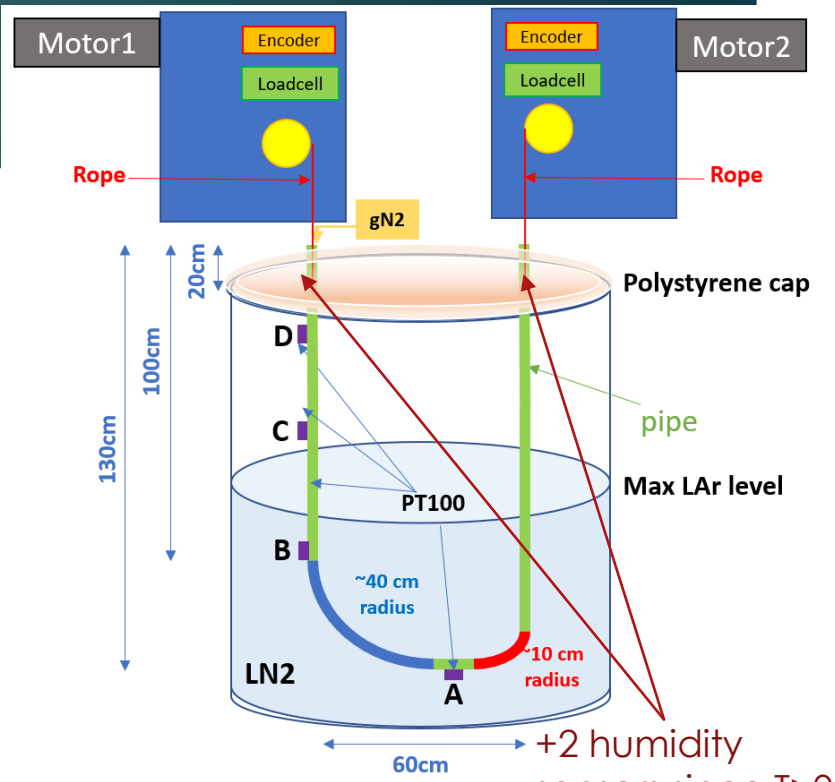
Weekly Monitoring

FROM 03/07 TO 07/07

Lucas

Summary :

Date	Hour	Ice Formation	°C	Tension before any test (N)	gN2 flow (L/h)	Voltage (V)	Current (A)
Mon – 03/07	13:35	None	A,B at -183,95°C (LAr) C -145 D -68	DS2 : 5 DS4 : 5 (relaxed)	60	DS2 : 24 DS4 : 24	DS2 : 0.08 DS4 : 0.09
Tue – 04/07	10:50	Intended	A, B LAr Temperature C -137.37 °C D -66,51°C	DS2 : 15 DS4 : 5 (not relaxed)	60	DS2 : 24 DS4 : 24	DS2 : 0.08 DS4 : 0.09

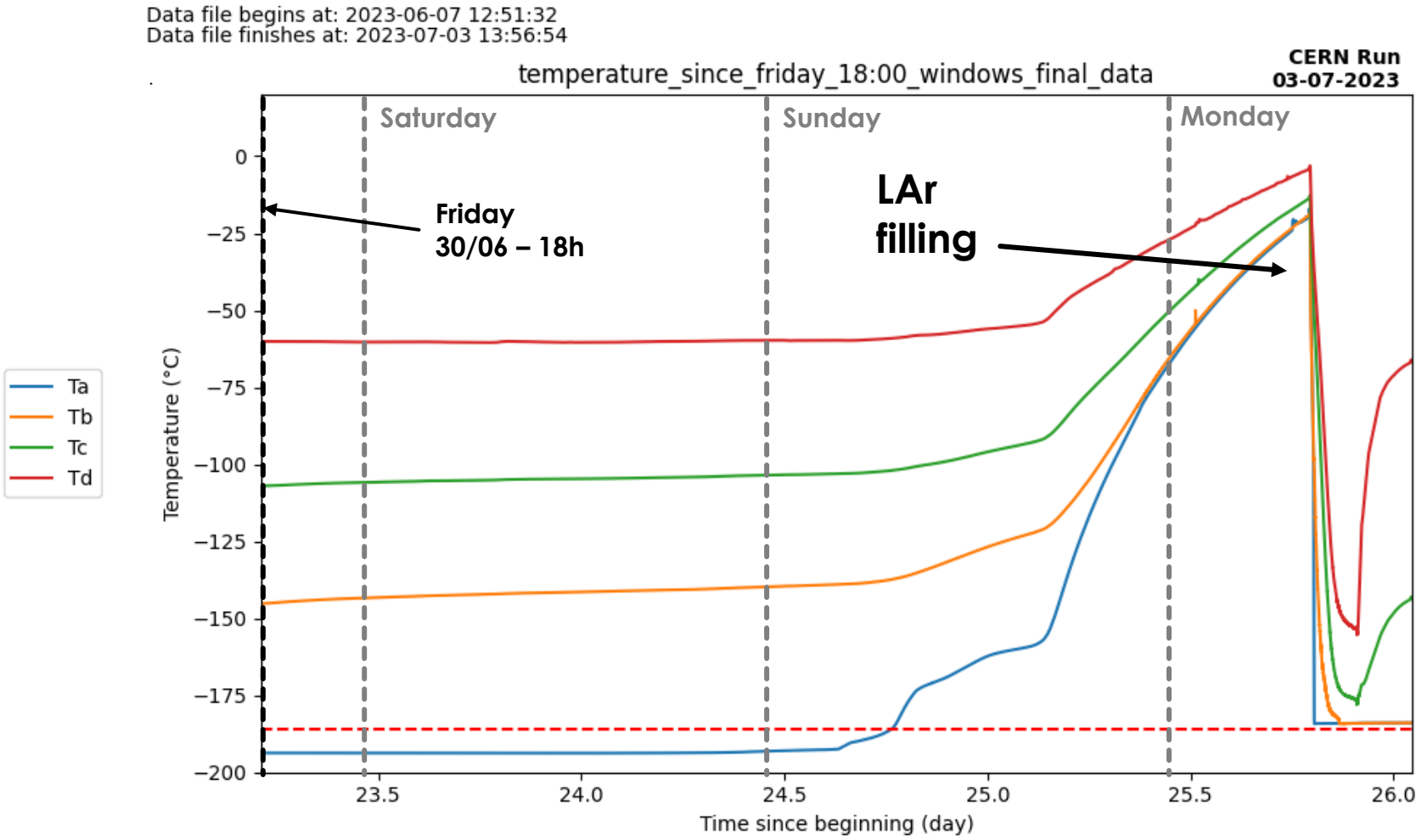


DS4 (left) | DS2 (right)

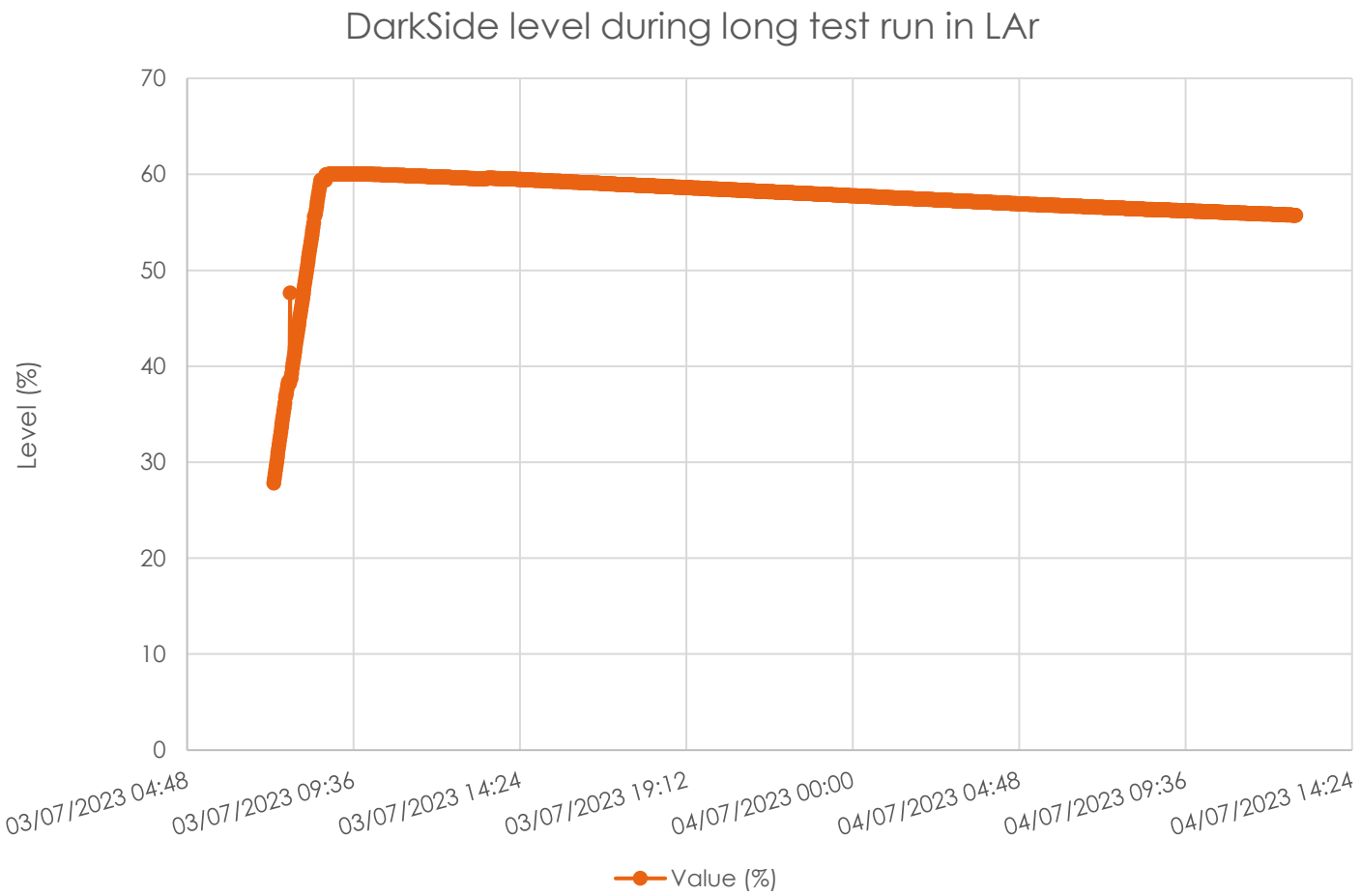
Temperature changes since Friday 30/06 at 9AM

- Monday 26/06 :
  Start the heating process. Small heater placed in the tank.
- Thursday 29/06 :
  Heating process accelerated : larger heater inside the tank, lid of the tank removed
- Friday 30/06 :
  End of the active heating process, letting tank heat with ambient temperature.

➔ Temperature graph for weekend

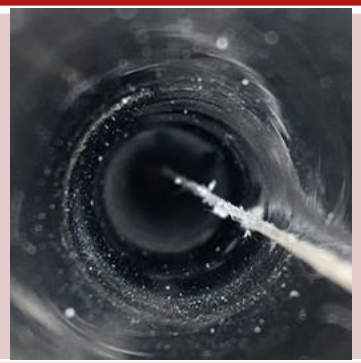
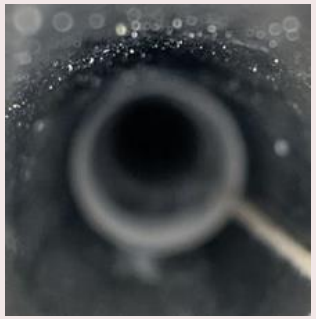


LAr in tank curve



Tank level **decreasing linearly (around 4%/day)**

Flushing LN2 to see effect on ice :

Time	Monday 03/07	Tuesday 04/07	Wednesday 05/07	Thursday 06/07	Friday 07/07
Right Side (DS2)					
Left Side (DS4)					
T shaped gN2 pipe	NO	NO	NO	YES	YES
gN2 Total flow	**60 L/h**	**60L/h**			
LN2 in tube	None	None			
%LN2 in tank*	**61%**	**59%**			

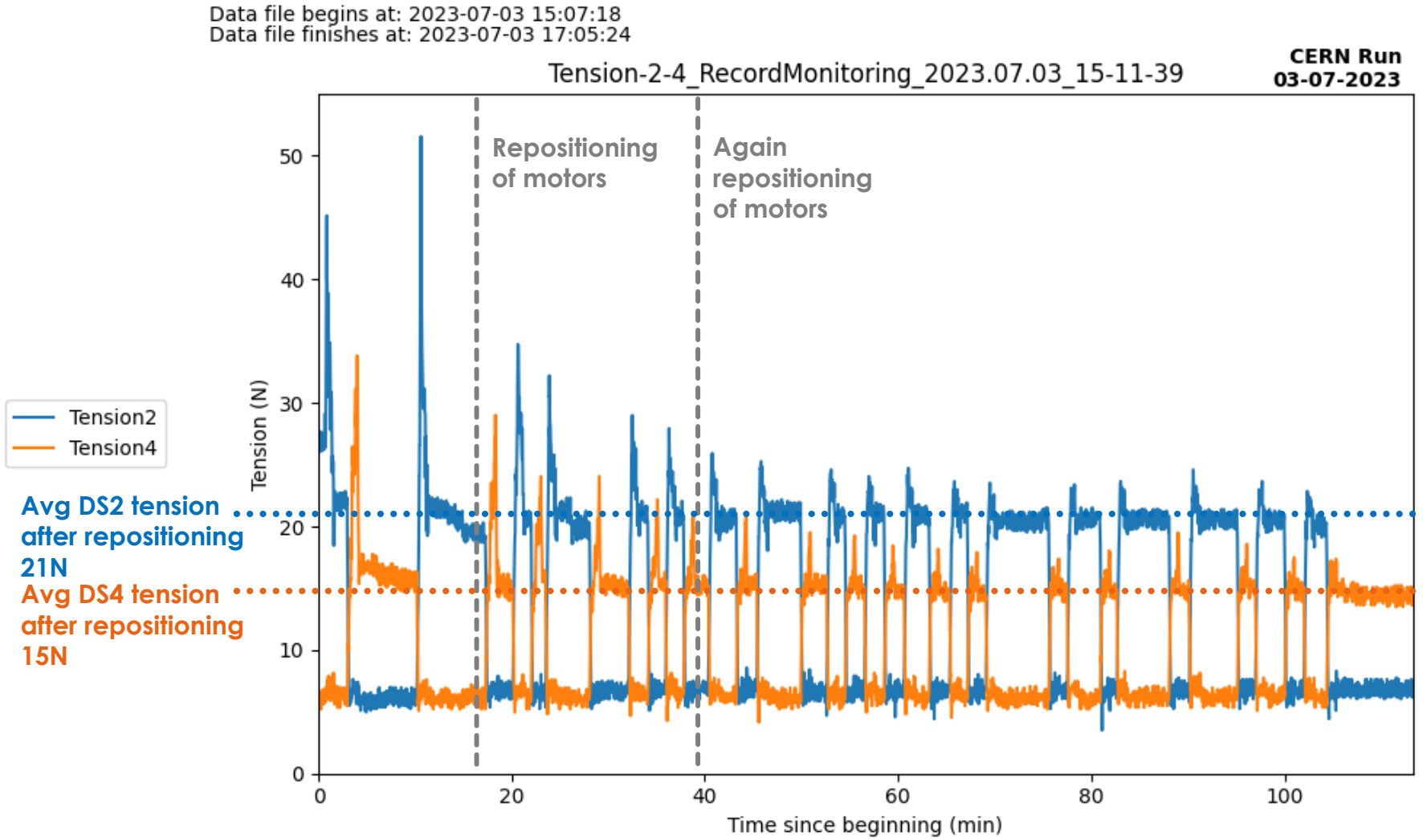
* No refill possible this time

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

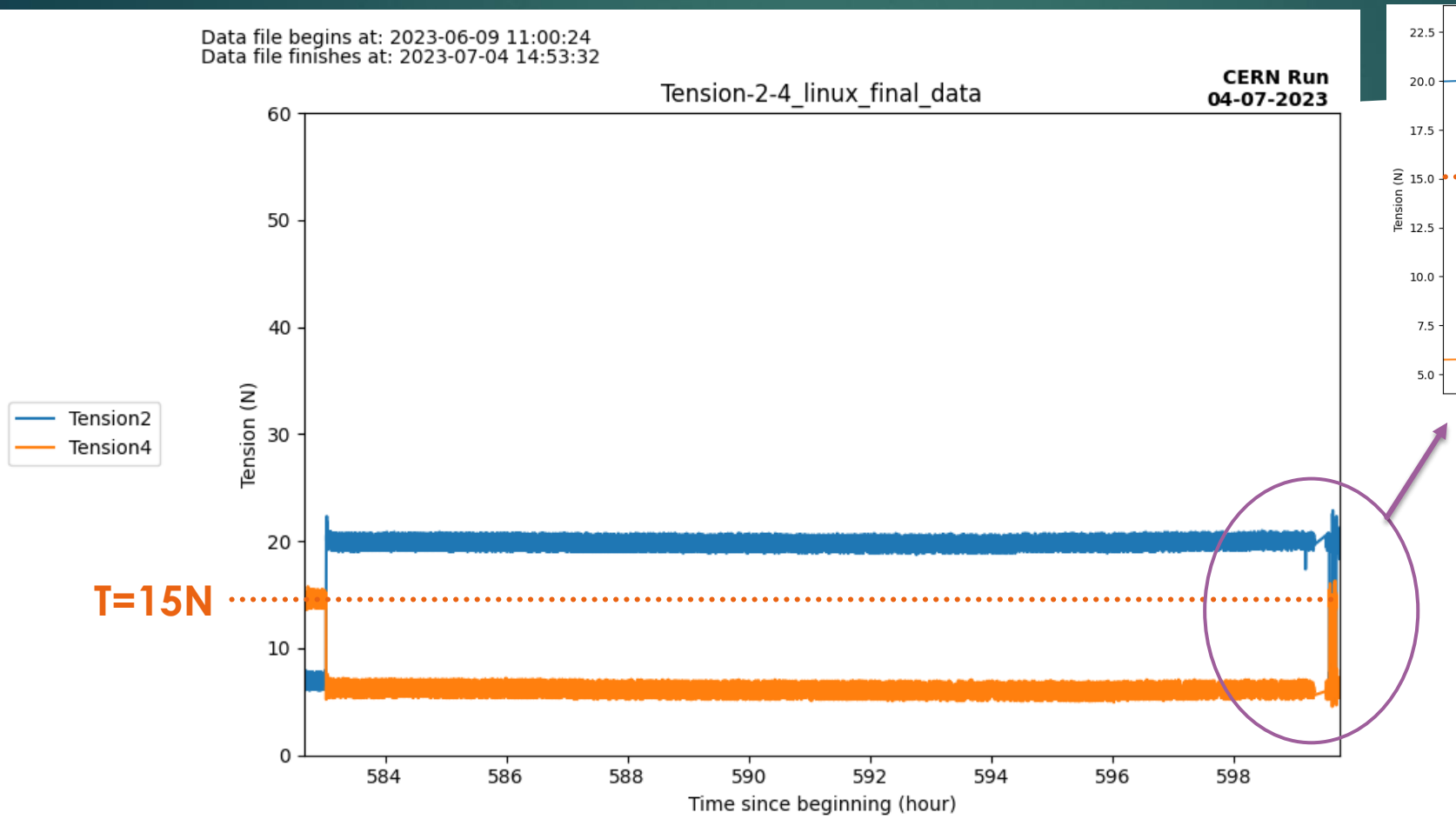
Tension during stress test 03/07

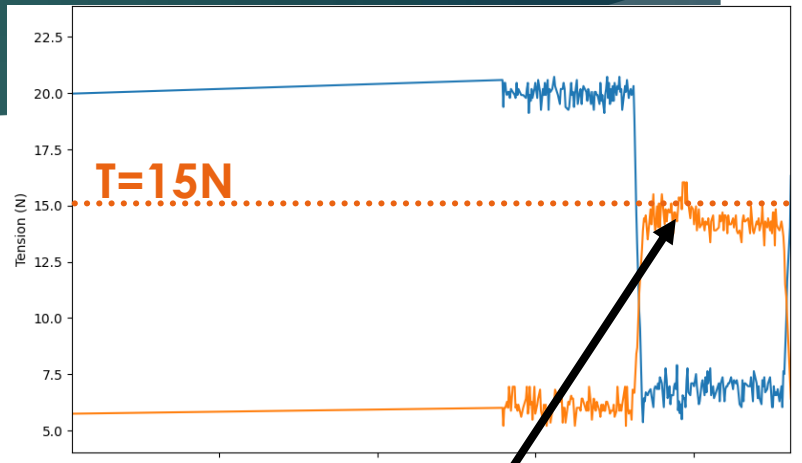
- At beginning, tension very high
  → Reposition of the motors to be in straightly in front of the cap centers
  → Once again after adding humidity sensors
- Tension value about same value as LN2 testing

➔ Tension value stable and comparable to LN2



Long stay test (still ongoing)





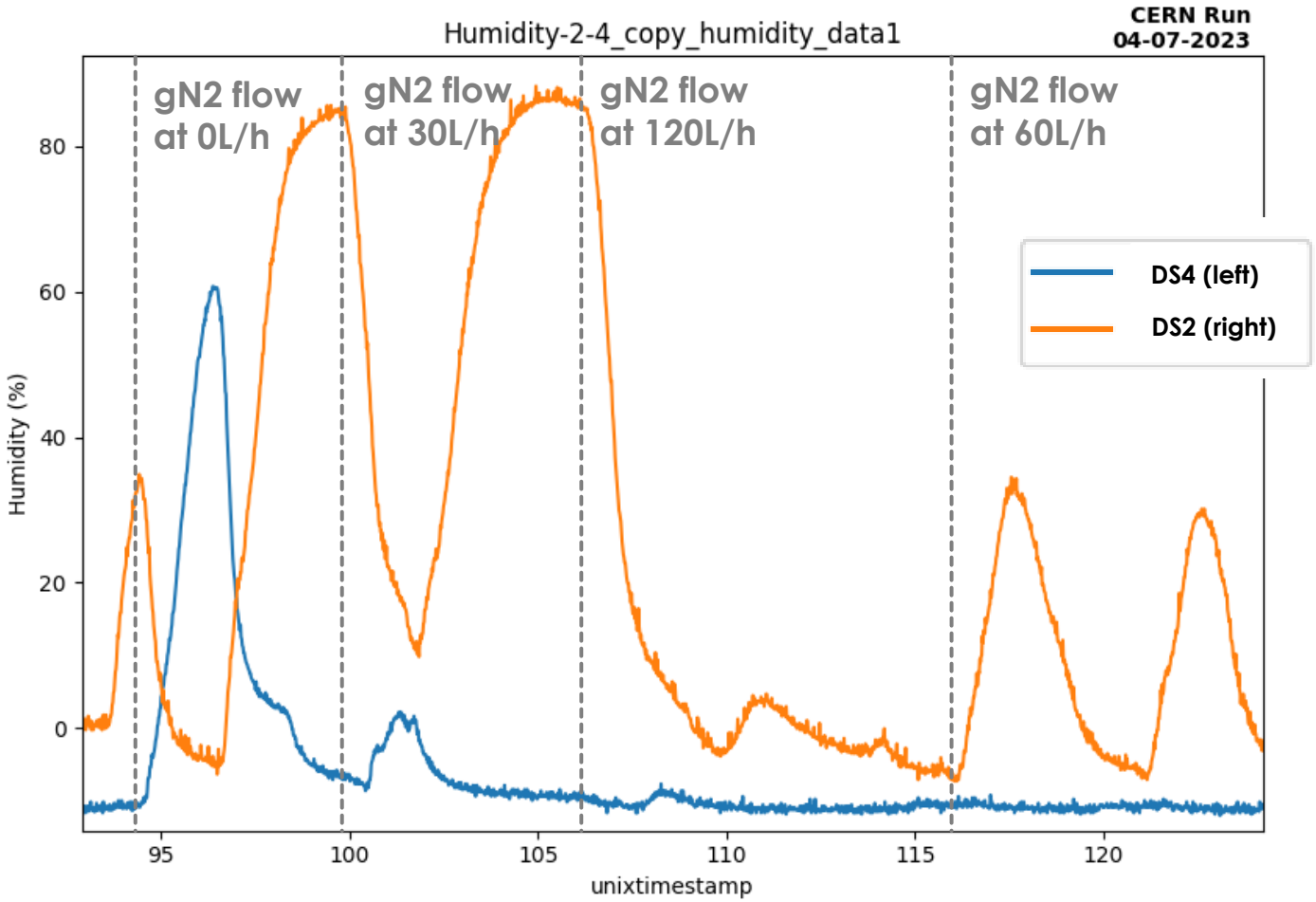
Max tension 16N

Source left at D for 16h, no high tension after moving it back to A (DS4)

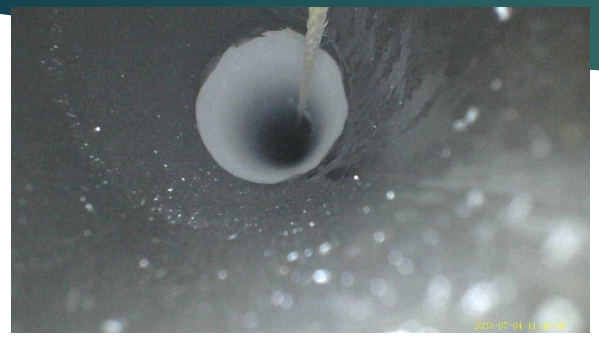
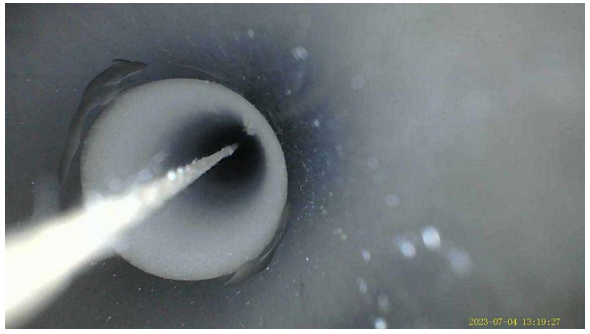
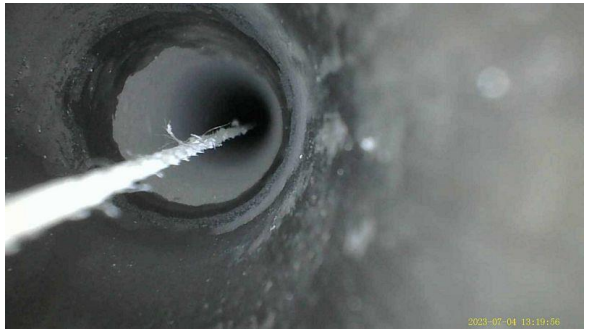
Humidity test 1/3

- Regularly moving source from D to A to D, for different gN2 flow values
- Left Humidity rising only if gN2 < 30L/h
- Right humidity rise only if gN2 < 120L/h
  - No difference 0 and 30 L/h
  - Regular drop from 30L/h (80%) to 120L/h (~0%)

➔ **No humidity changes for gN2 flow at 120 L/h, no matter movement of pseudo-source.**



Endoscope pictures

DS4		DS2
	After long blowing (100% humidity)	
	After 1h 15mn of gN2 @120 l/mn	
	After 2nd long blowing (100% humidity)	

Humidity test 2/3

- Pseudo-source in position A
- Blow in tube from both sides to increase humidity at maximum and remove gN2
  = Extreme nonrealistic scenario

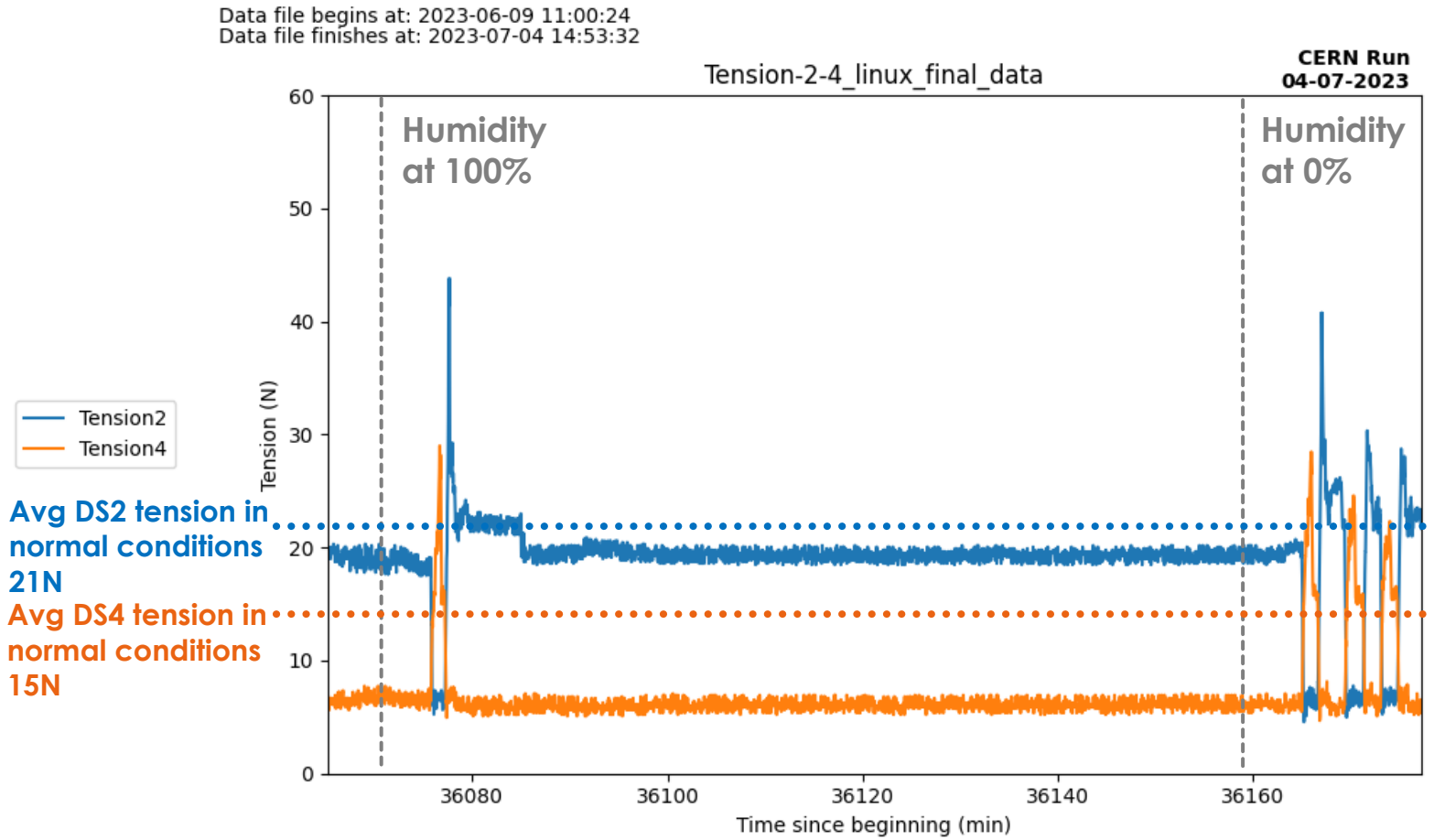
→ **After 5min, both humidity are at 100%**

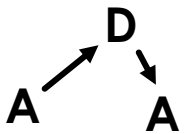
→ **A→ D → A : +23N/+15N wrt normal**

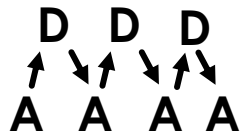
- After 15min, put back the top caps and gN2 at 120L/h

→ **After 1h30, both humidities at 0%**

→ **A→ D → A : +20N/+15N wrt normal but back to normal after 3 times**







Humidity test 3/3

- Pseudo-source in position B
- Blow in tube from both sides to increase humidity at maximum and remove gN2
  = Extreme nonrealistic scenario

→ **After 5min, both humidity are at 100%**

→ **A→ D → A : +12N/+11N wrt normal**

- After 15min, put back the top caps and gN2 at 120L/h

→ **After 1h30, both humidities at 0%**

→ **A→ D → A : +12N/+9N wrt normal**

- Letting the source at B for 1 night