

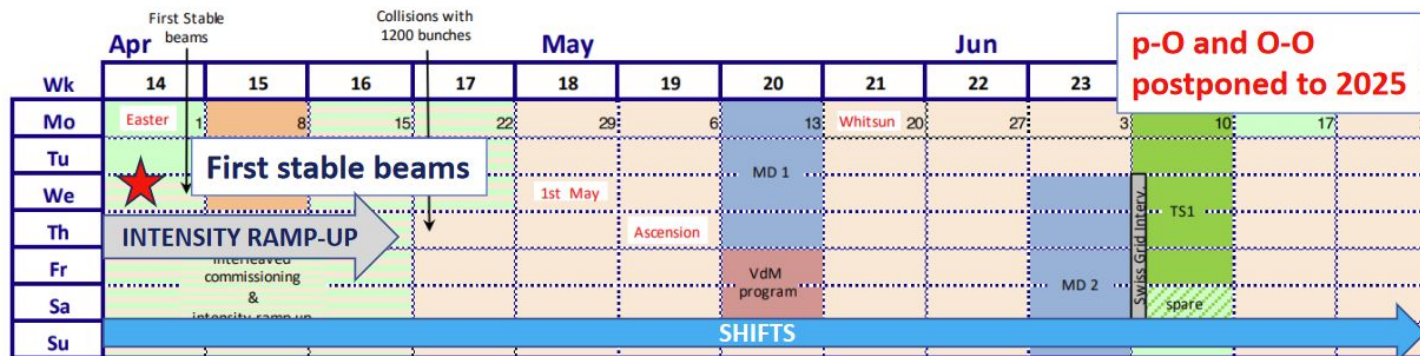
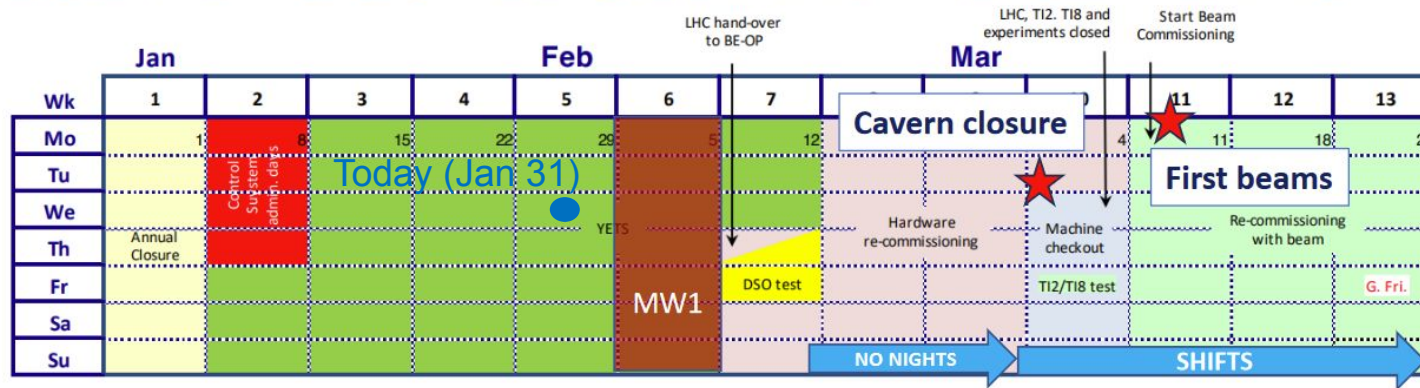


# TOF status update

M. Colocci and M. Giacalone on behalf of the TOF team

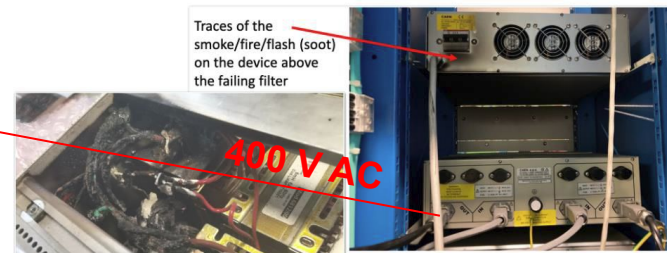
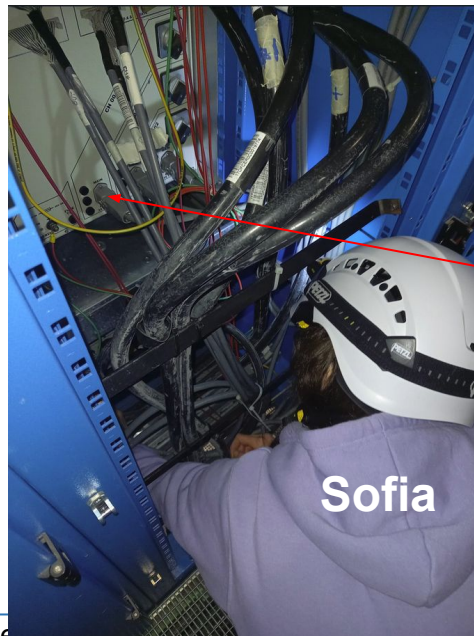
31/Jan/2024

# 2024 LHC SCHEDULE AND ALICE PLANS



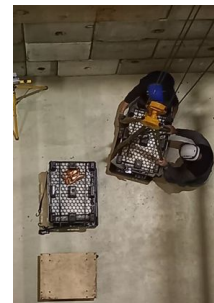
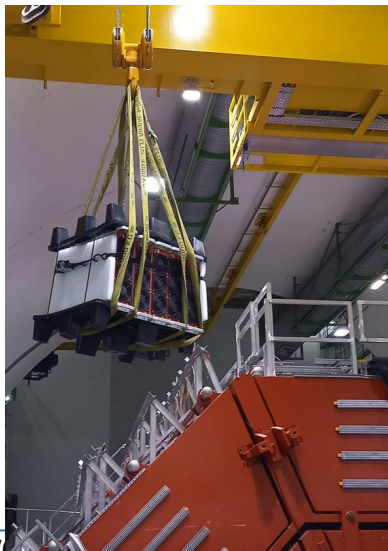
# Notch Filters refurbishment

- TOF has 24 Notch Filter units (CAEN A3000NF) filtering the three phase (400 V) supplying our 48 V power supplies ("Maciste") in the cavern (balconies) + 2 spares
- All units have been refurbished in Viareggio in Dec and Jan, since some capacitors reached the EOL (provoking a start of fire x2 in ATLAS in the last few years):  
replacement of EOL caps done, fans replaced and overheating protection added → DONE



# Notch Filters refurbishment

- **All units re-installed** in the cavern last Friday Jan 26 and are **operational** (dismounted on Nov 27)
  - CAEN reports (informally) that:
    - **ALICE-TOF**: 50% caps were still intact\*, **50% caps visible deformed (heat)**
    - **ATLAS** (x2-x3 power than TOF): 10% caps still intact\*, 90% visible deformed
- \*those intact showed however a capacitance value degraded



1/6/2024



[illegible]

- TOF powered ON on Monday
- 5 TRMs replaced end of 2023:
  - ☒ ok
  - ☐ nok (when HV ON)
- ☒ 4 TRMs back ON  
(hosting crate unclogged)
- Need to be checked (at least):
  - TRMs (2) which failed the SOR
  - TRM 29-4

- TOF powered ON on Monday
- 5 TRMs replaced end of 2023:
 

ok	nok (when HV ON)
----	------------------

☐ 4 TRMs back ON  
(hosting crate unclogged)

- Need to be checked (at least):
  - TRMs (2) which failed the SOR
  - TRM 29-4\*

\* when powered-on, DRM29 become unstable (?) i.e.:

[illegible]

Info	14:34:04.711	alitofsrv	ROE29	RoE: all done, SOR sent, check DAQ status on crate 29
ERROR	14:34:15.880	alitofsm07	VME29	(tofSpy) BUG link error on RDstatus (status=-4) failed link recovery -2 -- no access to VME
Info	14:34:16.012	alitofsm07	DIM29	(crateEval) UPDATING from READY to MIXED

Time		Level	Severity	Hostname	Rolename	Username	System	Facility	Detector	Partition	Run	ErrCode	Message	Query
min.	-20 min	match						%29%						



- TOF powered ON on Monday
- 5 TRMs replaced end of 2023:
  - ☒ ok
  - ☐ nok (when HV ON)
- ☒ 4 TRMs back ON (hosting crate unclogged)
- Need to be checked (at least):
  - TRMs (2) which failed the SOR
  - TRM 29-4
  - Crate 21 unstable: TRMs (all) do not get configured (sporadically at the EOR)

[illegible]

# FEE (30/01/2024)



Crate	Status	DAQ	IRQ #	Average MB/s	Inst. MB/s	RDO Eff %	SOX	Last	EOX
00	RE	ON	304	7.58	0.00	99.99	12:34:27	12:34:47	12:15:29
01	RE	ON	380	9.53	0.00	99.99	12:34:27	12:34:47	12:15:29
02	RE	ON	338	8.42	0.00	99.99	12:34:27	12:34:47	12:15:37
03	RE	ON	304	7.63	0.00	99.99	12:34:27	12:34:47	12:15:29
04	RE	ON	325	8.53	0.00	99.99	12:34:27	12:34:46	12:15:23
05	RE	ON	360	9.00	0.00	99.99	12:34:27	12:34:47	12:15:29
06	RE	ON	295	7.00	0.00	100.00	12:34:26	12:34:47	12:15:29
07	RE	ON	356	8.95	0.00	99.99	12:34:27	12:34:47	12:15:29
08	RE	ON	331	8.30	0.00	99.99	12:34:27	12:34:47	12:15:29
09	RE	ON	354	8.85	0.00	99.99	12:34:27	12:34:47	12:15:37
10	RE	ON	325	8.10	0.00	99.99	12:34:27	12:34:47	12:15:23
11	RE	ON	331	8.25	0.00	99.99	12:34:27	12:34:47	12:15:29
12	RE	ON	336	7.95	0.00	99.99	12:34:26	12:34:47	12:15:29
13	RE	ON	369	9.26	0.00	99.99	12:34:27	12:34:47	12:15:37
14	RE	ON	300	7.10	0.00	99.99	12:34:26	12:34:47	12:15:29
15	RE	ON	361	9.05	0.00	99.99	12:34:27	12:34:47	12:15:37
16	RE	ON	343	8.60	0.00	99.99	12:34:27	12:34:47	12:15:29
17	RE	ON	365	9.11	0.00	99.99	12:34:27	12:34:47	12:15:37
18	RE	ON	307	7.25	0.00	99.99	12:34:26	12:34:47	12:15:29
19	RE	ON	436	10.95	0.00	99.99	12:34:27	12:34:47	12:15:29
20	RE	ON	294	7.00	0.00	99.99	12:34:26	12:34:47	12:15:29
21	RE	ON	338	8.42	3.60	99.99	12:34:27	12:34:47	01:00:00
22	RE	ON	294	7.35	0.00	99.99	12:34:27	12:34:47	12:15:29
23	RE	ON	355	8.90	0.00	99.99	12:34:27	12:34:47	12:15:29
24	RE	ON	329	8.25	0.00	99.99	12:34:27	12:34:47	12:15:29
25	RE	ON	309	7.65	0.00	99.99	12:34:27	12:34:47	12:15:29
26	RE	ON	476	12.05	0.00	99.99	12:34:27	12:34:47	12:15:29
27	RE	ON	296	7.40	0.00	99.99	12:34:27	12:34:47	12:15:29
28	RE	ON	332	8.26	0.00	99.99	12:34:27	12:34:47	12:15:29
29	RE	ON	331	8.25	0.00	99.99	12:34:27	12:34:47	12:15:29
30	RE	ON	332	8.26	0.00	99.99	12:34:27	12:34:47	12:15:29
31	RE	ON	332	8.26	0.00	99.99	12:34:27	12:34:47	12:15:29
32	RE	ON	342	8.53	0.00	100.00	12:34:27	12:34:47	12:15:23
33	RE	ON	335	8.37	0.00	99.99	12:34:27	12:34:47	12:15:29
34	RE	ON	299	7.10	0.00	99.99	12:34:26	12:34:47	12:15:29
35	RE	ON	547	13.89	0.00	99.99	12:34:27	12:34:47	12:15:29

Crate	Status	DAQ	IRQ #	Average MB/s	Inst. MB/s	RDO Eff %	SOX	Last	EOX
36	RE	ON	379	9.45	0.00	99.99	12:34:27	12:34:47	12:15:29
37	RE	ON	418	10.50	0.00	99.99	12:34:27	12:34:47	12:15:29
38	RE	ON	335	8.35	0.00	100.00	12:34:27	12:34:47	12:15:29
39	RE	ON	364	9.05	0.00	99.99	12:34:27	12:34:47	12:15:29
40	RE	ON	322	8.42	0.00	99.99	12:34:27	12:34:46	12:15:29
41	RE	ON	368	9.16	0.00	99.99	12:34:27	12:34:47	12:15:29
42	RE	ON	353	8.35	0.00	99.99	12:34:26	12:34:47	12:15:29
43	RE	ON	340	8.95	0.00	99.99	12:34:27	12:34:46	12:15:29
44	RE	ON	265	6.24	0.00	99.99	12:34:26	12:34:47	12:15:29
45	RE	ON	356	8.90	0.00	99.99	12:34:27	12:34:47	12:15:29
46	RE	ON	327	7.76	0.00	99.99	12:34:26	12:34:47	12:15:37
47	RE	ON	337	7.95	0.00	99.99	12:34:26	12:34:47	12:15:29
48	RE	ON	303	7.25	0.00	99.99	12:34:26	12:34:47	12:15:29
49	RE	ON	367	9.21	0.00	99.99	12:34:27	12:34:47	12:15:29
50	RE	ON	338	8.42	0.00	99.99	12:34:27	12:34:47	12:15:37
51	RE	ON	367	9.21	0.00	99.99	12:34:27	12:34:47	12:15:29
52	RE	ON	301	7.47	0.00	99.99	12:34:27	12:34:47	12:15:29
53	RE	ON	333	8.26	0.00	99.99	12:34:27	12:34:47	12:15:29
54	RE	ON	281	6.95	0.00	99.99	12:34:27	12:34:47	12:15:29
55	RE	ON	271	6.40	0.00	99.99	12:34:26	12:34:47	12:15:29
56	RE	ON	268	6.29	0.00	99.99	12:34:26	12:34:47	12:15:29
57	RE	ON	422	10.10	0.00	100.00	12:34:26	12:34:47	12:15:29
58	RE	ON	278	6.57	0.00	99.99	12:34:26	12:34:47	12:15:29
59	RE	ON	330	8.20	0.00	99.99	12:34:27	12:34:47	12:15:29
60	RE	ON	302	7.15	0.00	99.99	12:34:26	12:34:47	12:15:29
61	RE	ON	333	8.32	0.00	99.99	12:34:27	12:34:47	12:15:37
62	RE	ON	394	9.35	0.00	99.99	12:34:26	12:34:47	12:15:29
63	RE	ON	314	7.79	0.00	99.99	12:34:27	12:34:47	12:15:29
64	RE	ON	304	7.50	0.00	99.99	12:34:26	12:34:46	12:15:29
65	RE	ON	323	7.59	0.00	99.99	12:34:27	12:34:46	12:15:37
66	RE	ON	332	8.74	0.00	99.99	12:34:27	12:34:46	12:15:37
67	RE	ON	370	9.68	0.00	99.99	12:34:27	12:34:46	12:15:29
68	RE	ON	669	17.42	0.00	45.27	12:34:27	12:34:47	12:15:29
69	RE	ON	361	9.00	0.00	100.00	12:34:27	12:34:47	12:15:37
70	RE	ON	322	8.42	0.00	99.99	12:34:27	12:34:46	12:15:29
71	RE	ON	401	10.58	0.00	99.99	12:34:27	12:34:46	12:15:29

Batch of noisy channels? TBC

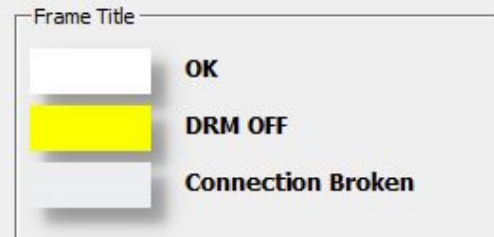
... then better control with the QC (once running with AliECS)



# FEE (30/01/2024)

## 3.3 V supplying the readout (read by the DRM2)

	DRM00	DRM01	DRM02	DRM03		DRM00	DRM01	DRM02	DRM03
SM00	3.24	3.25	3.37	3.3	SM09	3.34	3.61	3.38	3.35
SM01	3.33	3.21	3.28	3.26	SM10	3.37	3.33	3.25	3.22
SM02	3.32	3.26	3.35	3.24	SM11	3.25	3.31	3.19	3.32
SM03	3.34	3.29	3.36	3.22	SM12	3.29	3.28	3.28	3.36
SM04	3.34	3.28	3.3	3.21	SM13	3.36	3.23	3.31	3.29
SM05	3.3	3.37	3.35	3.33	SM14	3.29	3.38	3.31	3.3
SM06	3.25	3.37	3.29	3.37	SM15	3.23	3.31	3.29	3.32
SM07	3.37	3.27	3.43	3.31	SM16	3.26	3.29	3.27	3.38
SM08	3.47	3.27	3.26	3.21	SM17	3.32	3.45	3.38	3.29



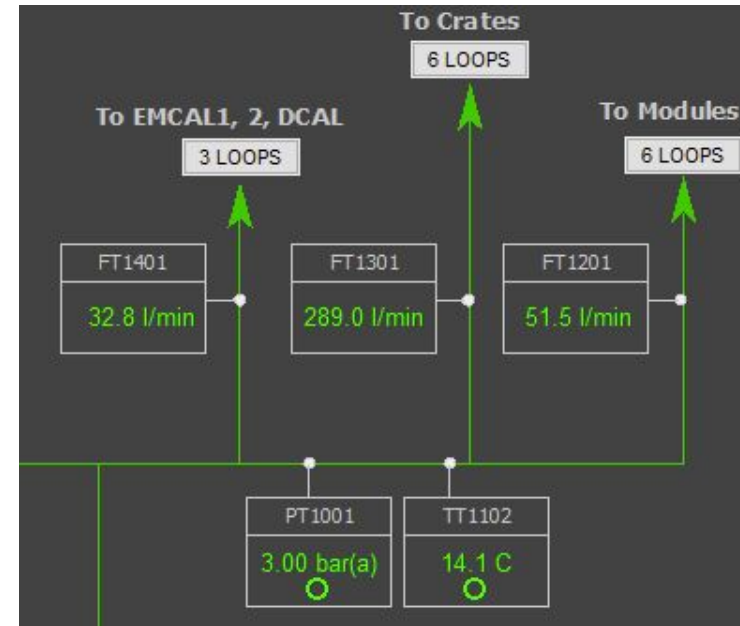
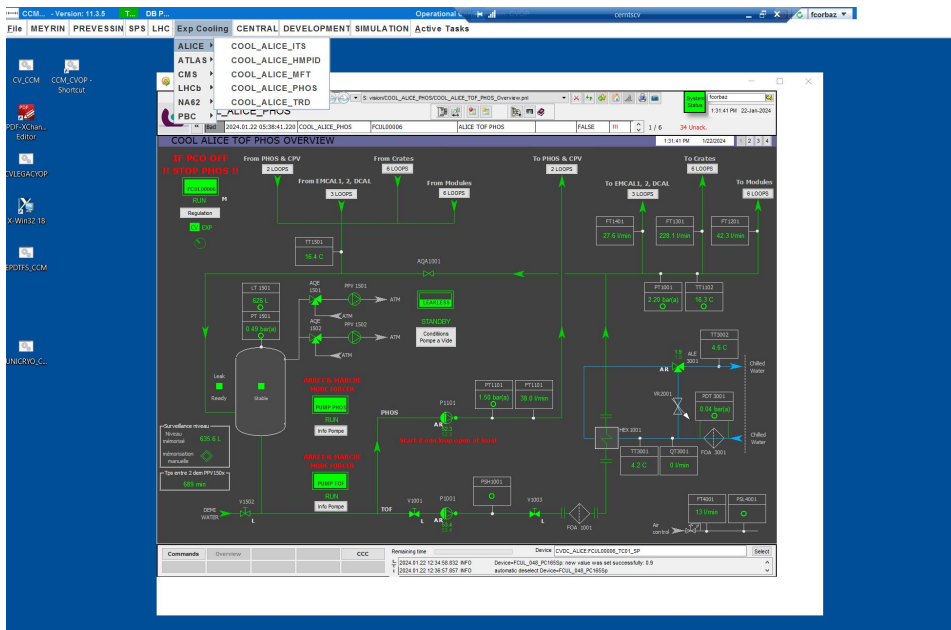
- Few channels to be better tuned
- DRM34 to be checked (A1500 not responding)

# Cooling (crates, FEAC)

Mainly on CERN-CV side:

- **Control cabinet replaced**

- Control available on the cerntscv server (upon request to Florian Corbaz, CERN-CV) → Temperature and loops status can be set also by users (not the pressure)
- Will be available on the TOF DCS as well, once WinCC 3.19 will be installed (DIP framework not available on 3.16) ← that's on our side!



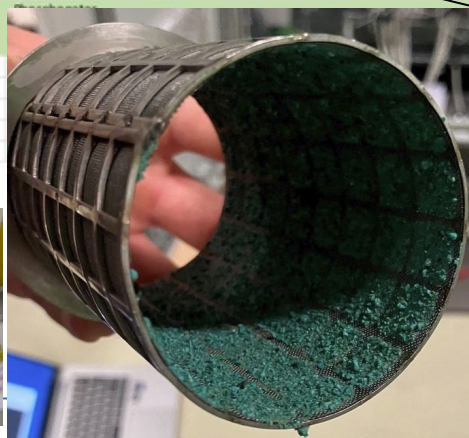
OK!

# Cooling (crates, FEAC)

Mainly on CERN-CV side:

- Control cabinet replaced
  - Control available on the cerntscv server (upon request to Florian Corbaz, CERN-CV) → Temperature and loops status can be set also by users (not the pressure)
  - Will be available on the TOF DCS as well, once WinCC 3.19 will be installed (DIP framework not available on 3.16) ← that's on our side!
- Corrosion inhibitor injected** (Cu and Al in the same plant). Chemical analysis of the water impurities done:
  - Cu concentration below 1 ppm (as required for a correct treatment)
  - Filters cleaned: quite some deposits (?)

0.8m <sup>3</sup>	AZ8102 mg/l	benzo mg/l	Dosage visé AZ8102	Injection AZ L	OR4401 mg/L	Dosage visé OR4401
2/2/2023		0				
2/7/2023		0				
2/16/2023						
1/10/2024			100	0.1		
1/17/2024						



Fe Total mg/L	Fer Soluble mg/L	Delta Fe	PO4	PO4 filtré	Cu mg/l	Alu mg/l	pH	conductivité μS/cm	Turbidité FTU
0.06	0.06	0	0		1.77	0.025	7.9	36.2	1
0.05	0.05	0	0.03		1.51		7.9	20.02	0
0.055	0.039	0.016	0.03	0.02	0.94	0.008	6.8	10.27	0
	0.021				0.54	0.068	7.3	3.6	
0.038	0.037		0.05	0.03	0.77	0.038	7.4	17.84	



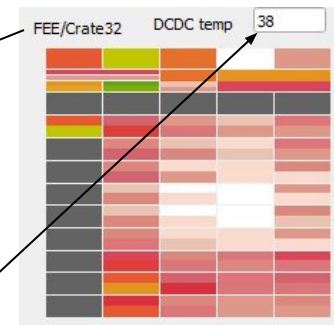


# Cooling (crates, FEAC)

Mainly on our side:

- 10 crates unclogged (Nov 2023) as already reported [here](#) (see also backup slides)
- Crate temperature fine after the restart of the cooling plant (22 Jan). To mention:
  - Crates 16, 19, 29, 35, 63 -> swap cooling IN/OUT to reestablish water circulation (that's "normal")
  - Crate 32 a bit warm (water almost stopped on 32-R, 32-L was unclogged on Nov) → not sure we can re-enter on L3 with the water now (TBC)

DCDC Temperature (click on the boxes to open the trend)



-5 °C gained increasing the total water flow to the crates:  
230 l/min → 290 l/m (by increasing the pressure 2.2 → 3 bar)

# Next steps

- Re-tune the detector also running this week with AliECS (& fix the issues spotted)  
→ Milestone Week next week: detectors on central systems (ECS, DCS, etc) in the mornings (starting from Wed), for the detector shifters/experts in the afternoon
- Compressors on EPNs need to be re-validated with long runs  
(for last tests with FEE on <https://its.cern.ch/jira/browse/O2-4362>)
- WinCC 3.16 needs to be upgraded to ver. 3.19 within Feb 16  
→ not yet planned, wish to do it asap (Andrea available)  
but confirmation from central DCS team needed (pending)
- CAEN mainframe (SY4527) firmware already upgraded (Mateusz, 2 weeks ago): that's to fix sporadic communication issues with the OPC server

## DCS Status – WinCC Upgrades

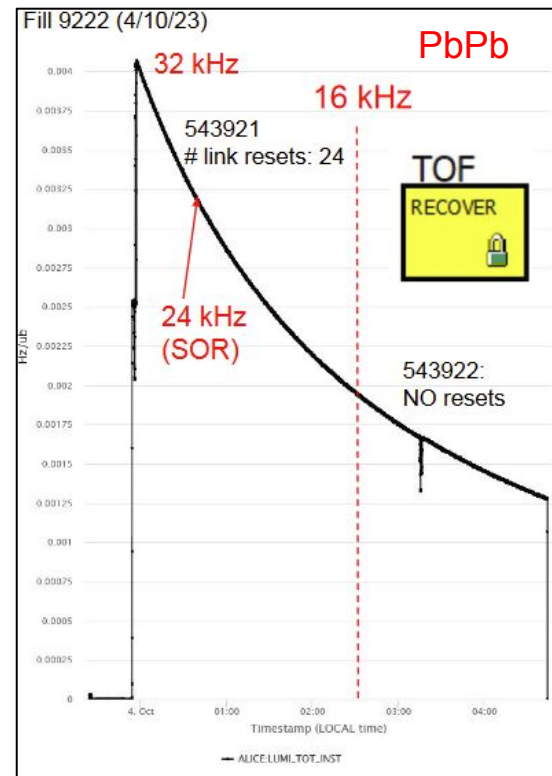
Deadline: Friday 16th February

SUB-SYSTEM	SCHEDULED	IN PROGRESS	COMPLETED	OPC UA	SUB-SYSTEM	SCHEDULED	IN PROGRESS	COMPLETED	OPC UA
Central DCS					MCH				
CPV					MFT				
EMCal					MID				
FDD					PHOS				
FT0					TOF				
FV0					TPC				
HMPID					TRD				
ITS					TRI				
LHCIF					ZDC				

# Next steps

- Re-tune the detector also running this week with AliECS (& fix the issues spotted)  
→ Milestone Week next week: detectors on central systems (ECS, DCS, etc) in the mornings (starting from Wed), for the detector shifters/experts in the afternoon
- Compressors on EPNs need to be re-validated with long runs (for last tests with FEE on <https://its.cern.ch/jira/browse/O2-4362>)
- WinCC 3.16 needs to be upgraded to ver. 3.19 within Feb 16  
→ not yet planned, wish to do it asap (Andrea available) but confirmation from central DCS team needed (pending)
- CAEN mainframe (SY4527) firmware already upgraded (Mateusz, 2 weeks ago): that's to fix sporadic communication issues with the OPC server
- New version of DRM2 fw needs to be deployed (worked out first!) by March (?) to copy with PbPb  
See e.g. [here](#) (more details in one of the next meeting)

About the QC: see next contribution (F.E.)





# On-call shifts



- Start on Feb 19
- Crew for 2024: Sofia, Riccardo, Marco, Manuel, Giovanni, Francesca E
- Please fill you availability [here](#) (thanks!)
- When at CERN consider to do also central shifts to train your self also for TOF

# Backup



# Unclogging crates

- Crates unclogged using **phosphoric acid** (5-10% conc.) **left to act for 1 or 2 days** and with the help of CERN tech (Philippe, Kin) as in the previous YETS (Dec 2022-Feb 2023)
- See indeed the previous unclogging campaign reported [here](#) (and past attempt adding valves [here](#), etc)

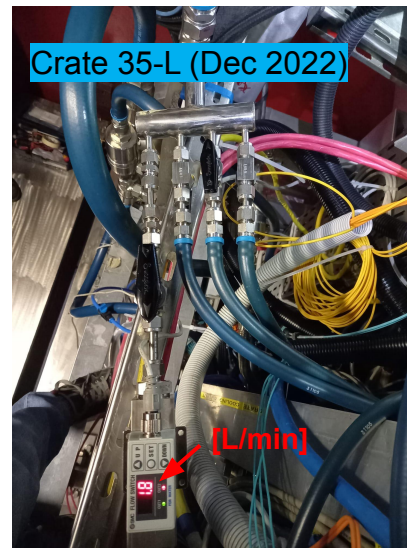
Dec 2022 - Feb 2023 (previous YETS):



M. Colocci, M. Giacalone - ALICE-TOF by-weekly meeting - 22nd February 2023

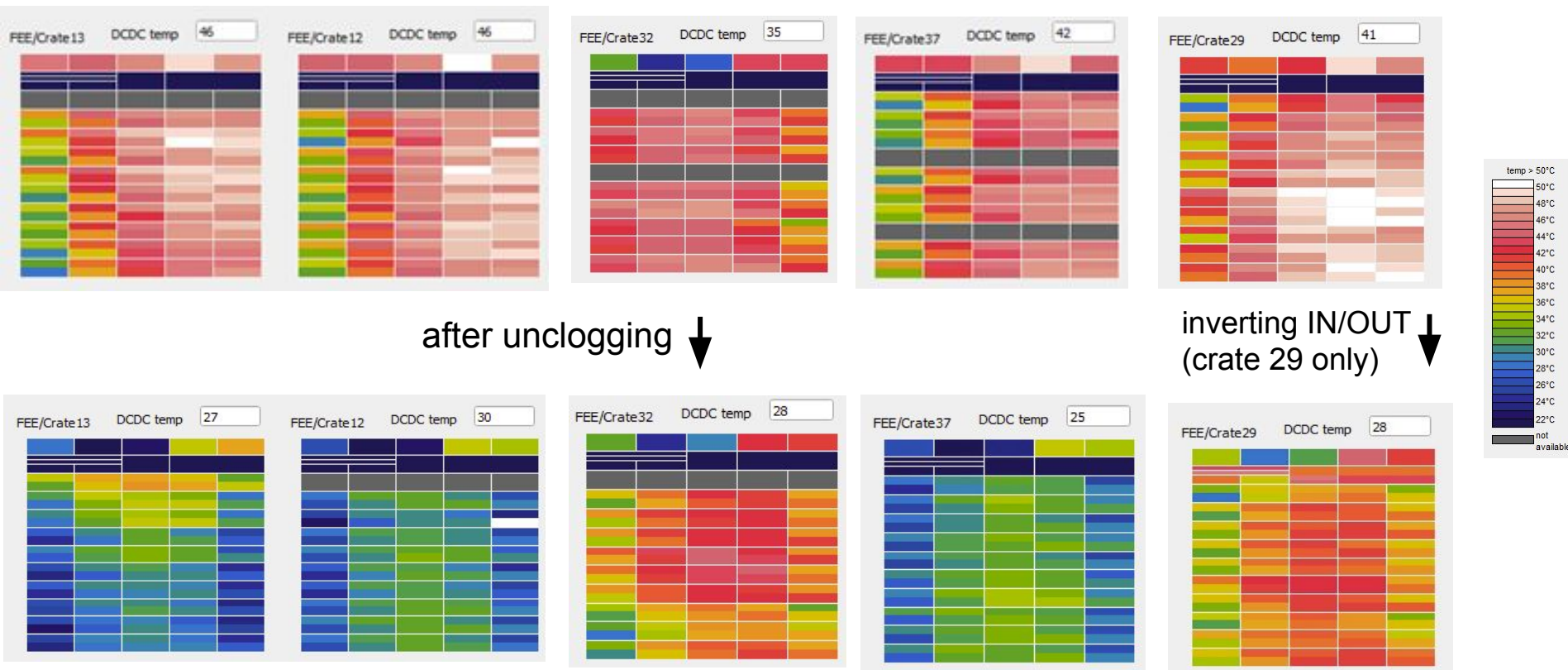
3

- Next slides: work in progress Nov. 2023**



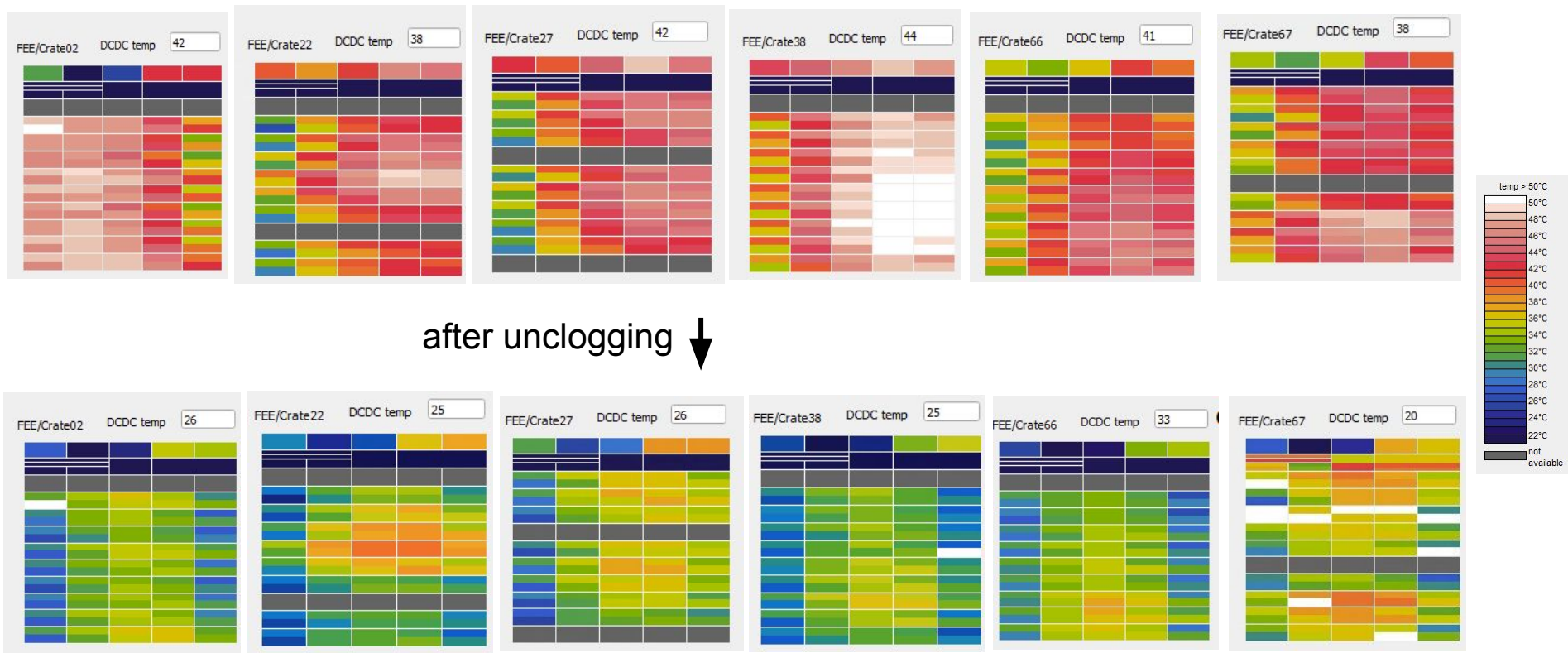


# Crates unclogging - Side A (Nov 2023)



Heat exchangers unclogged (A side): 12-R, 13-R, 32-L, 37-R

# Crates unclogging - Side C (Nov 2023)



Heat exchangers unclogged (C side): 02-L, 22-R, 27-R, 38-R, 66-R, 67-R

# TRM fixing/replacement campaign



**NOW**

TRMs disabled on 2023 (so far):

- 8 TRMs due to instabilities (fw reprogramming failed, etc)
- 4 TRMs to limit the overheating of the hosting crate
  - TRMs back ON (after crates unclogging) → ~960 ch
  - TRM 35-4 replaced → some channels disabled due to chips issue → 219 ch
  - TRM 47-6-10-11 replaced → 720 ch
- TRM 47-9 replaced as well, but issues found when turning HV ON → It will stay disabled during next year
- Crate 31 and 57 tested and working fine with Cosmics runs and HV ON, no issues in both of them → re-enabled
- **Next:** test carefully the last TRM spares in the lab