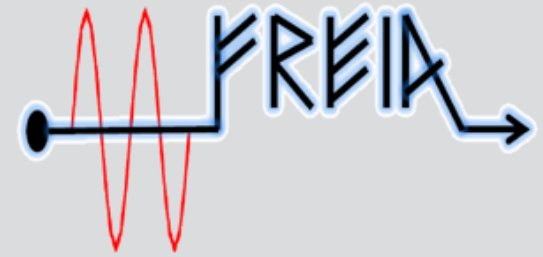




UPPSALA
UNIVERSITET



ESS weekly meeting (2022 W17)

A. Miyazaki, et al



W16 & W17 progress / W18 plan



week		W16											
date		MON		TUE		WED		THU		FRI		SAT	SUN
		18-apr		19-apr		20-apr		21-apr		22-apr		23-apr	24-apr
		m	a	m	a	m	a	m	a	m	a		
present CM	CM10	Easter holidays		replace the tube back						RF calibration			
next CM	CM11												

We are here

week		W17											
date		MON		TUE		WED		THU		FRI		SAT	SUN
		25-apr		26-apr		27-apr		28-apr		29-apr		30-apr	01-maj
		m	a	m	a	m	a	m	a	m	a		
present CM	CM10	fix Electrosys	coupler warm conditioning	LN cooling		LHe cooling		4K filling		coupler cold conditioning		thermalization	
next CM	CM11												
next next CM	CM12	Preparation at Orsay											

Surprise!

Goal of the test

week		W18											
date		MON		TUE		WED		THU		FRI		SAT	SUN
		02-maj		03-maj		04-maj		05-maj		06-maj		07-maj	08-maj
		m	a	m	a	m	a	m	a	m	a		
present CM	CM10	2K pumping	RF calibration	tuner test		MP conditioning		heat load measurement		start warming up		break insulation vacuum	
next CM	CM11	doorknob mounting											
next next CM	CM12	preparation at Orsay											

Expected departure of CM10: May 16th Monday (W20)

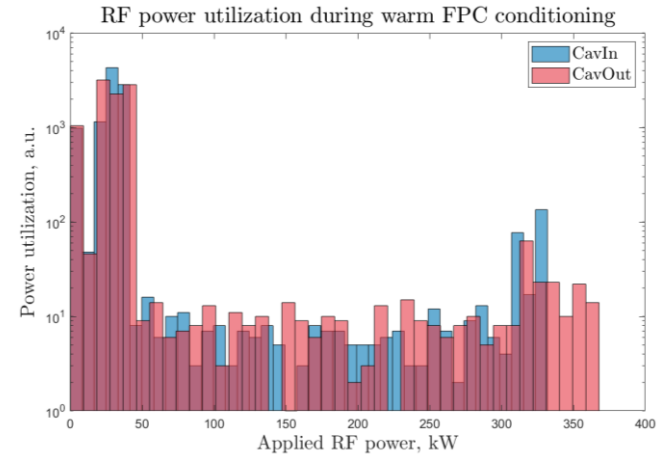
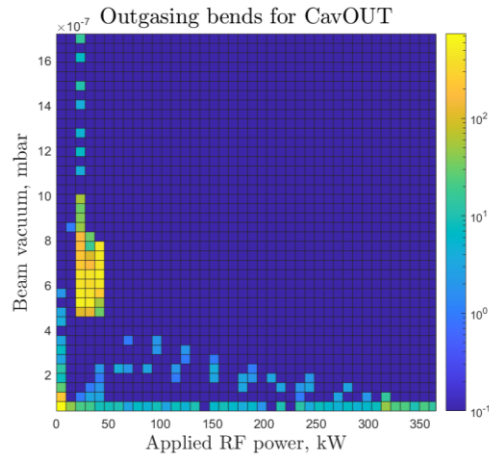
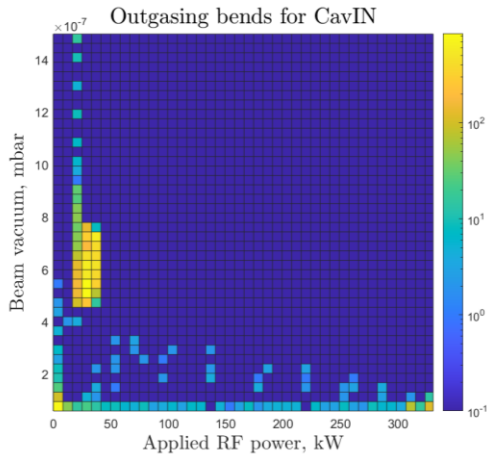
- The ESS shock sensors are mounted on CM09 and shipped to Orsay
- FREIA is still keeping Orsay's shock sensors which came with CM11

Shall we send them back to Orsay?

Will Orsay send the ESS sensors back to us for CM10 (W20)?

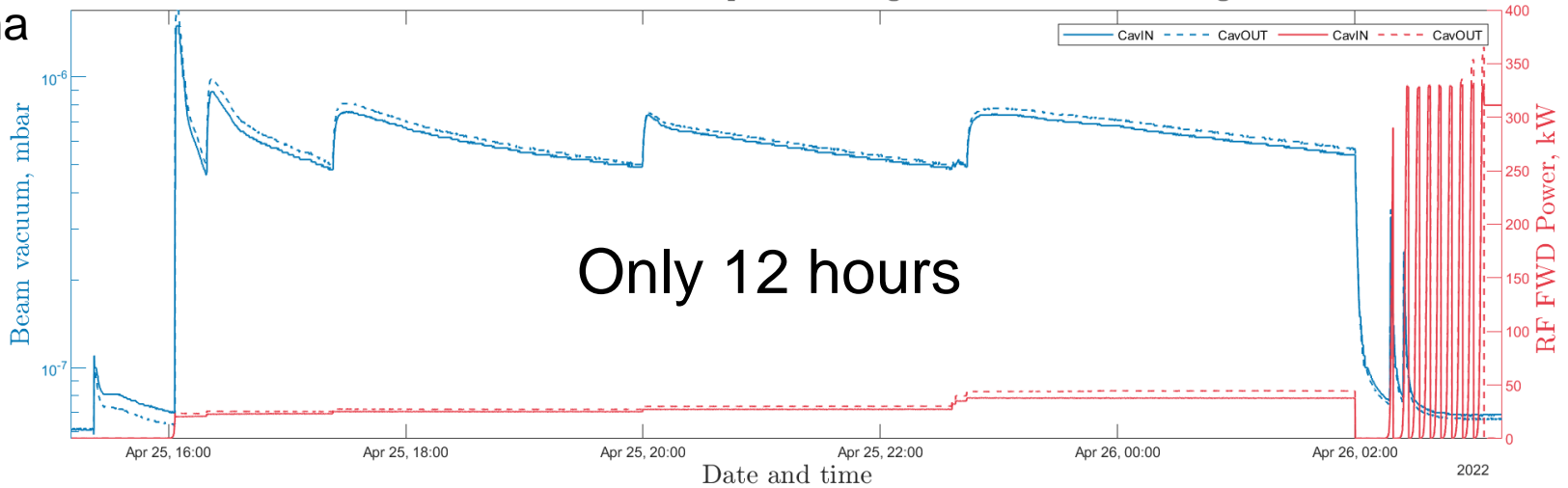


Warm coupler conditioning was quick



Courtesy
Mysha

Beam vacuum and RF FWD power during warm FPC conditioning



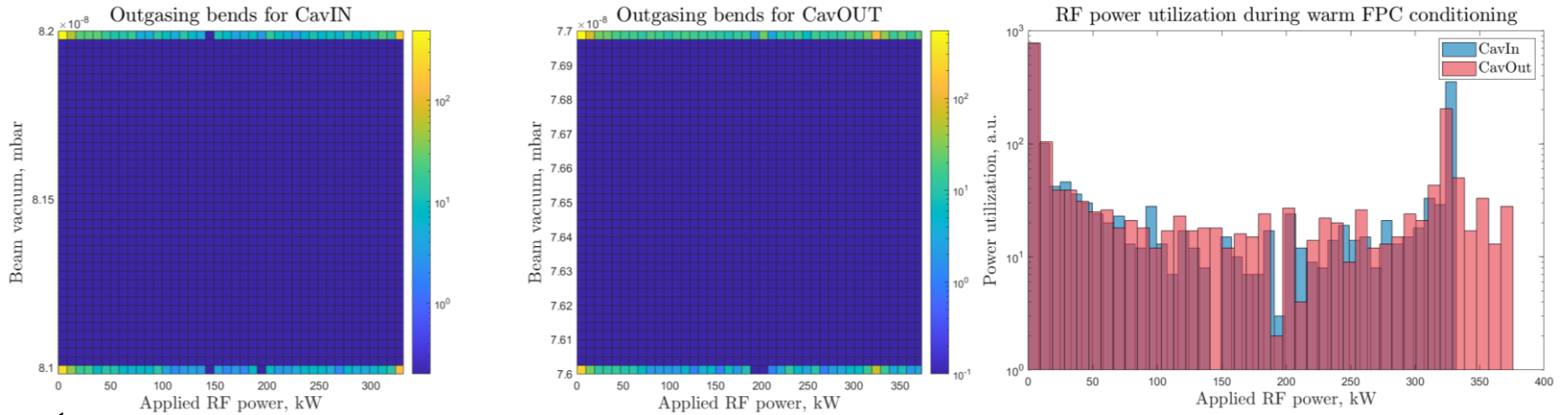
Only 12 hours

LLRF pulse width [us]



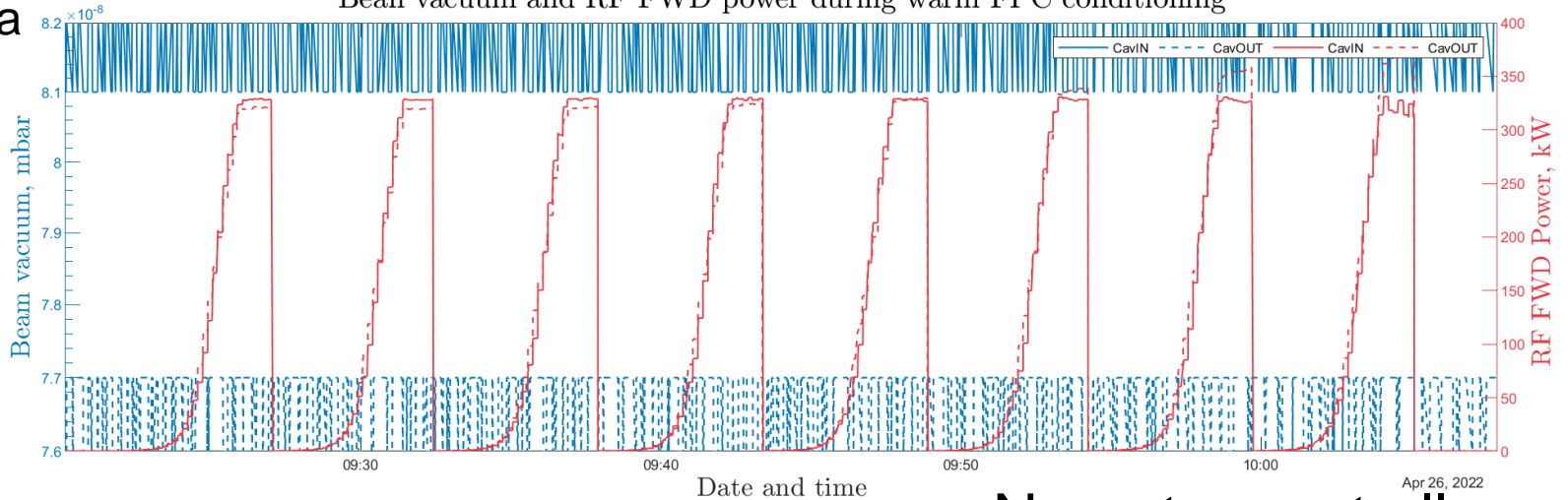


Double checked...



Courtesy
Mysha

Beam vacuum and RF FWD power during warm FPC conditioning



LLRF pulse width [us]

No out gas at all



Why? Baseline vacuum was good ($8e-8$ mbar)



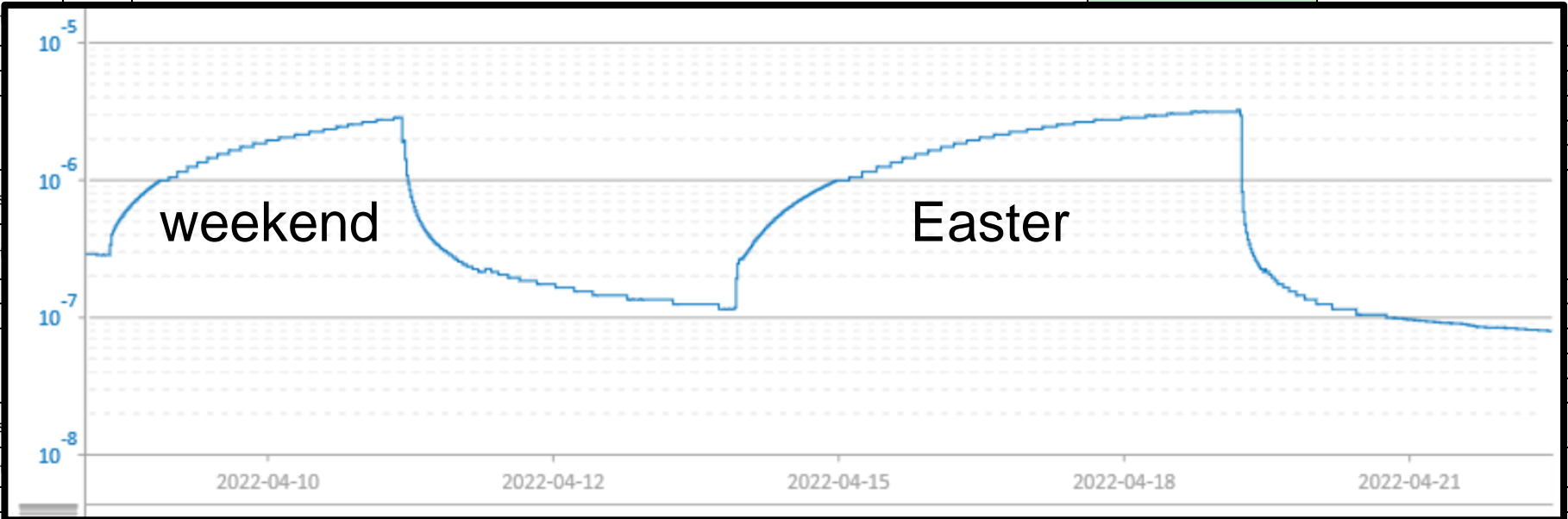
week		W14													
date		MON		TUE		WED		THU		FRI		SAT	SUN		
		04-apr		05-apr		06-apr		07-apr		08-apr		09-apr	10-apr		
		m	a	m	a	m	a	m	a	m	a				
previous CM	CM09	waiting in the box				preparing report				departure to Orsay					
present CM	CM10	fix LT01 with Matthieu		move into the bunker	cryogenic connection	beam vacuum connection		insulation vacuum	vacuum pumping		angle valve closed				
next CM	CM11	transport from Orsay								arrival at UU					
week		W15													
date		MON		TUE		WED		THU		FRI		SAT	SUN		
		11-apr		12-apr		13-apr		14-apr		15-apr		16-apr	17-apr		
		m	a	m	a	m	a	m	a	m	a				
present CM	CM10	vacuum pumping (power station is occupied by tetrode tube test)						Easter holidays							
next CM	CM11		reception test (VNA)		reception test (LEMO)										
week		W16													
date		MON		TUE		WED		THU		FRI		SAT	SUN		
		18-apr		19-apr		20-apr		21-apr		22-apr		23-apr	24-apr		
		m	a	m	a	m	a	m	a	m	a				
present CM	CM10	Easter holidays		replace the tube back						RF calibration					
next CM	CM11														
week		W17													
date		MON		TUE		WED		THU		FRI		SAT	SUN		
		25-apr		26-apr		27-apr		28-apr		29-apr		30-apr	01-maj		
		m	a	m	a	m	a	m	a	m	a				
present CM	CM10	fix Electrosys	coupler warm conditioning		LN cooling		LHe cooling		4K filling		coupler cold conditioning		thermalization		
next CM	CM11														
next next CM	CM12	Preparation at Orsay													

Thanks to the holidays?

Why? Baseline vacuum was good ($8e-8$ mbar)



week		W14											
date		MON 04-apr		TUE 05-apr		WED 06-apr		THU 07-apr		FRI 08-apr		SAT 09-apr	SUN 10-apr
		m	a	m	a	m	a	m	a	m	a		
previous CM	CM09	waiting in the box				preparing report				departure to Orsay			
present CM	CM10	fix LT01 with Matthieu		move into the bunker	cryogenic connection	beam vacuum connection		insulation vacuum		vacuum pumping		angle valve closed	



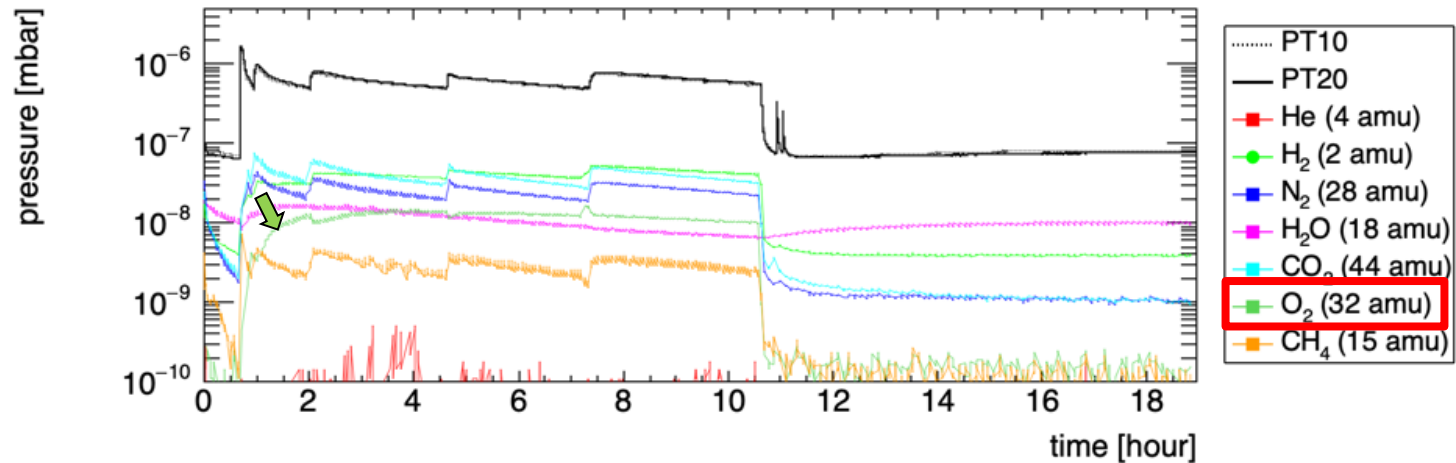
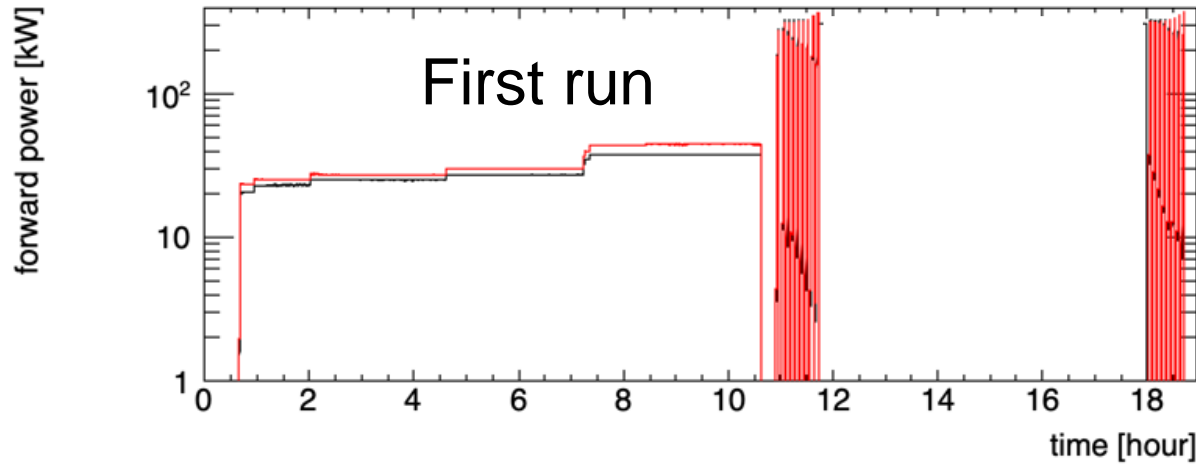
week		W17											
date		MON 25-apr		TUE 26-apr		WED 27-apr		THU 28-apr		FRI 29-apr		SAT 30-apr	SUN 01-maj
		m	a	m	a	m	a	m	a	m	a		
present CM	CM10	fix Electrosys	coupler warm conditioning		LN cooling		LHe cooling		4K filling		coupler cold conditioning		thermalization
next CM	CM11												
next next CM	CM12	Preparation at Orsay											

But we closed the angle valves over the holidays

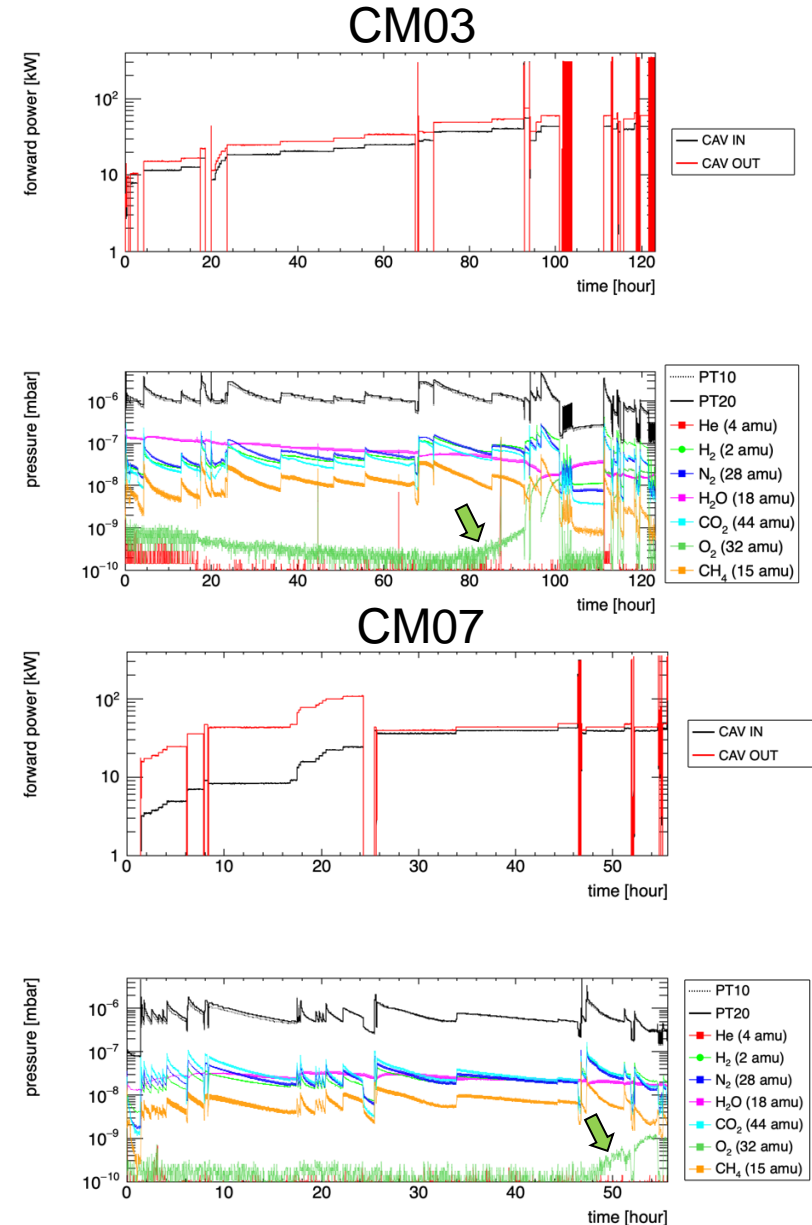
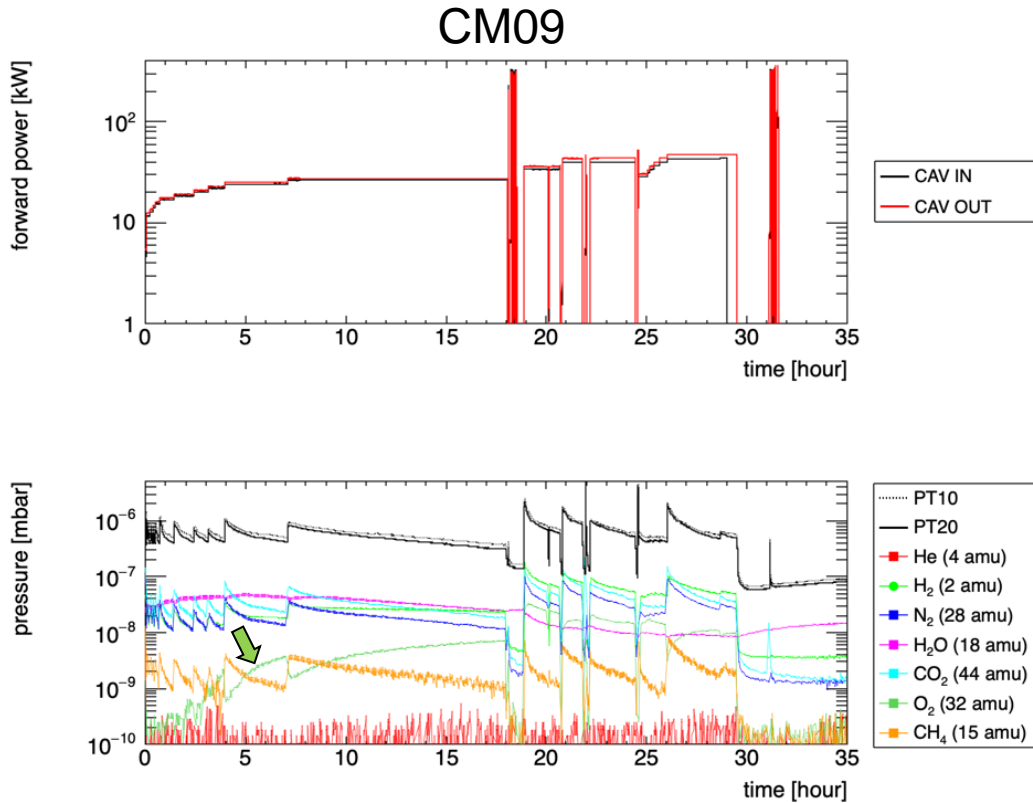
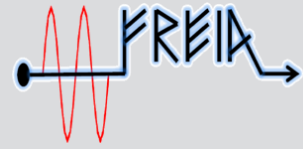
O₂-like signal was observed in CM10



Double check



Cf. CM09's warm coupler conditioning



- The 32 amu signal (one candidate is O₂) appeared from the shortest pulse 50 us
- This signal is often observed in longer pulse length (>1 ms)
- This signal is anti-correlated to other molecules (H₂, CH₄, 28 amu, CO₂, ...)
- Any relation to the fast conditioning??

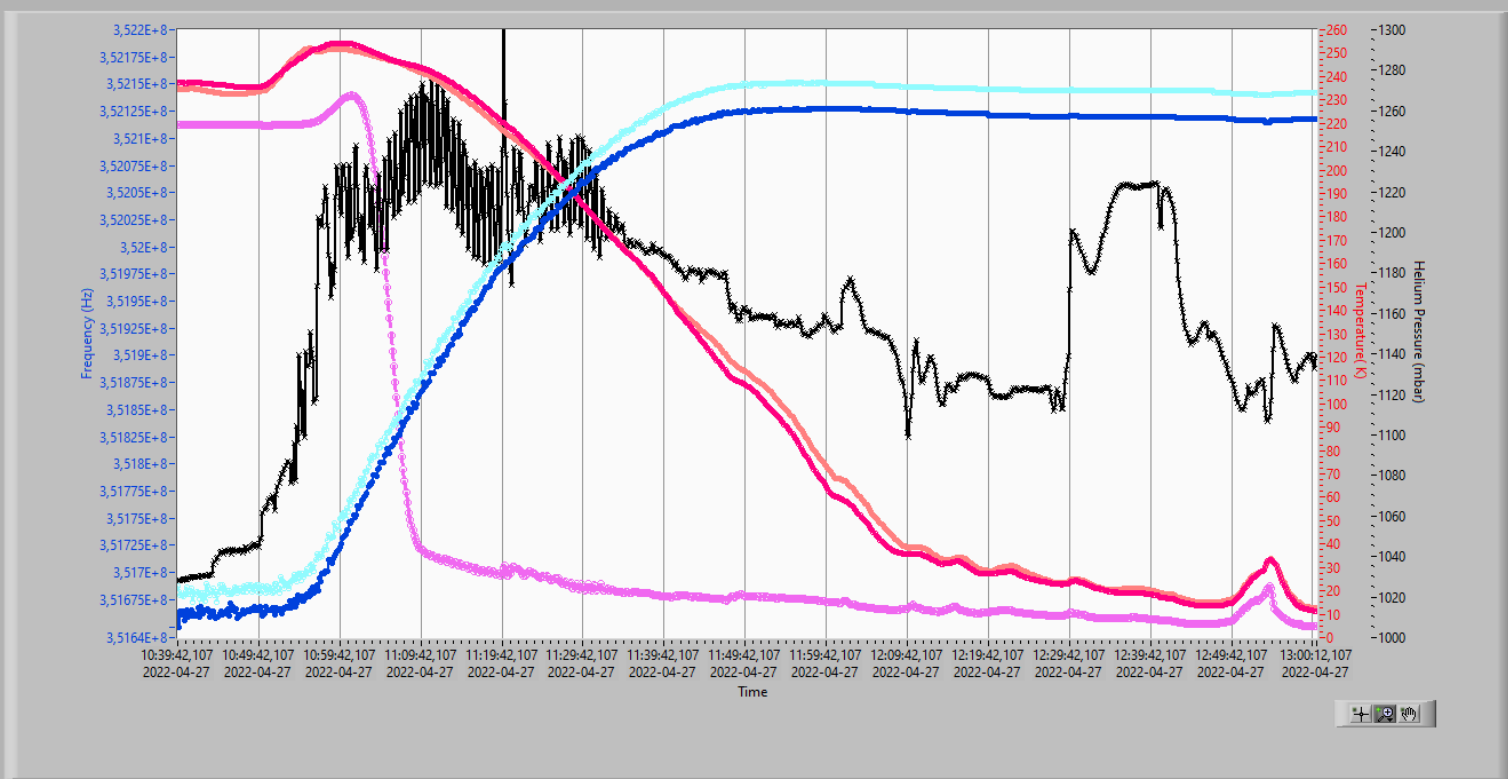


CM10: cooling down and f vs T

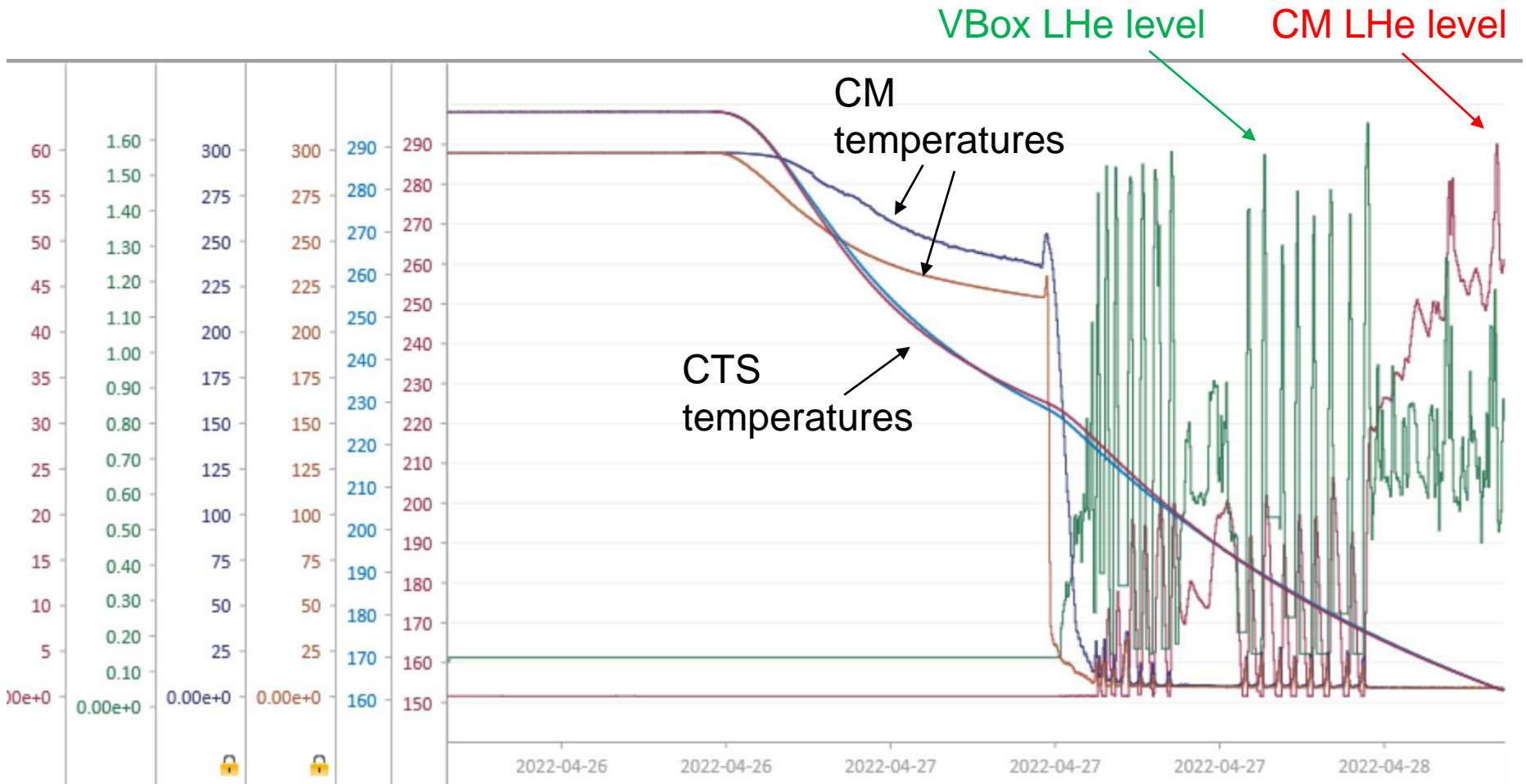


Setting | measurement | frequency vs. T record | frequency vs. Pressure record

- frequency_Cav1 (Hz)
- frequency_Cav2 (Hz)
- Temperature (Cav1)
- Temperature (Cav2)
- Helium pressure (mbar)
- Temperature (inlet)



CM10: cooling down summary



- Felix “Do you have a manual/checklist from Orsay for what you need to uninstall and re-install on the cryomodules after reception/before sending it to us? Or has the FREIA team developed something themselves?”
- We had colleagues from IJCLab Orsay in the beginning (CM02) and learned what to do with the cryomodules
- We have not written a manual

VR ESS IK WP2

- Contribution to installation and technical commissioning at ESS
- Brief manual + physical visit of some of us (?)
- However, we do not have complete knowledge of what should be done in the machine

