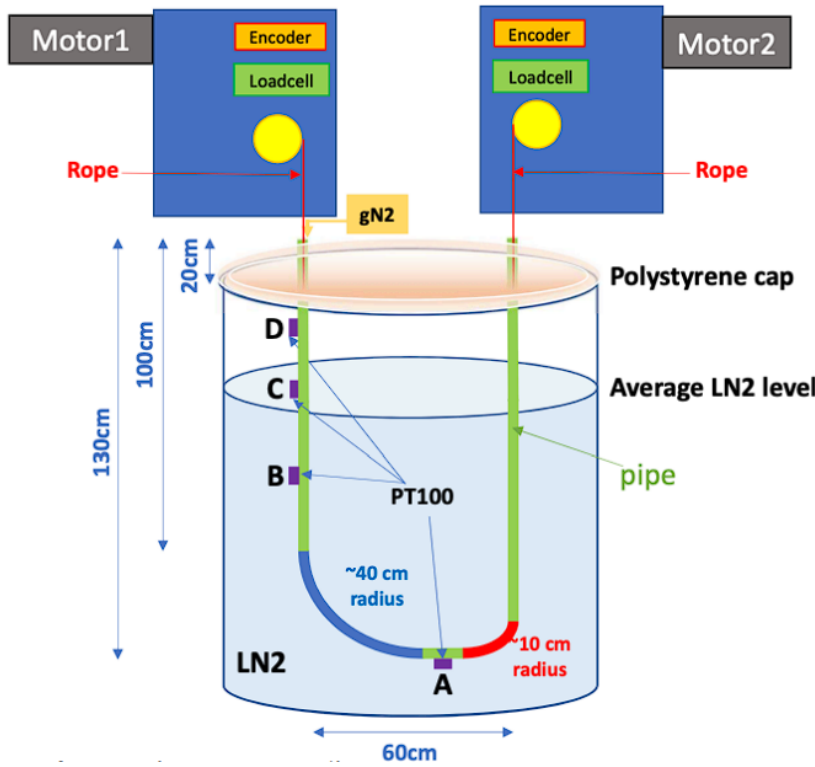
Weekly Monitoring

FROM 09/06 TO 19/06

Lucas

Summary :

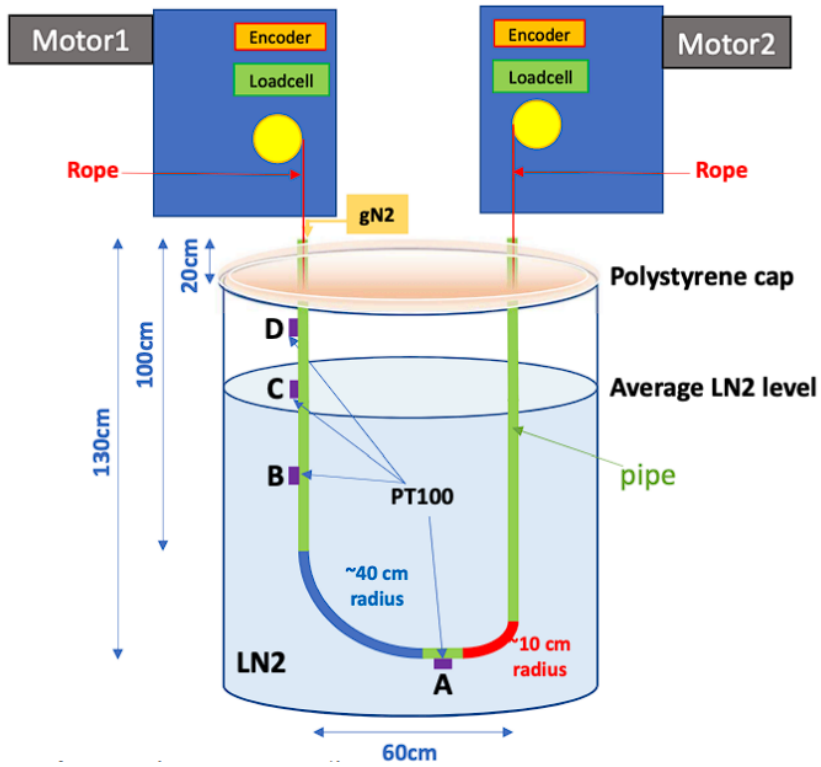
Date	Hour	Ice Formation	°C	Tension (N)	%LN2 in tank	gN2 flow (L/h)	Voltage (V)	Current (A)
Fri - 06/09	18:00	Yes	A,B,C LN2 D ~-170°	DS2: 17 DS4: 6	98%	>250 (no T)	V2 : 24 V4 : 24	I2 : 0.08 I4 : 0.08
Sat - 06/10	14:31	Yes, more for DS2	A,B,C LN2 D -127°	DS2: 17.5 DS4: ~8	92%	250 (no T)	V2 : 24 V4 : 24	I2 : 0.09 I4 : 0.08
Sun - 06/11	14:53	DS2 Only LN2 for DS4	A,B,C LN2 D -108°	DS2: ? DS4: ?	86%	250 when arrive, 120 now (no T)	V2 : 24 V4 : 24	I2 : 0.09 I4 : 0.08
Mon - 06/12	09:10	Same	A,B,C LN2 D -100°	DS2: 7 DS4: 15	81%	110 when arrive, 120 now (no T)	V2: 24 V4: 24	I2 : 0.09 I4 : 0.08
Tue - 06/13	11:06	Seems less on DS2	A,B,C LN2 D -177.6°	DS2: 6 DS4: 16	90%	250 L/h, (T)	V2: 24 V4: 24	I2 : 0.09 I4 : 0.09
Wed – 06/14	9:12	Same	A,B,C LN2 D -144°	DS2: 7 DS4: 16	95%	120 L/h, (T)	V2: 24 V4: 24	I2 : 0.09 I4: 0.08
Thu – 06/15	9:15	Same	A,B,C LN2 D -117°	DS2: 5 DS4: 5	89%	Same	Same	Same
Fri – 06/16	9:20	Same	A,B,C,D LN2	DS2: 5 DS4: 5	99,6%	110 when arrive, 120 now (T)	Same	Same



DS4 (left) | DS2 (right)

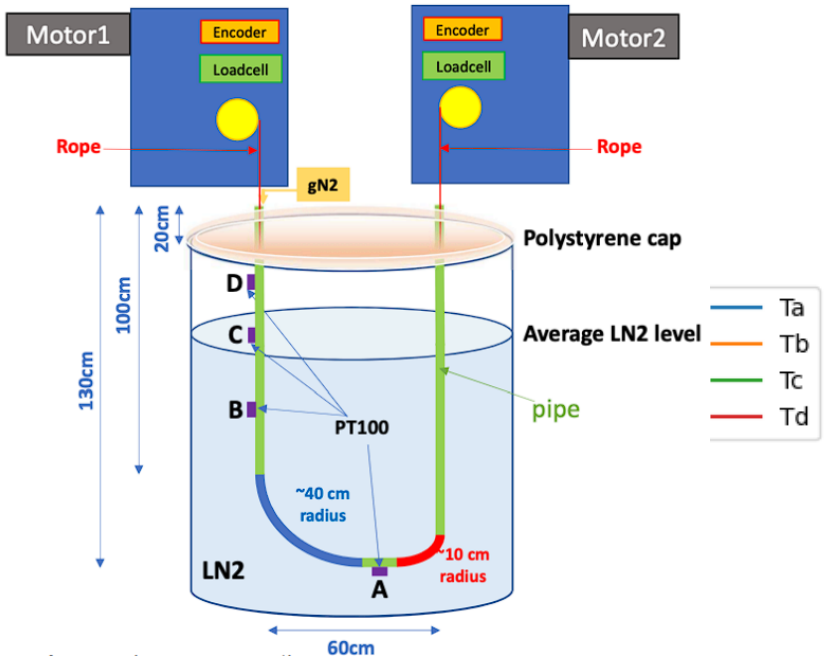
Summary :

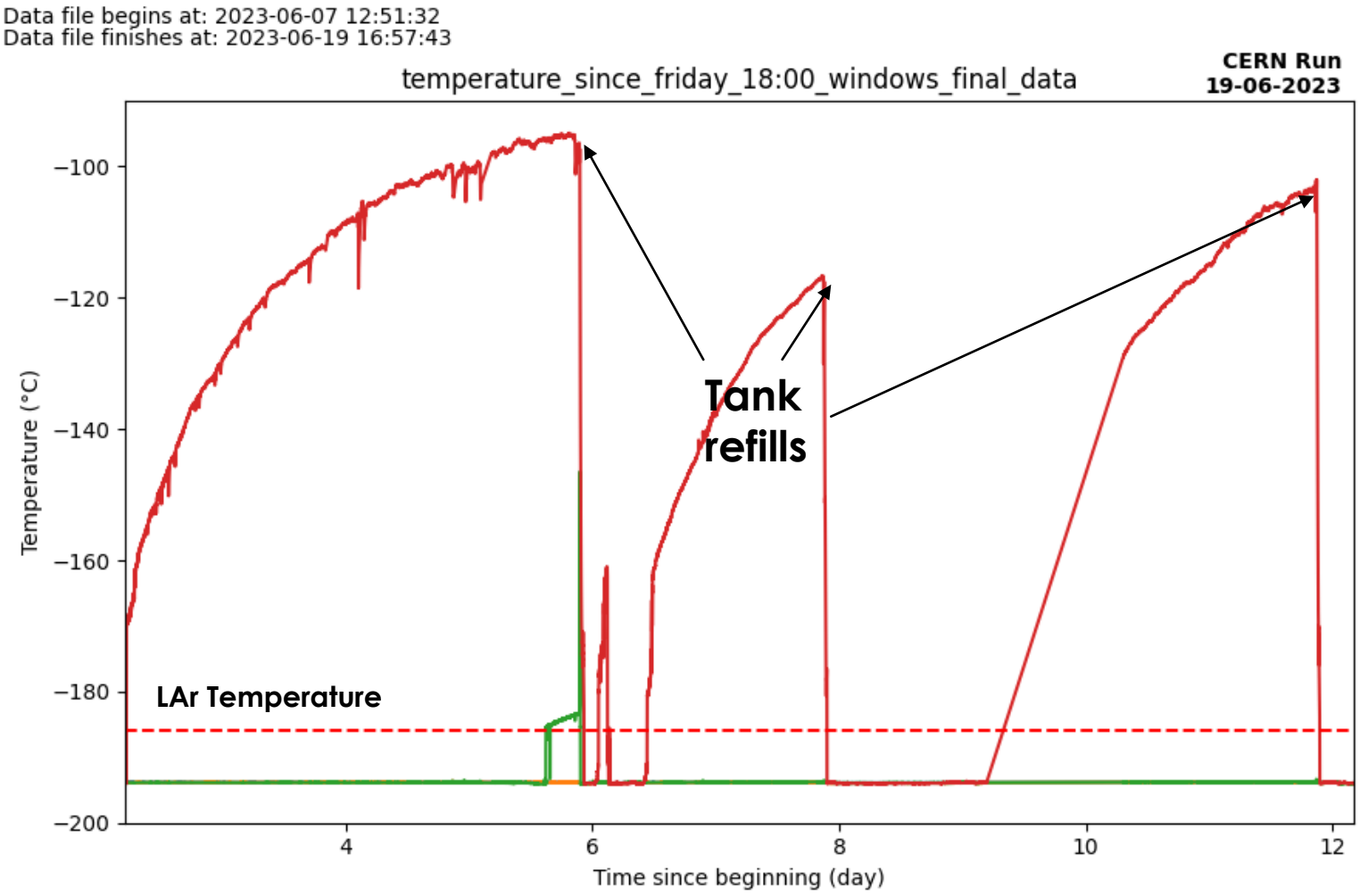
Date	Hour	Ice Formation	°C	Tension (N)	%LN2 in tank	gN2 flow (L/h)	Voltage (V)	Current (A)
Mon – 19/06	9:35	Same	A,B,C LN2 D -103°C	DS2: 4 DS4 : 4	83%	120 (T)	24 both	0,08 both



DS4 (left) | DS2 (right)

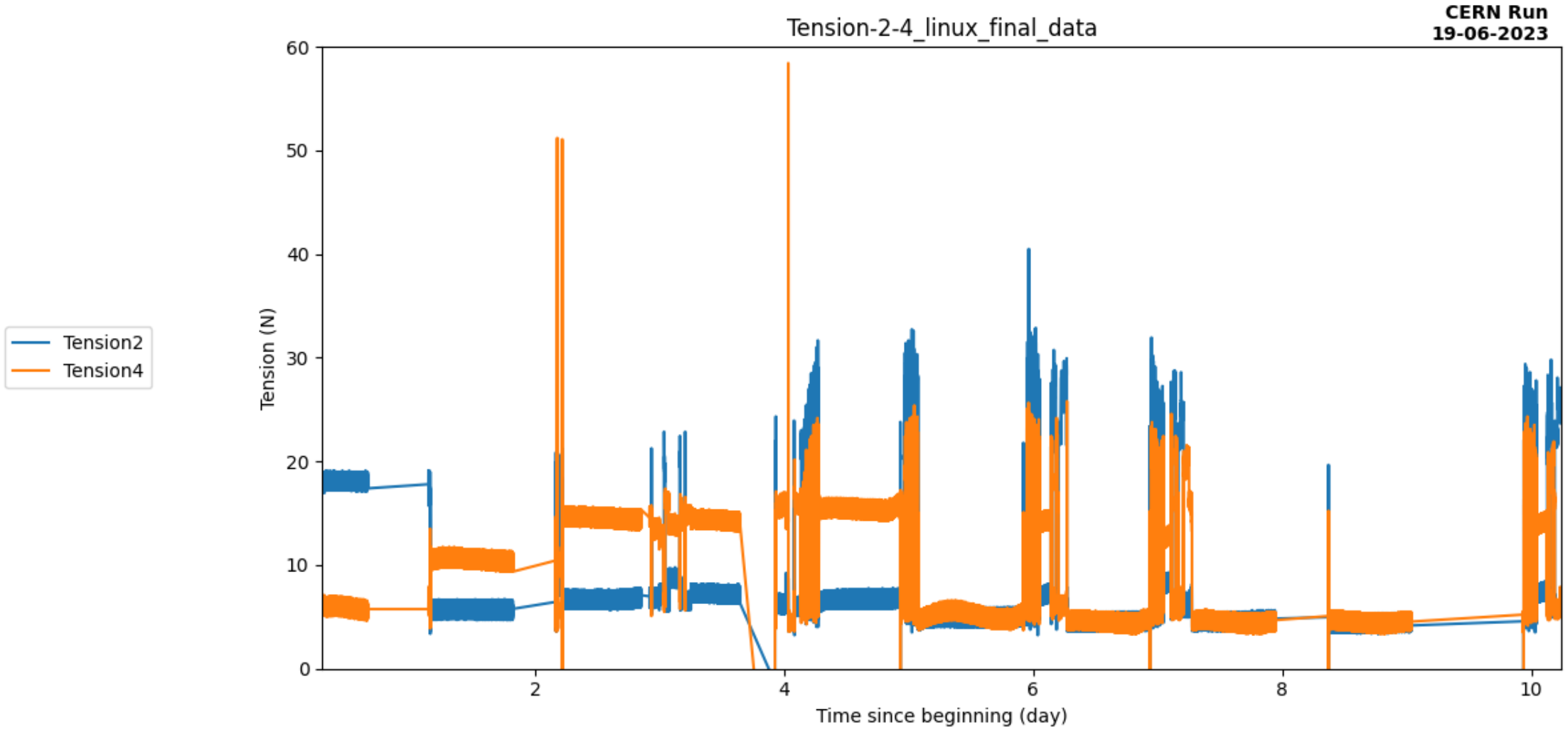
Temperature changes since Friday 6PM





Tension changes since Monday 9AM

Data file begins at: 2023-06-09 11:00:24
Data file finishes at: 2023-06-19 16:50:46

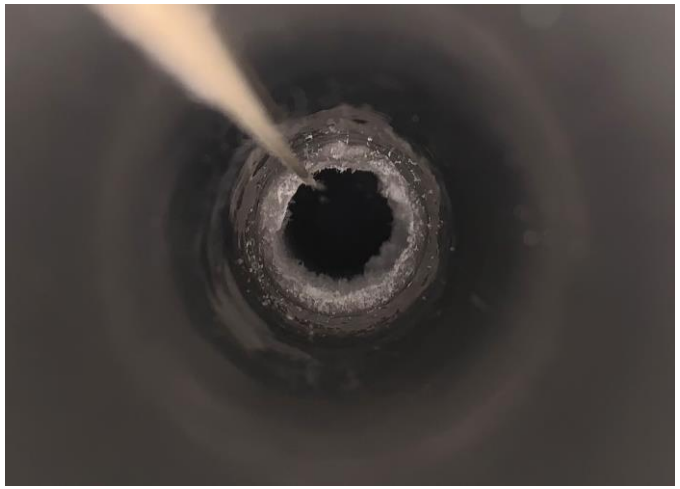


Commentaries :

Friday - 06/09 18:00

- Peter and Pascal was there, no other commentary needed.

Picture from the top of the left tube



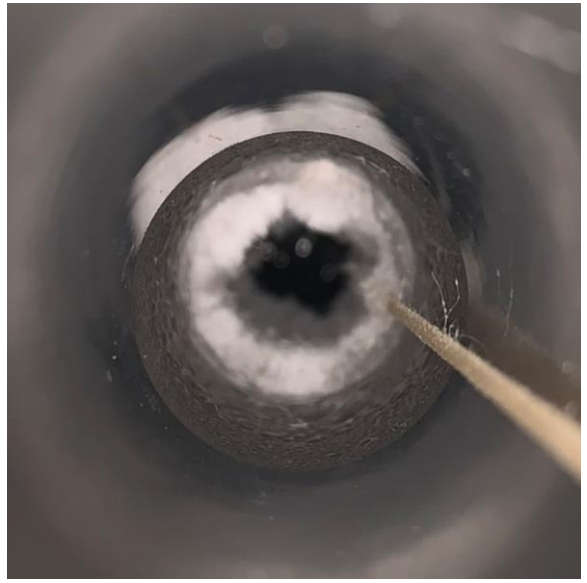
Picture from the top of the right tube

Commentaries :

Saturday - 06/10 14:31

- Seems to have LN2 at the bottom of the tube : might prevent ice formation ? Need to check tension inside.
- I thought ice was blocking the source, but by checking tension it seems fine.
- Every other parameter seems fine.
- Cryo level dropped by 5% in 20h. So ~6%/day ? I'll check on Sunday
- Monitoring for motors stopped around 2AM (on Saturday). I had to put it back on.

Picture from the top of the left tube

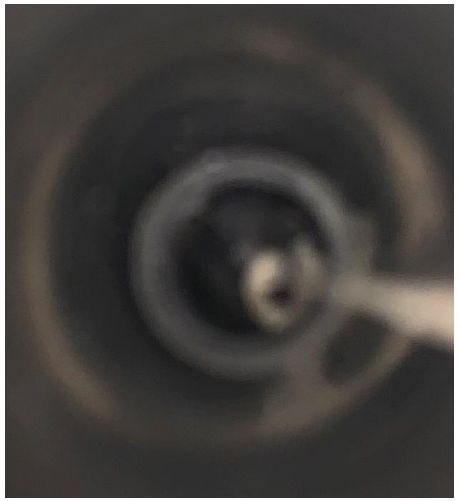


Picture from the top of the right tube

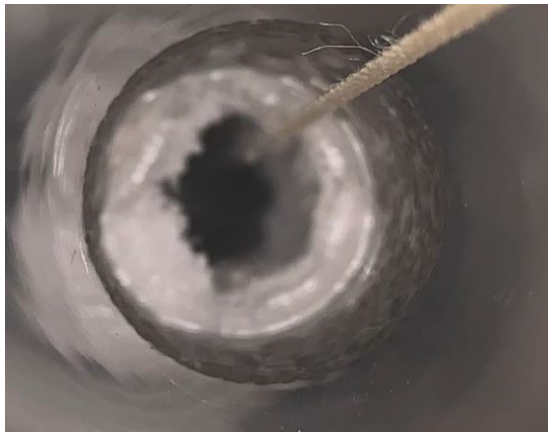
Commentaries :

Sunday - 06/11 14:53

- Monitoring stopped again at 6:45 AM. 16h 16min from the start. It was ~15h yesterday. The program seems to stop around those time (15h after starting).
- By forgetting to put the lid on the left tube, the plastic cap blocked the pulley and stop the movement. Fixed it by relax, putting rope back on pulley then locate and move it back to its position.
- 6% less LN2 in the tank. So, it seems 6%/day.
- Liquid air inside tube, around 50cm from the top (position 570).
- Every other parameters seems fine



Picture from the top of the left tube



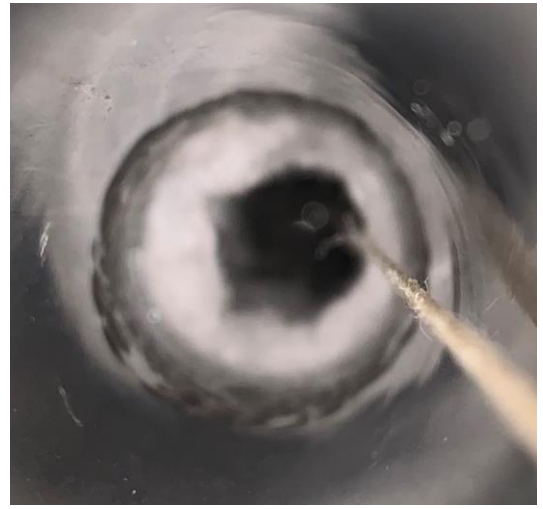
Picture from the top of the right tube

Commentaries :

Monday - 06/12 09:10

- Monitoring stopped again at 4:44 AM.
- 5% less LN2 in the tank. So, it seems 6.6%/day.
- When flushing with Laetitia (put gN2 at 250 and block air exit on left side), some liquid was seen on the right side.
- Every other parameters seems fine

Picture from the top of the left tube

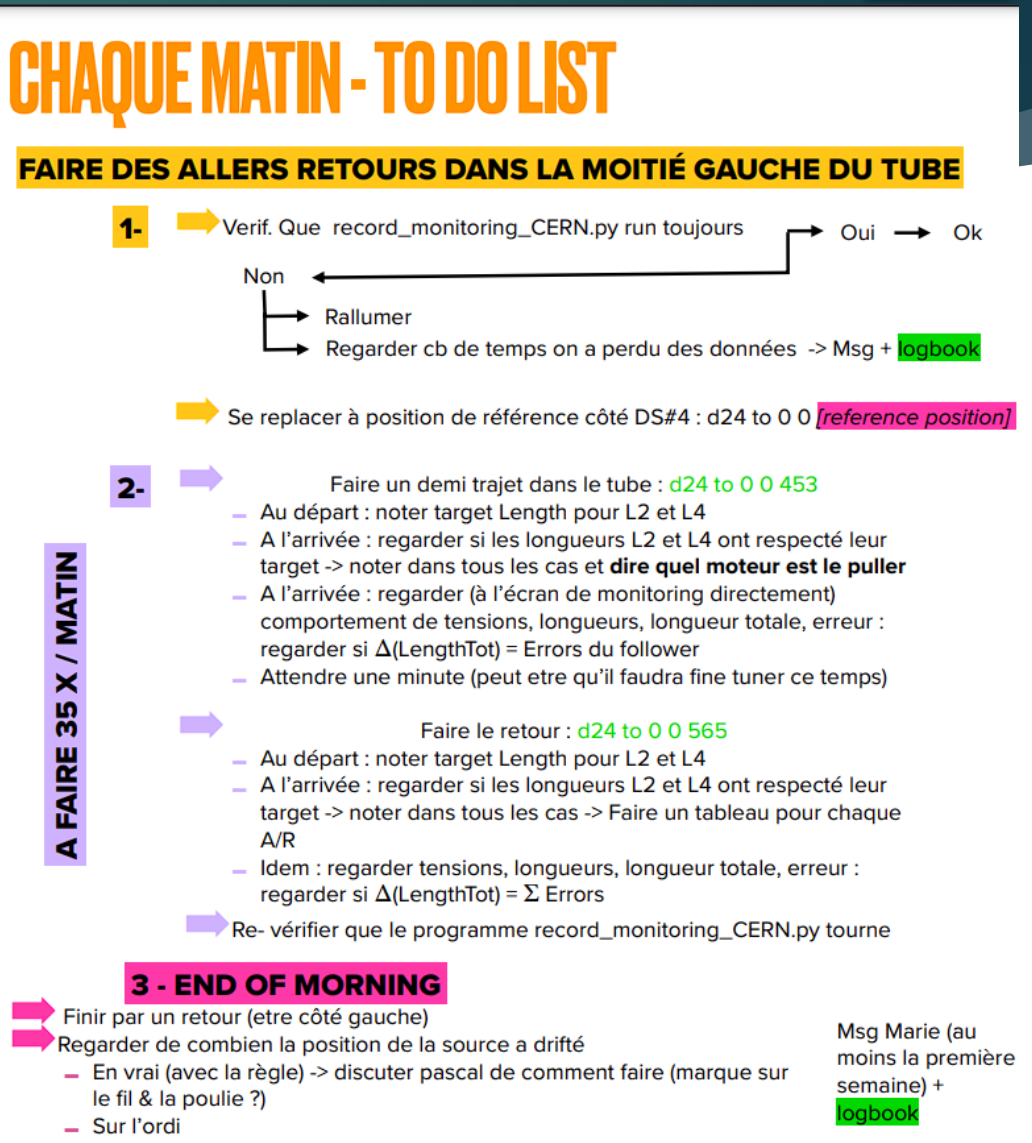


Picture from the top of the right tube

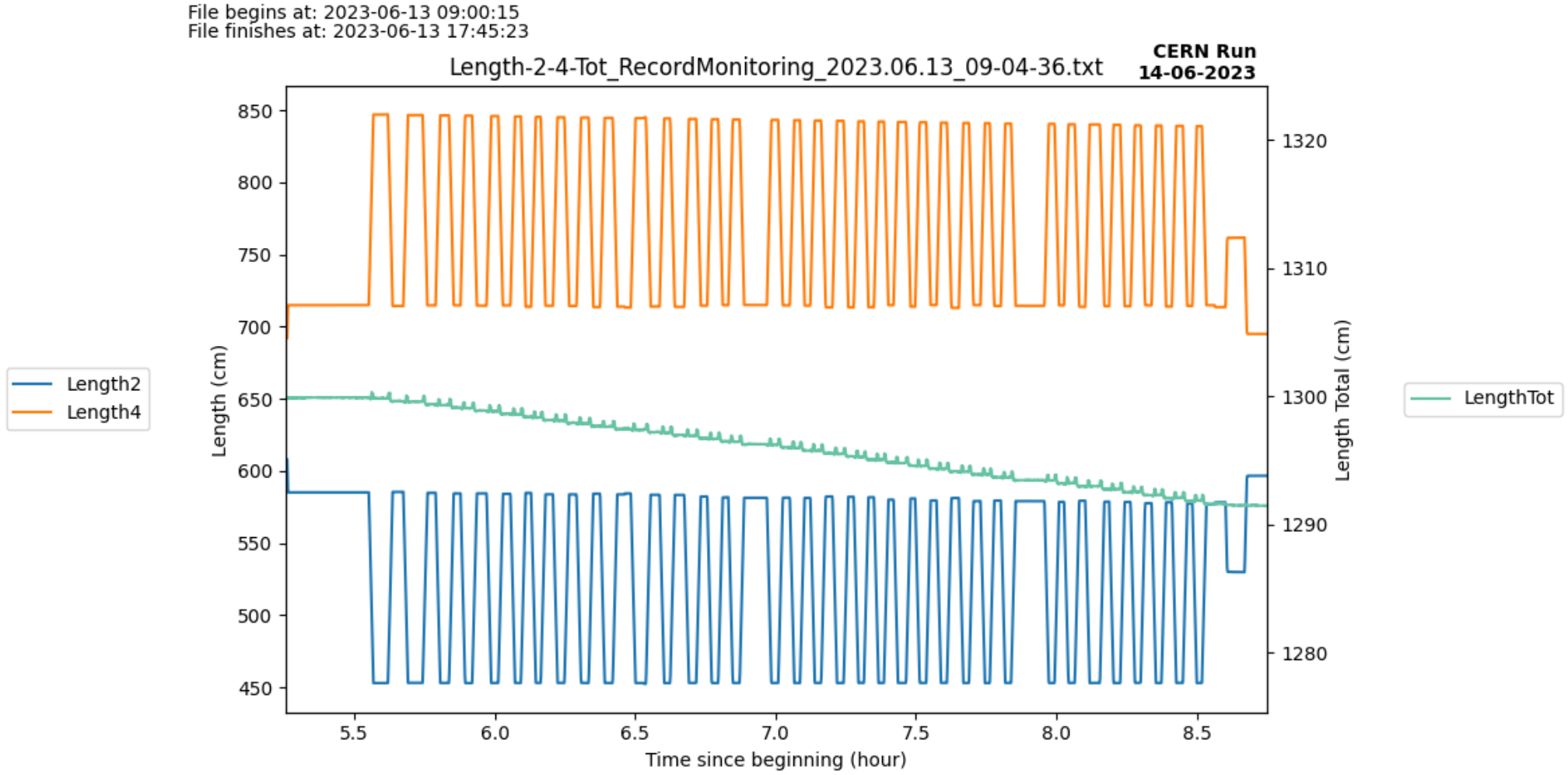
Commentaries :

Tuesday - 06/13

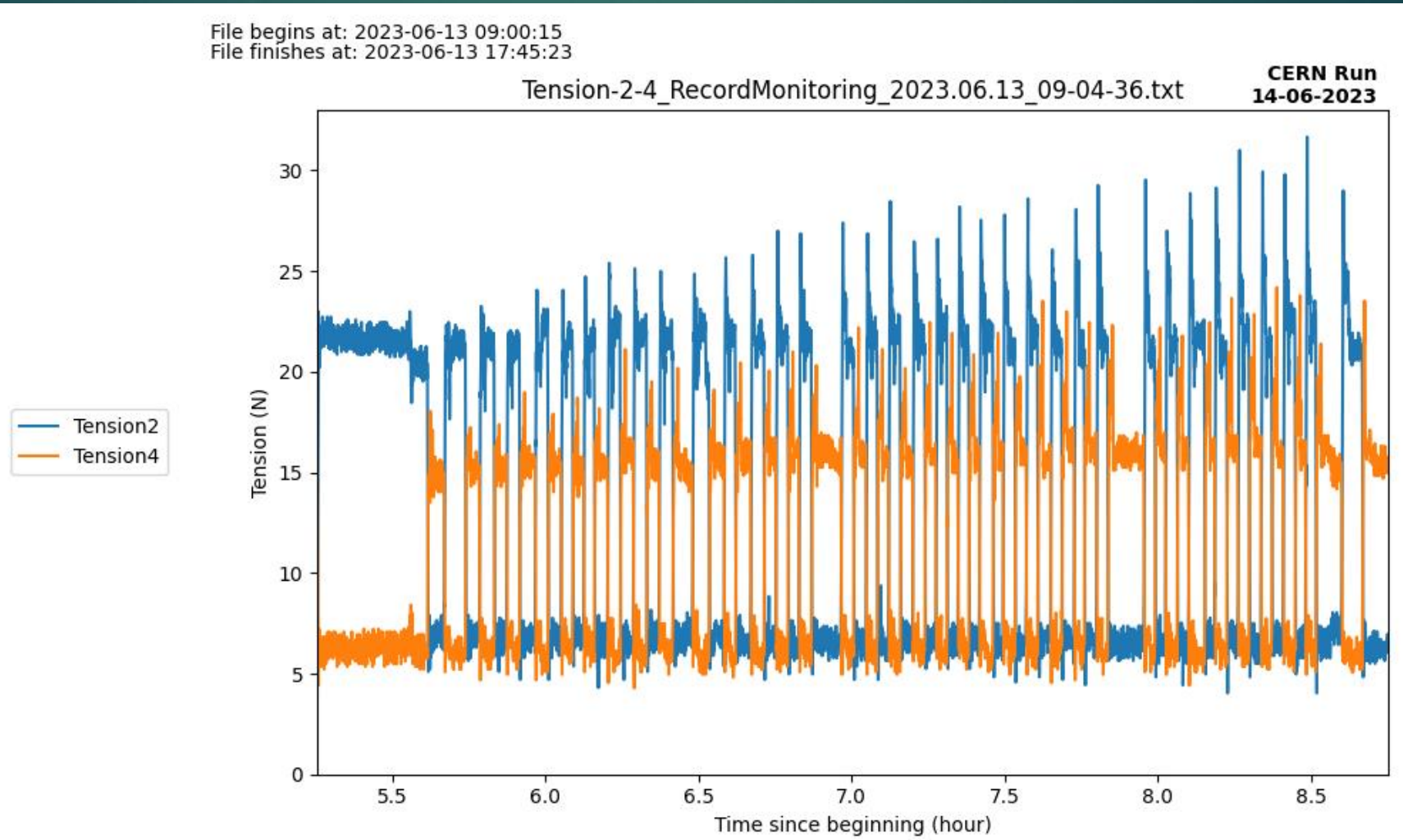
- Monitoring stopped again at 2:27 AM.
- When putting the source at the hot garage, the gN2 tube was stuck. Tension rose at 60N. Relax then take off plastic cap. Shorten the gN2 pipe inside tube (more than 10cm was inside).
- Some ice seems to have formed into the left tube (DS4). Maybe too much manipulation (to take pictures, to measure LN2 inside the tube …) increased humidity.
- I started the morning program from Marie's slides. Took 3 hours to complete. Forgot to take the last data to check the drift (I restarted the program before, so data unusable).
- Laetitia filled the tank almost completely.



Length on “Morning Routine” 13/06

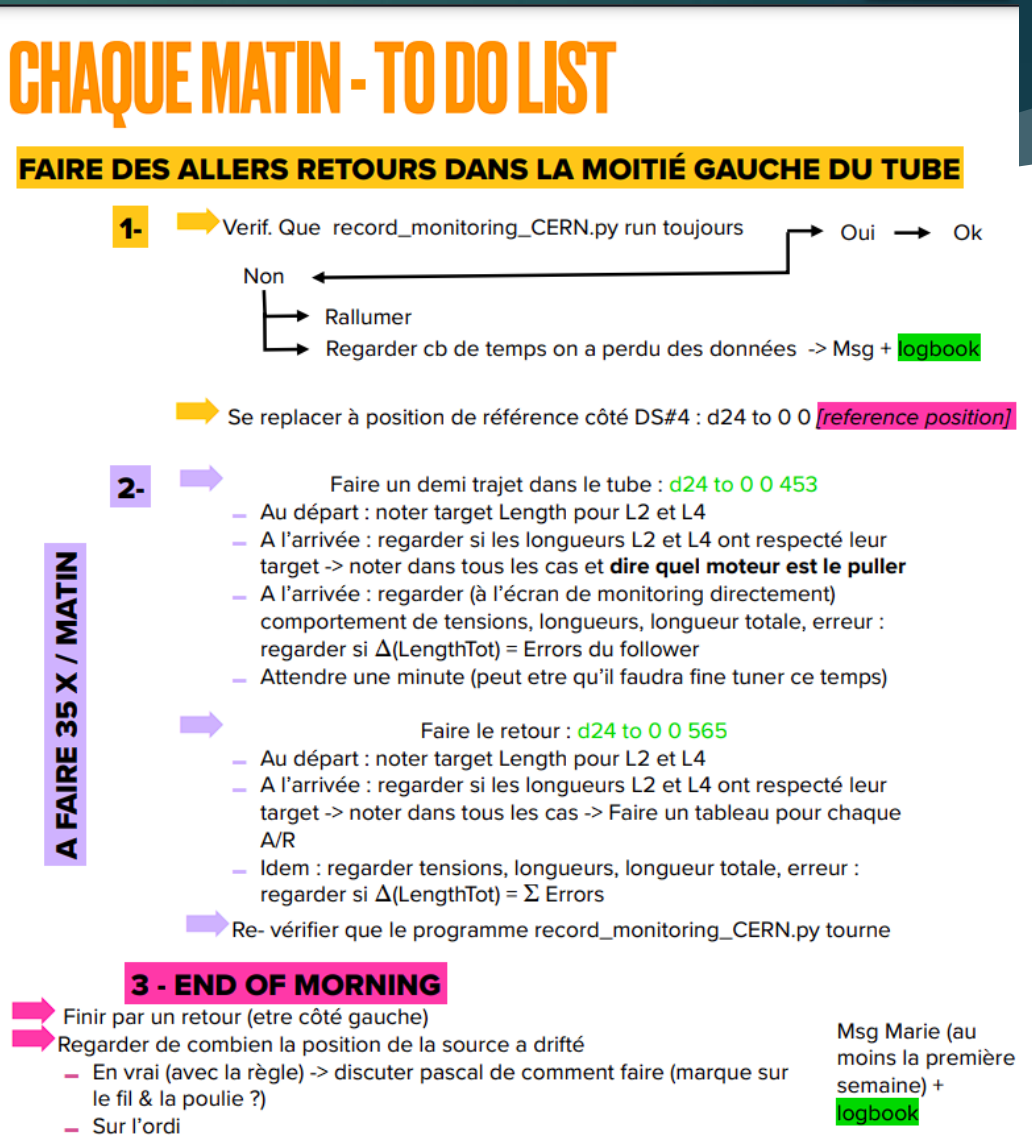


Tension on “Morning Routine” 13/06

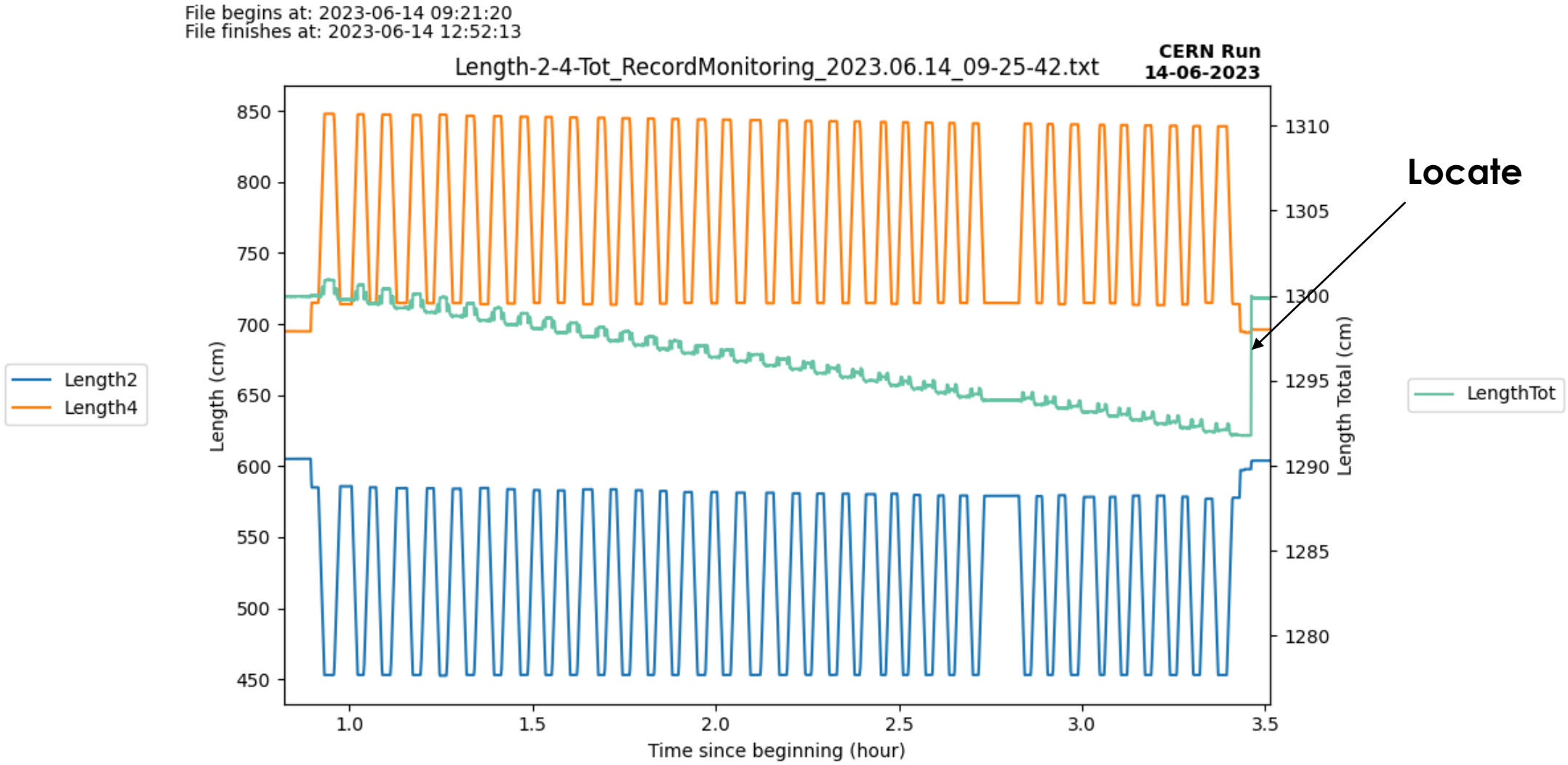


Commentaries :
Wednesday - 06/14

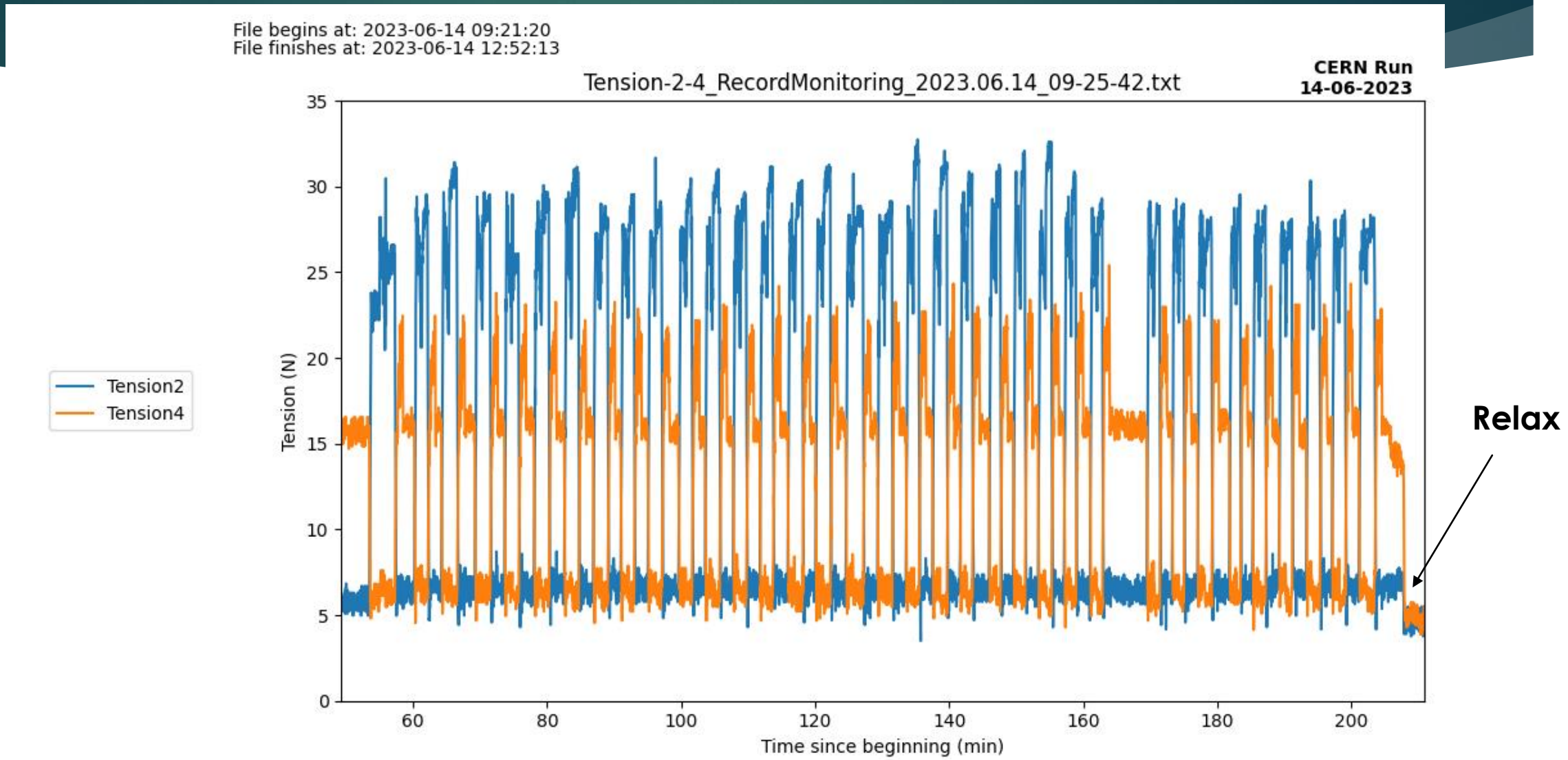
- Pression from battery outside : 150 bar. Need to talk again with Laetitia but seemed ok to her yesterday.
- Seems like there is the same amount of ice in both sides. Maybe too much opening of the tube and humidity went inside.
- I'll be checking the ice formation only twice a day to prevent humidity getting inside.
- Morning routine went fine. Took 2h30. Tension went to 30 for DS2 (sometimes 27, sometimes 32). Around 20 for DS4. Maybe need to talk about this together because it's kinda high for DS2.
- Drift after the morning routine : ~6cm



Length on “Morning Routine” 14/06



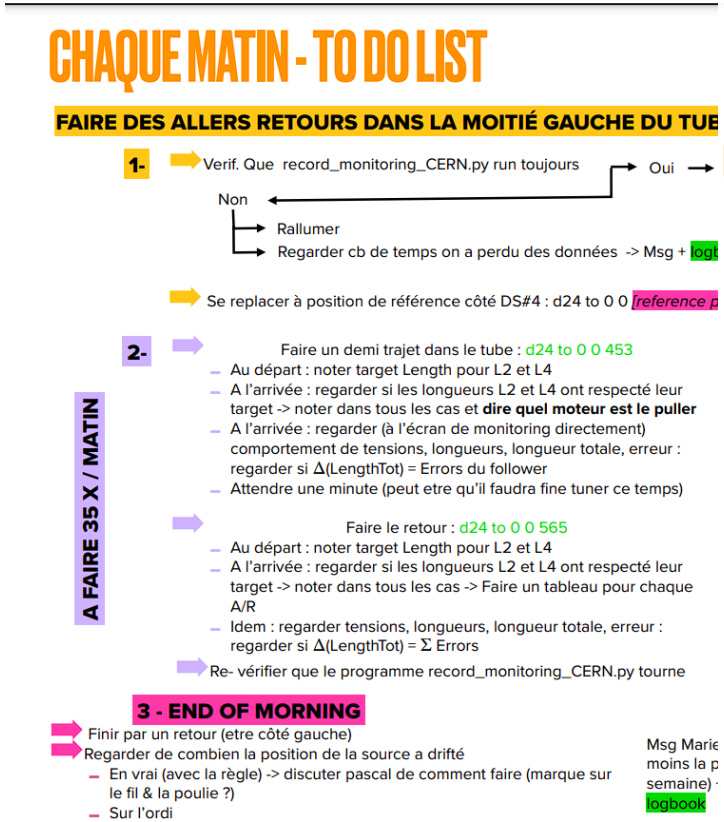
Tension on “Morning Routine” 14/06

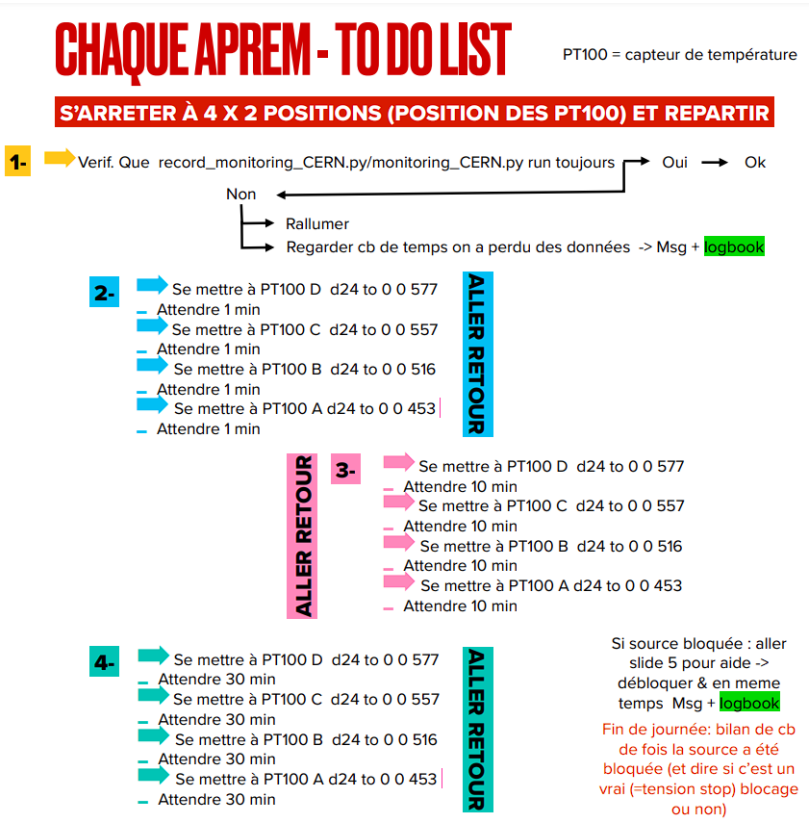


Commentaries :

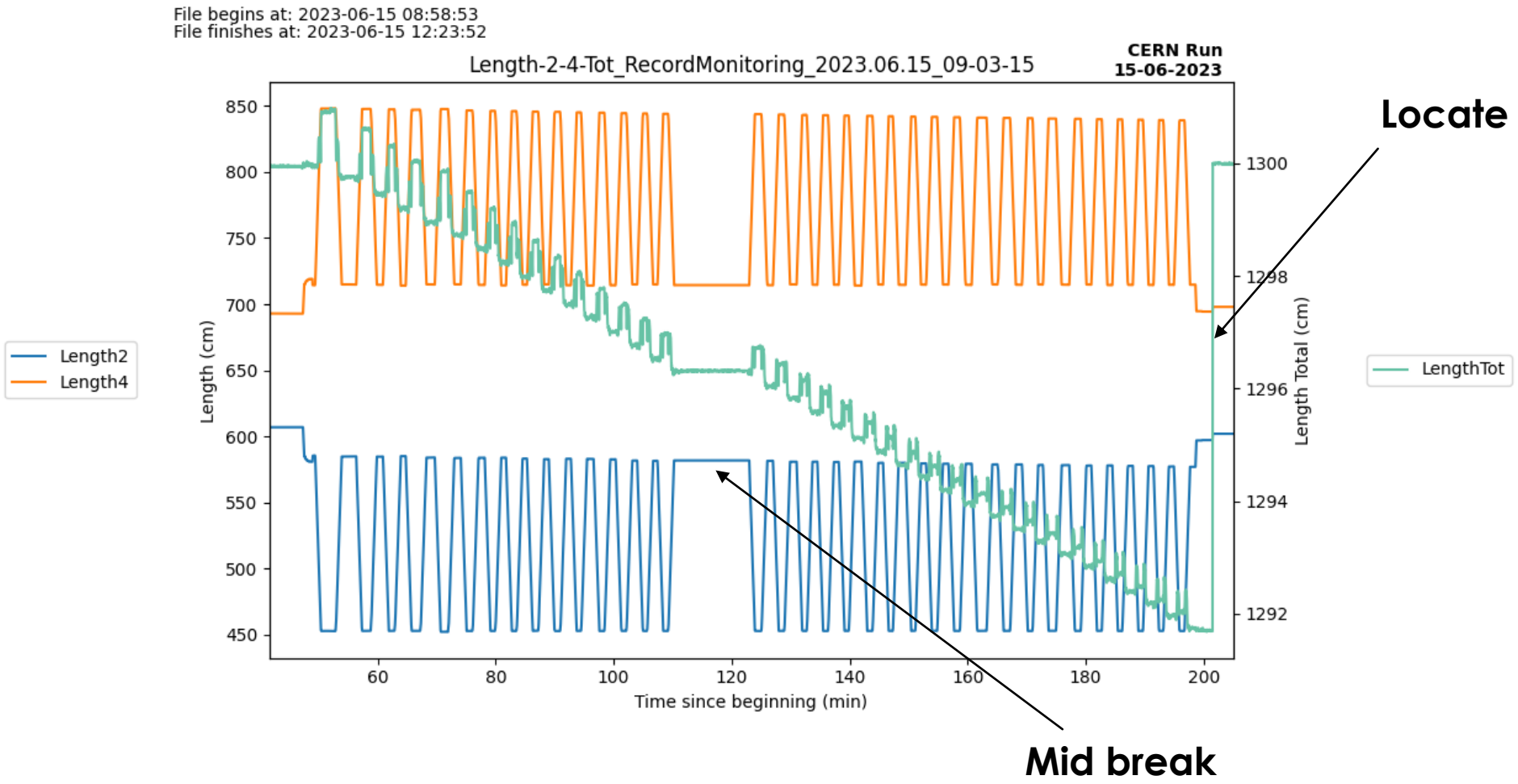
Thursday- 06/15

- Pression from battery outside : ~145/150 bar. Laetitia said it's going to be fine during a month at 120L/h.
- Morning routine went fine. Tension went to 40 for DS2 at one time. It was when the source arrived at the destination (453). No clue why.
- Error4 was kind of high since the beginning (around 7) but was constant.
- Laetitia said we could put LAr at the end of the month but it's going to take a big week to unfill the tank.
- Drift after the morning routine : ~5cm
- I stopped the afternoon routine at the "come back". I'll add the data tomorrow.

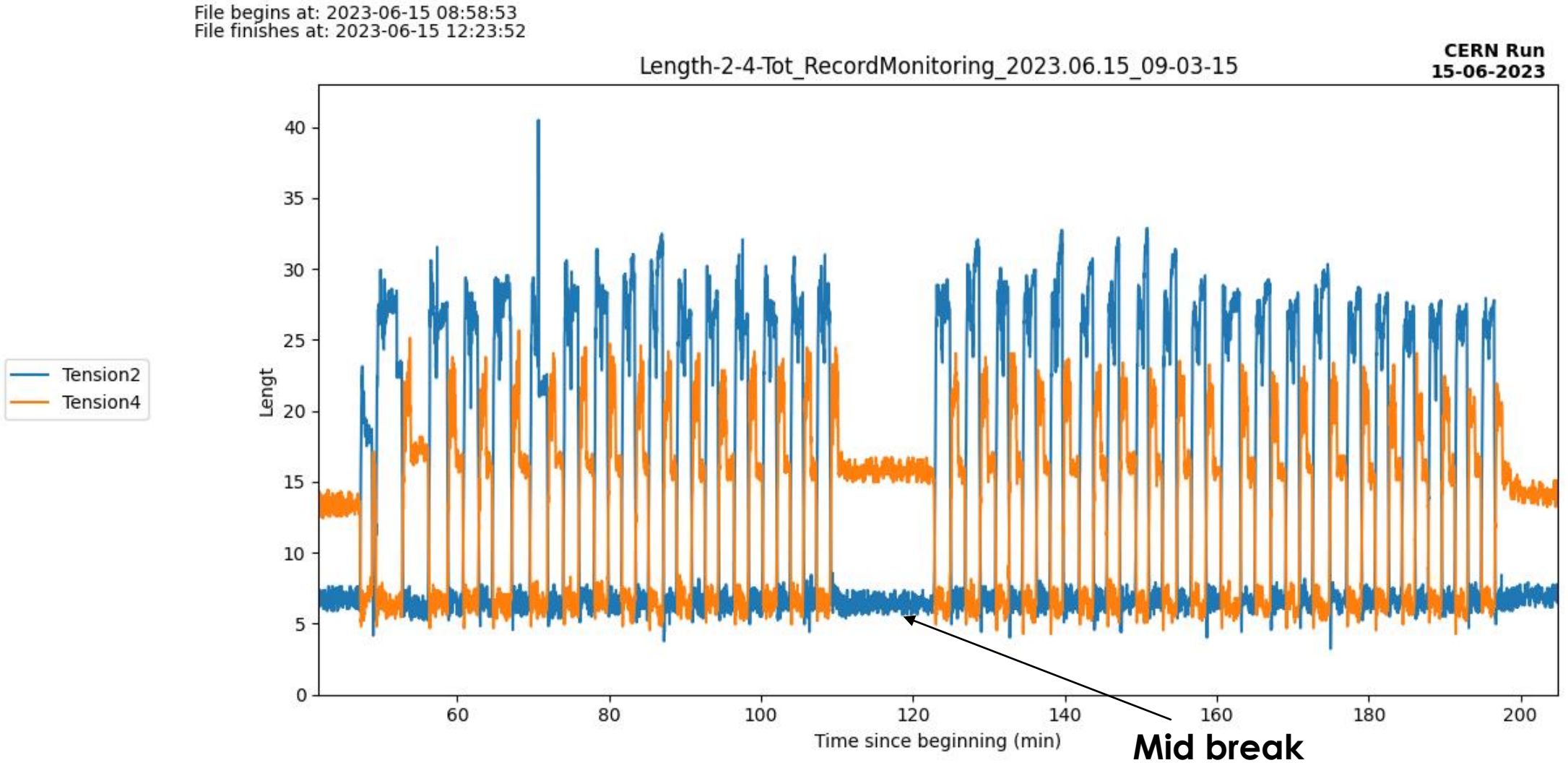




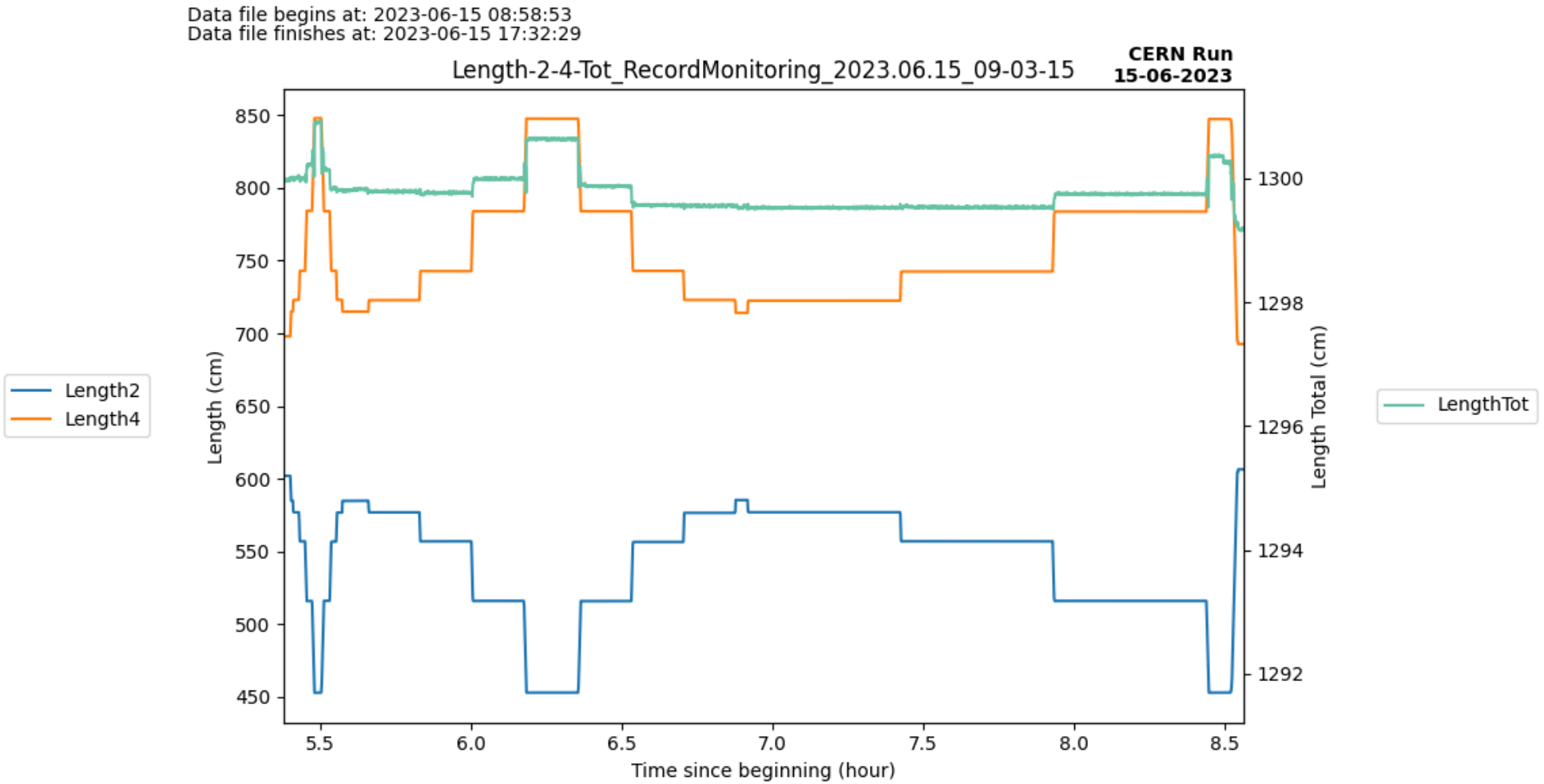
Length on “Morning Routine” 15/06



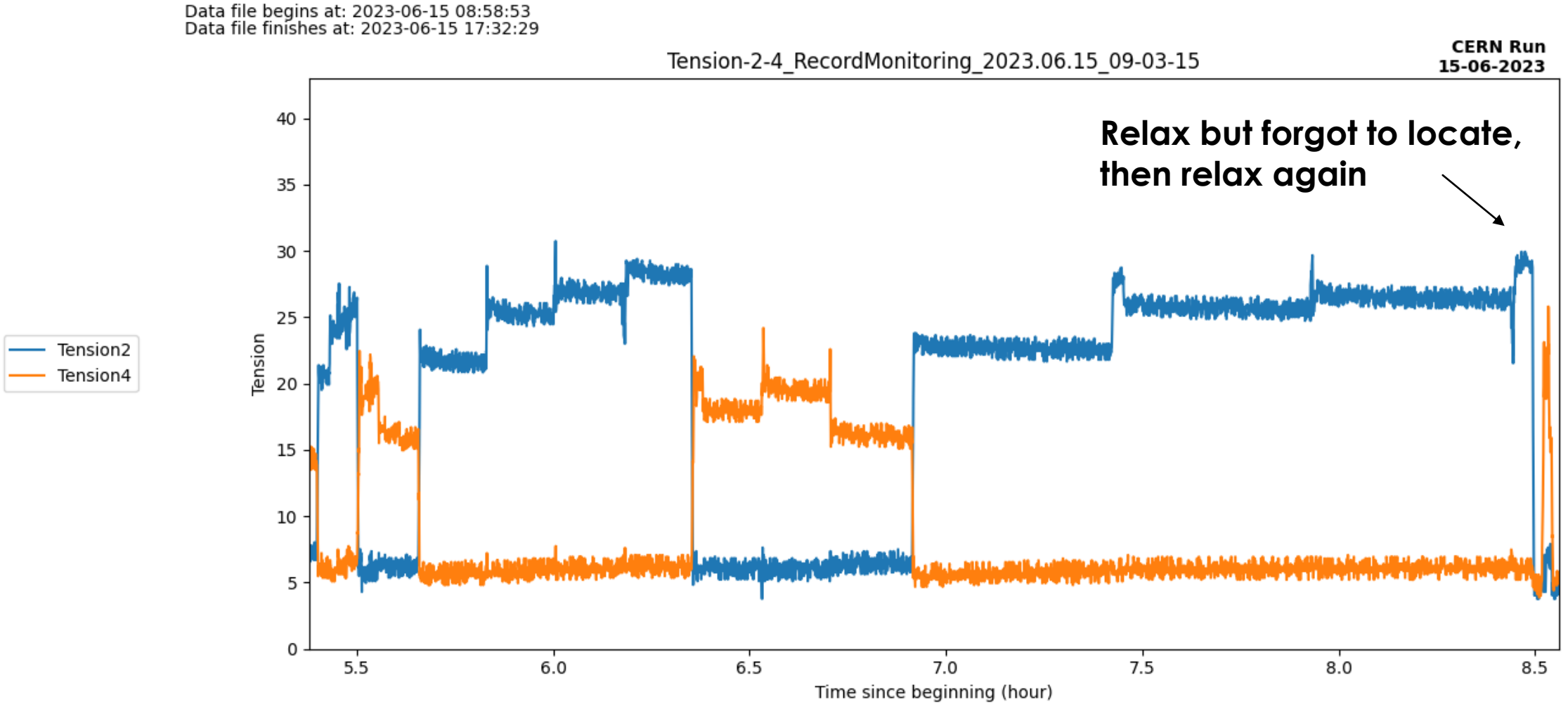
Tension on “Morning Routine” 15/06



Length on “Afternoon program” 15/06



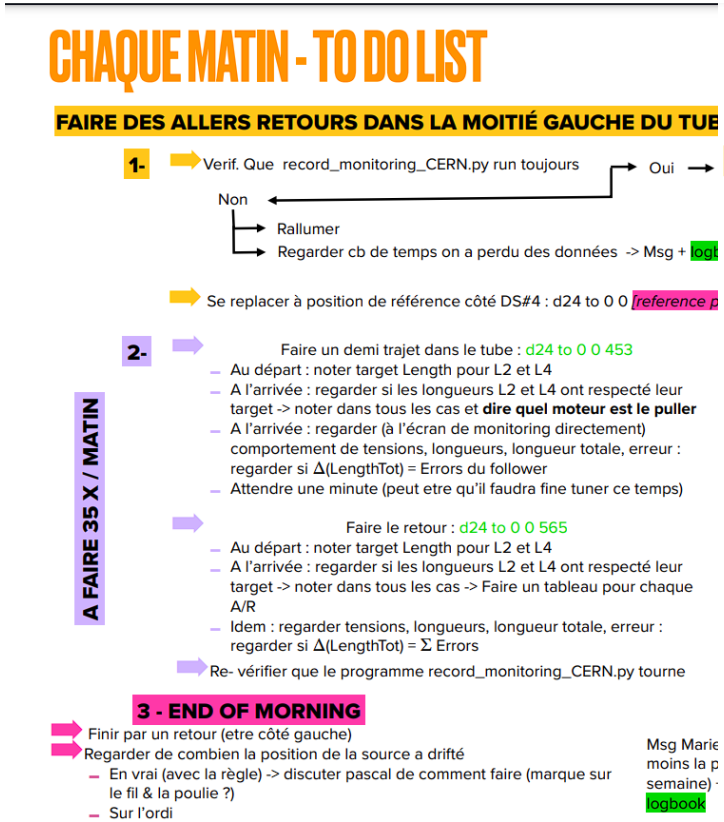
Tension on "Afternoon program" 15/06

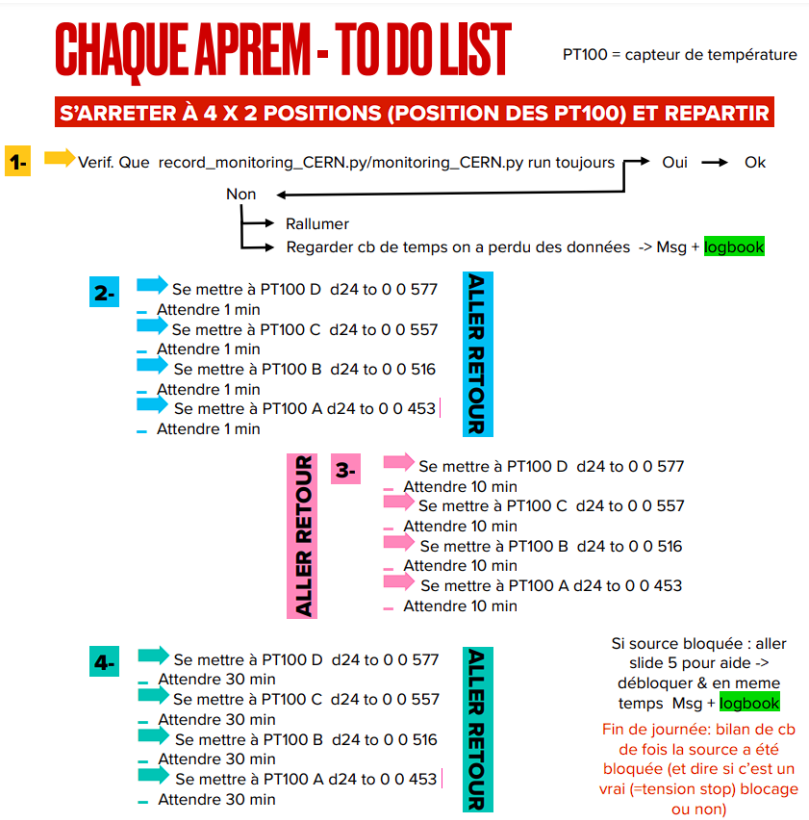


Commentaries :

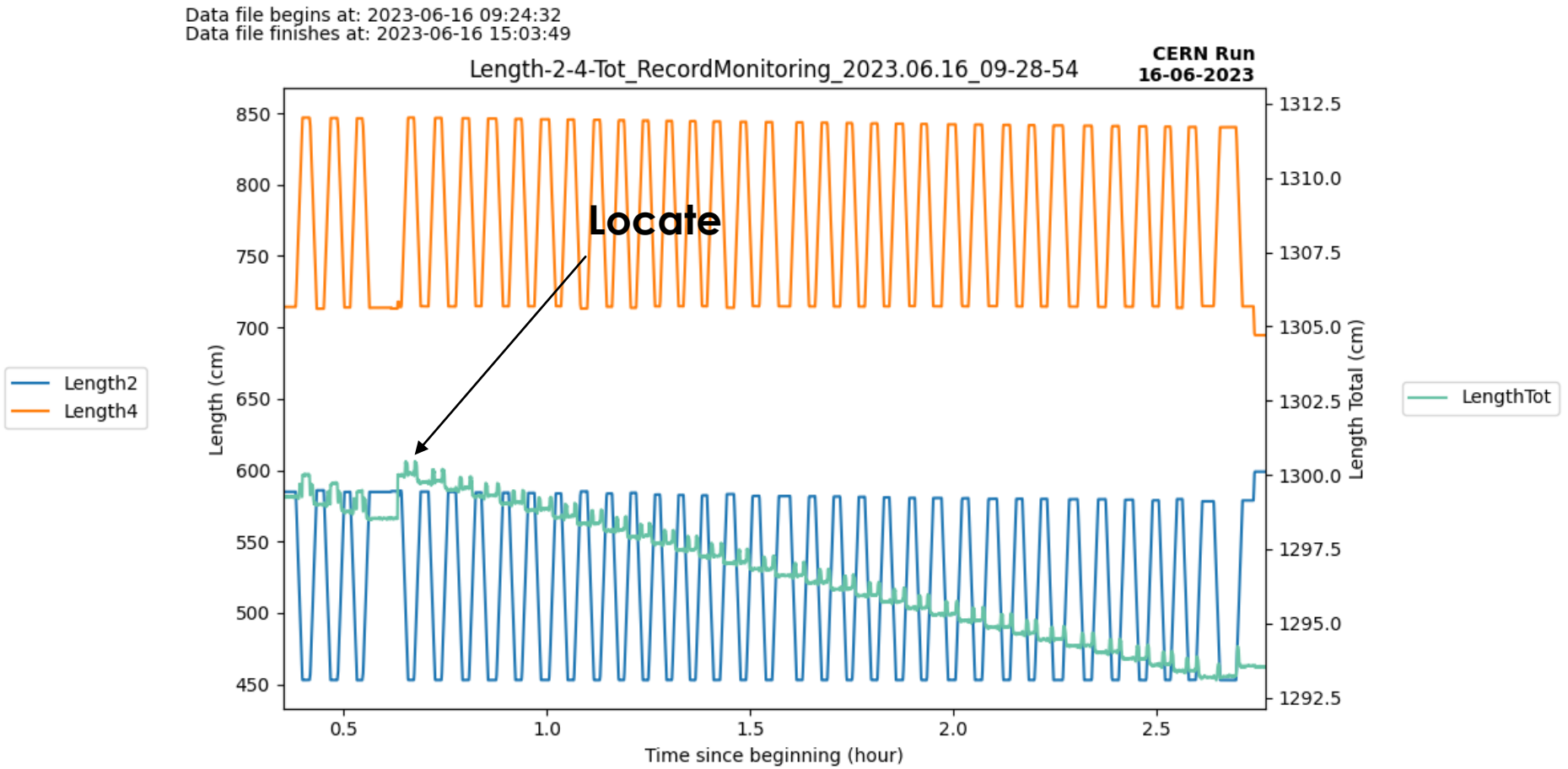
Thursday- 06/16

- LN2 in tube at 575, more than before. Maybe the filling of the tank ?
- DS4 rope error during the afternoon program (from 453 to 516 at 1' stops). Located and fixed.
- Not enough time to do all the afternoon program (take ~5h30), so yesterday did going frontward and today backward.
- I don't have my USB, so gonna take the windows data (temperatures) tomorrow !

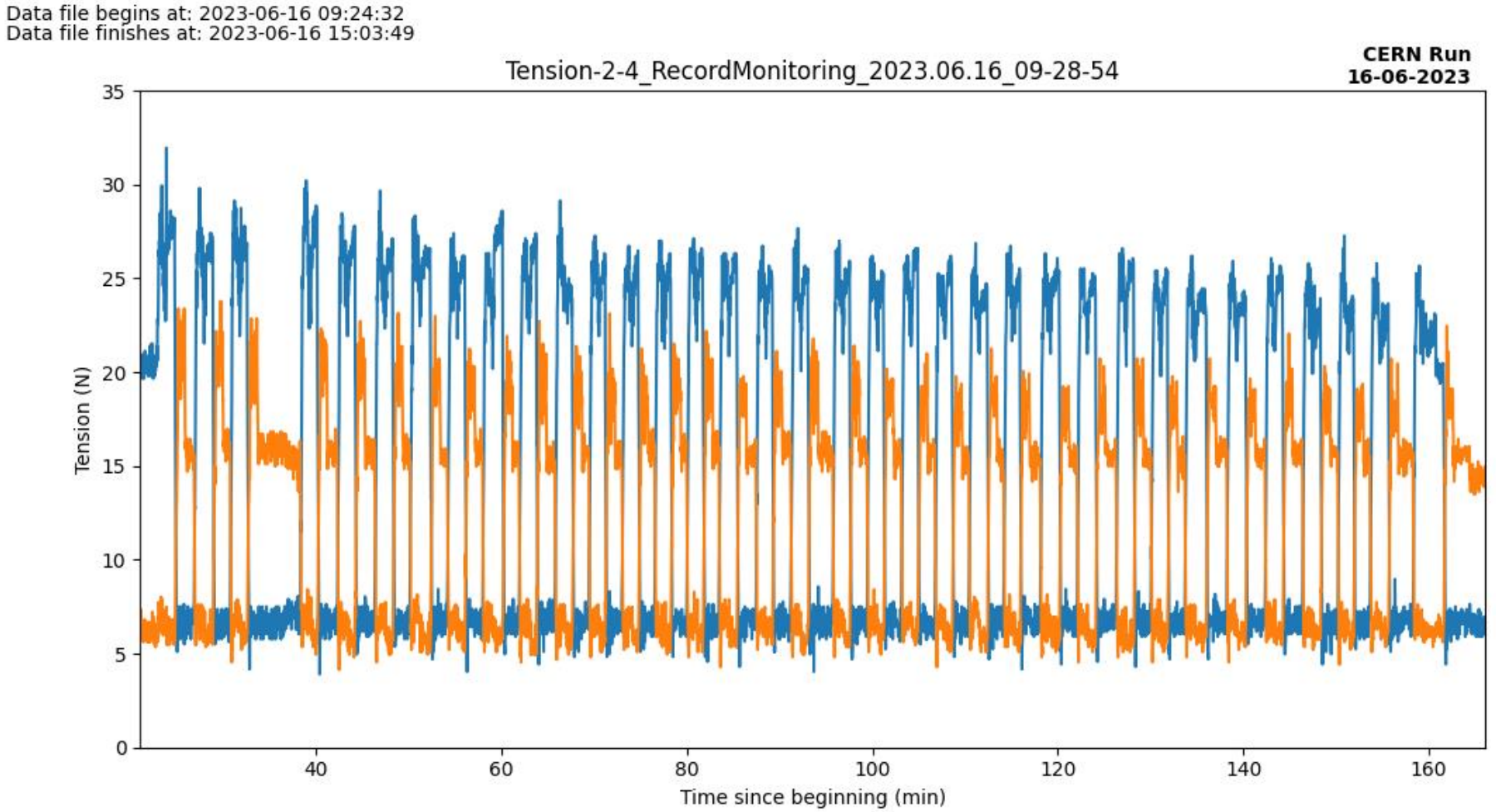




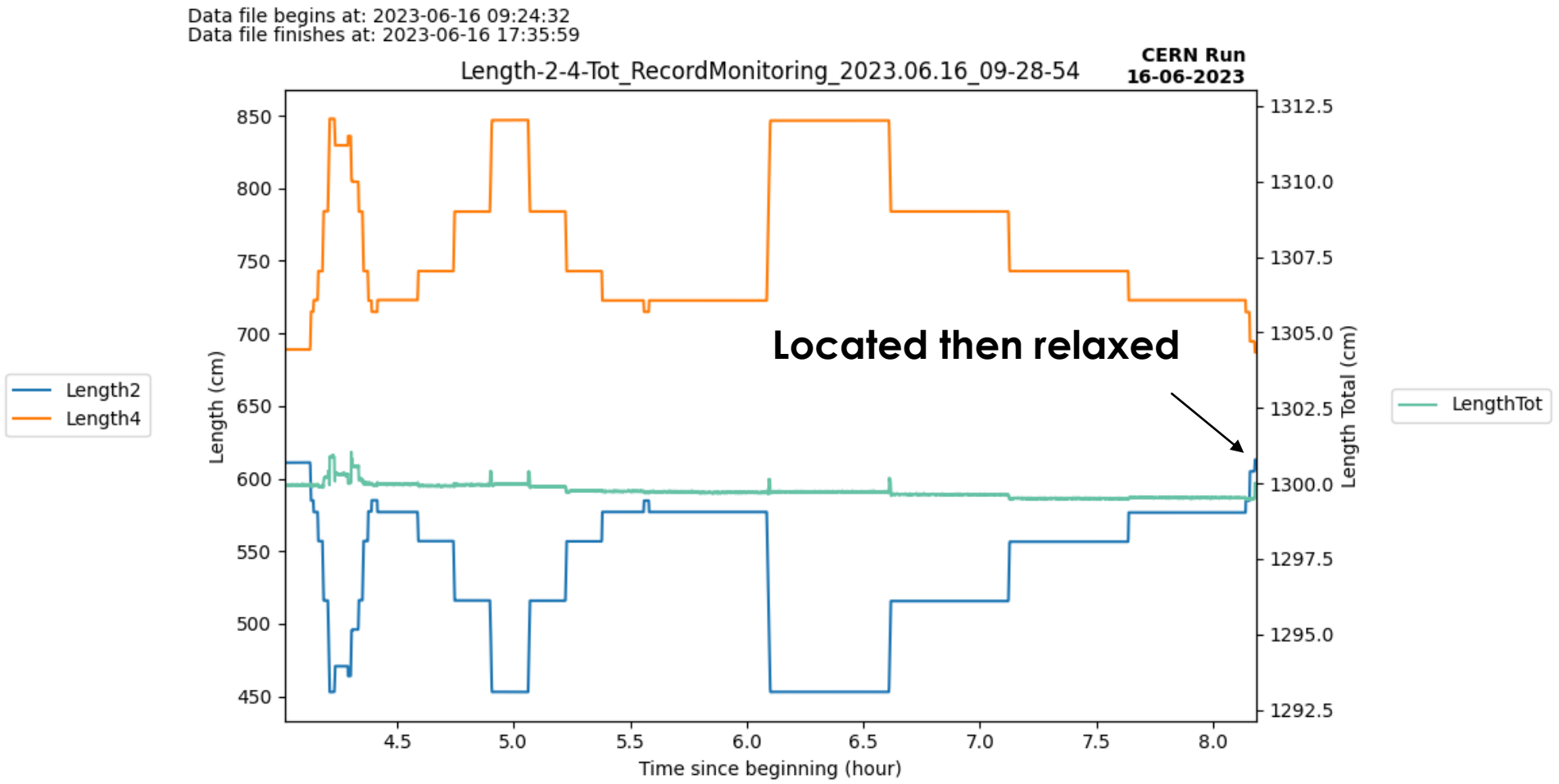
Length on "Morning Routine" 16/06



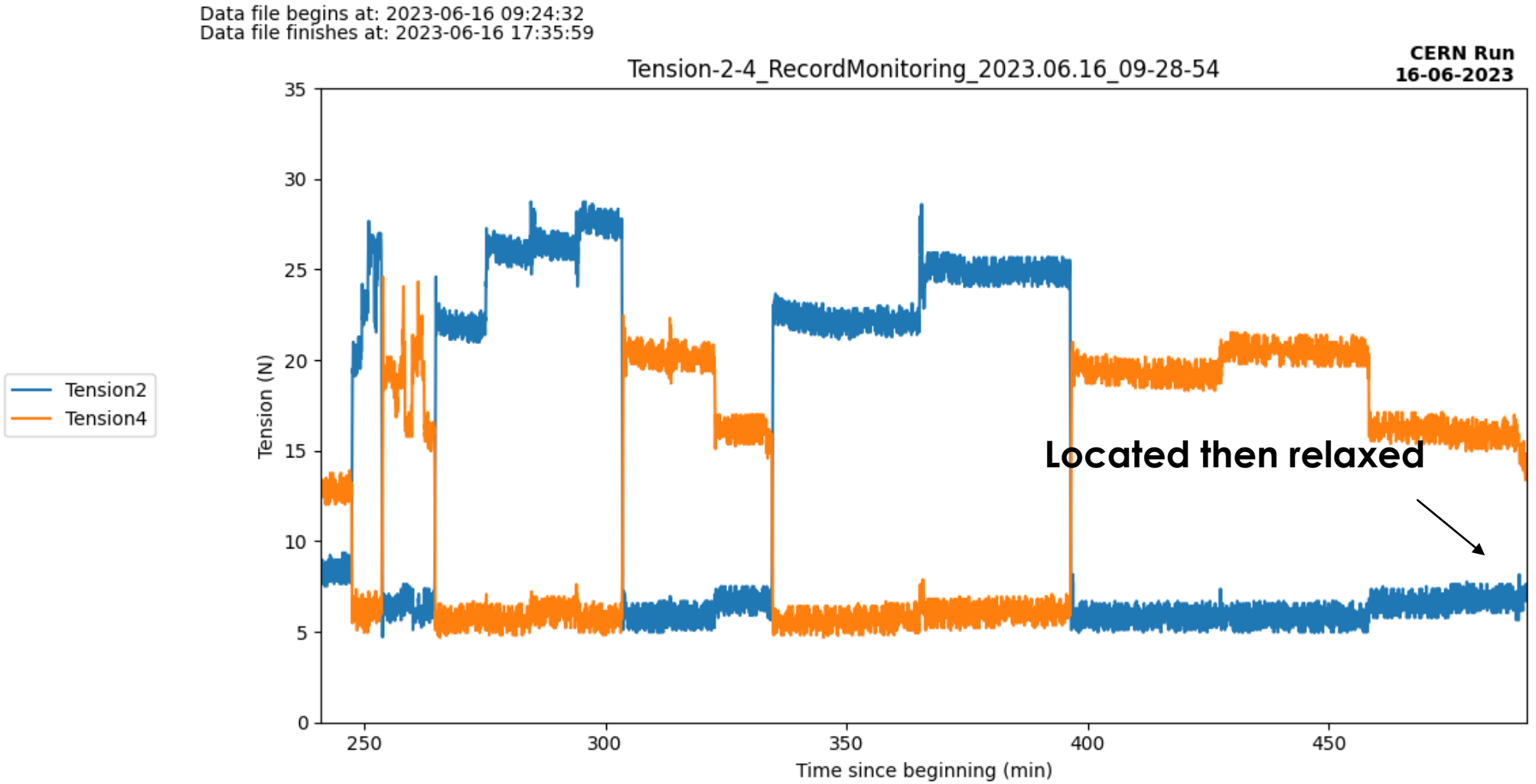
Tension on “Morning Routine” 16/06



Length on “Afternoon program” 16/06



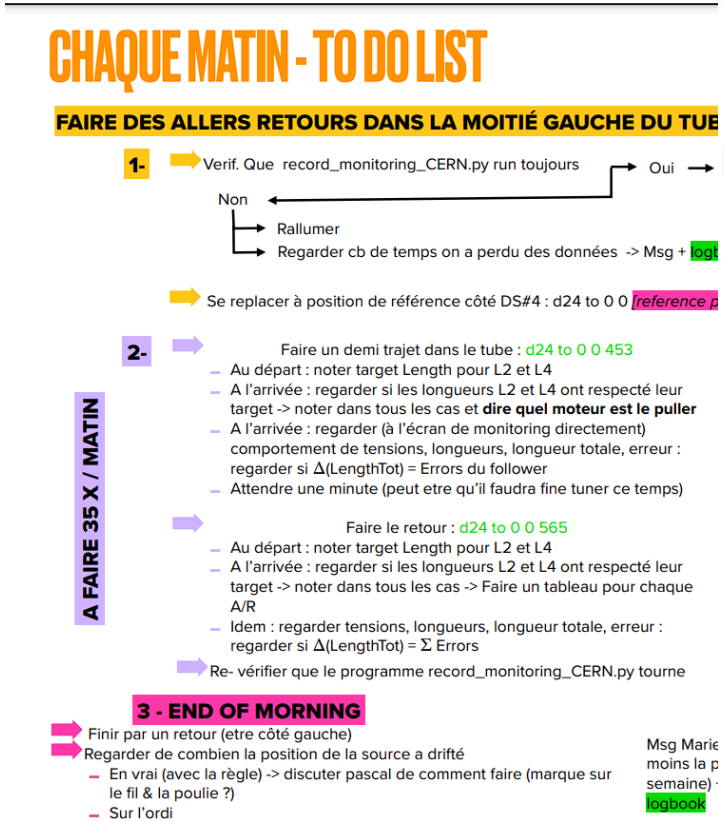
Tension on “Afternoon program” 16/06



Commentaries :

Thursday- 06/19

- In the morning routine, the tension when source is moving to PT100A is higher at the start of the routine (during 5-6 come back). Maybe some frost blocking the source at the beginning ?
- …



CHAQUE MATIN - TO DO LIST

FAIRE DES ALLERS RETOURS DANS LA MOITIÉ GAUCHE DU TUB

1- Verif. Que record_monitoring_CERN.py run toujours → Oui
Non → Rallumer
Regarder cb de temps on a perdu des données -> Msg + logt

Se replacer à position de référence côté DS#4 : d24 to 0 0 reference p

A FAIRE 35 X / MATIN

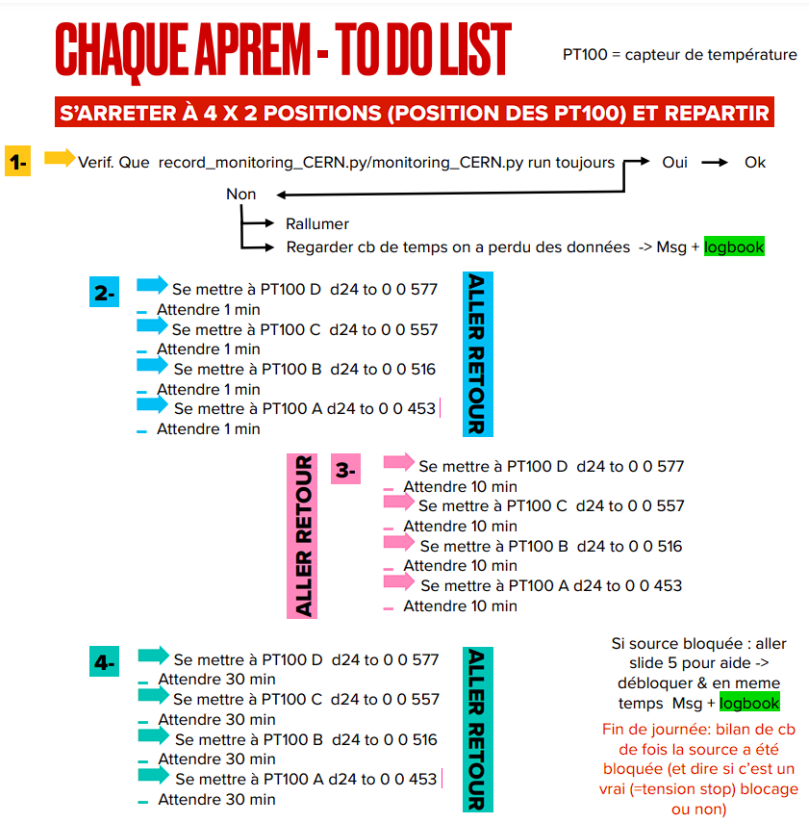
2- Faire un demi trajet dans le tube : d24 to 0 0 453
- Au départ : noter target Length pour L2 et L4
- A l'arrivée : regarder si les longueurs L2 et L4 ont respecté leur target -> noter dans tous les cas et **dire quel moteur est le puller**
- A l'arrivée : regarder (à l'écran de monitoring directement) comportement de tensions, longueurs, longueur totale, erreur : regarder si Δ(LengthTot) = Errors du follower
- Attendre une minute (peut etre qu'il faudra fine tuner ce temps)

Faire le retour : d24 to 0 0 565
- Au départ : noter target Length pour L2 et L4
- A l'arrivée : regarder si les longueurs L2 et L4 ont respecté leur target -> noter dans tous les cas -> Faire un tableau pour chaque A/R
- Idem : regarder tensions, longueurs, longueur totale, erreur : regarder si Δ(LengthTot) = Σ Errors

Re- vérifier que le programme record_monitoring_CERN.py tourne

3 - END OF MORNING
Finir par un retour (etre côté gauche)
Regarder de combien la position de la source a drifté
- En vrai (avec la règle) -> discuter pascal de comment faire (marque sur le fil & la poulie ?)
- Sur l'ordi

Msg Marie moins la p semaine) · logbook



CHAQUE APREM - TO DO LIST

PT100 = capteur de température

S'ARRETER À 4 X 2 POSITIONS (POSITION DES PT100) ET REPARTIR

1- Verif. Que record_monitoring_CERN.py/monitoring_CERN.py run toujours → Oui → Ok
Non → Rallumer
Regarder cb de temps on a perdu des données -> Msg + logbook

ALLER RETOUR

2- Se mettre à PT100 D d24 to 0 0 577
- Attendre 1 min

Se mettre à PT100 C d24 to 0 0 557
- Attendre 1 min

Se mettre à PT100 B d24 to 0 0 516
- Attendre 1 min

Se mettre à PT100 A d24 to 0 0 453
- Attendre 1 min

ALLER RETOUR

3- Se mettre à PT100 D d24 to 0 0 577
- Attendre 10 min

Se mettre à PT100 C d24 to 0 0 557
- Attendre 10 min

Se mettre à PT100 B d24 to 0 0 516
- Attendre 10 min

Se mettre à PT100 A d24 to 0 0 453
- Attendre 10 min

ALLER RETOUR

4- Se mettre à PT100 D d24 to 0 0 577
- Attendre 30 min

Se mettre à PT100 C d24 to 0 0 557
- Attendre 30 min

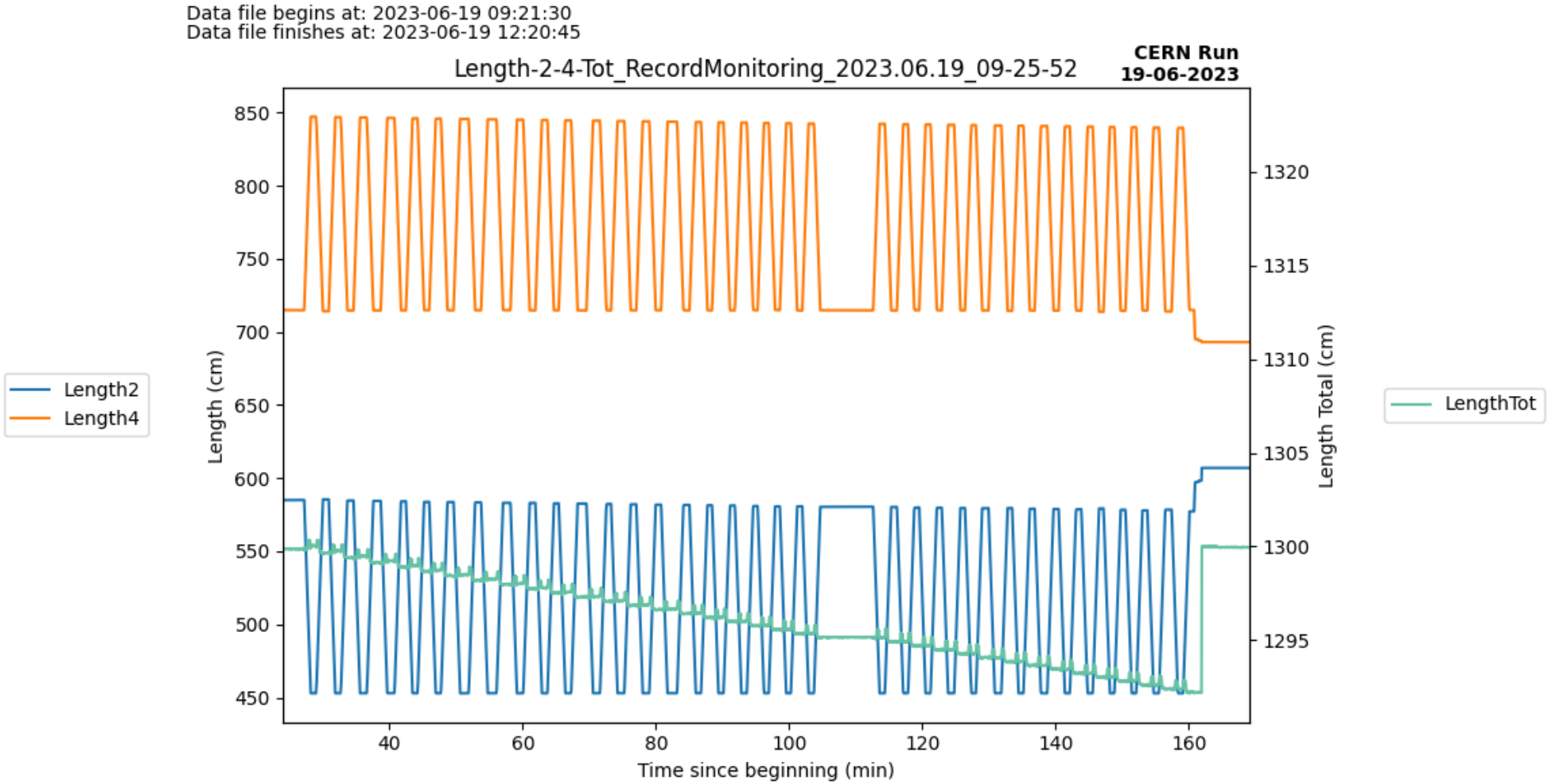
Se mettre à PT100 B d24 to 0 0 516
- Attendre 30 min

Se mettre à PT100 A d24 to 0 0 453
- Attendre 30 min

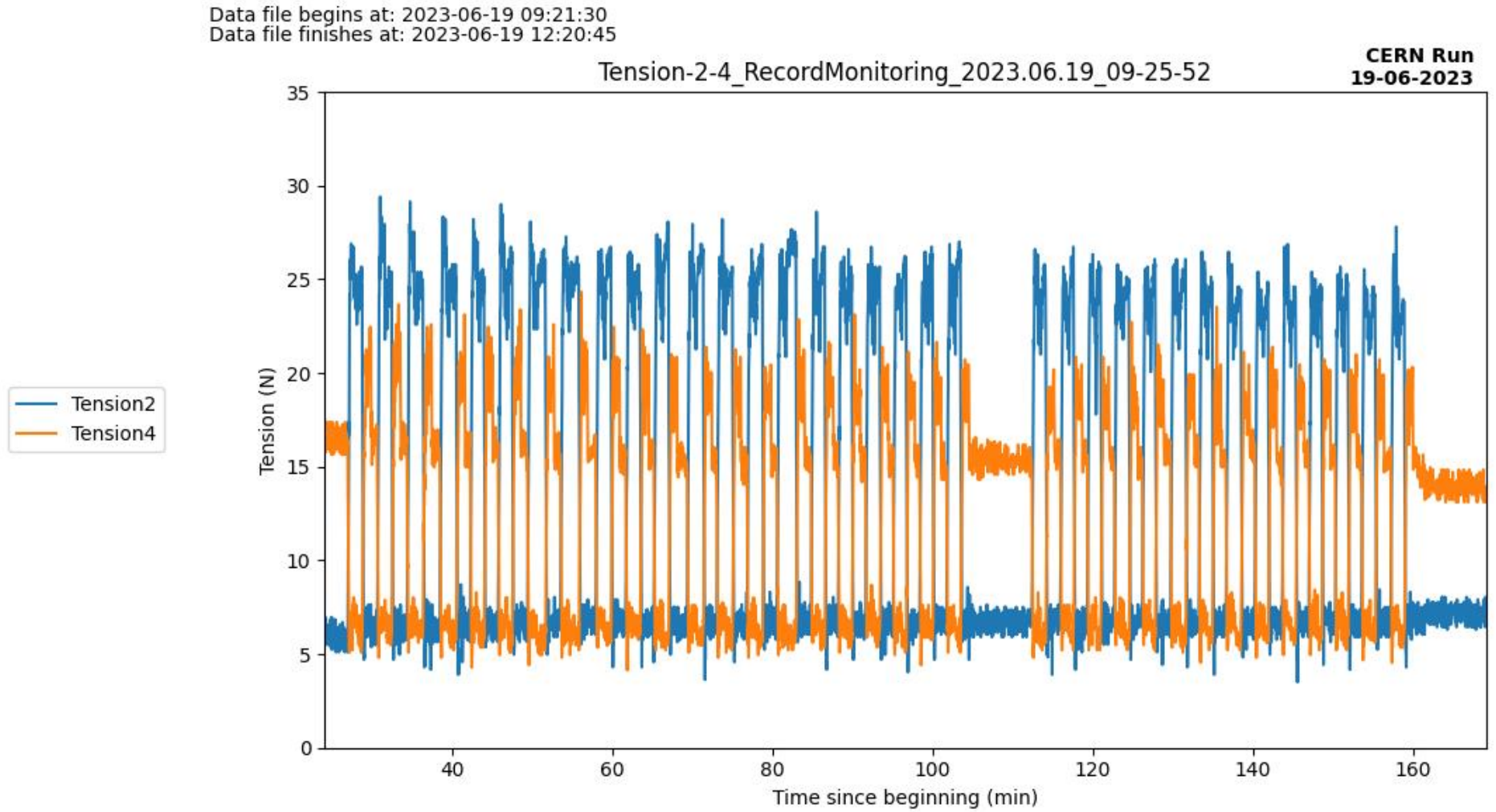
Si source bloquée : aller slide 5 pour aide -> débloquer & en meme temps Msg + logbook

Fin de journée: bilan de cb de fois la source a été bloquée (et dire si c'est un vrai (=tension stop) blocage ou non)

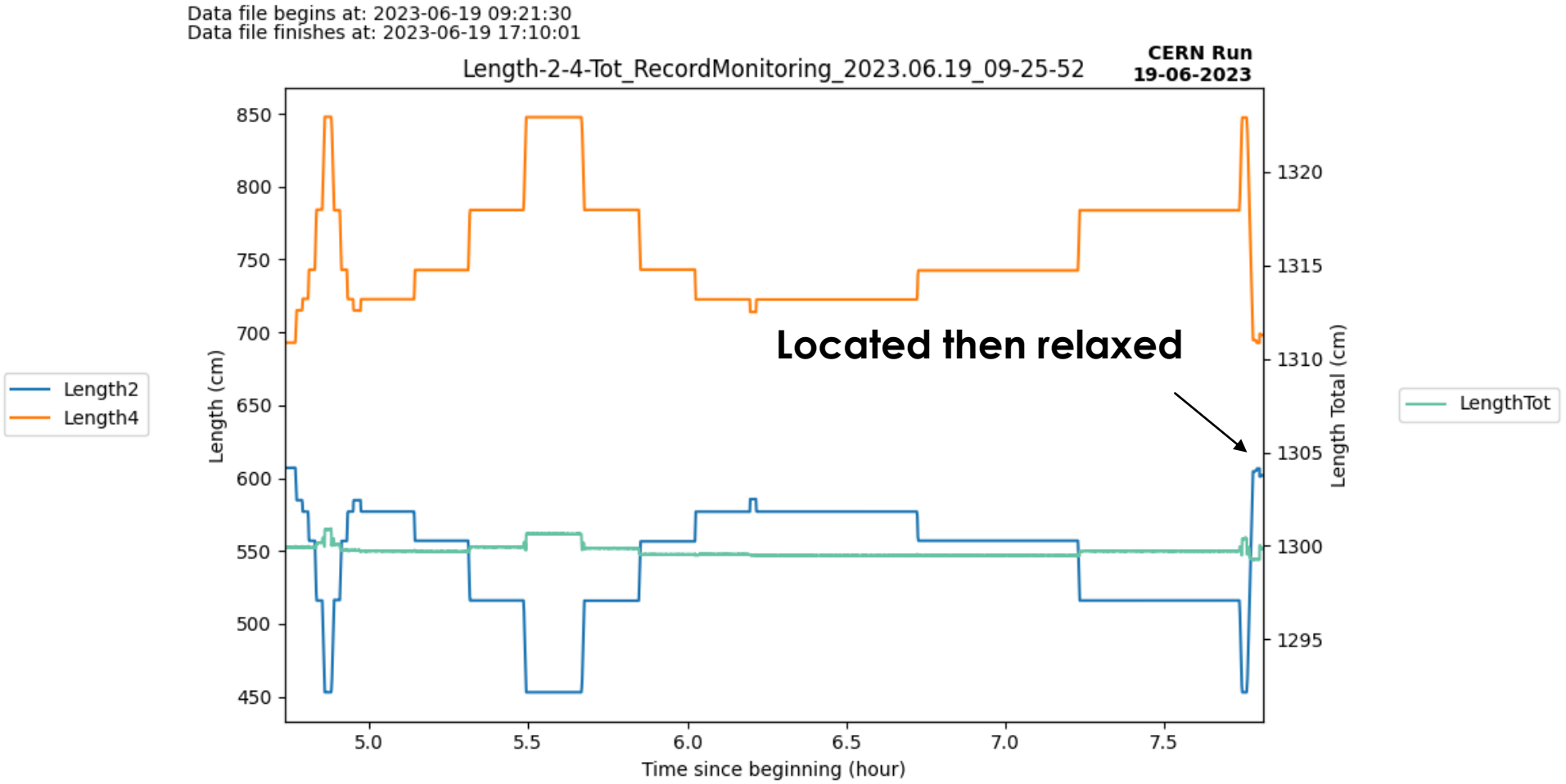
Length on “Morning Routine” 19/06



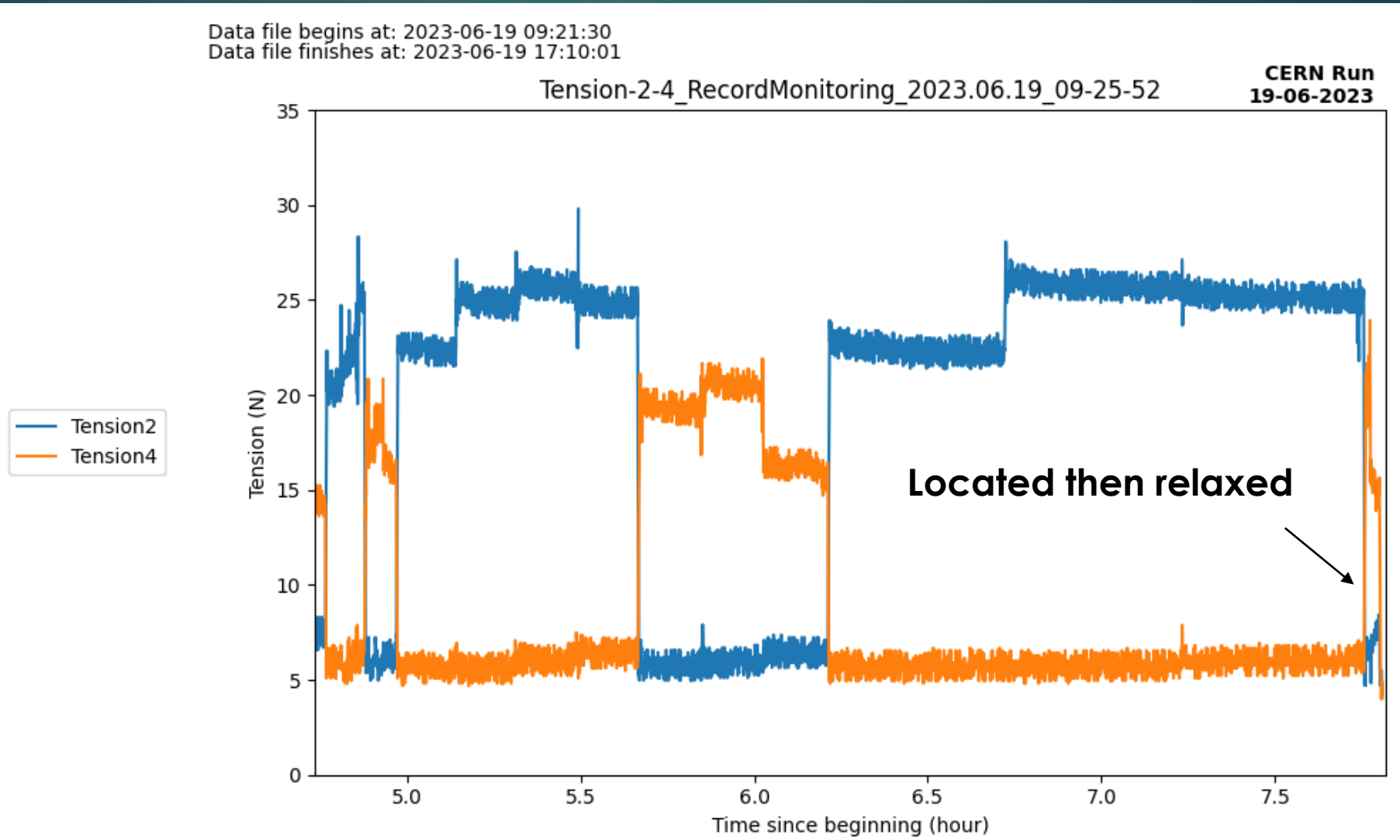
Tension on “Morning Routine” 19/06



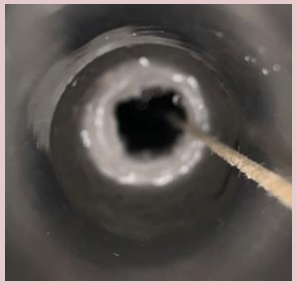
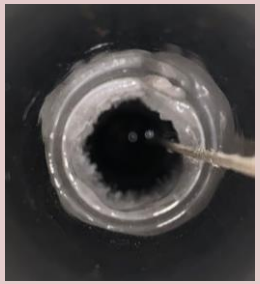
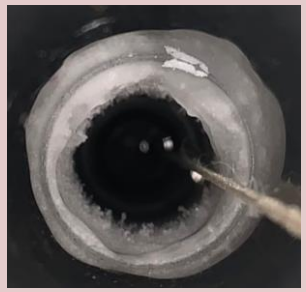
Length on “Afternoon program” 19/06



Tension on "Afternoon program" 19/06

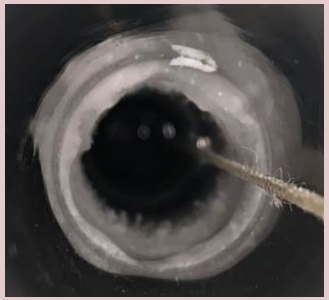
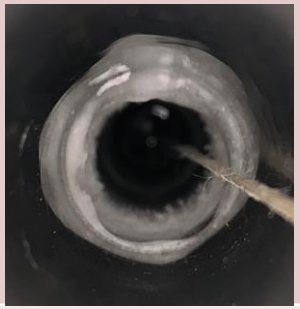
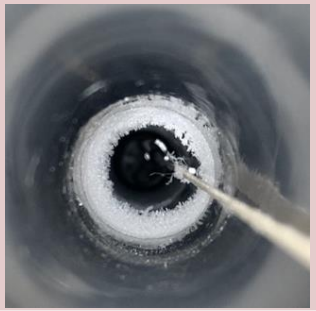
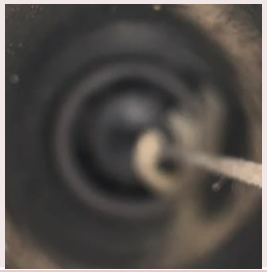
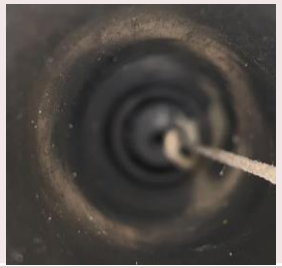
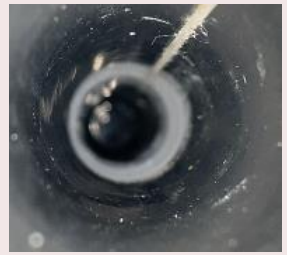


Flushing LN2 at 250L/h to see effect on ice :

Time	12/06/2023 11:00	12:00	12:50	14:00	15:05
Right Side (DS2)					
Left Side (DS4)					
T shaped gN2 pipe	**NO**	**NO**	**NO**	**YES**	**YES**
gN2 Total flow	**250L/h, right side**	**250L/h, right side**	**250L/h, right side**	**250L/h split in both sides**	**250L/h split in both sides**
LN2 in tube	56cm from top -> position 564				55cm from top -> position 565
%LN2 in tank	81%	~ 80%	~ 80%	~ 80%	~ 80%

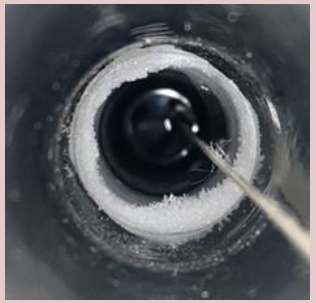
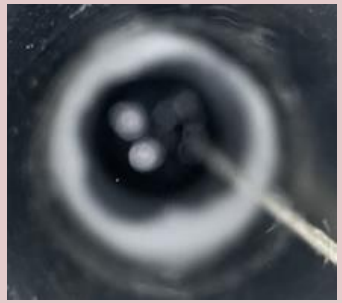
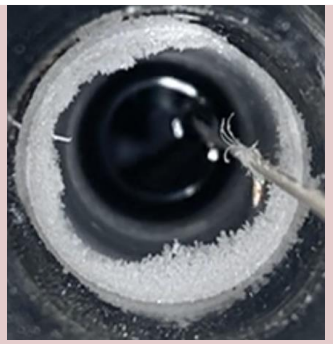
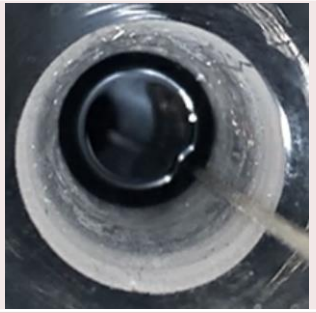
Pictures are cropped to be visible so do not pay attention on sizes, more on shapes.

Flushing LN2 at 250L/h to see effect on ice :

Time	16:00	17:00	13/06/2023 9:00	11:25	13:00
Right Side (DS2)					
Left Side (DS4)					
T shaped gN2 pipe	**YES**	**YES**	**YES**	**YES**	**YES**
gN2 Total flow	**250L/h**	**250L/h**	**250L/h**	**250L/h**	**250L/h**
LN2 in tube	56cm from top -> position 564				58 from top -> position 562
% LN2 in tank	~ 80%	~ 80%	75%	~98%	98.4%

Pictures are cropped to be visible so do not pay attention on sizes, more on shapes.

Flushing LN2 at 250L/h to see effect on ice :

Time	14:14	15:30	17:30	14/06 9:30	15/06 10:00
Right Side (DS2)					
Left Side (DS4)					
T shaped gN2 pipe	YES	YES	YES	YES	YES
gN2 Total flow	250L/h	250L/h	120L/h	120L/h	120L/h
LN2 in tube		54cm so position 566	52 so position 568		
% LN2 in tank	98%	97,5%	99%	95%	89%

Pictures are cropped to be visible so do not pay attention on sizes, more on shapes.

Flushing LN2 at 250L/h to see effect on ice :

Time	16/06	19/06	18/06	19/06	20/06
Right Side (DS2)					
Left Side (DS4)					
T shaped gN2 pipe	**YES**	**YES**			
gN2 Total flow	**120L/h**	**120L/h**			
LN2 in tube		Position 570			
% LN2 in tank	99,6%	83%			

Pictures are cropped to be visible so do not pay attention on sizes, more on shapes.