

Summary of MD w22

Plan for other MDs and coatings

-Comparison of the pressure rise due to 4x72 bunches 450 GeV nominal in a-C coated and uncoated ECM section (MD w17)

-Effect of ultimate intensity in ECM (only carbon ones.....)

SEM-CLOUD 1: CNe64(1) and a-CZr

SEM-CLOUD2: CNe13 and CNe64(2)

M.T. for SPSU

Comparison of static pressure at the beginning of MD

Static P (mbar)

- Coated magnet 51540
- Uncoated magnet 51340
- Uncoated "fresh" 51480
- ECM 51824

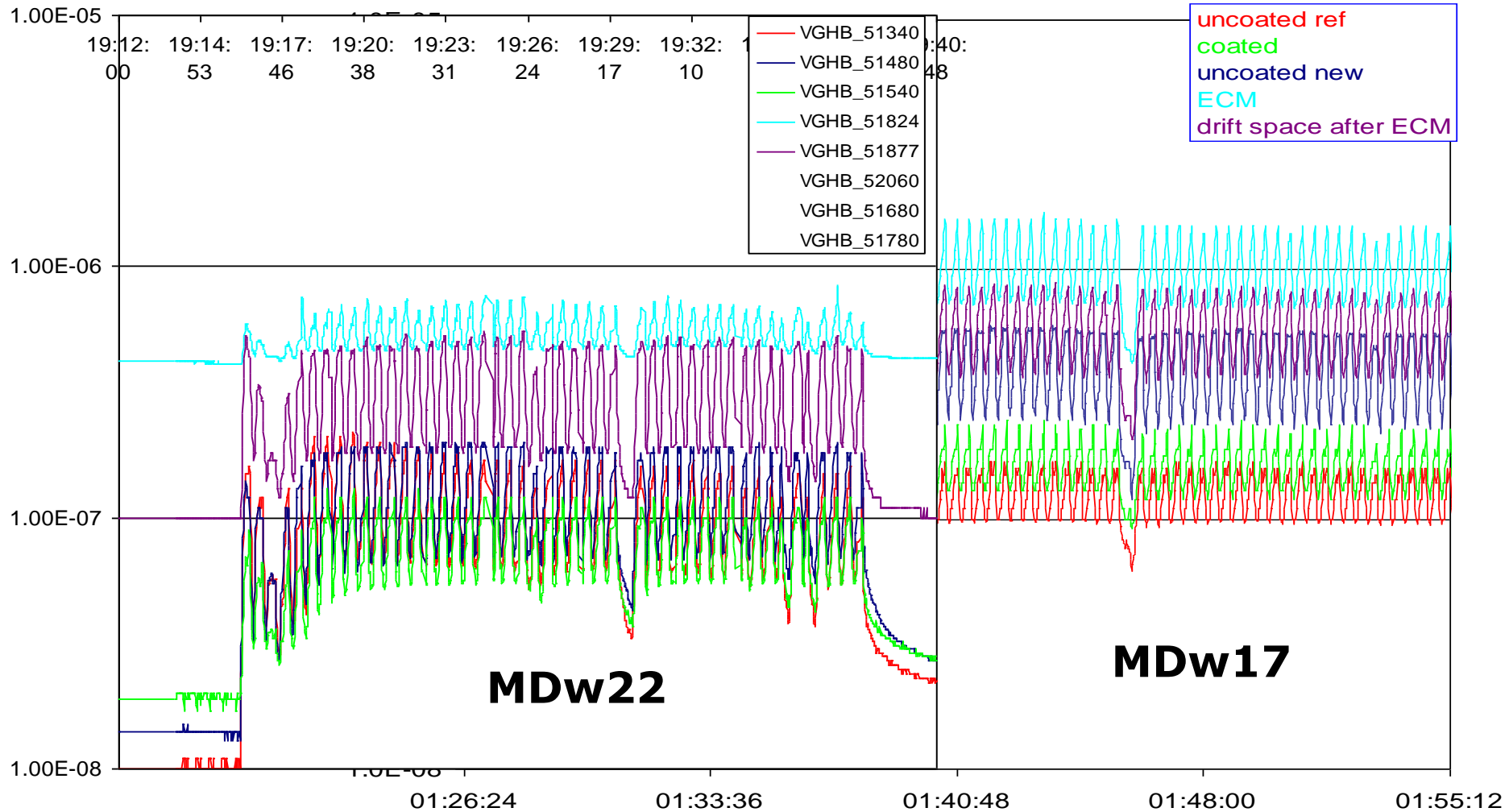
w22

7.9E-9 Not vented
 p<5E-9 just
 5.9E-9 before
 7.4E-7 Vented just
 before

w17

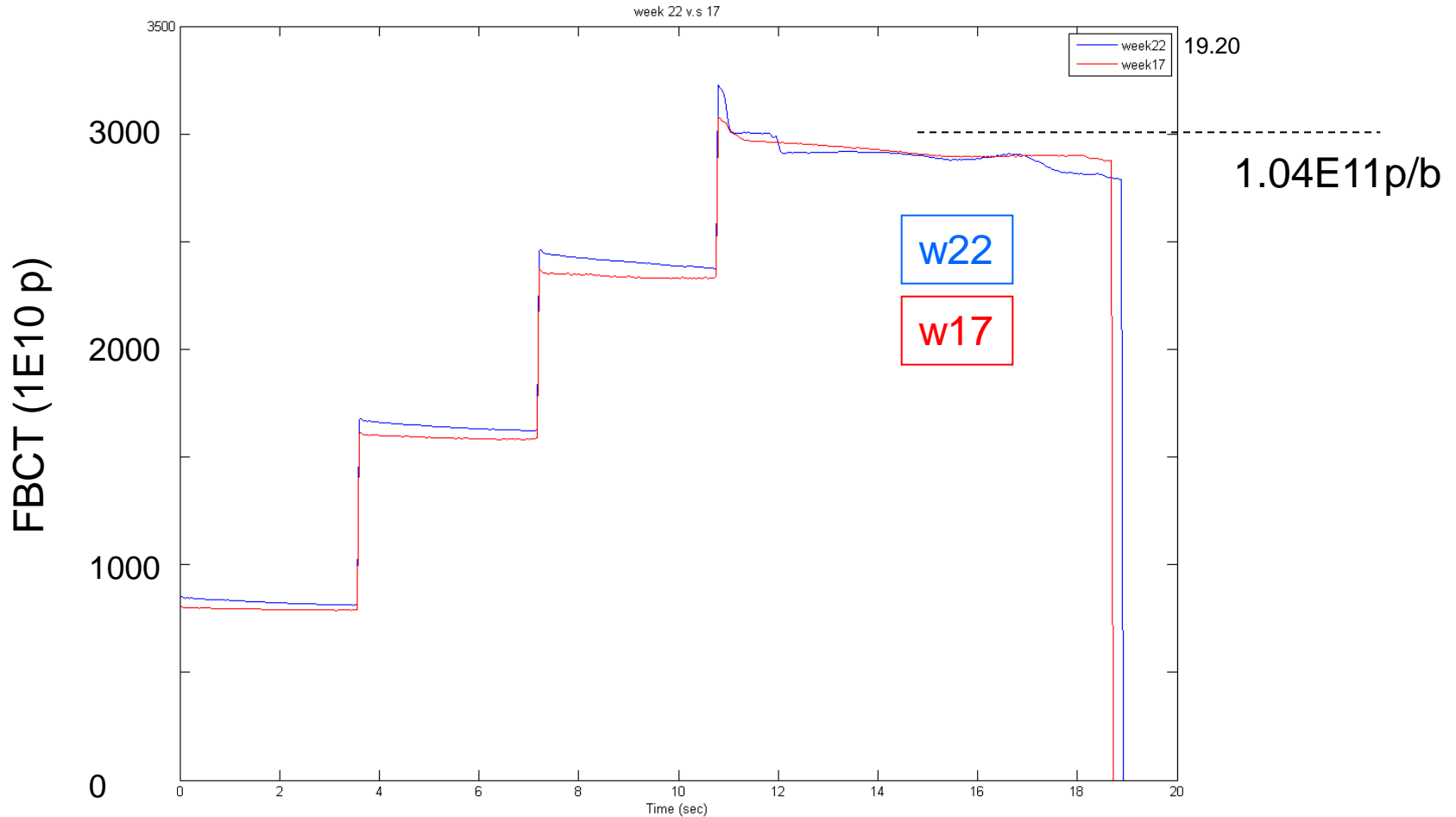
7.4E-9
 p<5E-9
 9.7E-9
 1.7E-8

Comparison of dynamic pressure rise at 4x72 bunches, 450 GeV nominal intensity



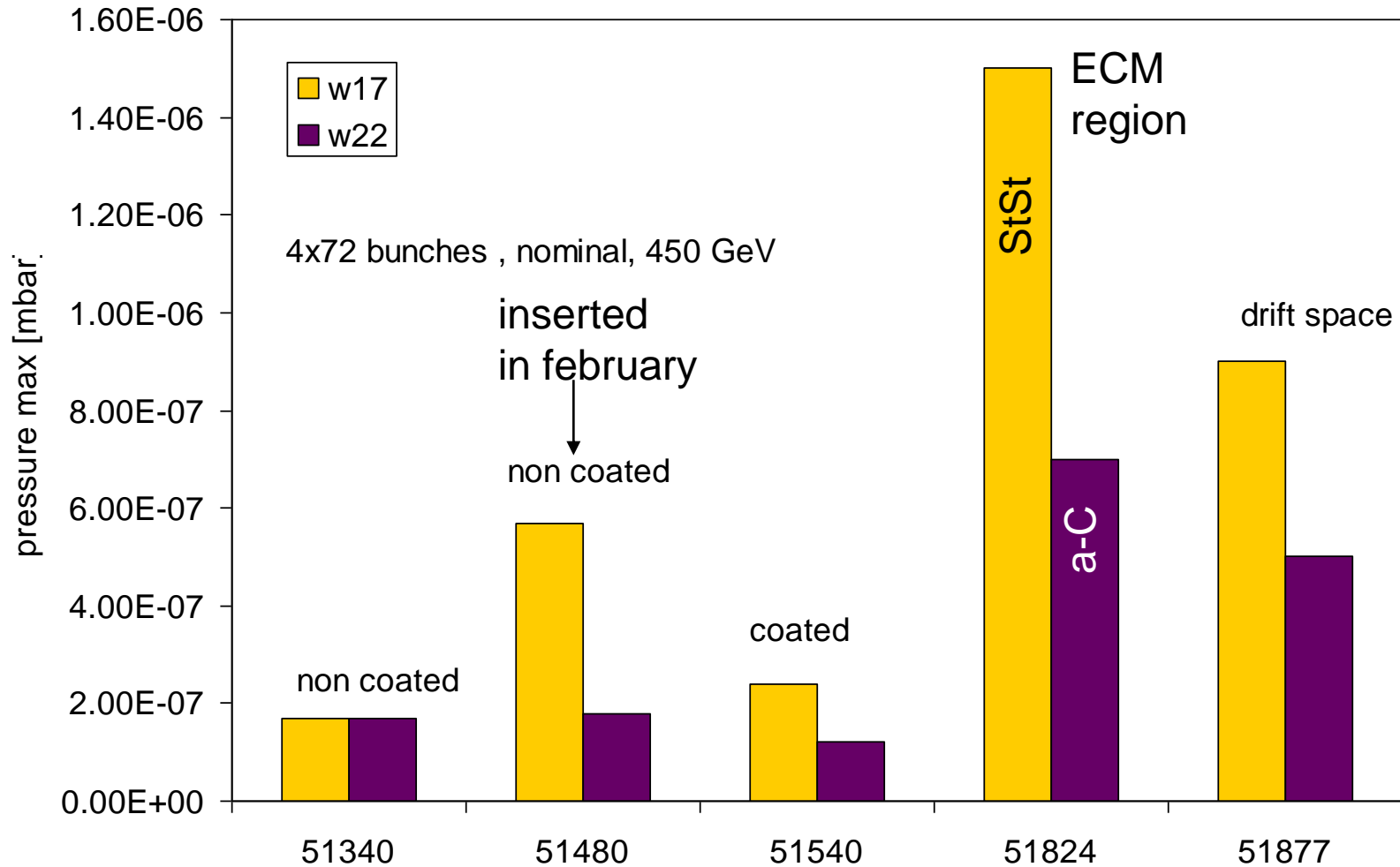
Dynamic pressure rise of ECM is smaller, but also some others are smaller: is it really the same "nominal intensity"?

Comparison of beam intensity at 4x72 bunches, 450 GeV nominal intensity



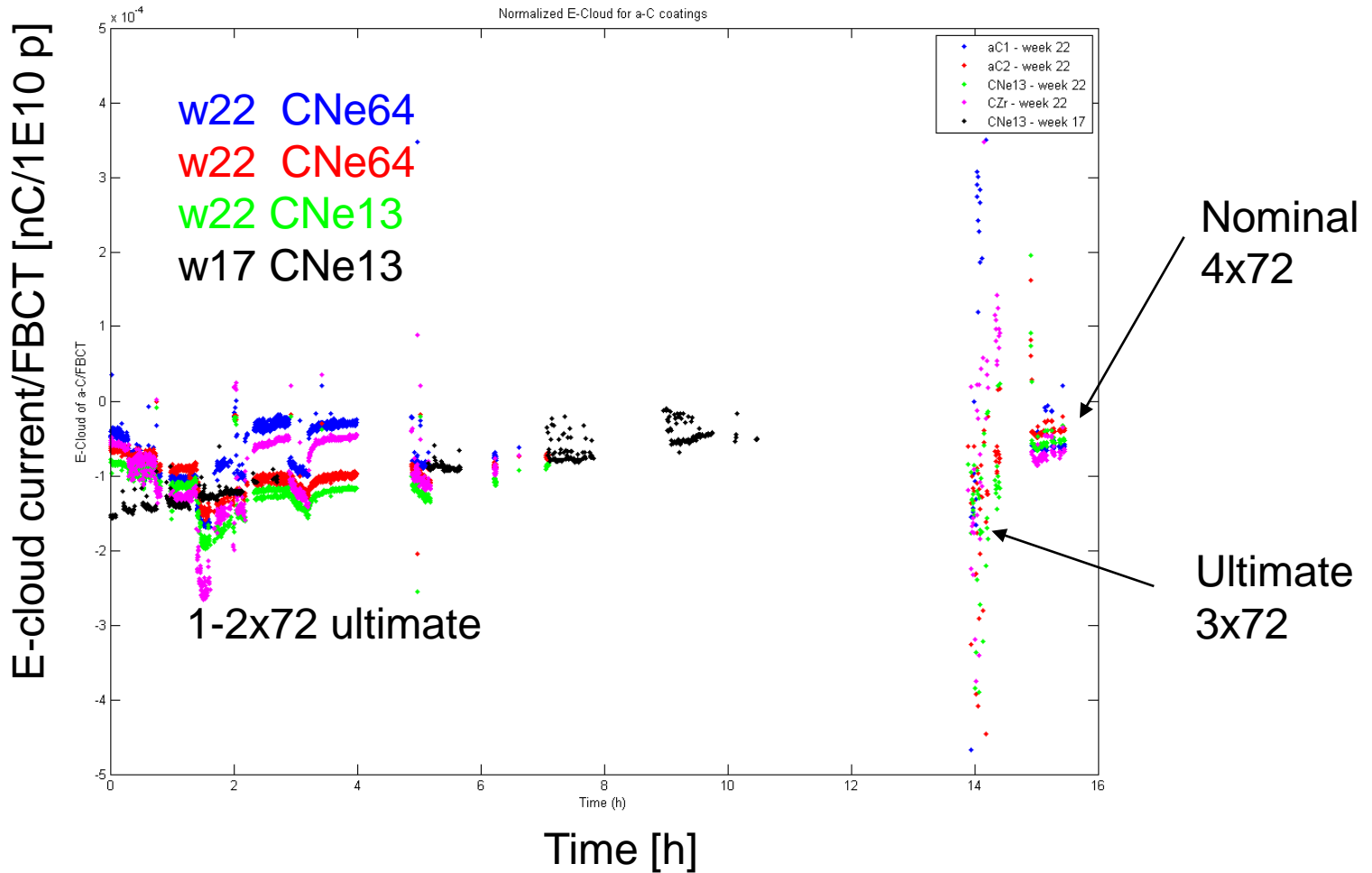
Nominal intensity is the same, with some more losses, so the difference is due to beam “shaping” by RF?

Comparison of dynamic pressure rise (p max) at 4x72 bunches, 450 GeV nominal intensity



Do more measurements? If we change the liners in w29 it will not be possible

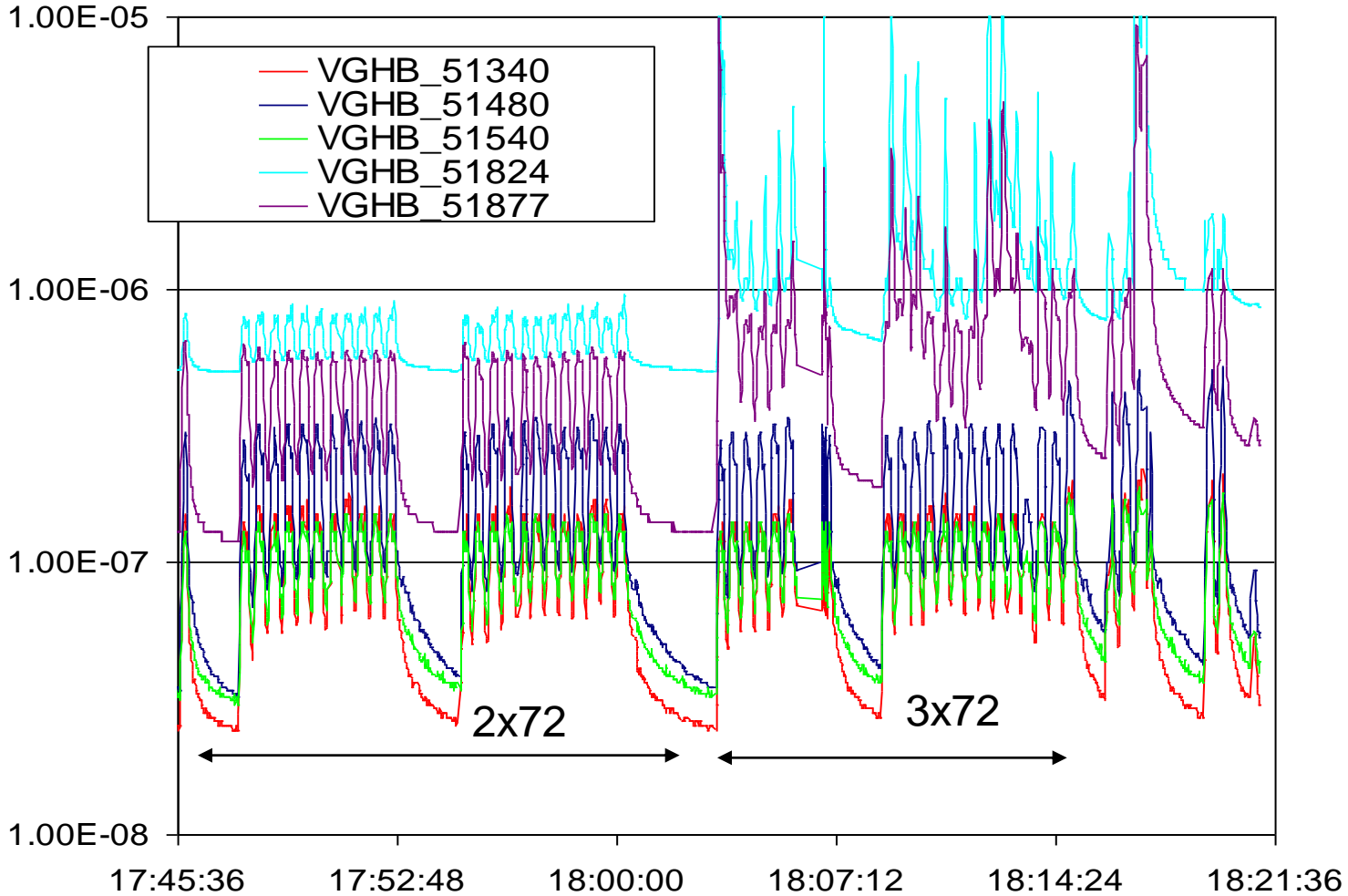
a-C ECM with ultimate intensity (normalized to intensity)



After normalization no significant difference wrto nominal intensity, excepted for 3x72 ultimate

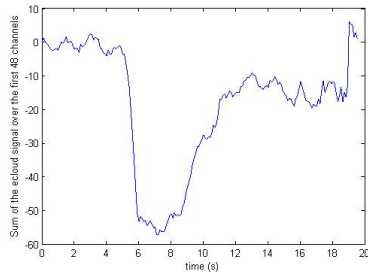
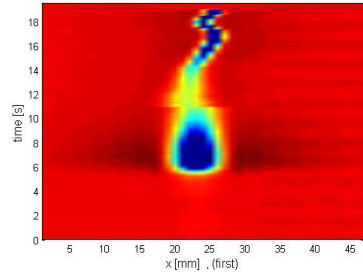
NB: difference between detectors is not due to electronics, calibration verified; cables are not equivalent, give more or less noise

Strong pressure increase in ECM at 3x72, ultimate intensity

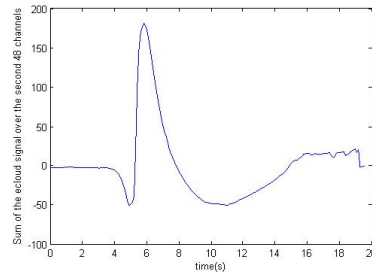
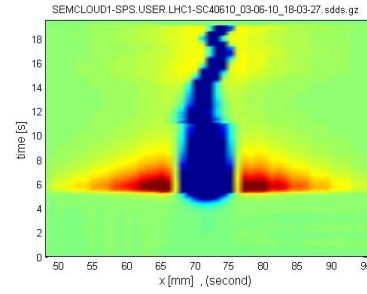


- pressure rise not linear with beam intensity: a different mechanism desorbing more gas?
- instabilities observed also in "e-cloud" signal

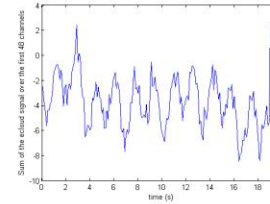
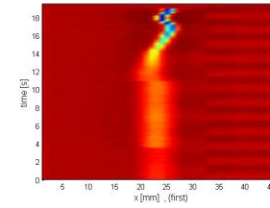
CNe64 (1)



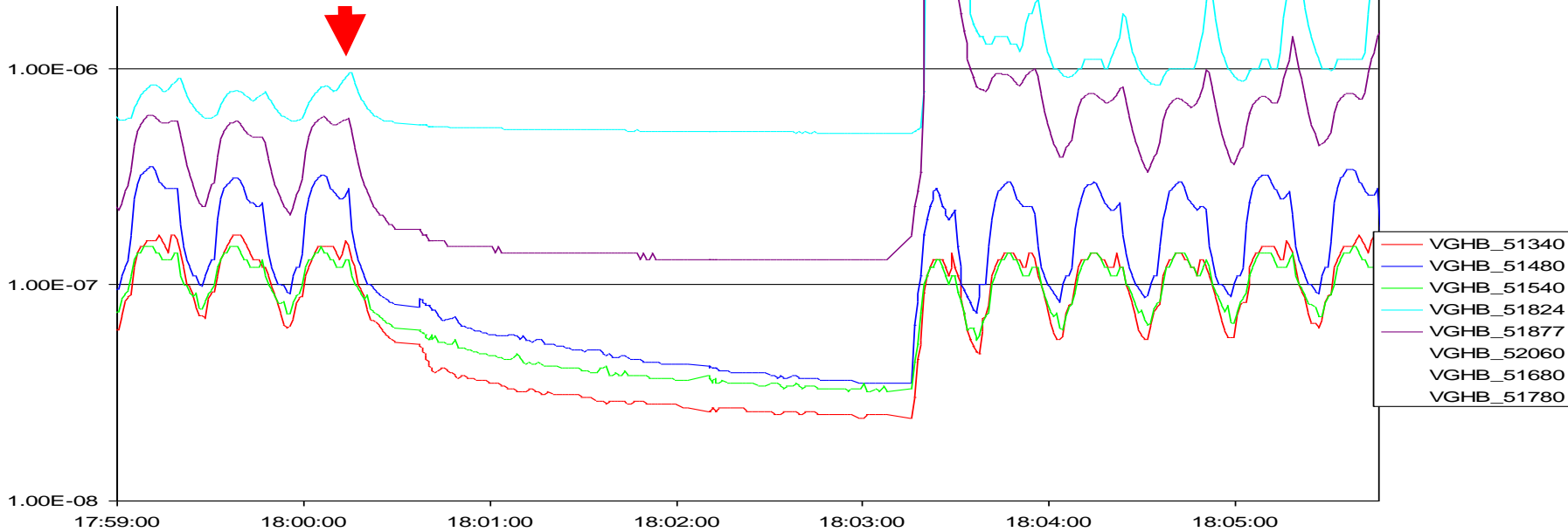
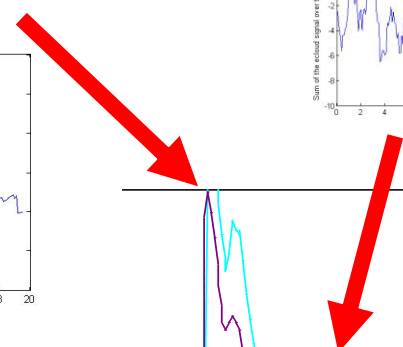
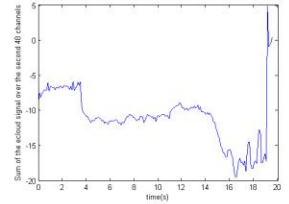
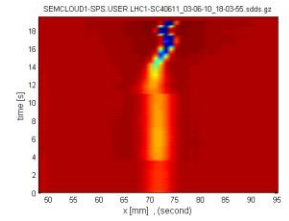
a-CZr



CNe64 (1)

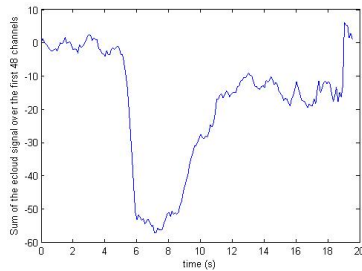
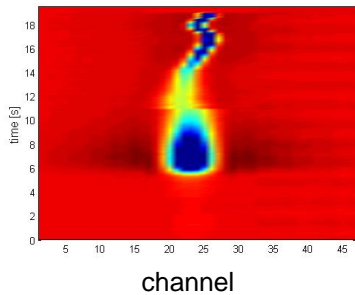


a-CZr

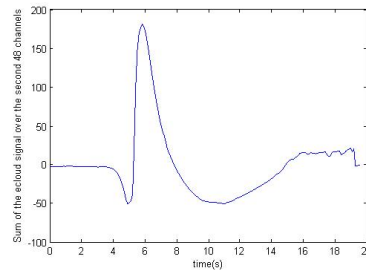
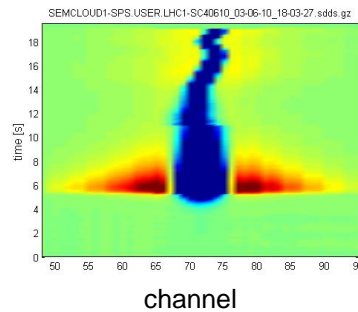


On all detectors (3x72):

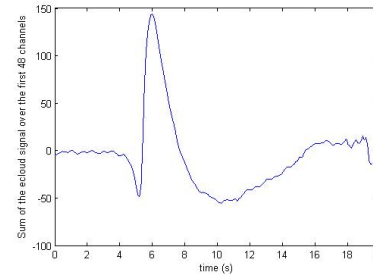
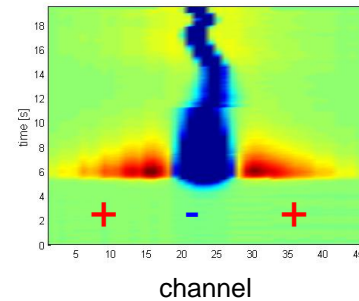
CNe68(1)



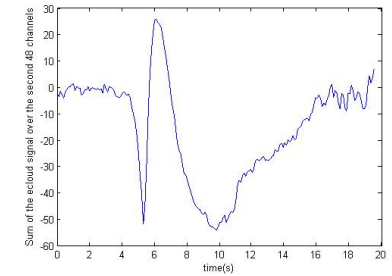
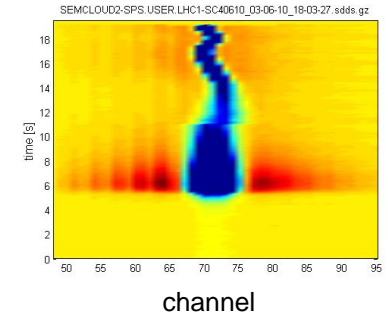
CZr



CNe13

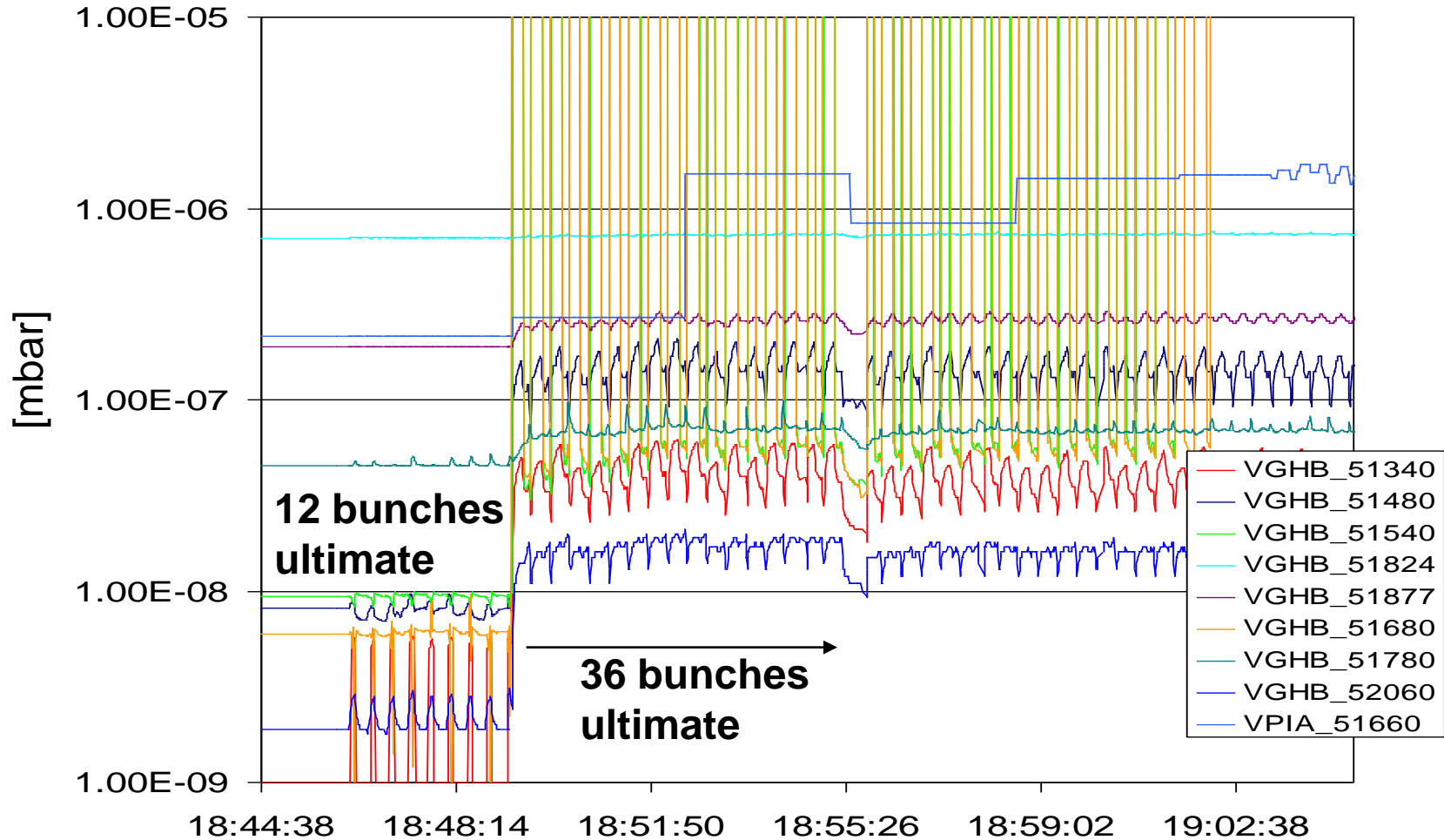


CNe68(2)



Huge positive signals close to the very high negative intensity
 -ECM signal possibly dominated by gas ionization and positive feedback
 Do we collect ions?

Artefacts:



- the Penning gauges are switched on/off through an interlock on the high pressure (Pirani) gauges: it seems to be an effect of the beam on the gauge signals and not a real effect on pressure → force the gauges on and everything is OK

Dosimeters under the passerelle

- All 3 dosimeters give results below detection limit (<0.5 Gy)
- Sensitivity mainly to gamma, not neutrons

- There is hope for an electronics (RGA) there, we can screen slow neutrons with a polymer box, ...fast are more difficult

Coatings

- 2 chambers for MBB ready to be inserted in the dipole
- how to avoid contamination during assembly (large coil to be inserted, embedded in polymer...), skip B-field measurements: first results are positive
- RF shields to be coated

- Plasma spray: one offer expected next week for 200mm x 200mm sample for degassing test and possibly dielectric strength: roughness will be the real problem

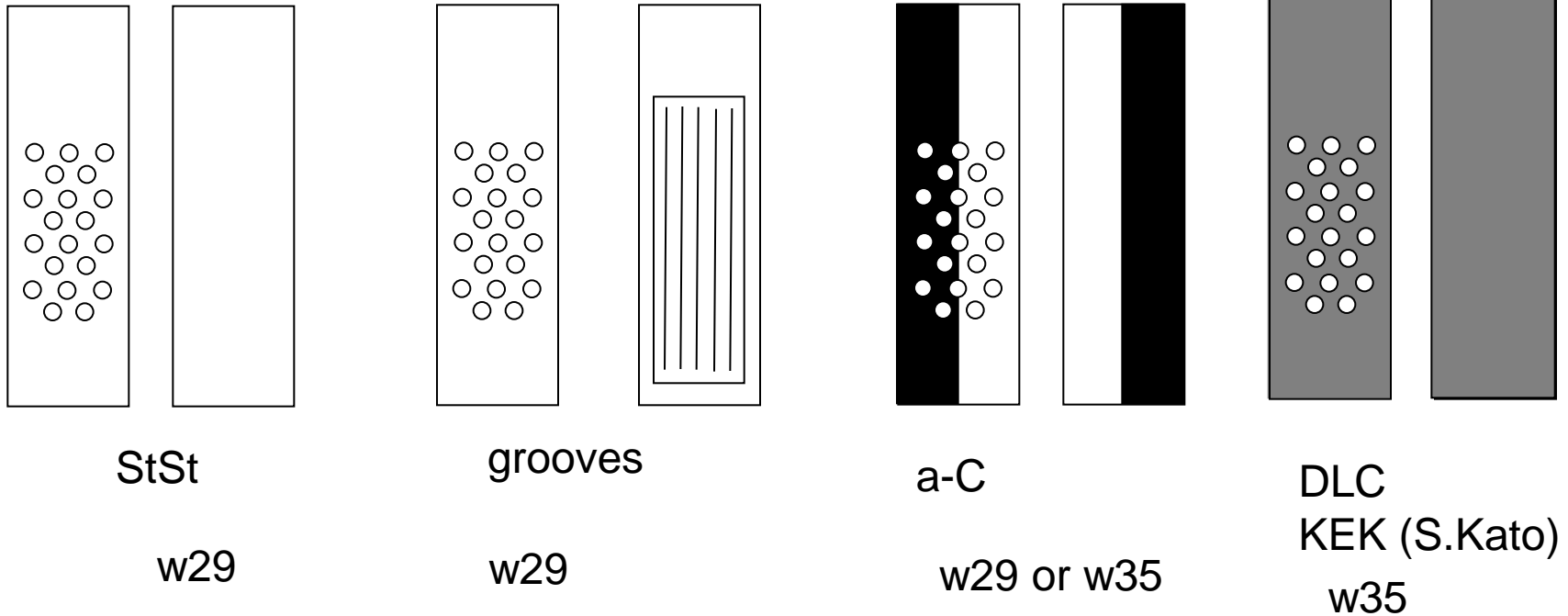
Plan shown on last SPSU

- w22: replace the ECM and intermediate section with a-C coated ECM and measure again the dynamic pressure simultaneously with e-cloud OK
- w22: remove dosimeters (measurements of dose to identify possible location of RGA electronics to identify desorbed gases) OK
- ~~-w26: extract removable sample for SEY analysis (to verify the effect of e-bombardment on the a-C coating) No~~
- ~~-w30: insertion of coated MBB (3 m prototype OK, tubes ready for end of May probably with rectangular cathodes) Postponed to w35~~
- ~~-w26 or w30: replacement of a-CZr ECM with half-coated ECM Postponed to w29 or 35~~
- ~~-at the next venting of dipoles we could isolate a pumping port (pressure gauge+ion pump) through a manual valve from the main vacuum system of the machine to verify the behavior with beam and magnet ramp Postponed to w29 or 35~~

NEW plan →

Next MDs and so on until end 2010:

- 2 new MBB coated will be assembled and inserted in w35 (48h stop: see J.Bauche)
- Liners: StSt liner is desirable, the first slot is possibly w29, now planned for 12h stop (insufficient time, 24h are needed)



- more pressure measurements on the a-C section between ECM: only one slot for liners!
- Mobile sample: exchange w29 (or w35)
- Isolate pumping port: ?