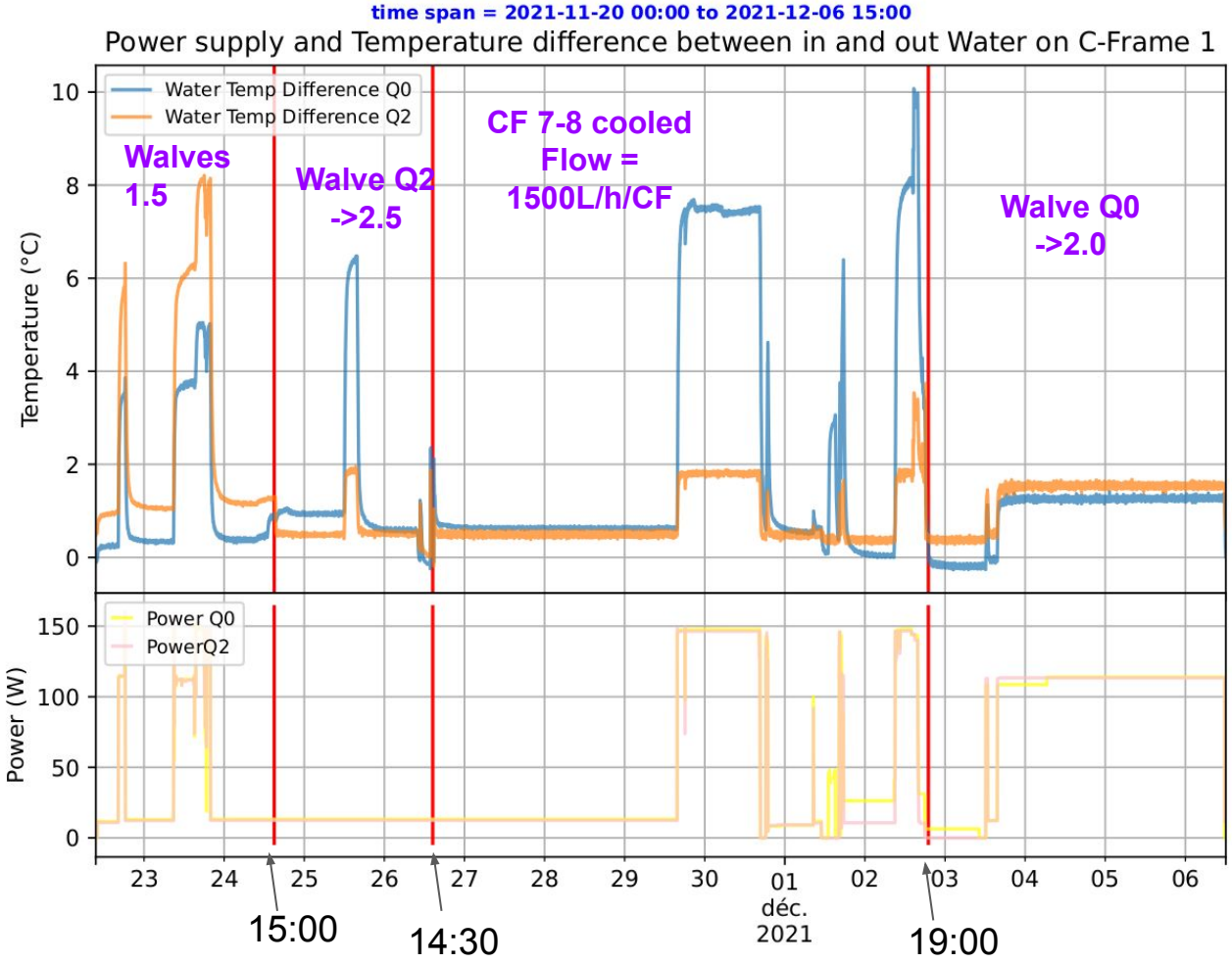
-> Very small and “weird” correlation

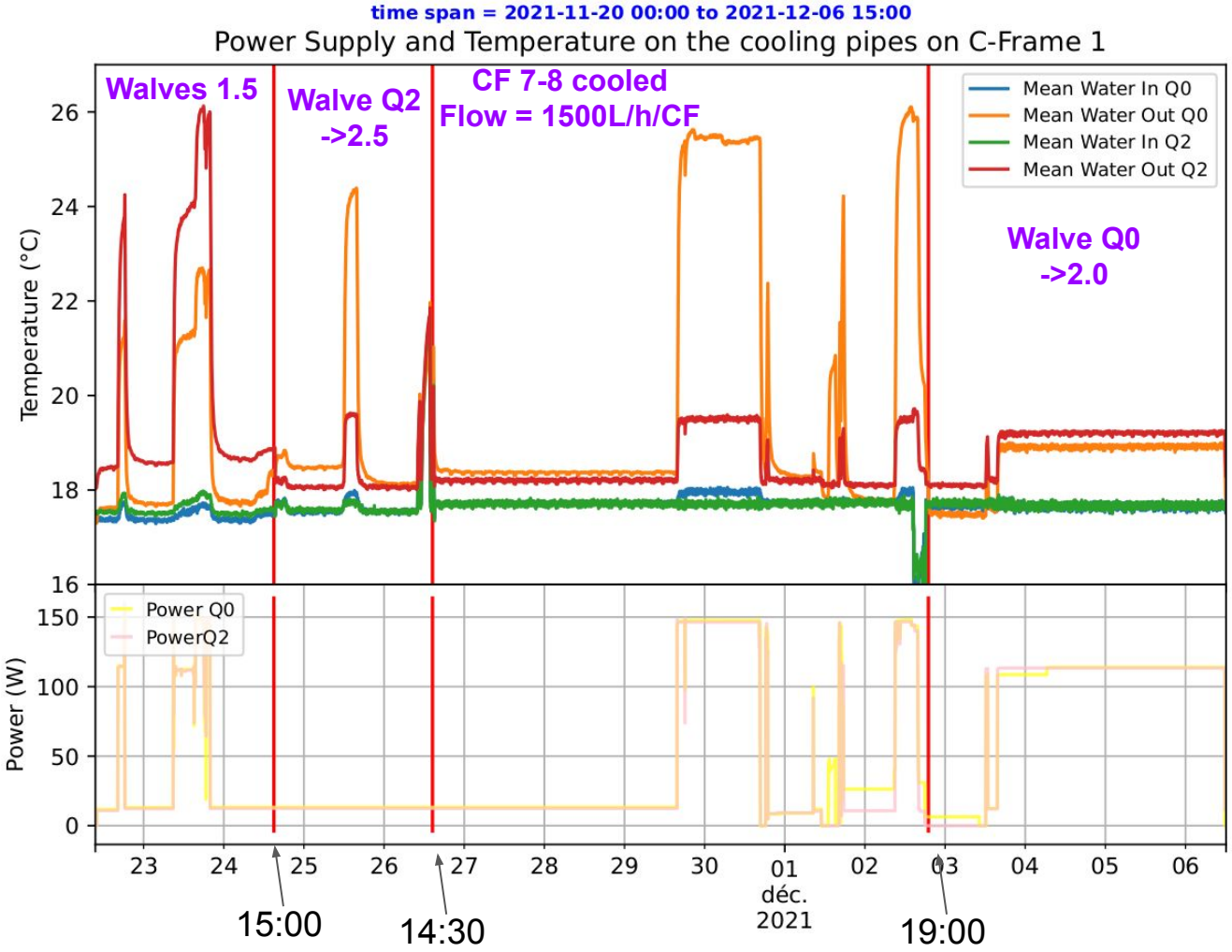


-> same for other channels Q2

This correspond to the peaks we see in the PowerConsumption that exist only for Q2 -> probably due to some tests

In The Pit


time span = 2021-11-20 00:00 to 2021-12-06 15:00
Power supply and Temperature difference between in and out Water on C-Frame 1
Water Temp Difference Q0
Water Temp Difference Q2
Walves 1.5
Walve Q2 ->2.5
CF 7-8 cooled Flow = 1500L/h/CF
Walve Q0 ->2.0
Temperature (°C)
Power Q0
PowerQ2
Power (W)
15:00
14:30
19:00
déc. 2021

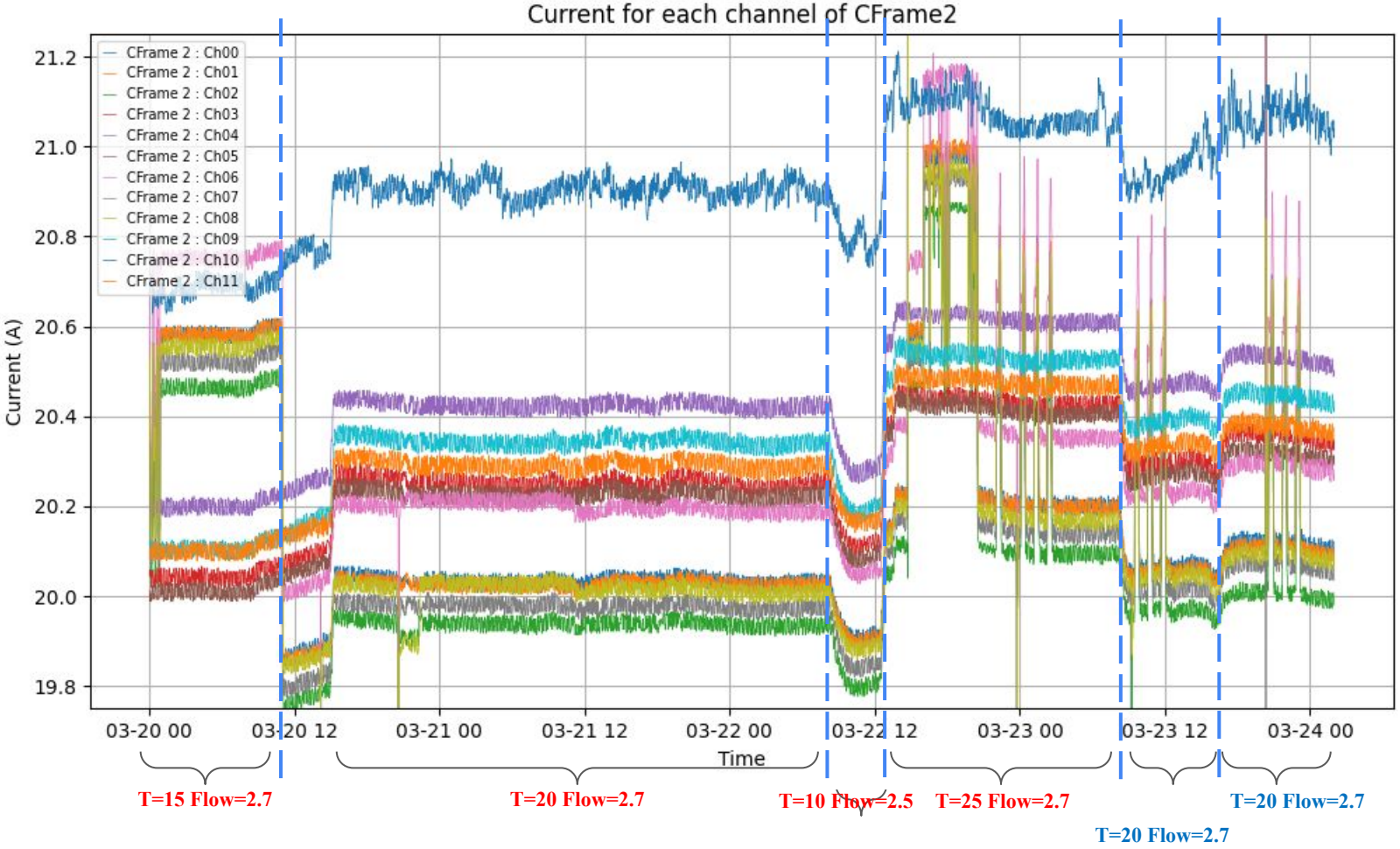

time span = 2021-11-20 00:00 to 2021-12-06 15:00
Power Supply and Temperature on the cooling pipes on C-Frame 1
Walves 1.5
Walve Q2
->2.5
CF 7-8 cooled
Flow = 1500L/h/CF
Walve Q0
->2.0
Mean Water In Q0
Mean Water Out Q0
Mean Water In Q2
Mean Water Out Q2
Temperature (°C)
Power Q0
PowerQ2
Power (W)
15:00
14:30
19:00
déc.
2021

While looking at the “plateau” in each of the four period, we can have a mean of the power and temperatures

Period	Init	Final	Power(Q0) [W]	Tin(Q0) [°C]	Tout(Q0) [°C]	DeltaT(Q0) [°C]
1	2021-11-23 10:00:00	2021-11-23 15:00:00	110,8±0,5	17,51±0,05	21,22±0,09	3,70±0,06
2	2021-11-25 13:00:00	2021-11-25 15:30:00	NO DATA	17,92±0,02	24,19±14	6,27±0,13
3	2021-11-29 18:00:00	2021-11-30 16:00:00	147,05±2,04	17,96±0,04	25,42±0,1	7,47±0,09
4	2021-12-03 18:00:00	2021-12-06 10:00:00	113,6±0,5	17,66±00,4	18,92±0,03	1,26±0,03

Period	Init	Final	Power(Q2) [W]	Tin(Q2) [°C]	Tout(Q2) [°C]	DeltaT(Q2) [°C]
1	2021-11-23 10:00:00	2021-11-23 15:00:00	109,8±1,4	17,72±0,04	23,78±0,2	6,07±0,17
2	2021-11-25 13:00:00	2021-11-25 15:30:00	NO DATA	17,74±0,03	19,59±0,02	1,85±0,03
3	2021-11-29 18:00:00	2021-11-30 16:00:00	145,0±3,7	17,70±0,04	19,5±0,03	1,80±0,03
4	2021-12-03 18:00:00	2021-12-06 10:00:00	112,50±0,15	17,67±0,04	19,21±0,02	1,54±0,04

Backup


Current for each channel of CFrame2
CFrame 2 : Ch00
CFrame 2 : Ch01
CFrame 2 : Ch02
CFrame 2 : Ch03
CFrame 2 : Ch04
CFrame 2 : Ch05
CFrame 2 : Ch06
CFrame 2 : Ch07
CFrame 2 : Ch08
CFrame 2 : Ch09
CFrame 2 : Ch10
CFrame 2 : Ch11
Current (A)
21.2
21.0
20.8
20.6
20.4
20.2
20.0
19.8
03-20 00
03-20 12
03-21 00
03-21 12
03-22 00
03-22 12
03-23 00
03-23 12
03-24 00
Time
T=15 Flow=2.7
T=20 Flow=2.7
T=10 Flow=2.5
T=25 Flow=2.7
T=20 Flow=2.7
T=20 Flow=2.7