Time Series of CPT2023-01B Deep (80411)

Time Series of CPT2023-01B Shallow (80407)

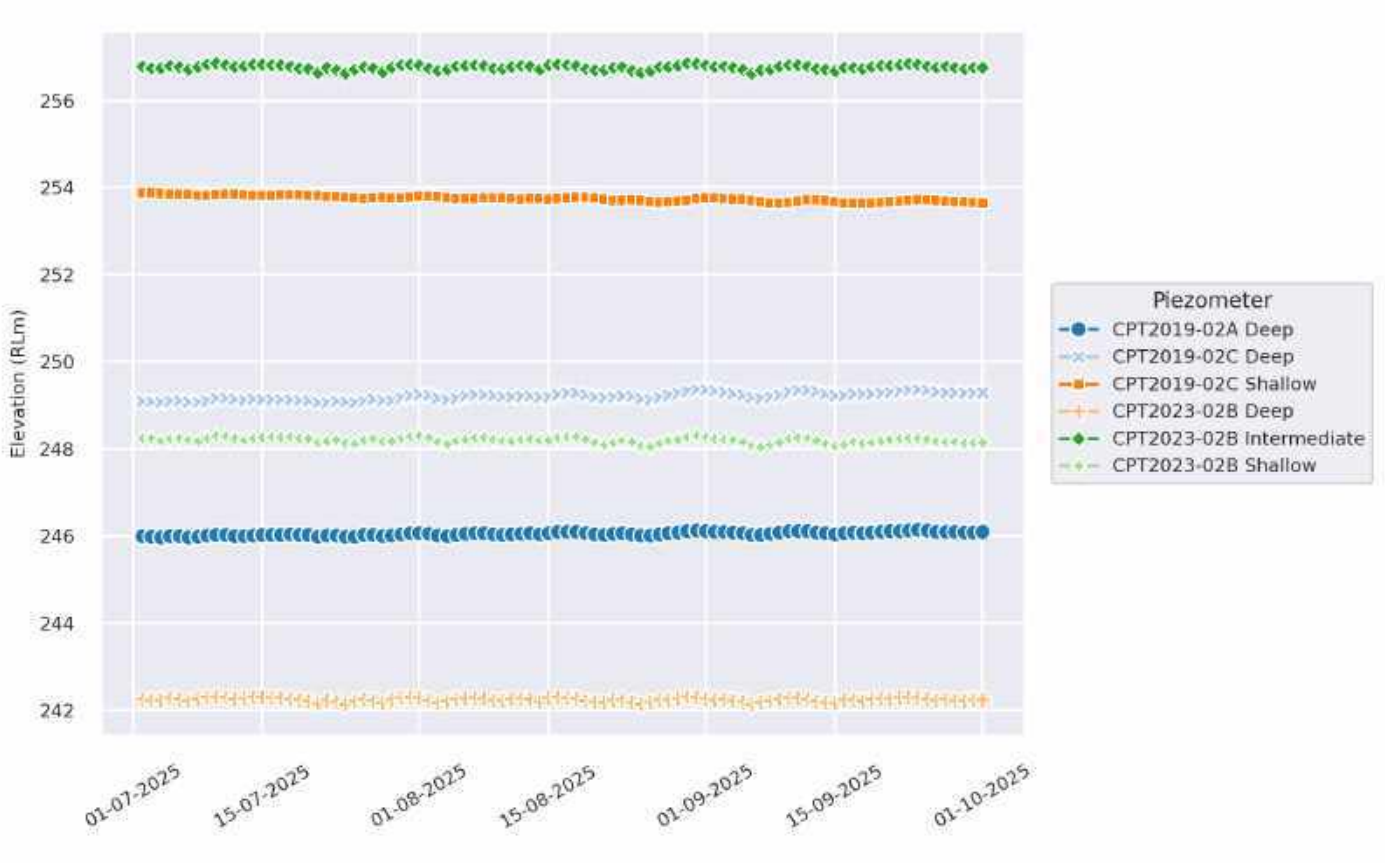
Time Series of CPT2023-01C Deep (80406)

Time Series of CPT2023-01C Shallow (80412)

Section: Section B

Piezometer	Min (kPa)	Max (kPa)	Average (kPa)	Q1 - Q3 (kPa)	TARPS
CPT2019-02A Deep	245.96	246.14	246.05	246.02 - 246.09	247.5
CPT2019-02C Deep	249.04	249.38	249.21	249.14 - 249.28	256.0
CPT2019-02C Shallow	253.64	253.9	253.76	253.71 - 253.8	258.5
CPT2023-02B Deep	242.08	242.35	242.25	242.22 - 242.28	252.5
CPT2023-02B Intermediate	256.57	256.89	256.77	256.73 - 256.81	253.0
CPT2023-02B Shallow	248.01	248.34	248.2	248.16 - 248.25	254.5

Combined elevation readings for section



Time Series of CPT2019-02A Deep (1901842)

Time Series of CPT2019-02C Deep (1901849)

Time Series of CPT2019-02C Shallow (1901832)

Time Series of CPT2023-02B Deep (78687)

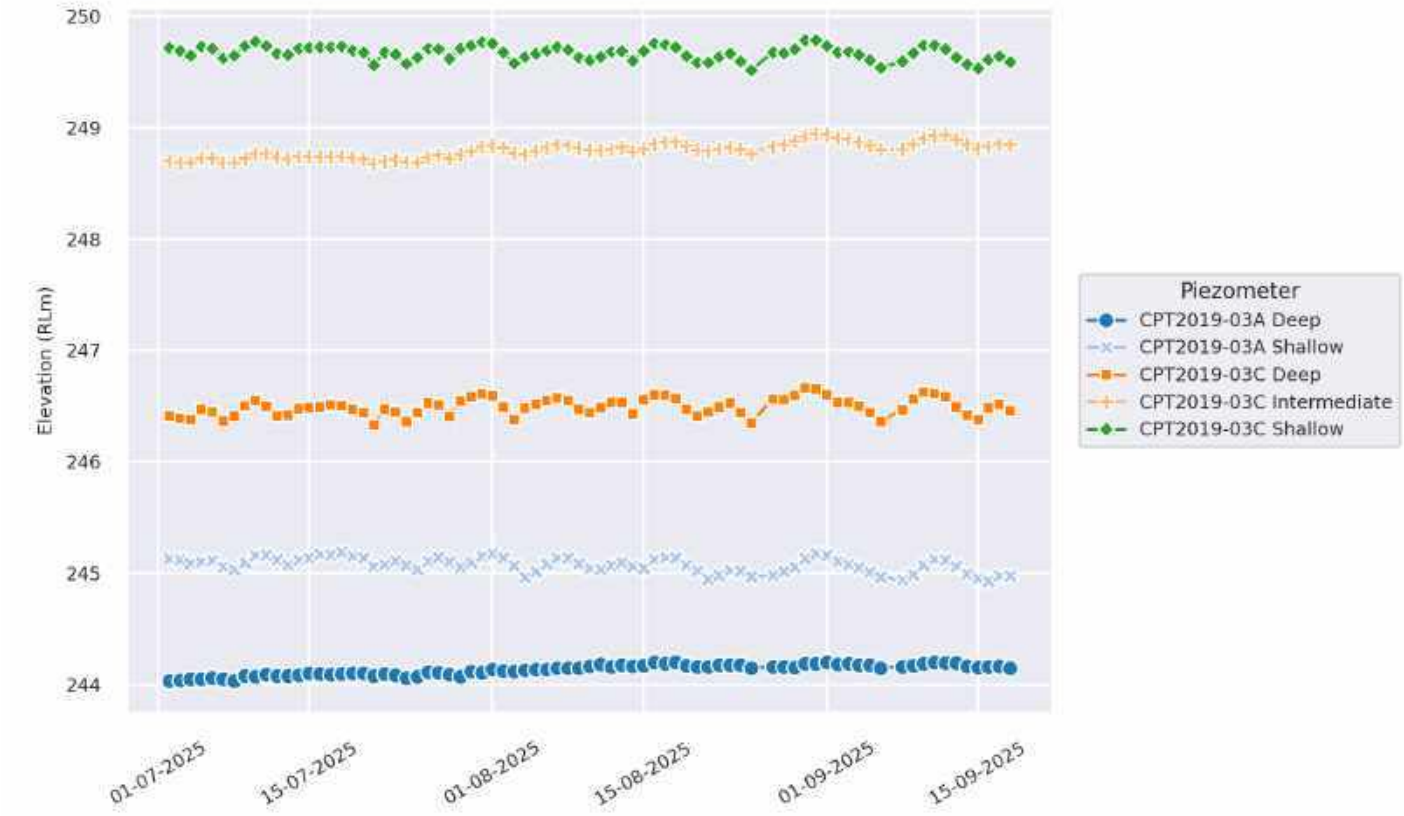
Time Series of CPT2023-02B Intermediate (78688)

Time Series of CPT2023-02B Shallow (78704)

Section: Section C

Piezometer	Min (kPa)	Max (kPa)	Average (kPa)	Q1 - Q3 (kPa)	TARPS
CPT2019-03A Deep	244.0	244.26	244.13	244.09 - 244.18	247.4
CPT2019-03A Shallow	244.91	245.2	245.09	245.04 - 245.14	249.0
CPT2019-03C Deep	246.27	246.7	246.51	246.46 - 246.56	254.5
CPT2019-03C Intermediate	248.66	248.96	248.8	248.74 - 248.85	256.0
CPT2019-03C Shallow	249.49	249.81	249.68	249.64 - 249.73	259.5

Combined elevation readings for section

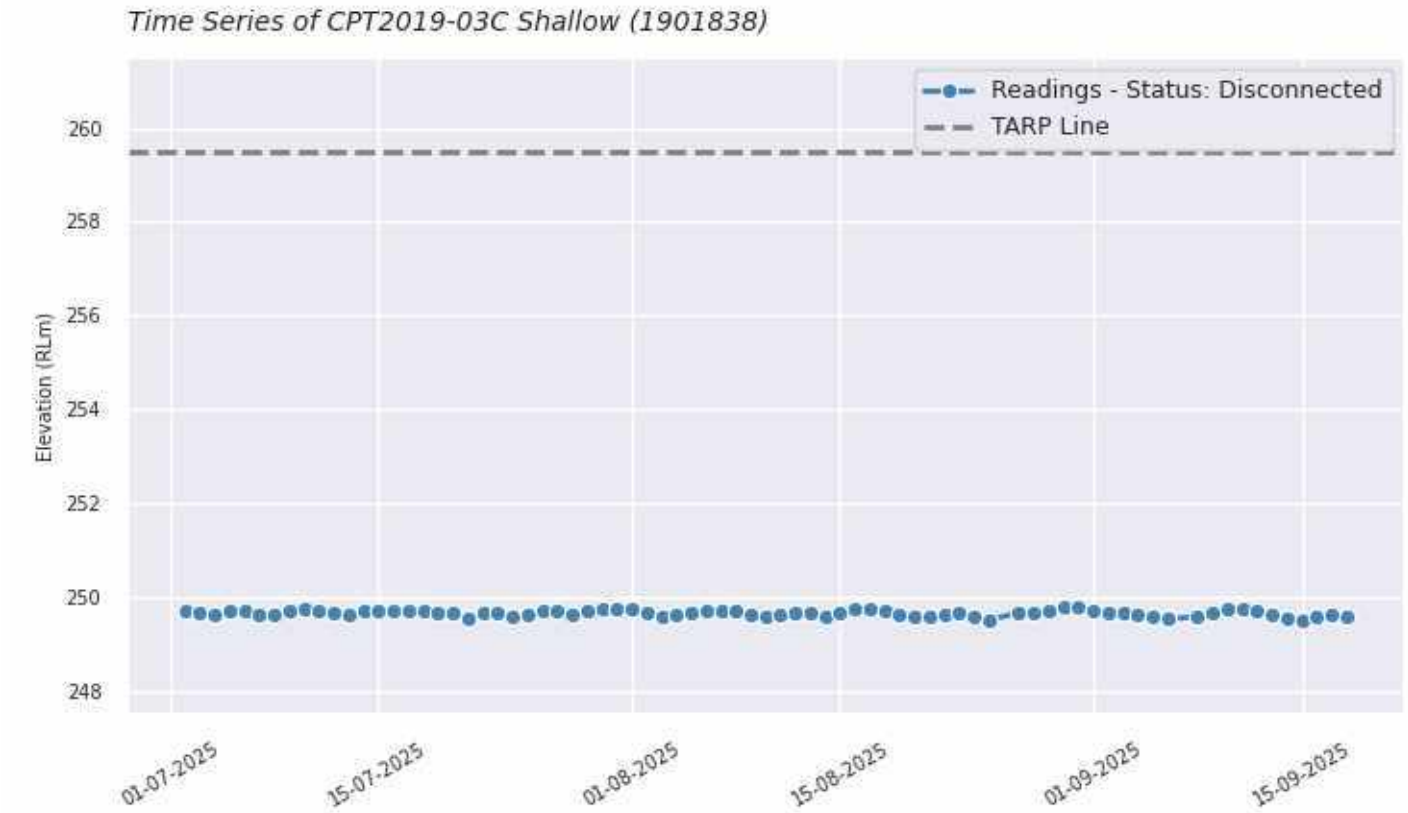


Time Series of CPT2019-03A Deep (1901825)

Time Series of CPT2019-03A Shallow (1901559)

Time Series of CPT2019-03C Deep (1901848)

Time Series of CPT2019-03C Intermediate (1901839)


Time Series of CPT2019-03C Shallow (1901838)
Readings - Status: Disconnected
TARP Line
Elevation (RLm)
260
258
256
254
252
250
248
01-07-2025
15-07-2025
01-08-2025
15-08-2025
01-09-2025
15-09-2025

Section: Section D

Piezometer	Min (kPa)	Max (kPa)	Average (kPa)	Q1 - Q3 (kPa)	TARPS
CPT2019-04B	244.48	244.65	244.58	244.56 - 244.61	252.0
CPT2019-04B	244.12	244.21	244.17	244.16 - 244.19	251.0
CPT2019-04C Shallow	253.58	253.8	253.69	253.66 - 253.74	259.5
CPT2023-04A Deep	250.47	250.79	250.64	250.57 - 250.69	248.5
CPT2023-04A Shallow	251.96	252.22	252.11	252.08 - 252.15	250.0
CPT2023-04B	248.09	248.21	248.16	248.14 - 248.18	-

Combined elevation readings for section

Time Series of CPT2019-04B (62521)

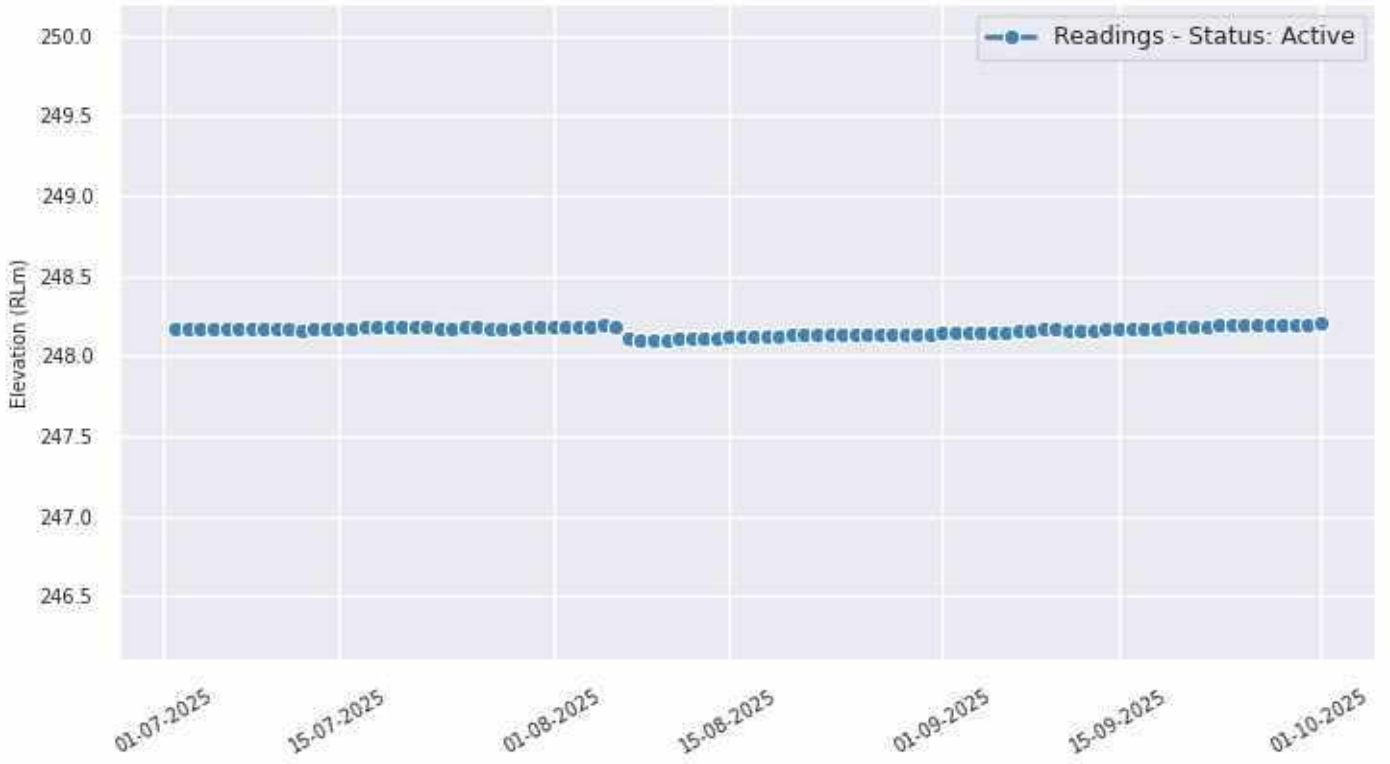
Time Series of CPT2019-04B (62522)

Time Series of CPT2019-04C Shallow (1901845)

Time Series of CPT2023-04A Deep (80544)

Time Series of CPT2023-04A Shallow (80389)

Time Series of CPT2023-04B (80542)



Section: Section E

Piezometer	Min (kPa)	Max (kPa)	Average (kPa)	Q1 - Q3 (kPa)	TARPS
CPT2019-05A	233.89	234.44	234.19	234.1 - 234.27	253.0
CPT2023-05A Intermediate	240.61	241.21	240.87	240.79 - 240.93	252.0
CPT2023-05B Deep	250.21	250.74	250.48	250.36 - 250.6	252.5
CPT2023-05B Intermediate	248.95	250.01	249.75	249.68 - 249.88	253.5
CPT2023-05B Shallow	253.71	254.21	253.94	253.88 - 253.99	257.0

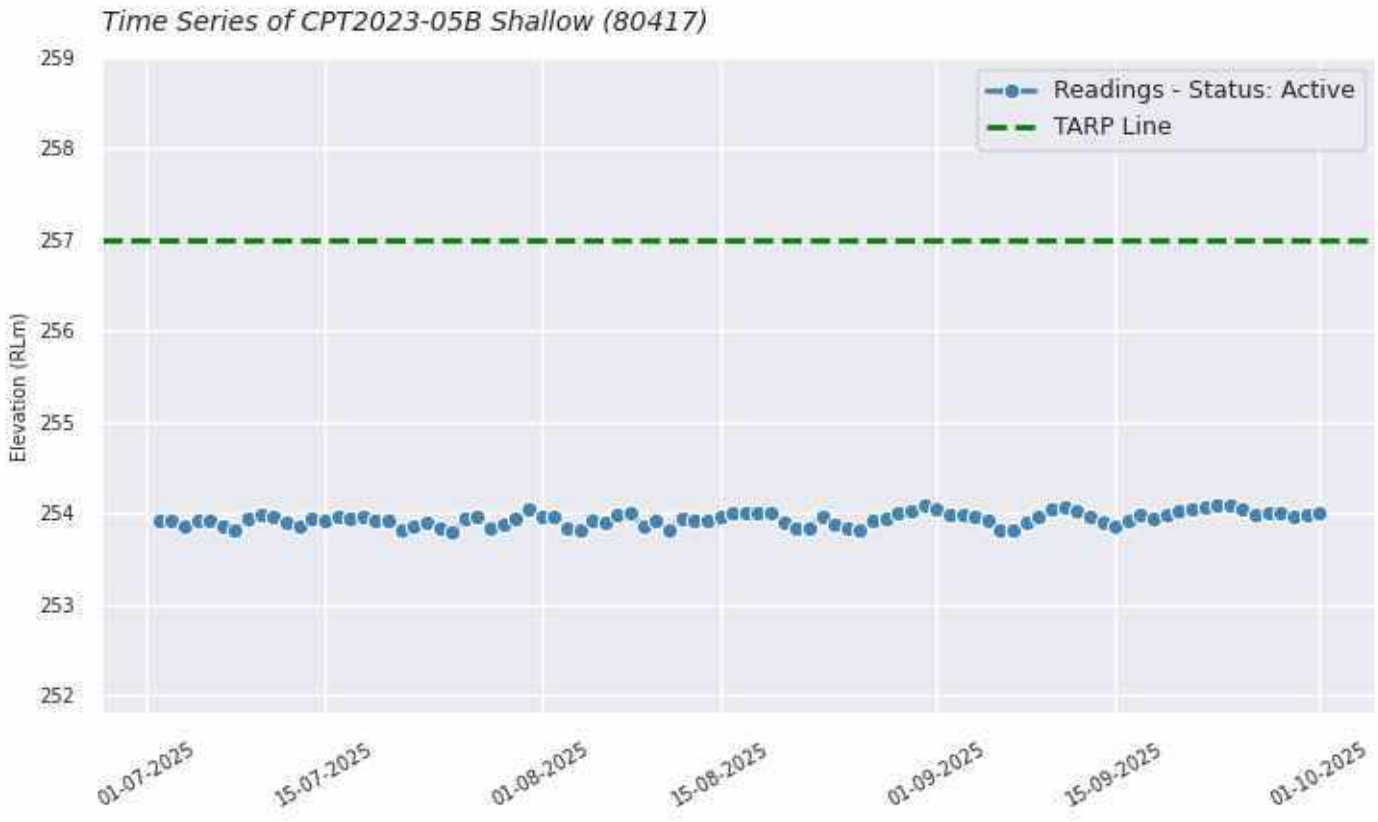
Combined elevation readings for section

Time Series of CPT2019-05A (1901858)

Time Series of CPT2023-05A Intermediate (78693)

Time Series of CPT2023-05B Deep (80405)

Time Series of CPT2023-05B Intermediate (80418)


Time Series of CPT2023-05B Shallow (80417)
Readings - Status: Active
TARP Line
Elevation (RLm)
259
258
257
256
255
254
253
252
01-07-2025
15-07-2025
01-08-2025
15-08-2025
01-09-2025
15-09-2025
01-10-2025

2.4. TSF3

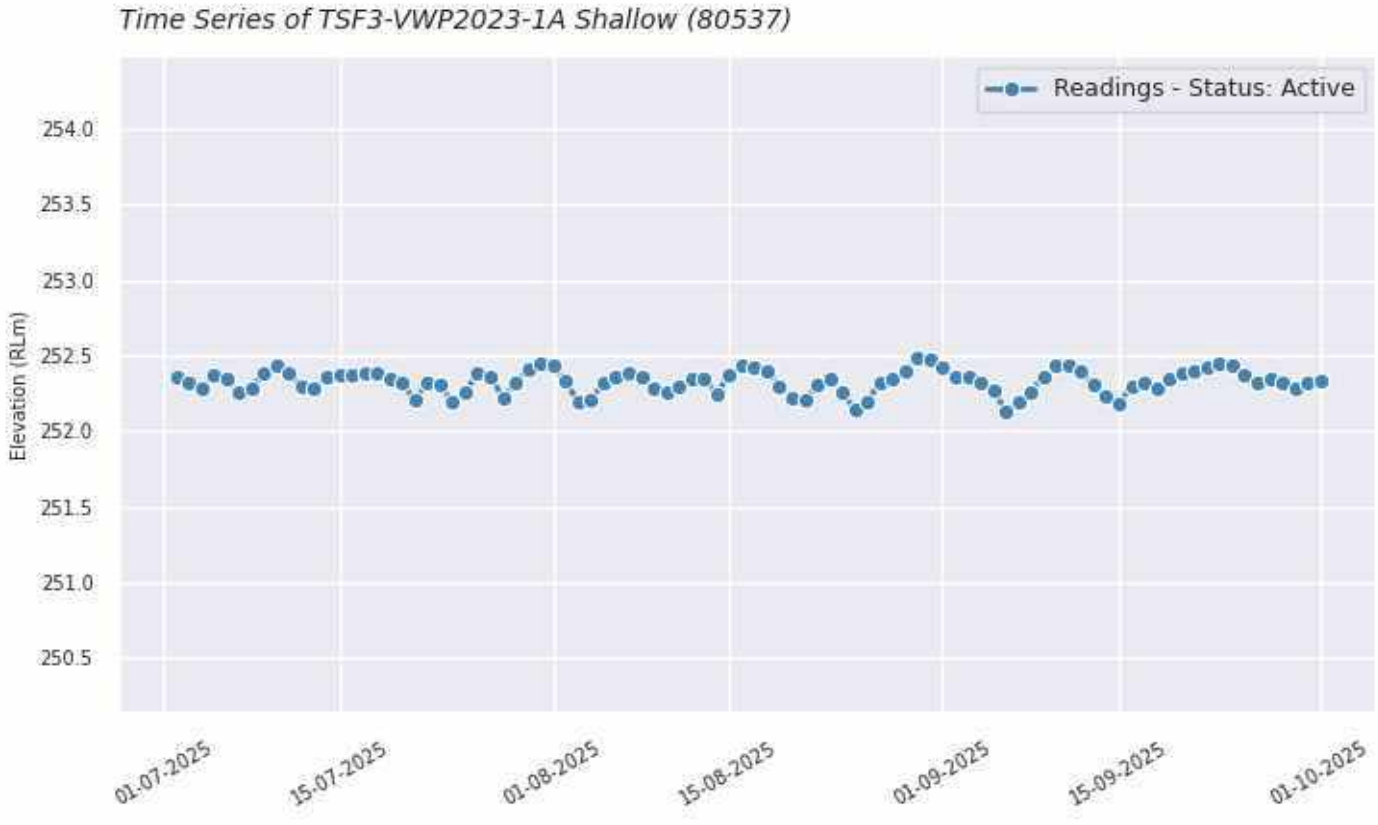
Name	Piezo ID	Section	Status	Current RLM	Last Reading	TARPS
TSF3-VWP2023-1A Deep	80543	-	Active	249.285	07-10-2025 14:00	-
TSF3-VWP2023-1A Shallow	80537	-	Active	252.316	07-10-2025 14:00	-
TSF3-VWP2023-2A Deep	80545	-	Active	243.417	07-10-2025 14:00	-
TSF3-VWP2023-2A Shallow	80364	-	Active	251.837	07-10-2025 14:00	-
TSF3-VWP2023-3A Deep	80209	-	Active	246.674	07-10-2025 14:00	-
TSF3-VWP2023-3A Shallow	80395	-	Active	250.809	07-10-2025 14:00	-

Section: -

Piezometer	Min (kPa)	Max (kPa)	Average (kPa)	Q1 - Q3 (kPa)	TARPS
TSF3-VWP2023-1A Deep	248.27	249.5	248.78	248.47 - 249.18	-
TSF3-VWP2023-1A Shallow	252.1	252.51	252.33	252.28 - 252.39	-
TSF3-VWP2023-2A Deep	242.78	244.55	243.37	242.99 - 243.98	-
TSF3-VWP2023-2A Shallow	248.69	252.28	250.79	249.93 - 251.72	-
TSF3-VWP2023-3A Deep	246.25	247.38	246.65	246.45 - 246.65	-
TSF3-VWP2023-3A Shallow	250.45	251.63	250.91	250.65 - 251.28	-

Combined elevation readings for section


Time Series of TSF3-VWP2023-1A Deep (80543)
Readings - Status: Active
Elevation (RLm)
251
250
249
248
247
01-07-2025
15-07-2025
01-08-2025
15-08-2025
01-09-2025
15-09-2025
01-10-2025


Time Series of TSF3-VWP2023-1A Shallow (80537)
Readings - Status: Active
Elevation (RLm)
254.0
253.5
253.0
252.5
252.0
251.5
251.0
250.5
01-07-2025
15-07-2025
01-08-2025
15-08-2025
01-09-2025
15-09-2025
01-10-2025

Time Series of TSF3-VWP2023-2A Deep (80545)

Time Series of TSF3-VWP2023-2A Shallow (80364)

Time Series of TSF3-VWP2023-3A Deep (80209)

Time Series of TSF3-VWP2023-3A Shallow (80395)

2.5. TSF4 Cell 1

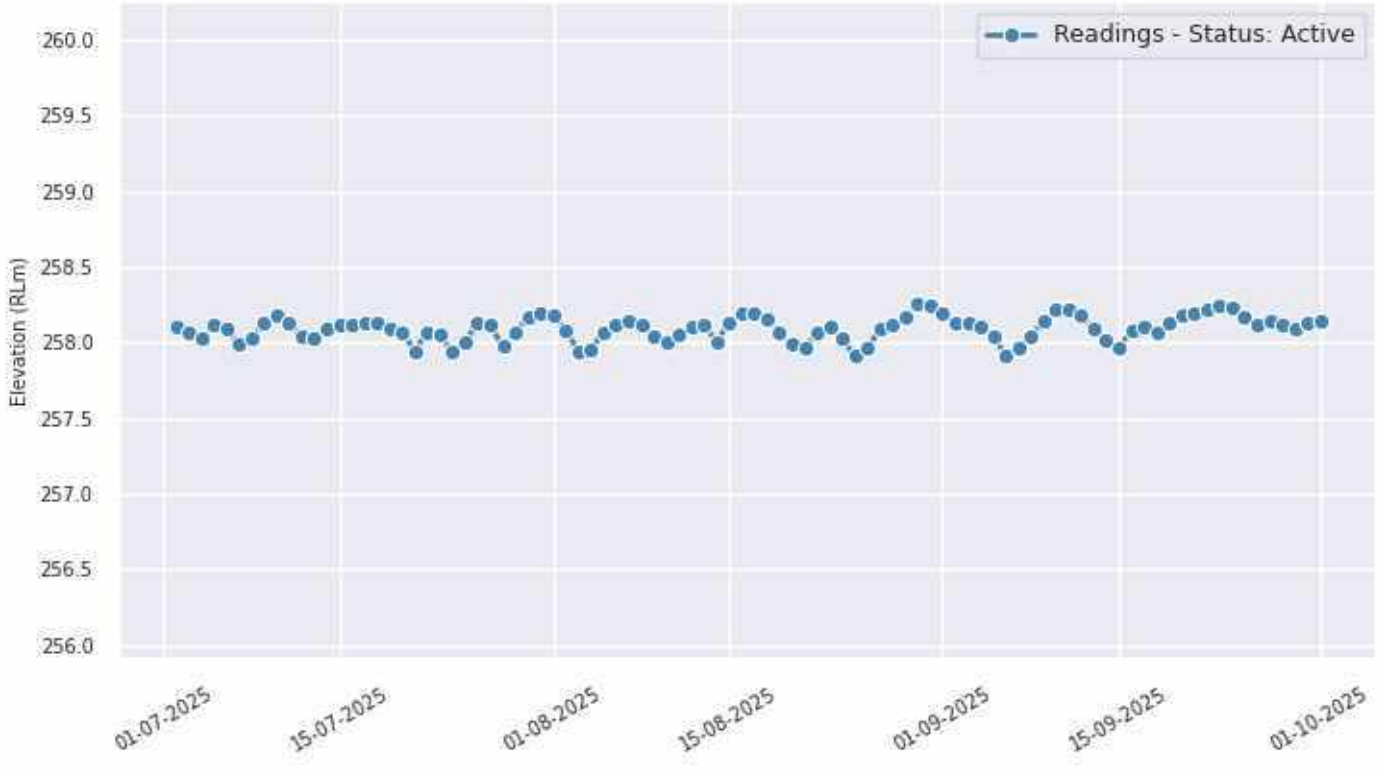
Name	Piezo ID	Section	Status	Current RLM	Last Reading	TARPS
PZ-01B	80246	-	Active	258.123	07-10-2025 14:00	-
PZ-01C	369097	-	Active	263.052	07-10-2025 14:00	-
PZ-01D	369093	-	Active	256.411	07-10-2025 14:00	-
PZ-01E	369101	-	Active	263.114	07-10-2025 14:00	-
PZ-01F	369085	-	Active	258.565	07-10-2025 14:00	-
PZ-02A	80320	-	Active	253.467	07-10-2025 14:00	-
PZ-02B	79276	-	Active	255.671	07-10-2025 14:00	-
PZ-02C	369099	-	Active	260.610	07-10-2025 14:00	-
PZ-02D	369081	-	Active	249.679	07-10-2025 14:00	-
PZ-02E	369096	-	Active	258.798	07-10-2025 14:00	-
PZ-02F	79269	-	Active	253.504	07-10-2025 14:00	-
PZ-03A	79266	-	Active	256.303	07-10-2025 14:00	-
PZ-03B	79267	-	Active	256.164	07-10-2025 14:00	-
PZ-03C	77969	-	Active	250.636	07-10-2025 14:00	-
PZ-03D	369092	-	Active	245.715	07-10-2025 14:00	-
PZ-03E	369446	-	Disconnected	250.725	08-09-2025 08:00	-
PZ-03F	369441	-	Disconnected	246.175	08-09-2025 08:00	-
PZ-07	369094	-	Active	256.676	07-10-2025 14:00	-
PZ-08	369100	-	Disconnected	244.010	08-09-2025 09:00	-
PZ-09A	370015	-	Active	250.394	07-10-2025 14:00	-
PZ-09B	370006	-	Active	259.388	07-10-2025 14:00	-
PZ-10	369095	-	Active	254.043	07-10-2025 14:00	-
PZ-11	369090	-	Disconnected	248.326	08-09-2025 09:00	-

Section: -

Piezometer	Min (kPa)	Max (kPa)	Average (kPa)	Q1 - Q3 (kPa)	TARPS
PZ-01B	257.88	258.28	258.1	258.04 - 258.15	-
PZ-01C	262.85	263.19	263.04	263.0 - 263.09	-
PZ-01D	256.31	257.35	256.97	256.84 - 257.15	-
PZ-01E	263.03	263.29	263.14	263.11 - 263.18	-
PZ-01F	258.71	259.24	258.99	258.88 - 259.13	-
PZ-02A	248.45	253.59	253.2	253.4 - 253.48	-
PZ-02B	255.3	261.12	255.85	255.52 - 255.68	-
PZ-02C	258.59	260.91	260.7	260.63 - 260.77	-
PZ-02D	249.5	251.3	250.77	251.07 - 251.17	-
PZ-02E	258.78	260.92	260.35	260.71 - 260.84	-
PZ-02F	253.31	253.67	253.51	253.46 - 253.56	-
PZ-03A	255.97	259.71	258.3	257.79 - 258.93	-
PZ-03B	255.75	259.57	258.14	257.57 - 258.79	-
PZ-03C	250.46	250.78	250.63	250.59 - 250.67	-
PZ-03D	245.5	245.89	245.72	245.67 - 245.76	-
PZ-03E	250.46	250.88	250.68	250.63 - 250.73	-
PZ-03F	245.89	246.21	246.09	246.03 - 246.15	-
PZ-07	255.76	258.05	257.37	257.05 - 257.75	-
PZ-08	243.5	244.09	243.87	243.77 - 243.95	-
PZ-09A	250.07	250.43	250.24	250.19 - 250.28	-
PZ-09B	259.27	259.43	259.35	259.33 - 259.37	-
PZ-10	253.79	254.23	254.03	253.98 - 254.09	-
PZ-11	248.07	248.48	248.28	248.23 - 248.33	-

Combined elevation readings for section

Time Series of PZ-01B (80246)

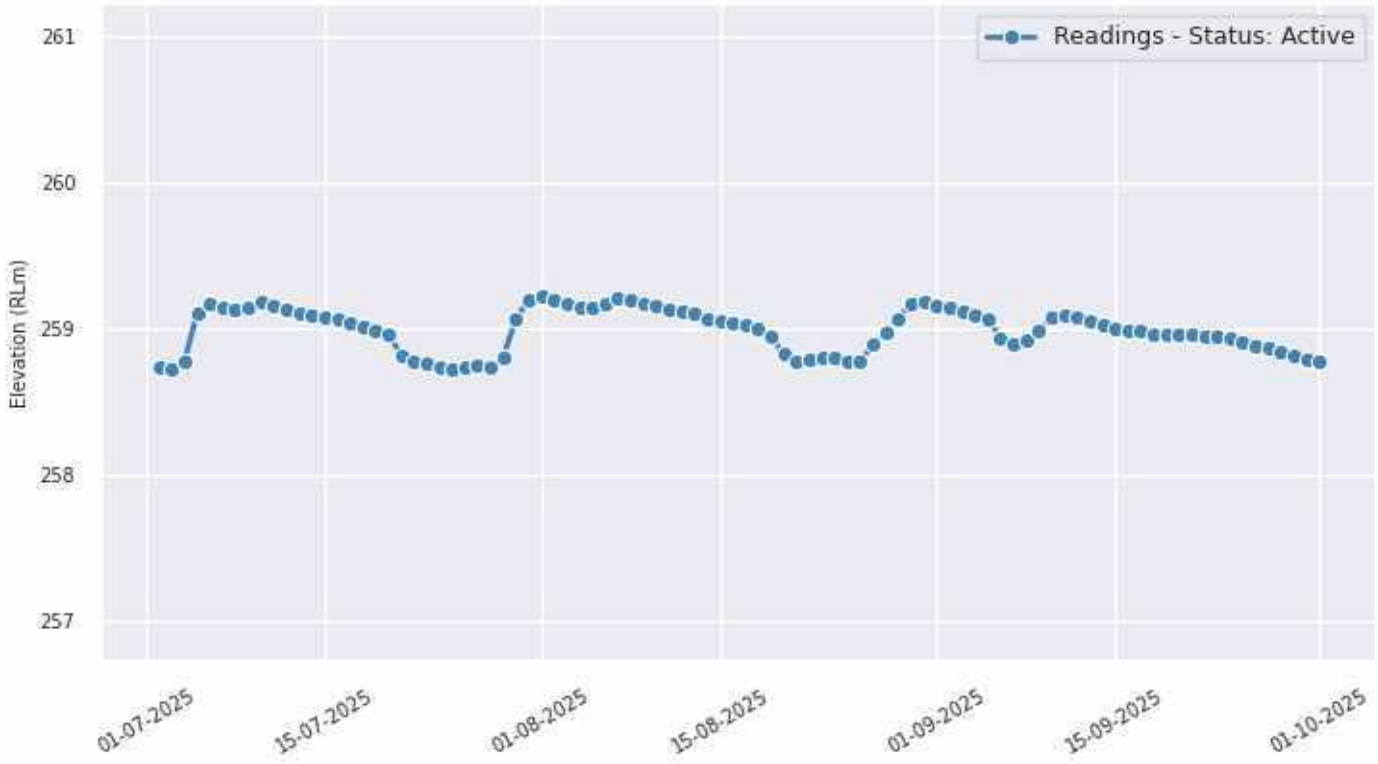



Time Series of PZ-01C (369097)
Readings - Status: Active
Elevation (RLm)
265.0
264.5
264.0
263.5
263.0
262.5
262.0
261.5
261.0
01-07-2025
15-07-2025
01-08-2025
15-08-2025
01-09-2025
15-09-2025
01-10-2025


Time Series of PZ-01D (369093)
Readings - Status: Active
Elevation (RLm)
259
258
257
256
255
01-07-2025
15-07-2025
01-08-2025
15-08-2025
01-09-2025
15-09-2025
01-10-2025

Time Series of PZ-01E (369101)

Time Series of PZ-01F (369085)



Time Series of PZ-02A (80320)

Time Series of PZ-02B (79276)

Time Series of PZ-02C (369099)

Time Series of PZ-02D (369081)


Time Series of PZ-02E (369096)
Readings - Status: Active
Elevation (RLm)
262
261
260
259
258
257
01-07-2025
15-07-2025
01-08-2025
15-08-2025
01-09-2025
15-09-2025
01-10-2025


Time Series of PZ-02F (79269)
Readings - Status: Active
Elevation (RLm)
255.5
255.0
254.5
254.0
253.5
253.0
252.5
252.0
251.5
01-07-2025
15-07-2025
01-08-2025
15-08-2025
01-09-2025
15-09-2025
01-10-2025

Time Series of PZ-03A (79266)

Time Series of PZ-03B (79267)

Time Series of PZ-03C (77969)

Time Series of PZ-03D (369092)


Time Series of PZ-03E (369446)
Readings - Status: Disconnected
Elevation (RLm)
252.5
252.0
251.5
251.0
250.5
250.0
249.5
249.0
01-07-2025
15-07-2025
01-08-2025
15-08-2025
01-09-2025

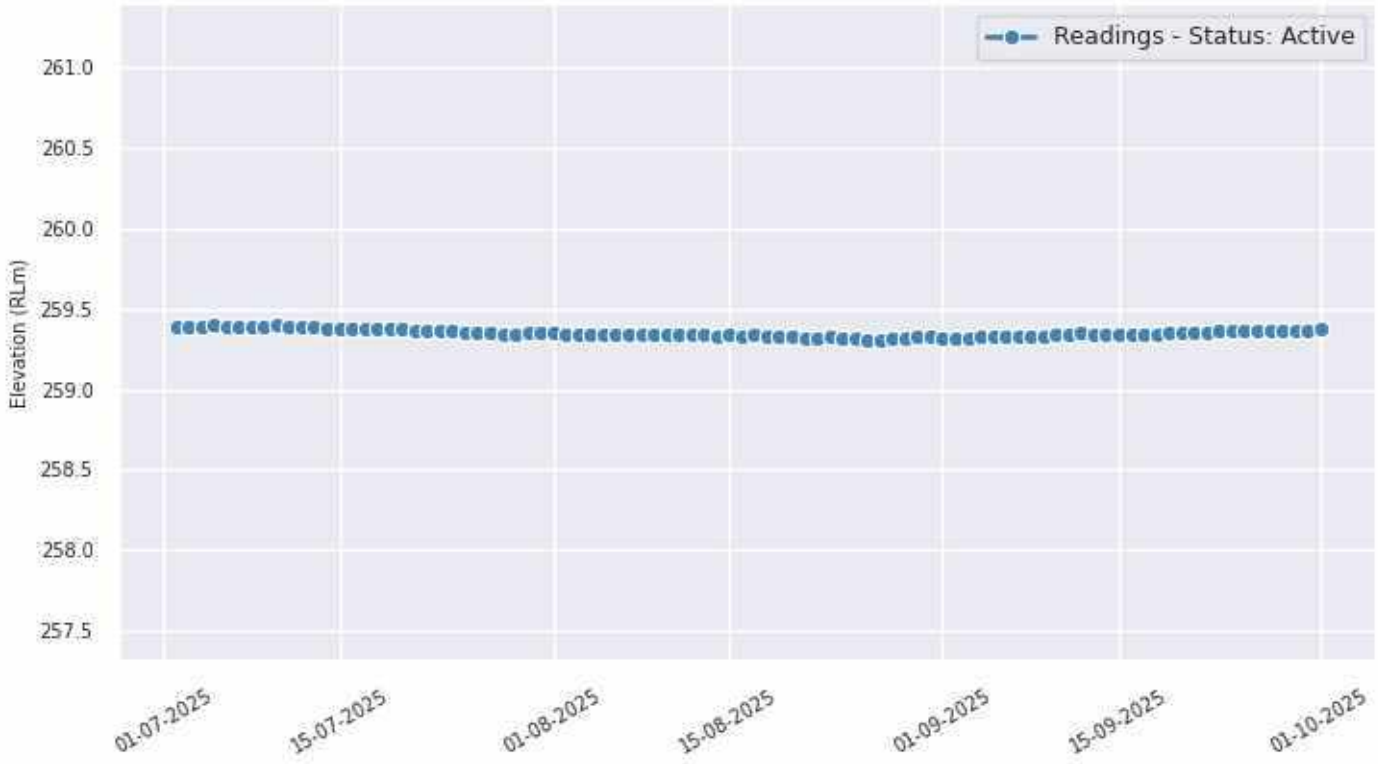

Time Series of PZ-03F (369441)
Readings - Status: Disconnected
Elevation (RLm)
248.0
247.5
247.0
246.5
246.0
245.5
245.0
244.5
244.0
01-07-2025
15-07-2025
01-08-2025
15-08-2025
01-09-2025

Time Series of PZ-07 (369094)

Time Series of PZ-08 (369100)

Time Series of PZ-09A (370015)

Time Series of PZ-09B (370006)




Time Series of PZ-10 (369095)
Readings - Status: Active
Elevation (RLm)
256.0
255.5
255.0
254.5
254.0
253.5
253.0
252.5
252.0
01-07-2025
15-07-2025
01-08-2025
15-08-2025
01-09-2025
15-09-2025
01-10-2025


Time Series of PZ-11 (369090)
Readings - Status: Disconnected
Elevation (RLm)
250.0
249.5
249.0
248.5
248.0
247.5
247.0
246.5
01-07-2025
15-07-2025
01-08-2025
15-08-2025
01-09-2025

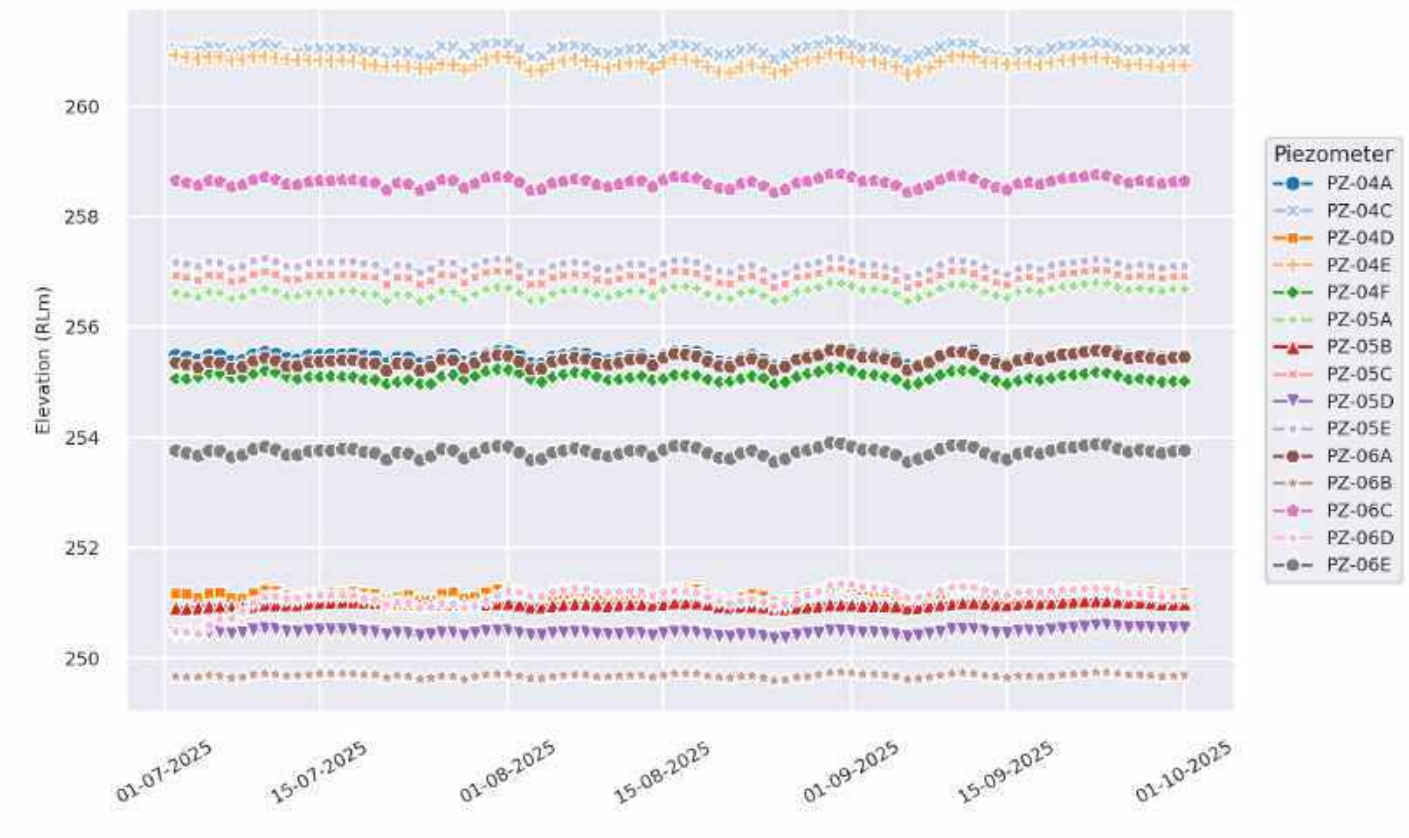
2.6. TSF4 Cell 2

Name	Piezo ID	Section	Status	Current RLM	Last Reading	TARPS
PZ-04A	369041	-	Active	255.493	07-10-2025 14:00	-
PZ-04C	369088	-	Active	261.018	07-10-2025 14:00	-
PZ-04D	369089	-	Active	251.218	07-10-2025 14:00	-
PZ-04E	369087	-	Active	260.706	07-10-2025 14:00	-
PZ-04F	369084	-	Active	255.027	07-10-2025 14:00	-
PZ-05A	79292	-	Active	256.674	07-10-2025 14:00	-
PZ-05B	80241	-	Active	250.943	07-10-2025 14:00	-
PZ-05C	79283	-	Active	256.913	07-10-2025 14:00	-
PZ-05D	79273	-	Active	250.526	07-10-2025 14:00	-
PZ-05E	369060	-	Active	257.092	07-10-2025 14:00	-
PZ-06A	79270	-	Active	255.425	07-10-2025 14:00	-
PZ-06B	79264	-	Active	249.668	07-10-2025 14:00	-
PZ-06C	79293	-	Active	258.614	07-10-2025 14:00	-
PZ-06D	80311	-	Active	251.064	07-10-2025 14:00	-
PZ-06E	80229	-	Active	253.764	07-10-2025 14:00	-

Section: -

Piezometer	Min (kPa)	Max (kPa)	Average (kPa)	Q1 - Q3 (kPa)	TARPS
PZ-04A	255.25	255.61	255.46	255.41 - 255.51	-
PZ-04C	260.82	261.22	261.04	260.99 - 261.1	-
PZ-04D	250.98	251.32	251.17	251.11 - 251.22	-
PZ-04E	260.55	260.98	260.79	260.74 - 260.86	-
PZ-04F	254.93	255.29	255.1	255.05 - 255.15	-
PZ-05A	256.4	256.83	256.64	256.58 - 256.69	-
PZ-05B	250.89	251.08	250.98	250.96 - 251.01	-
PZ-05C	256.68	257.08	256.91	256.86 - 256.97	-
PZ-05D	250.33	250.62	250.47	250.43 - 250.5	-
PZ-05E	256.88	257.28	257.12	257.07 - 257.18	-
PZ-06A	255.14	255.62	255.4	255.33 - 255.46	-
PZ-06B	249.57	249.77	249.69	249.66 - 249.71	-
PZ-06C	258.4	258.81	258.63	258.57 - 258.68	-
PZ-06D	250.4	251.38	251.11	251.04 - 251.22	-
PZ-06E	253.5	253.95	253.74	253.68 - 253.8	-

Combined elevation readings for section



Time Series of PZ-04A (369041)

Time Series of PZ-04C (369088)

Time Series of PZ-04D (369089)

Time Series of PZ-04E (369087)

Time Series of PZ-04F (369084)

Time Series of PZ-05A (79292)


Time Series of PZ-05B (80241)
Readings - Status: Active
Elevation (RLm)
253.0
252.5
252.0
251.5
251.0
250.5
250.0
249.5
249.0
01-07-2025
15-07-2025
01-08-2025
15-08-2025
01-09-2025
15-09-2025
01-10-2025


Time Series of PZ-05C (79283)
Readings - Status: Active
Elevation (RLm)
259.0
258.5
258.0
257.5
257.0
256.5
256.0
255.5
255.0
01-07-2025
15-07-2025
01-08-2025
15-08-2025
01-09-2025
15-09-2025
01-10-2025


Time Series of PZ-05D (79273)
Readings - Status: Active
Elevation (RLm)
252.5
252.0
251.5
251.0
250.5
250.0
249.5
249.0
248.5
01-07-2025
15-07-2025
01-08-2025
15-08-2025
01-09-2025
15-09-2025
01-10-2025


Time Series of PZ-05E (369060)
Readings - Status: Active
Elevation (RLm)
259.0
258.5
258.0
257.5
257.0
256.5
256.0
255.5
255.0
01-07-2025
15-07-2025
01-08-2025
15-08-2025
01-09-2025
15-09-2025
01-10-2025

Time Series of PZ-06A (79270)

Time Series of PZ-06B (79264)

Time Series of PZ-06C (79293)

Time Series of PZ-06D (80311)


Time Series of PZ-06E (80229)
Readings - Status: Active
Elevation (RLm)
255.5
255.0
254.5
254.0
253.5
253.0
252.5
252.0
01-07-2025
15-07-2025
01-08-2025
15-08-2025
01-09-2025
15-09-2025
01-10-2025

Appendix E

GNSS reports

GNSS Monitoring Report

Reporting Period: July 01, 2025 - September 30, 2025

Date: 07-10-2025

Prepared by: WWL TOMS

Version: 1.0

This report is intended for the Engineering/Geotechnical Team and Operational Staff.

It contains detailed technical information for in-depth analysis and operational decision-making.

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1. Introduction

This report provides a comprehensive analysis of GNSS data collected from the Tailings Storage Facilities (TSFs) during the reporting period of July 01, 2025 - September 30, 2025. This information is vital for informed operational management, ensuring long-term stability, and adhering to regulatory requirements, including the Global Industry Standard on Tailings Management (GISTM).

2. Monitoring Program Overview

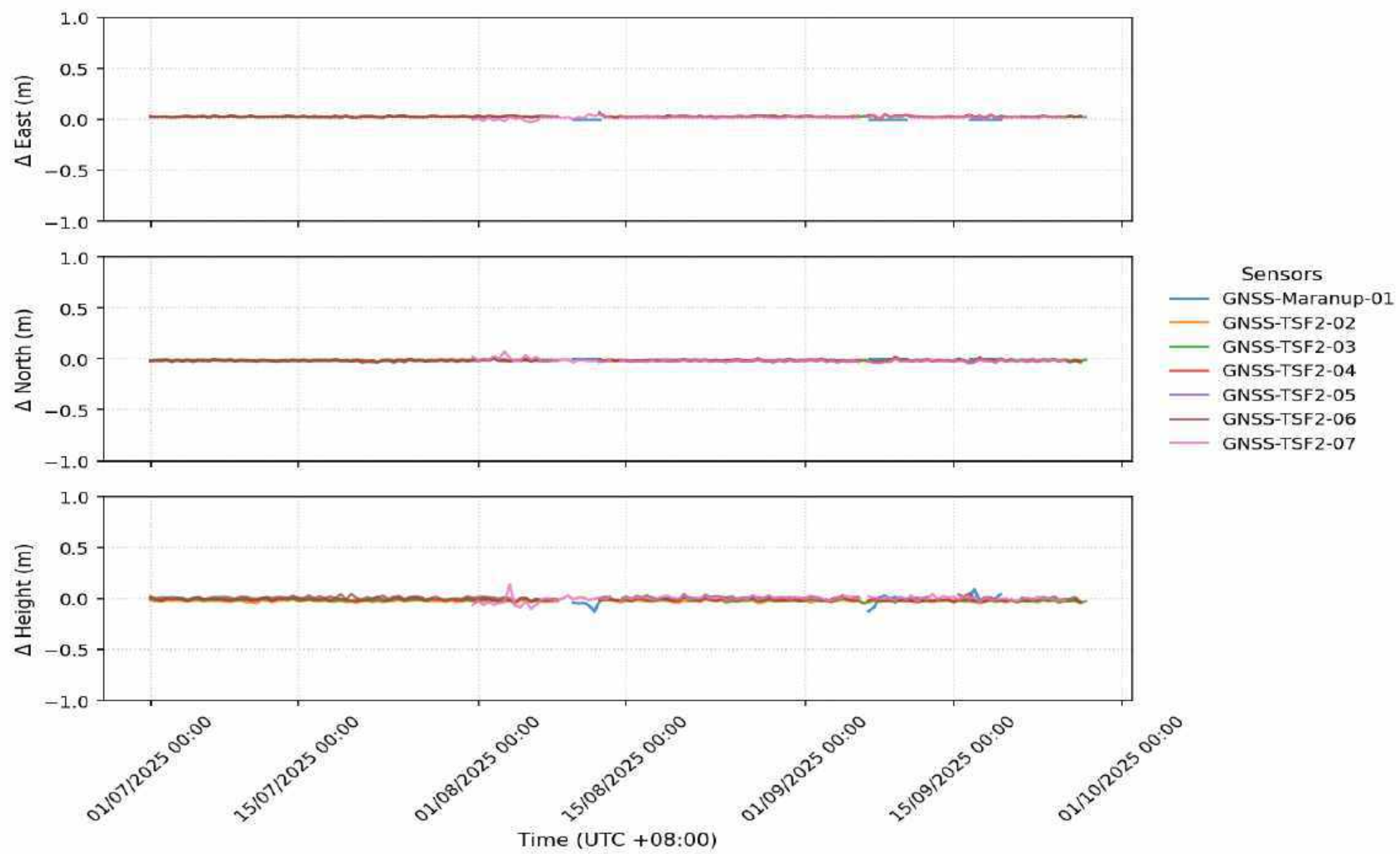
The GNSS sensor monitoring program is designed to continuously assess the geotechnical performance and internal stability of the Tailings Storage Facilities (TSFs). GNSS sensors are strategically deployed in specific critical sections identified based on geotechnical design, historical performance, and potential failure mechanisms. These sections represent areas requiring focused attention due to high embankment, critical foundation conditions, or proximity to water management features.

2.1. GNSS Status Summary

The following table provides a summary of the GNSS Sensors by their operational status for each TSF.This overview helps in quickly assessing the health of the monitoring network.

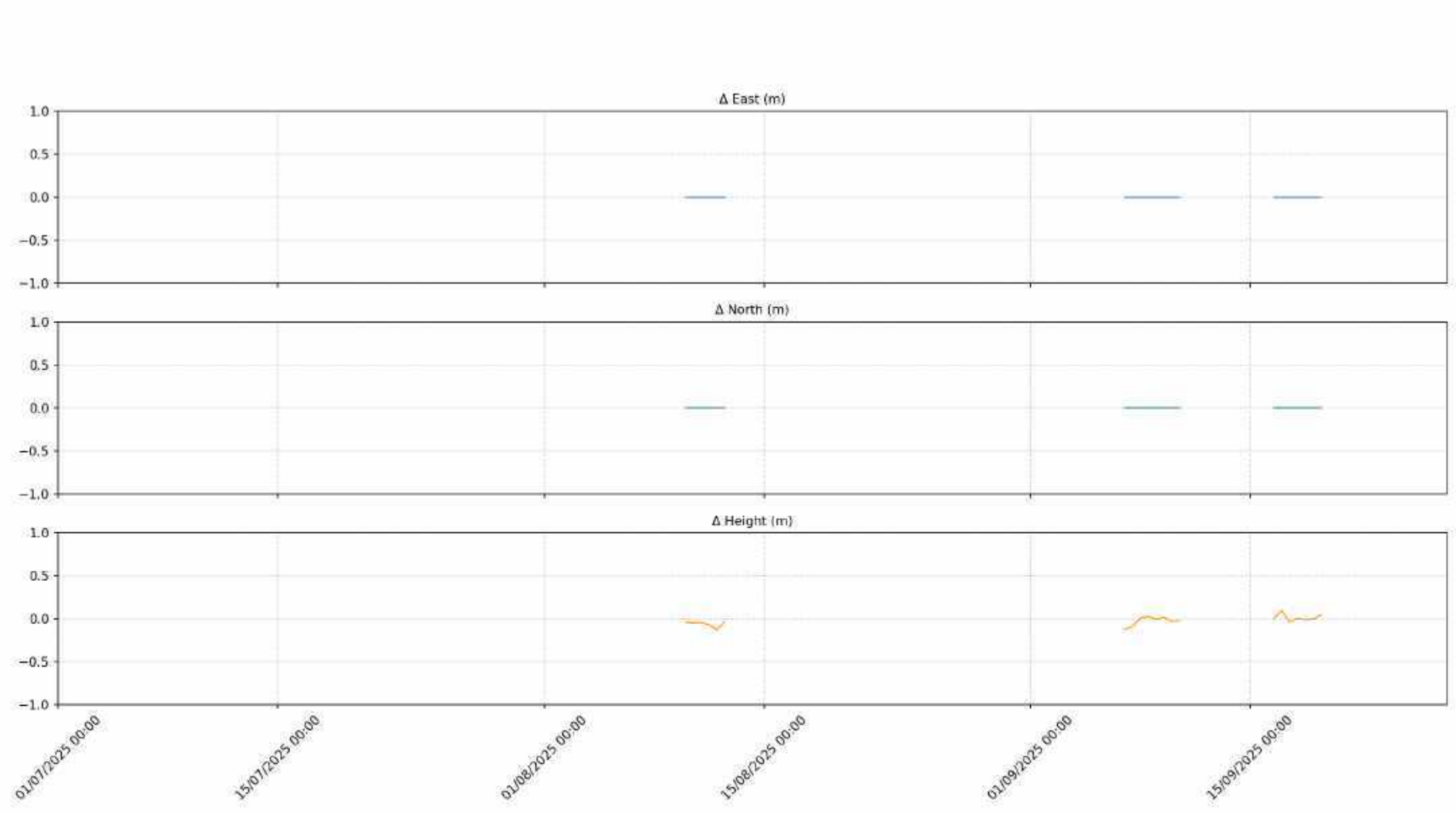
Sensor	Availability (%)	∆East Mean (mm)	∆North Mean (mm)	∆Height Mean (mm)
GNSS-Maranup-01	13.04	0.0	0.0	-0.022
GNSS-TSF2-02	93.48	0.027	-0.018	-0.027
GNSS-TSF2-03	93.48	0.025	-0.015	-0.018
GNSS-TSF2-04	93.48	0.027	-0.015	-0.009
GNSS-TSF2-05	0.0	-	-	-
GNSS-TSF2-06	93.48	0.028	-0.02	0.005
GNSS-TSF2-07	61.96	0.019	-0.018	-0.002

3. Multi-Line Comparison Activities

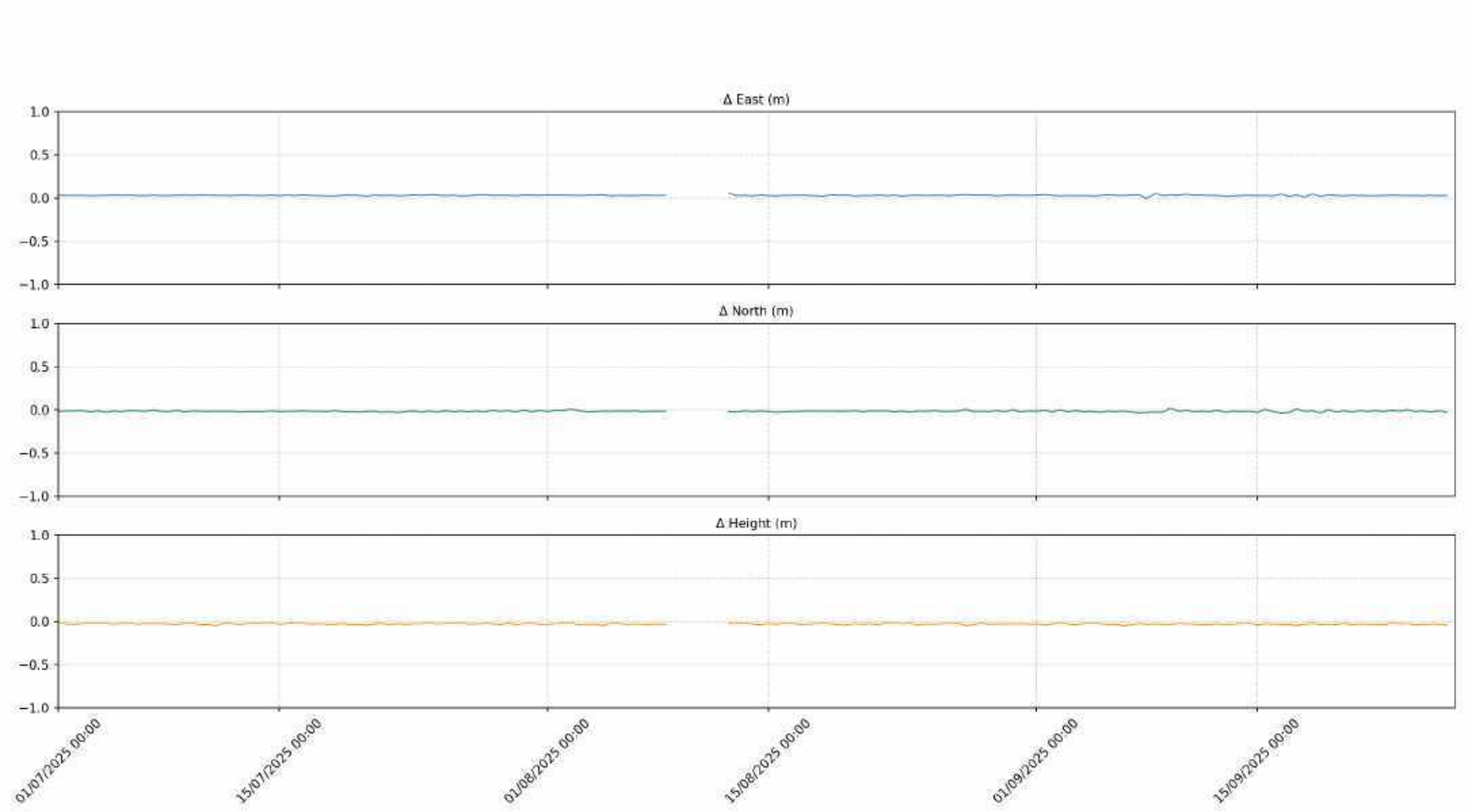


4. Sensor Detailed Activities

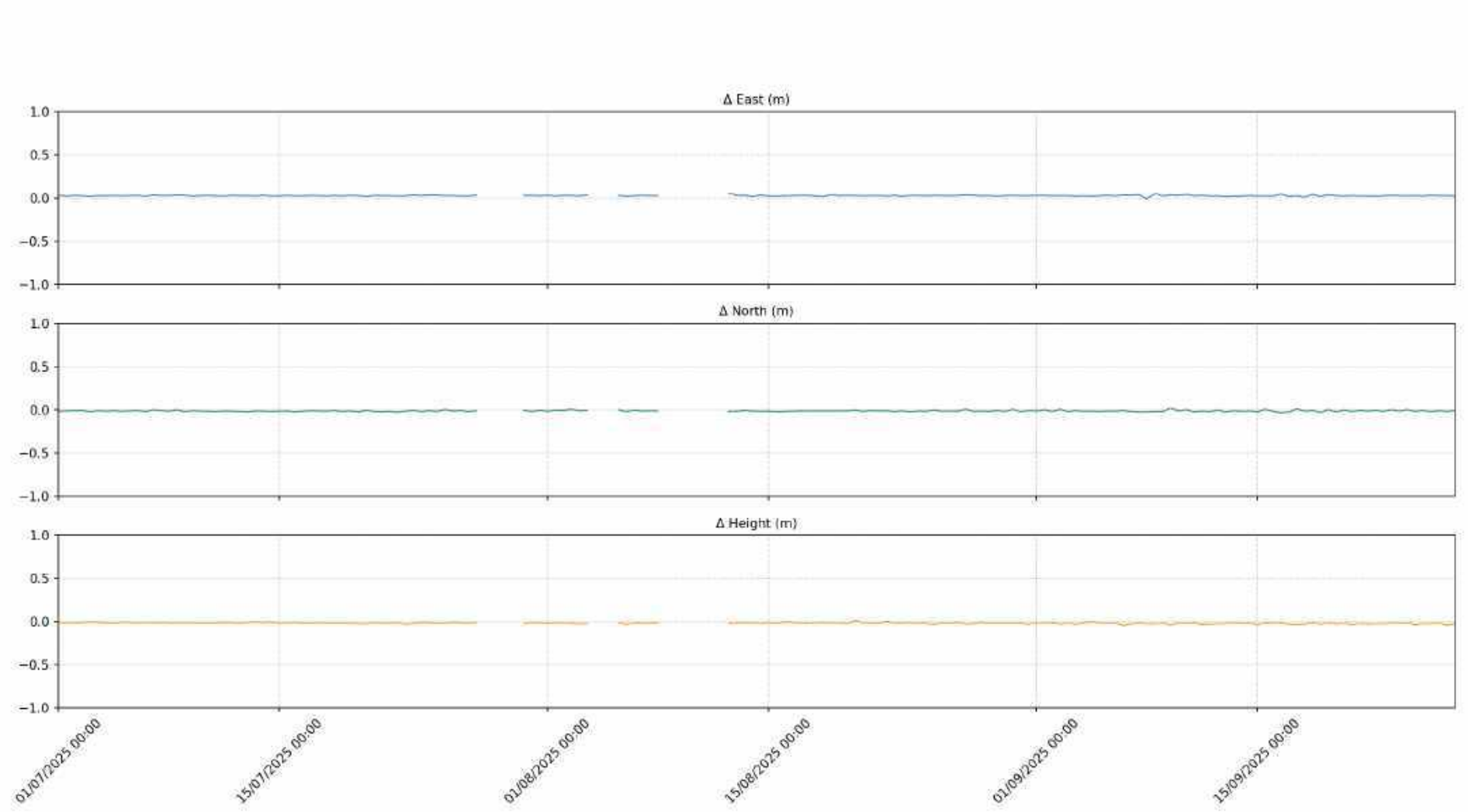
Sensor: GNSS-Maranup-01



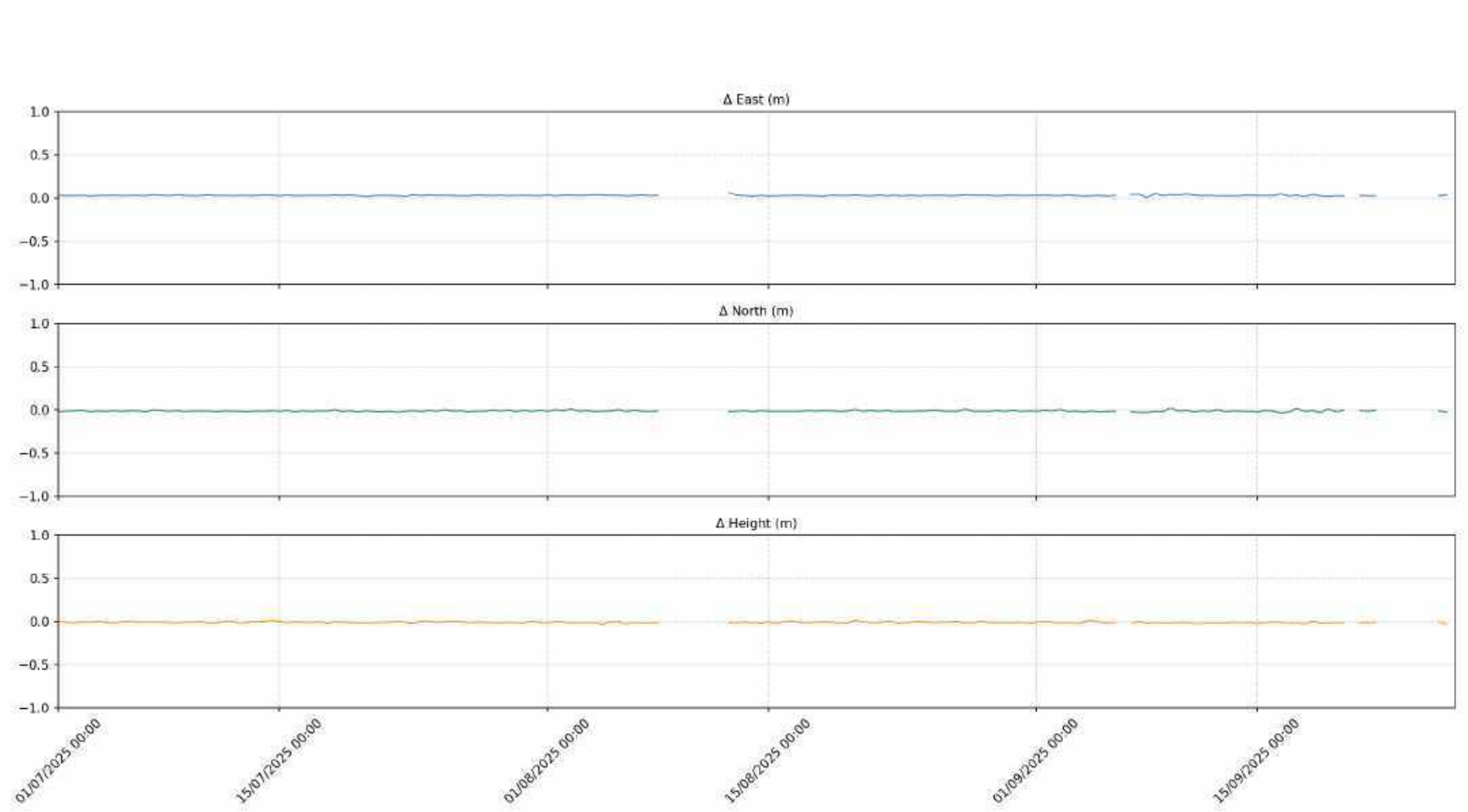
Sensor: GNSS-TSF2-02



Sensor: GNSS-TSF2-03



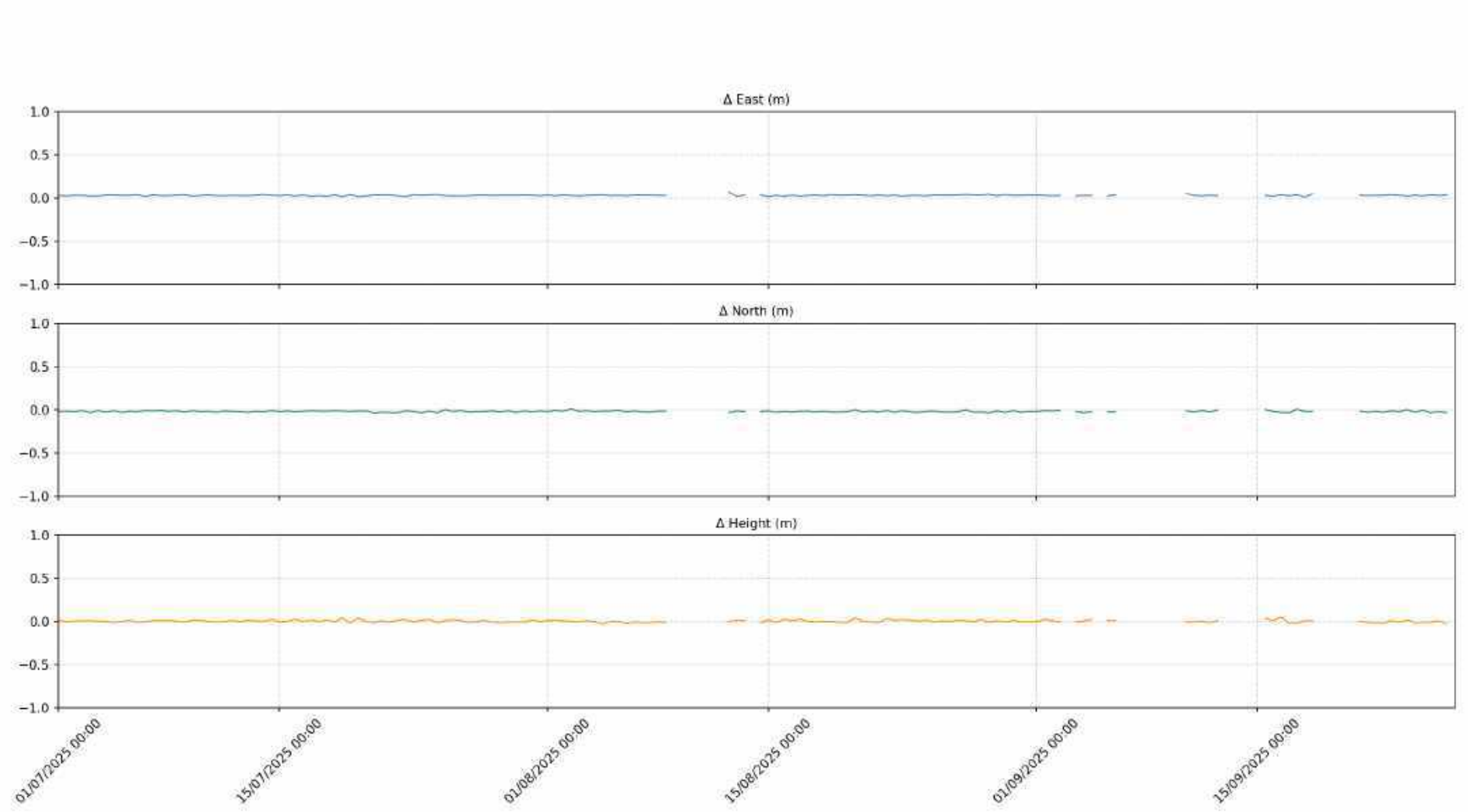
Sensor: GNSS-TSF2-04



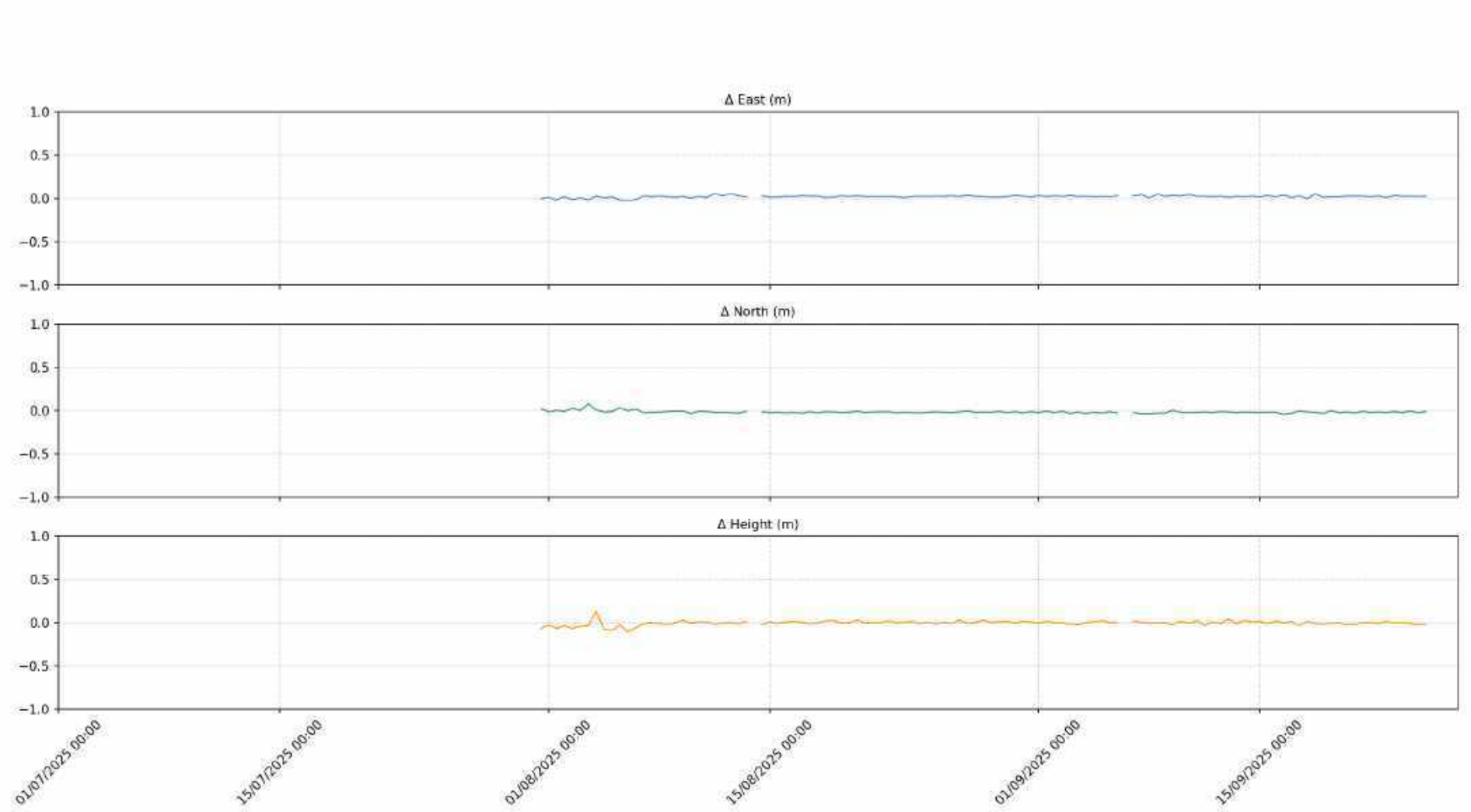
Sensor: GNSS-TSF2-05

No data available for sensor: GNSS-TSF2-05

Sensor: GNSS-TSF2-06



Sensor: GNSS-TSF2-07



Appendix F

Inclinometer reports

General Inclinometer Report

From 01-Jul-2025 to 30-Sep-2025

Inclinometer Inventory

Tag Name	Location	Section	Status
IN01 (Northern Wall)	TSF4 Cell 2	-	Disconnected
IN01 (Northern Wall) Extended	TSF4 Cell 2	-	Active
IN02 (Southern Wall)	TSF4 Cell 1	-	Disconnected
IN02 (Southern Wall) Extended	TSF4 Cell 1	-	Active

IN01 (Northern Wall)

Inclinometer Tag Name: IN01 (Northern Wall)
TSF: TSF4 Cell 2
Section: -
Status: Disconnected
Top Casing: 266.100
Depth Casing: 18.440
Latitude: -33.88142000000000
Longitude: 116.05385600000000

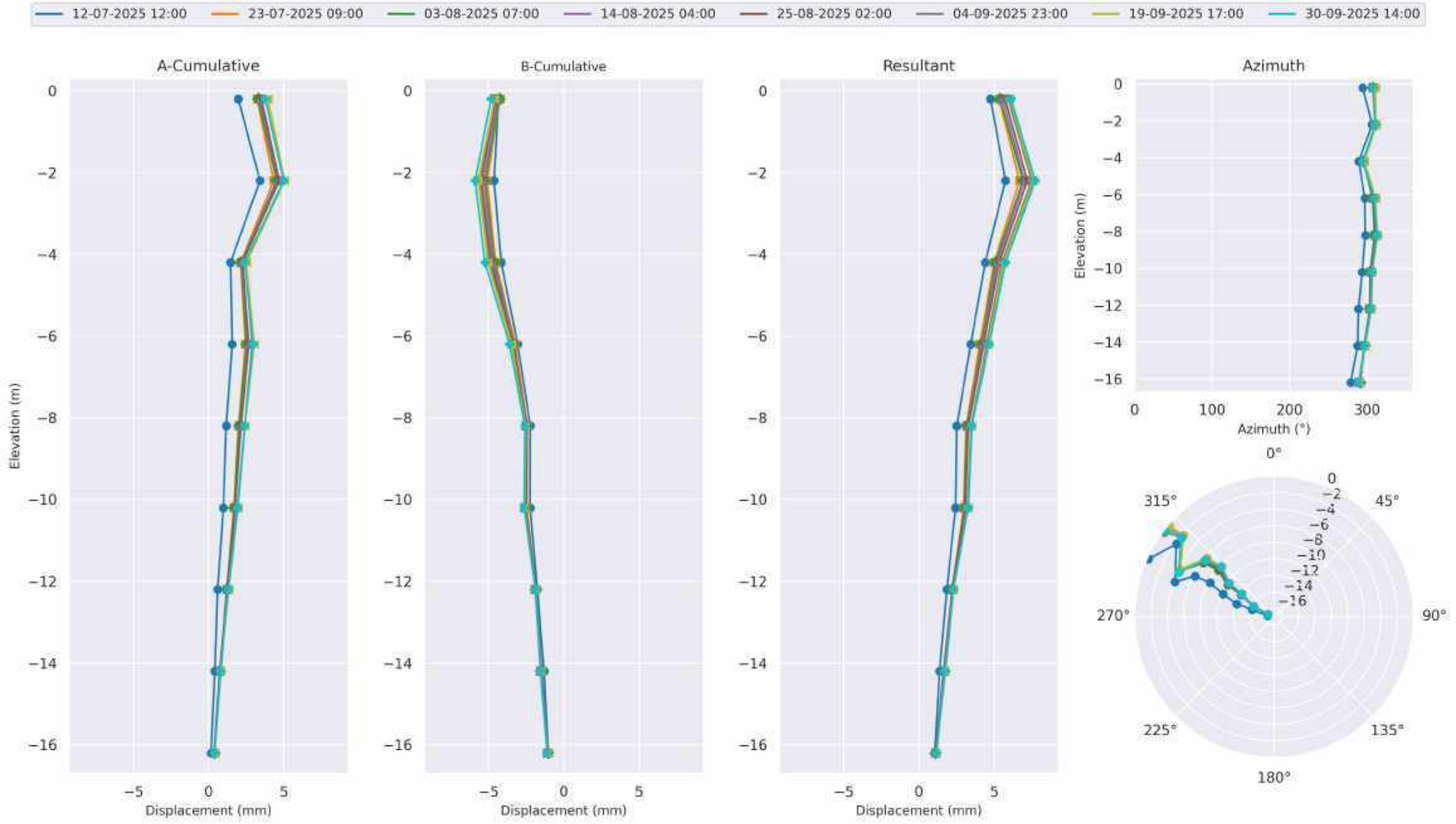
Configured Channels (7):
- Channel 1: Elevation 250.3 m
- Channel 2: Elevation 252.3 m
- Channel 3: Elevation 254.3 m
- Channel 4: Elevation 256.3 m
- Channel 5: Elevation 258.3 m
- Channel 6: Elevation 260.3 m
- Channel 7: Elevation 262.3 m

IN01 (Northern Wall) Extended

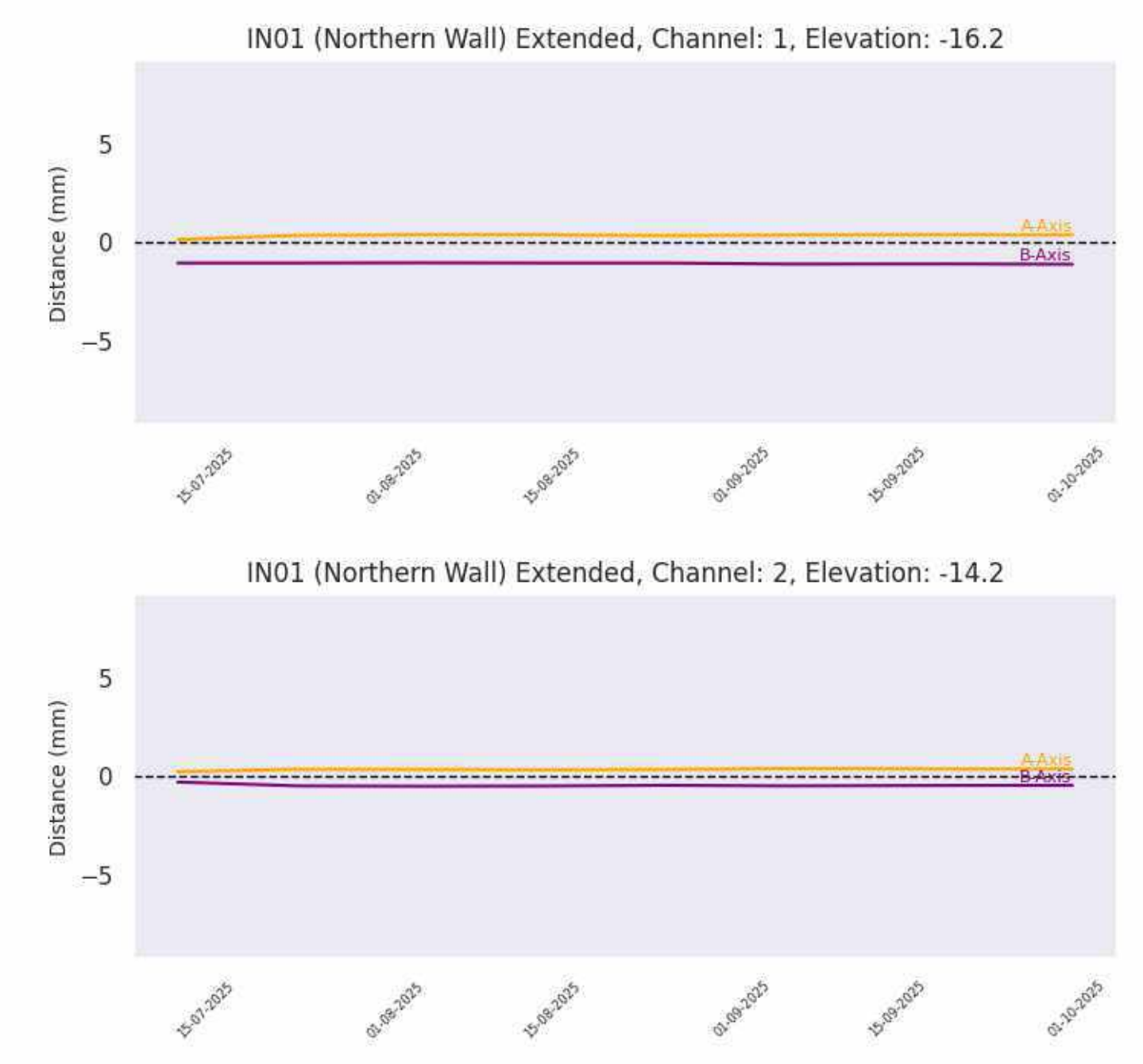
Inclinometer Tag Name: IN01 (Northern Wall) Extended
TSF: TSF4 Cell 2
Section: -
Status: Active
Top Casing: None
Depth Casing: 23.650
Latitude: -33.88142045077309
Longitude: 116.05385693569633

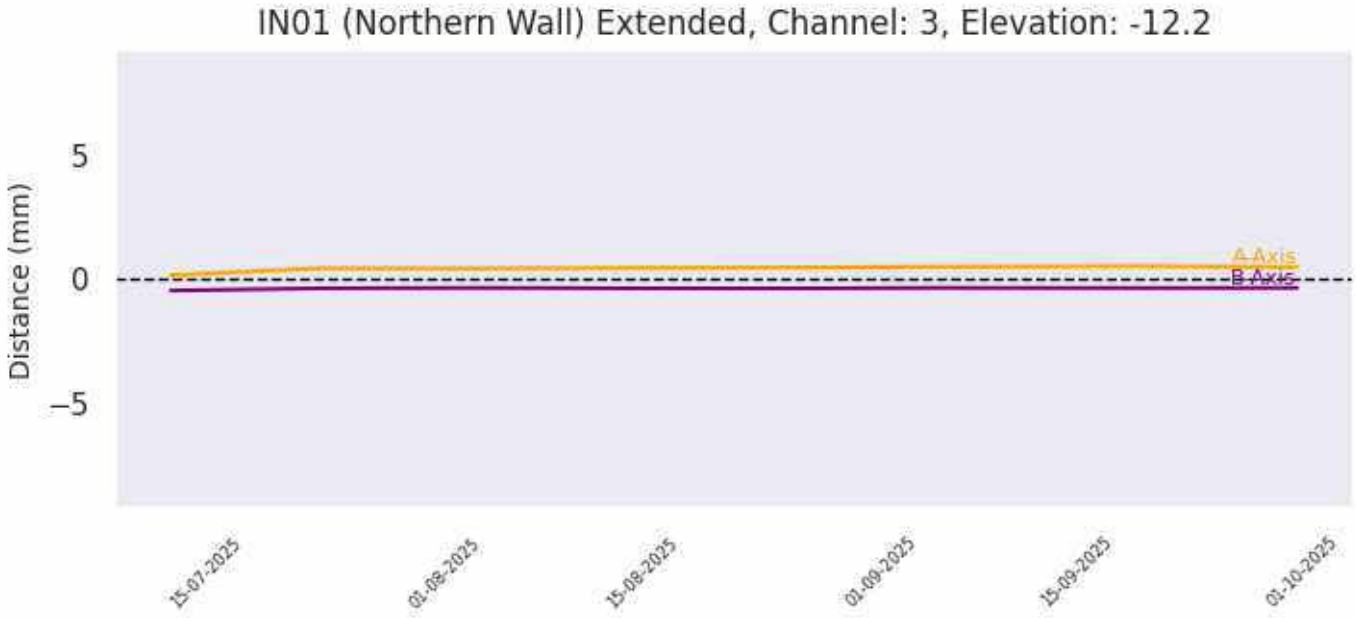
Configured Channels (9):
- Channel 1: Elevation -16.2 m
- Channel 2: Elevation -14.2 m
- Channel 3: Elevation -12.2 m
- Channel 4: Elevation -10.2 m
- Channel 5: Elevation -8.2 m
- Channel 6: Elevation -6.2 m
- Channel 7: Elevation -4.2 m
- Channel 8: Elevation -2.2 m
- Channel 9: Elevation -0.2 m

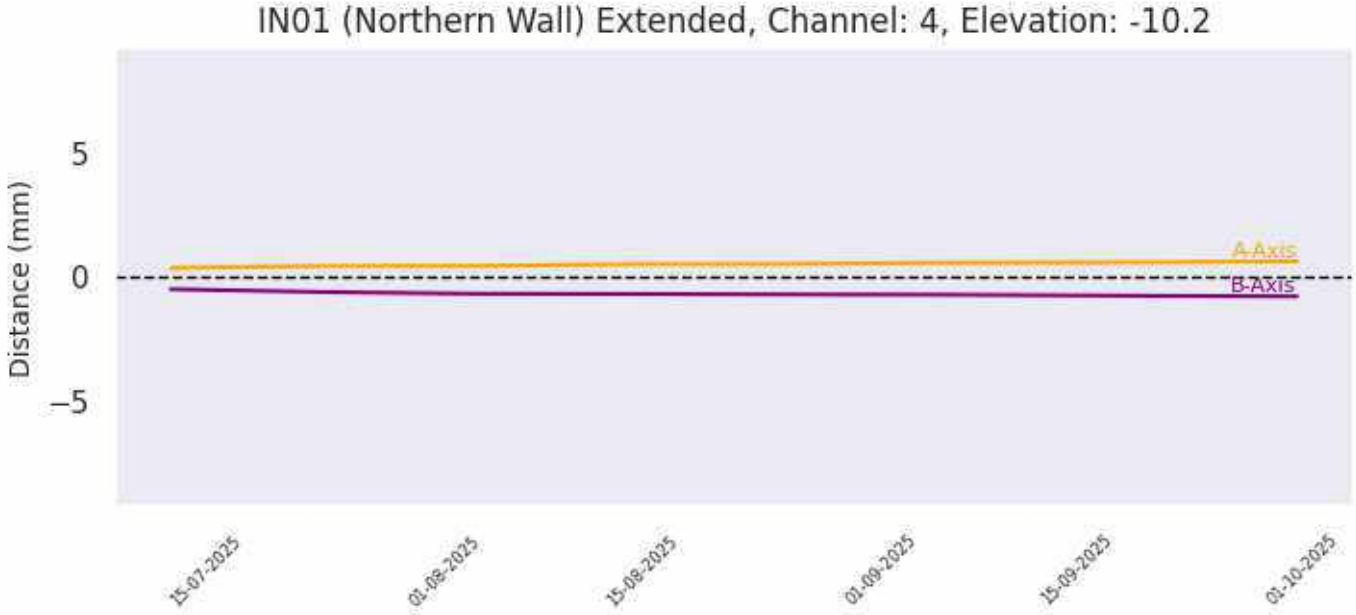
Instrument View

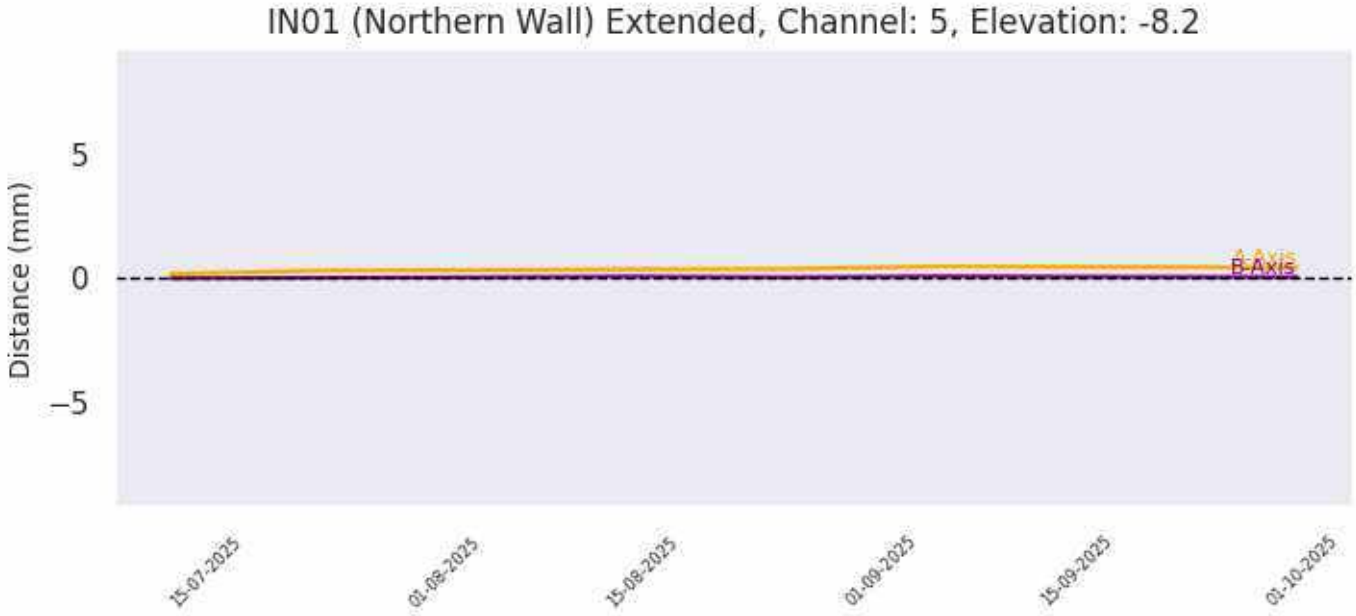


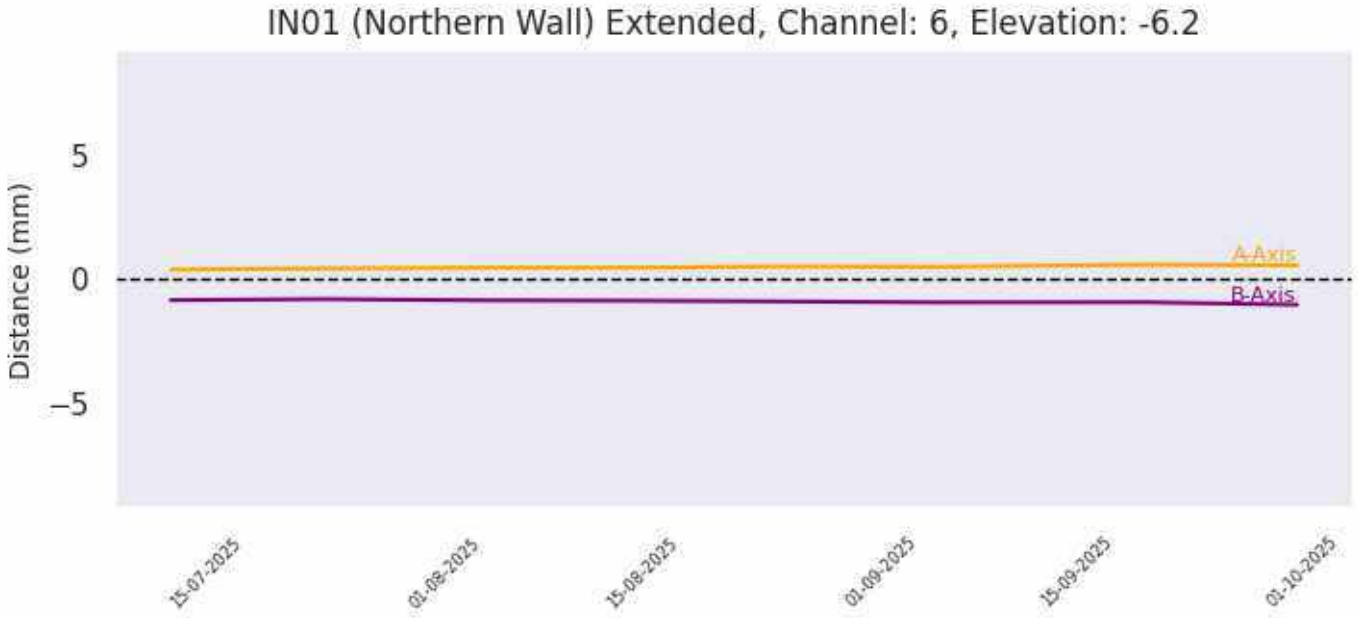
Unit View


IN01 (Northern Wall) Extended, Channel: 1, Elevation: -16.2
Distance (mm)
5
0
−5
A-Axis
B-Axis
15-07-2025
01-08-2025
15-08-2025
01-09-2025
15-09-2025
01-10-2025
IN01 (Northern Wall) Extended, Channel: 2, Elevation: -14.2
Distance (mm)
5
0
−5
A-Axis
B-Axis
15-07-2025
01-08-2025
15-08-2025
01-09-2025
15-09-2025
01-10-2025


IN01 (Northern Wall) Extended, Channel: 3, Elevation: -12.2
Distance (mm)
5
0
−5
A-Axis
B-Axis
15-07-2025
01-08-2025
15-08-2025
01-09-2025
15-09-2025
01-10-2025

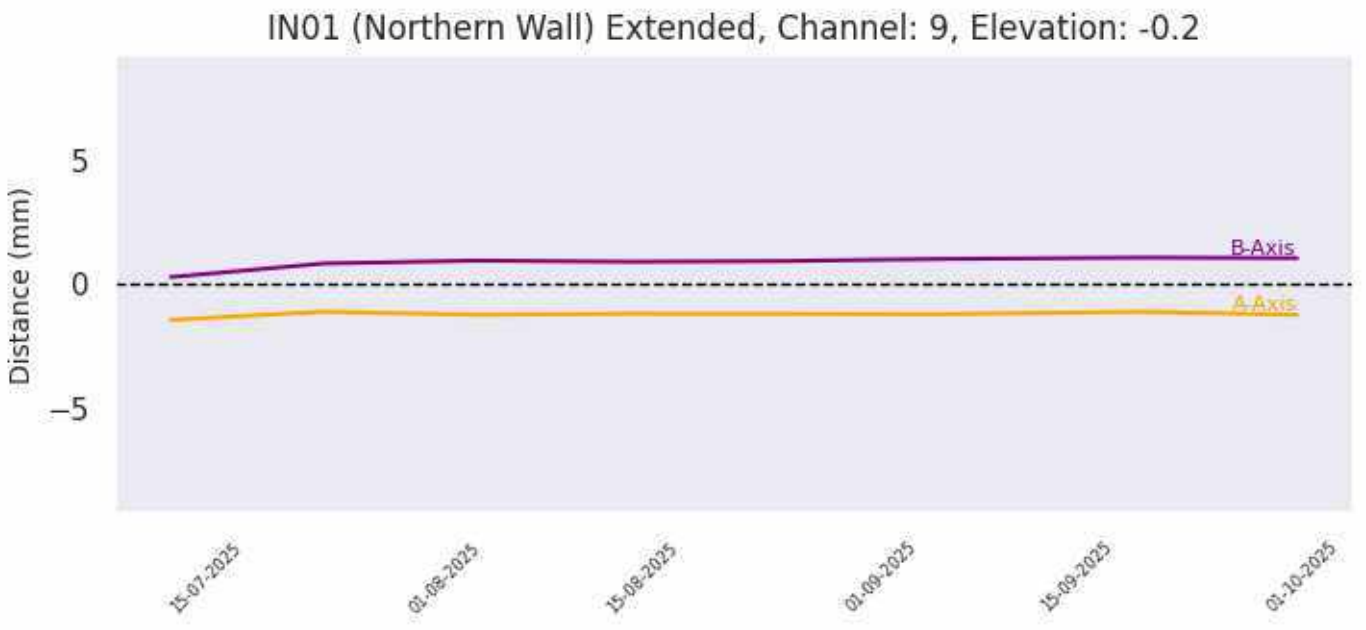

IN01 (Northern Wall) Extended, Channel: 4, Elevation: -10.2
Distance (mm)
5
0
−5
A-Axis
B-Axis
15-07-2025
01-08-2025
15-08-2025
01-09-2025
15-09-2025
01-10-2025


IN01 (Northern Wall) Extended, Channel: 5, Elevation: -8.2
Distance (mm)
5
0
−5
A-Axis
B-Axis
15-07-2025
01-08-2025
15-08-2025
01-09-2025
15-09-2025
01-10-2025


IN01 (Northern Wall) Extended, Channel: 6, Elevation: -6.2
Distance (mm)
5
0
−5
A-Axis
B-Axis
15-07-2025
01-08-2025
15-08-2025
01-09-2025
15-09-2025
01-10-2025


IN01 (Northern Wall) Extended, Channel: 7, Elevation: -4.2
Distance (mm)
5
0
−5
A-Axis
B-Axis
15-07-2025
01-08-2025
15-08-2025
01-09-2025
15-09-2025
01-10-2025


IN01 (Northern Wall) Extended, Channel: 8, Elevation: -2.2
Distance (mm)
5
0
−5
A-Axis
B-Axis
15-07-2025
01-08-2025
15-08-2025
01-09-2025
15-09-2025
01-10-2025


IN01 (Northern Wall) Extended, Channel: 9, Elevation: -0.2
Distance (mm)
5
0
−5
B-Axis
A-Axis
15-07-2025
01-08-2025
15-08-2025
01-09-2025
15-09-2025
01-10-2025

IN02 (Southern Wall)

Inclinometer Tag Name: IN02 (Southern Wall)
TSF: TSF4 Cell 1
Section: -
Status: Disconnected
Top Casing: 265.600
Depth Casing: 22.090
Latitude: -33.88939100000000
Longitude: 116.06074400000000

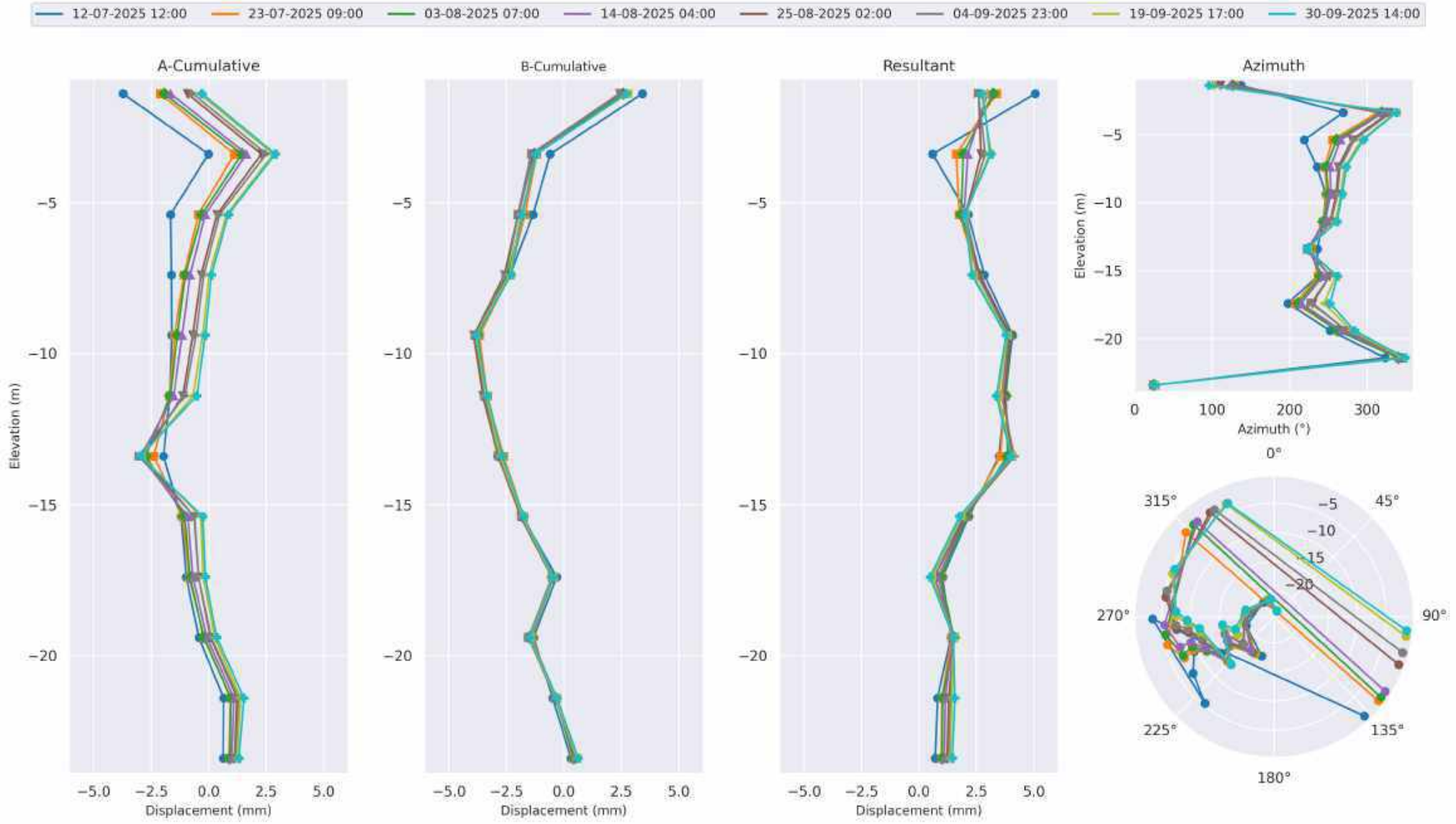
Configured Channels (10):
- Channel 1: Elevation 245.0 m
- Channel 2: Elevation 247.0 m
- Channel 3: Elevation 249.0 m
- Channel 4: Elevation 251.0 m
- Channel 5: Elevation 253.0 m
- Channel 6: Elevation 255.0 m
- Channel 7: Elevation 257.0 m
- Channel 8: Elevation 259.0 m
- Channel 9: Elevation 261.0 m
- Channel 10: Elevation 263.0 m

IN02 (Southern Wall) Extended

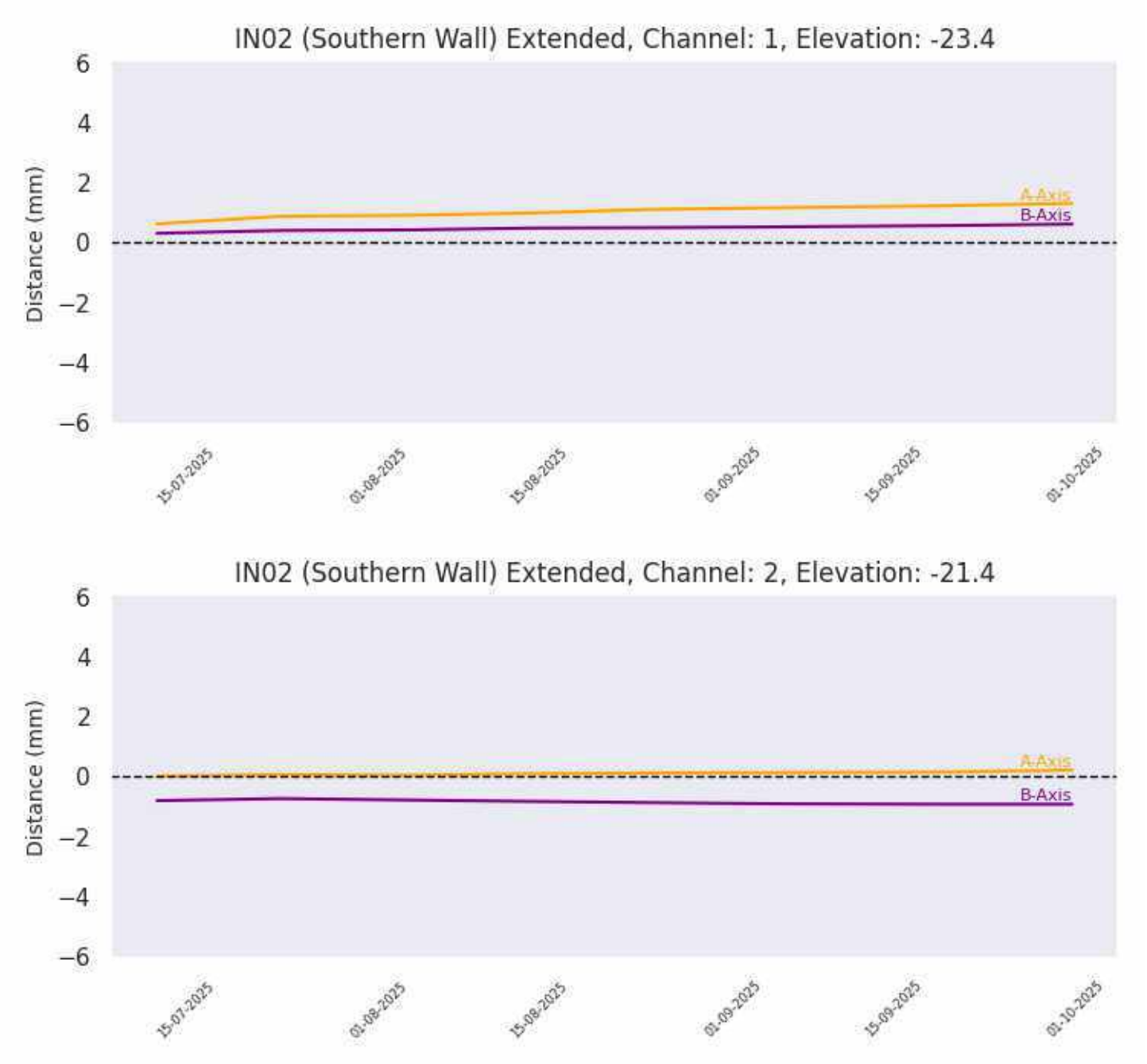
Inclinometer Tag Name: IN02 (Southern Wall) Extended
TSF: TSF4 Cell 1
Section: -
Status: Active
Top Casing: None
Depth Casing: 27.030
Latitude: -33.88939149629617
Longitude: 116.06074400503454

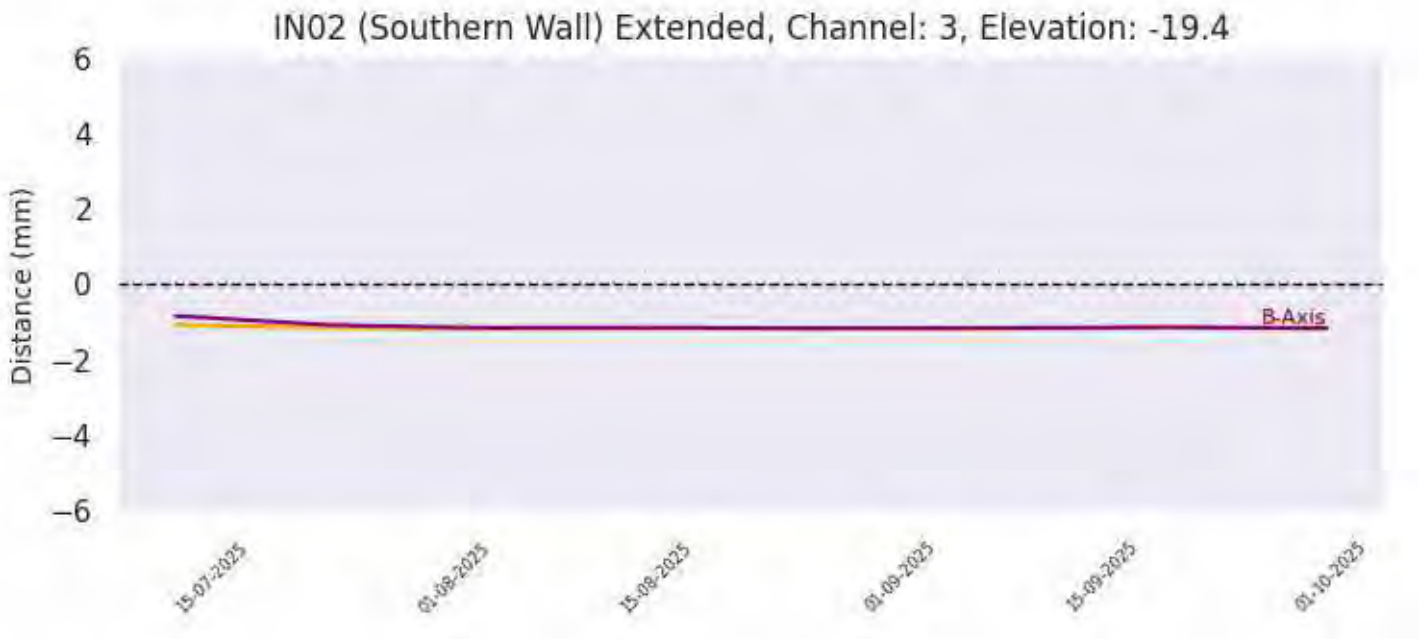
Configured Channels (12):
- Channel 1: Elevation -23.4 m
- Channel 2: Elevation -21.4 m
- Channel 3: Elevation -19.4 m
- Channel 4: Elevation -17.4 m
- Channel 5: Elevation -15.4 m
- Channel 6: Elevation -13.4 m
- Channel 7: Elevation -11.4 m
- Channel 8: Elevation -9.4 m
- Channel 9: Elevation -7.4 m
- Channel 10: Elevation -5.4 m
- Channel 11: Elevation -3.4 m
- Channel 12: Elevation -1.4 m

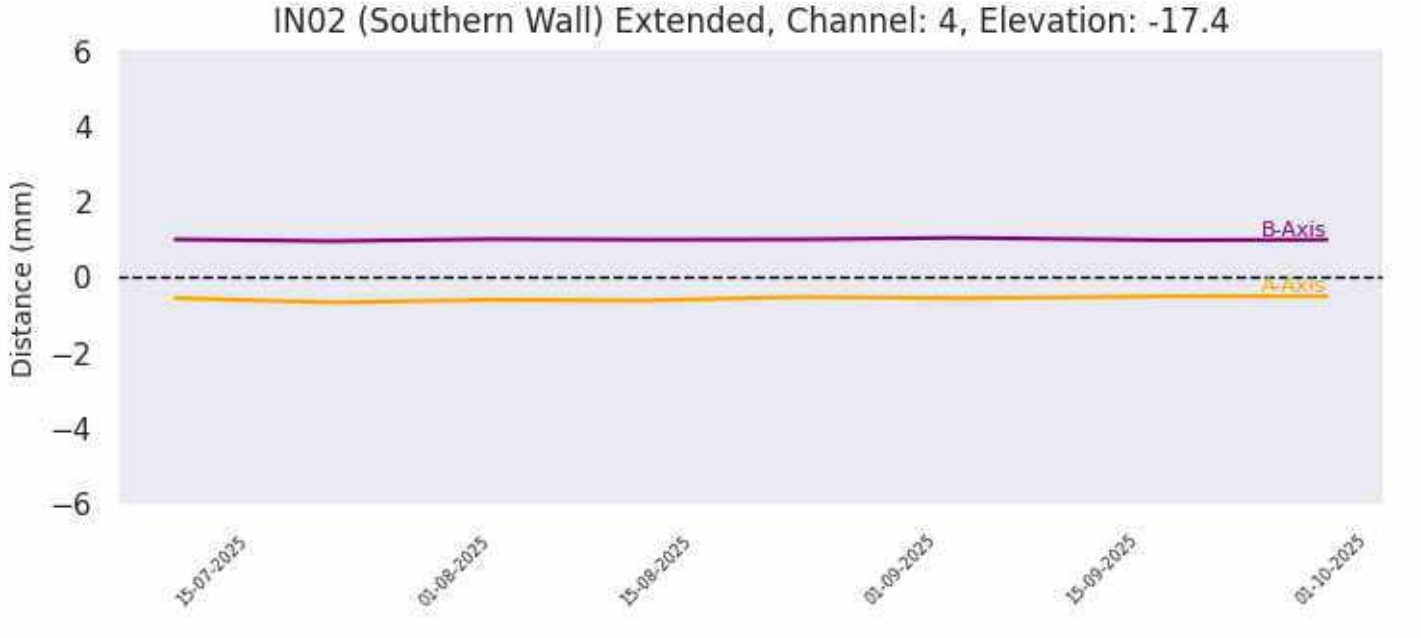
Instrument View

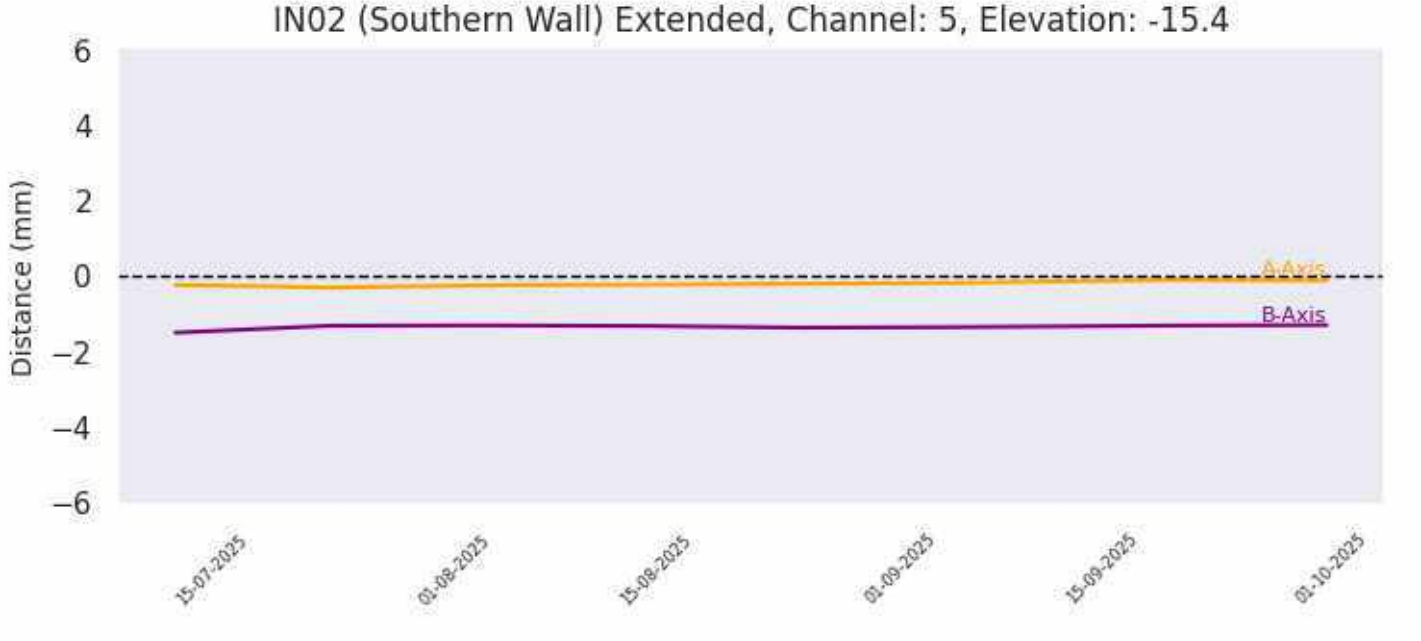


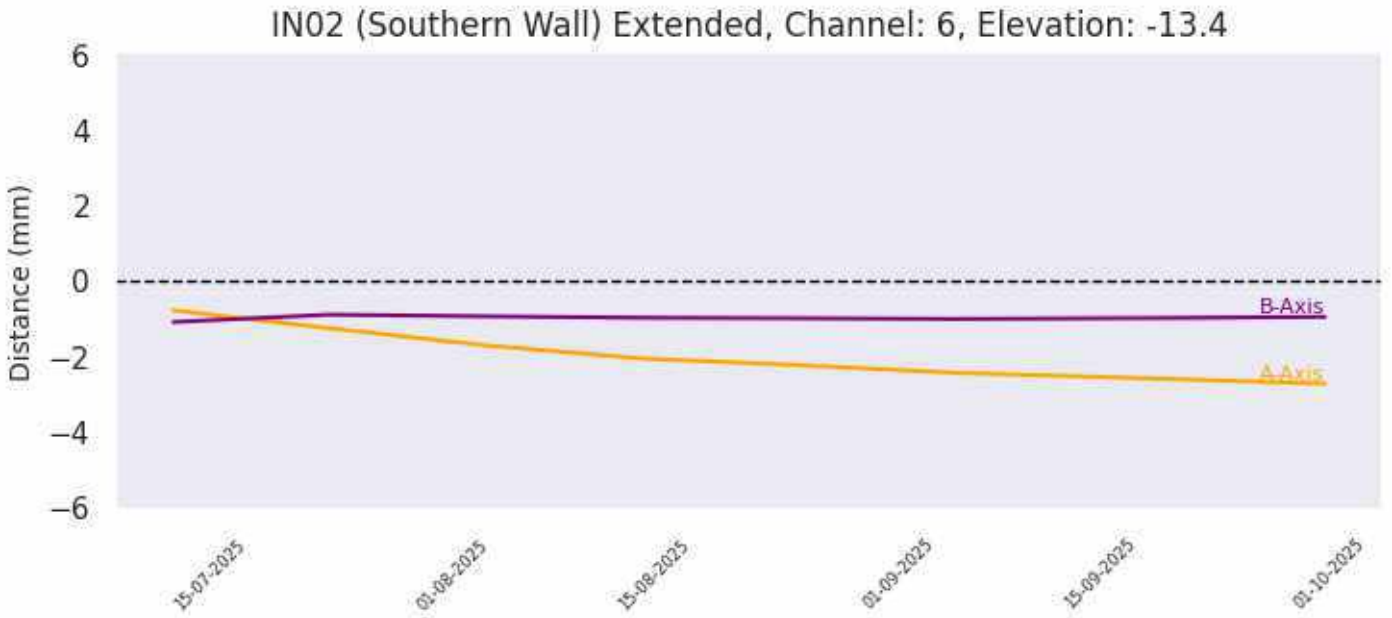
Unit View

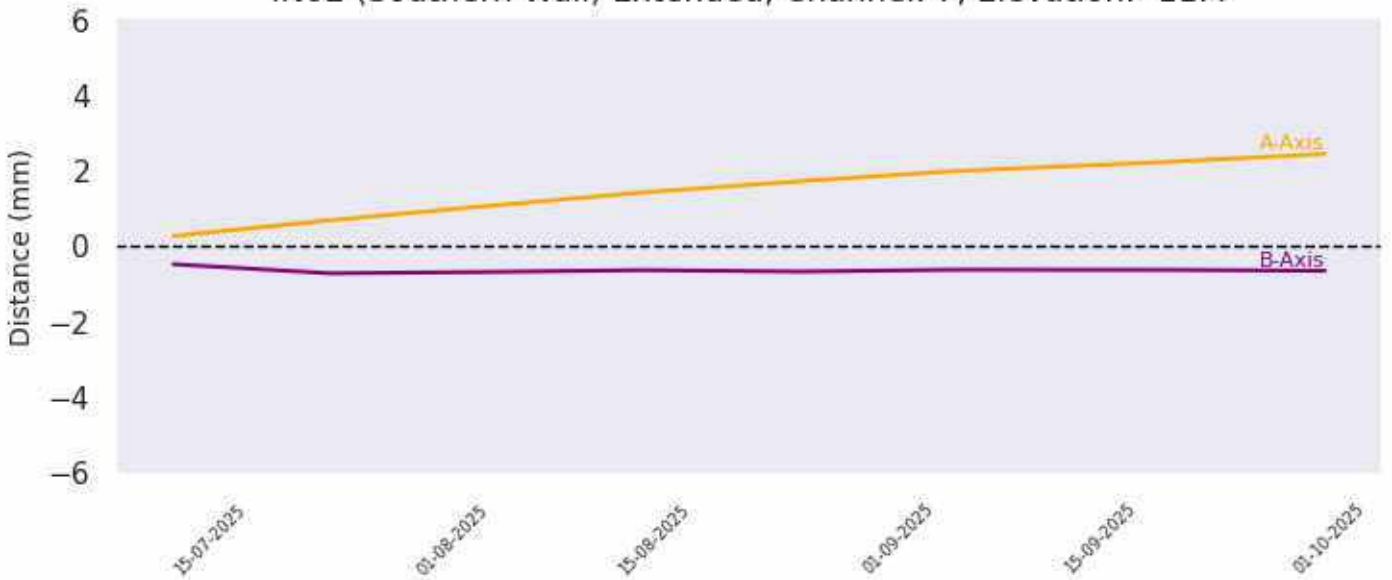

IN02 (Southern Wall) Extended, Channel: 1, Elevation: -23.4
Distance (mm)
6
4
2
0
−2
−4
−6
A-Axis
B-Axis
15-07-2025
01-08-2025
15-08-2025
01-09-2025
15-09-2025
01-10-2025
IN02 (Southern Wall) Extended, Channel: 2, Elevation: -21.4
Distance (mm)
6
4
2
0
−2
−4
−6
A-Axis
B-Axis
15-07-2025
01-08-2025
15-08-2025
01-09-2025
15-09-2025
01-10-2025

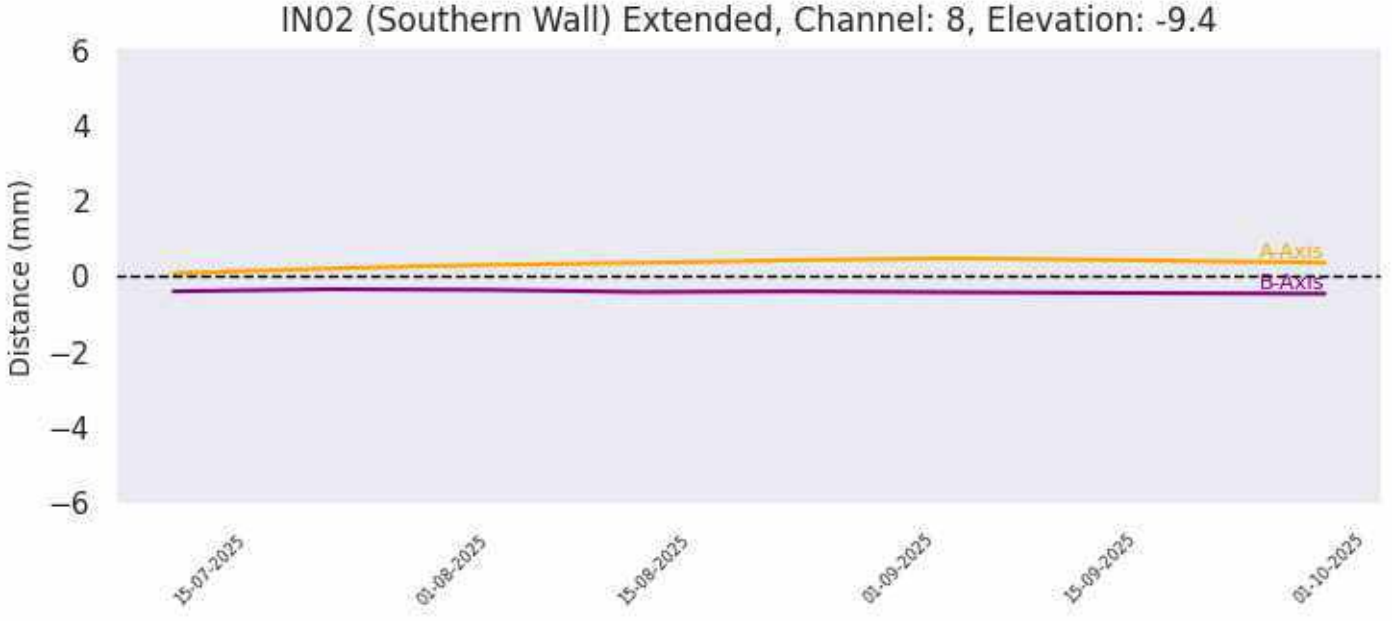

IN02 (Southern Wall) Extended, Channel: 3, Elevation: -19.4
Distance (mm)
6
4
2
0
−2
−4
−6
B-Axis
15-07-2025
01-08-2025
15-08-2025
01-09-2025
15-09-2025
01-10-2025

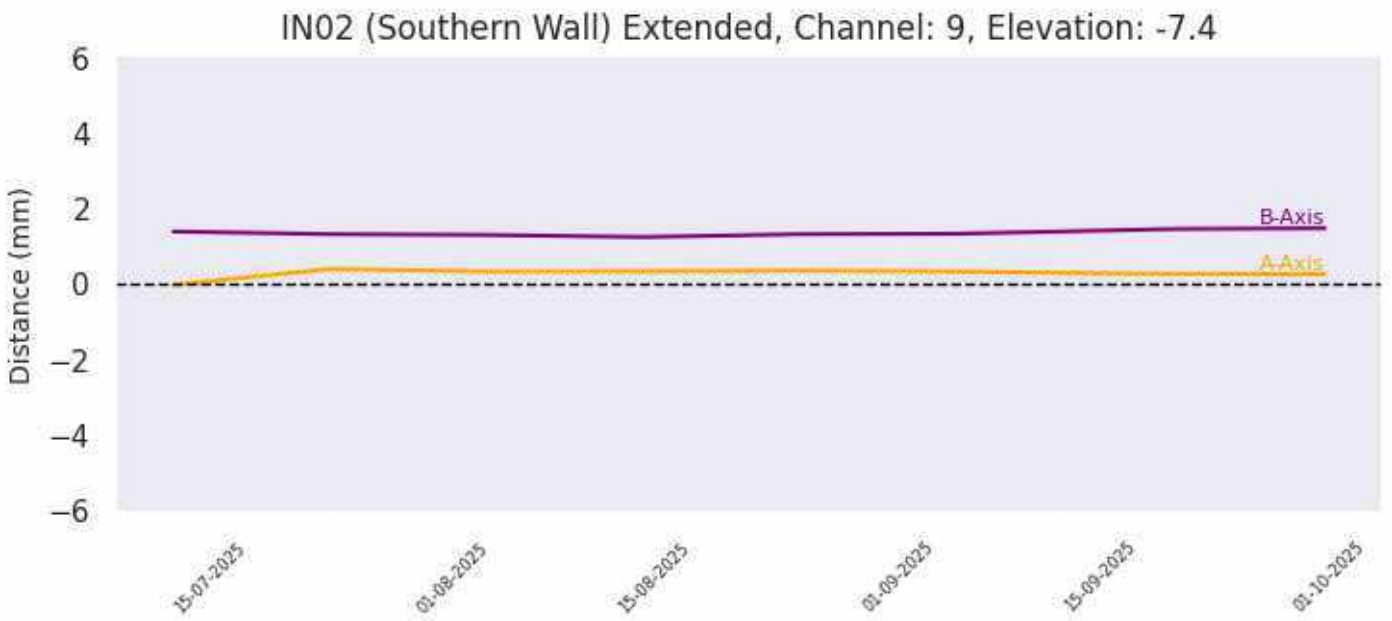

IN02 (Southern Wall) Extended, Channel: 4, Elevation: -17.4
Distance (mm)
6
4
2
0
−2
−4
−6
B-Axis
A-Axis
15-07-2025
01-08-2025
15-08-2025
01-09-2025
15-09-2025
01-10-2025


IN02 (Southern Wall) Extended, Channel: 5, Elevation: -15.4
Distance (mm)
6
4
2
0
−2
−4
−6
A-Axis
B-Axis
15-07-2025
01-08-2025
15-08-2025
01-09-2025
15-09-2025
01-10-2025

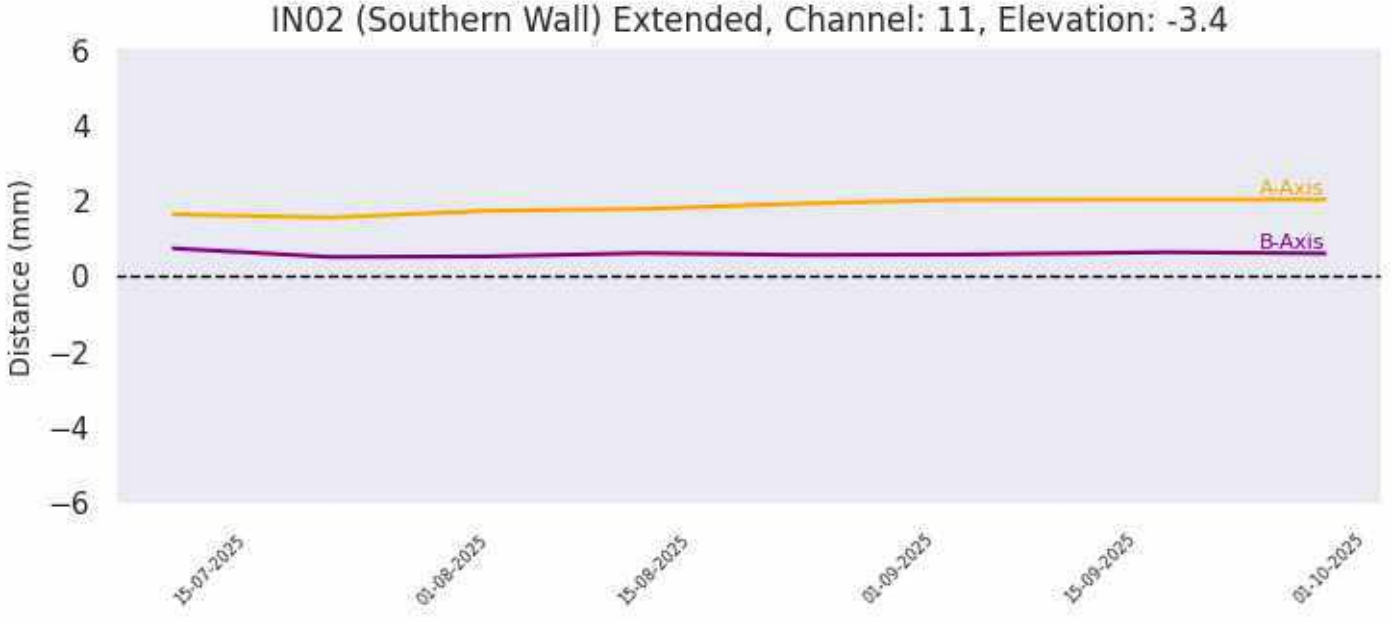

IN02 (Southern Wall) Extended, Channel: 6, Elevation: -13.4
Distance (mm)
6
4
2
0
−2
−4
−6
B-Axis
A-Axis
15-07-2025
01-08-2025
15-08-2025
01-09-2025
15-09-2025
01-10-2025

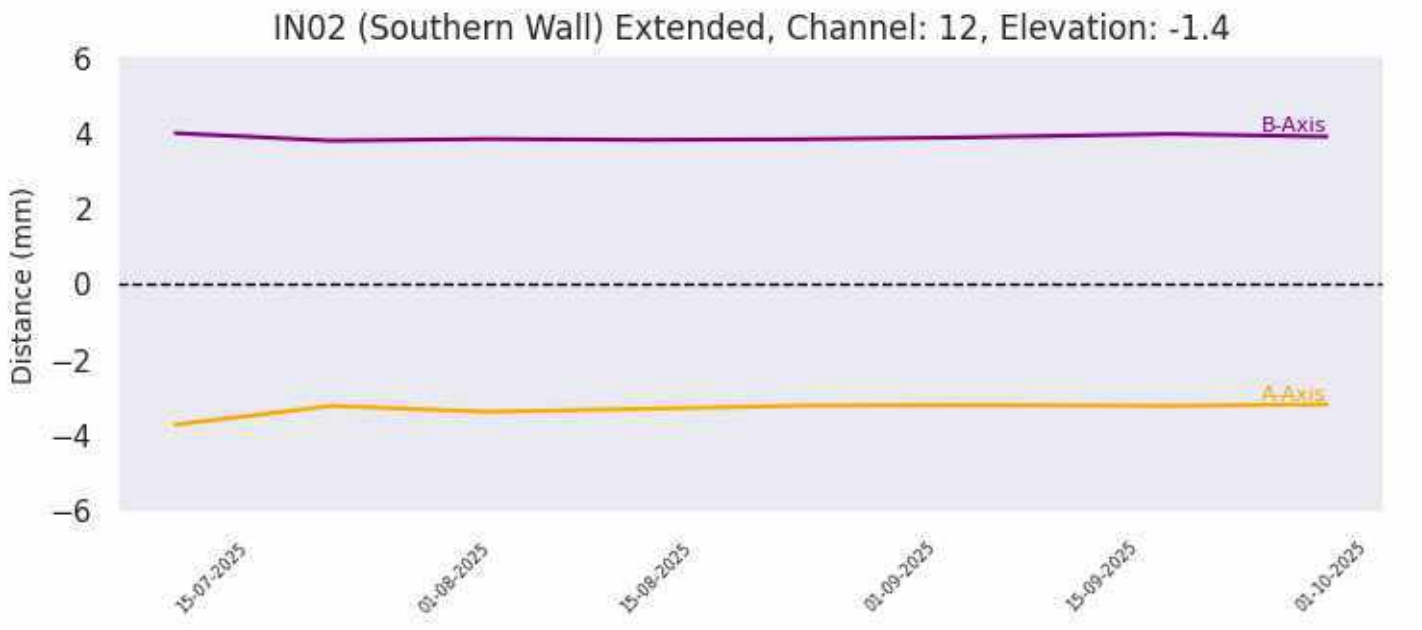

IN02 (Southern Wall) Extended, Channel: 7, Elevation: -11.4
Distance (mm)
6
4
2
0
−2
−4
−6
A-Axis
B-Axis
15-07-2025
01-08-2025
15-08-2025
01-09-2025
15-09-2025
01-10-2025


IN02 (Southern Wall) Extended, Channel: 8, Elevation: -9.4
Distance (mm)
6
4
2
0
−2
−4
−6
A-Axis
B-Axis
15-07-2025
01-08-2025
15-08-2025
01-09-2025
15-09-2025
01-10-2025


IN02 (Southern Wall) Extended, Channel: 9, Elevation: -7.4
Distance (mm)
6
4
2
0
−2
−4
−6
B-Axis
A-Axis
15-07-2025
01-08-2025
15-08-2025
01-09-2025
15-09-2025
01-10-2025

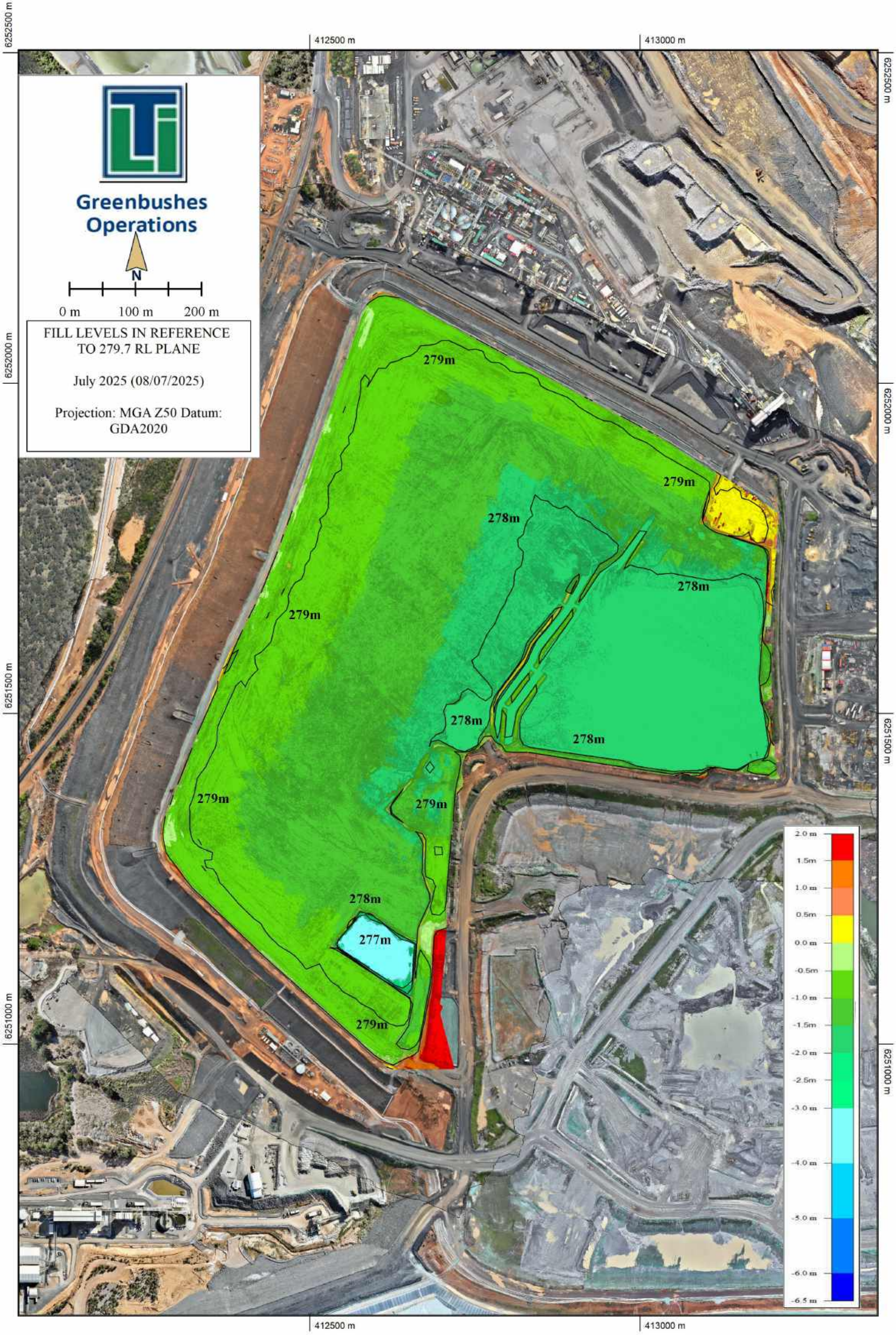

IN02 (Southern Wall) Extended, Channel: 10, Elevation: -5.4
Distance (mm)
6
4
2
0
−2
−4
−6
A-Axis
B-Axis
15-07-2025
01-08-2025
15-08-2025
01-09-2025
15-09-2025
01-10-2025

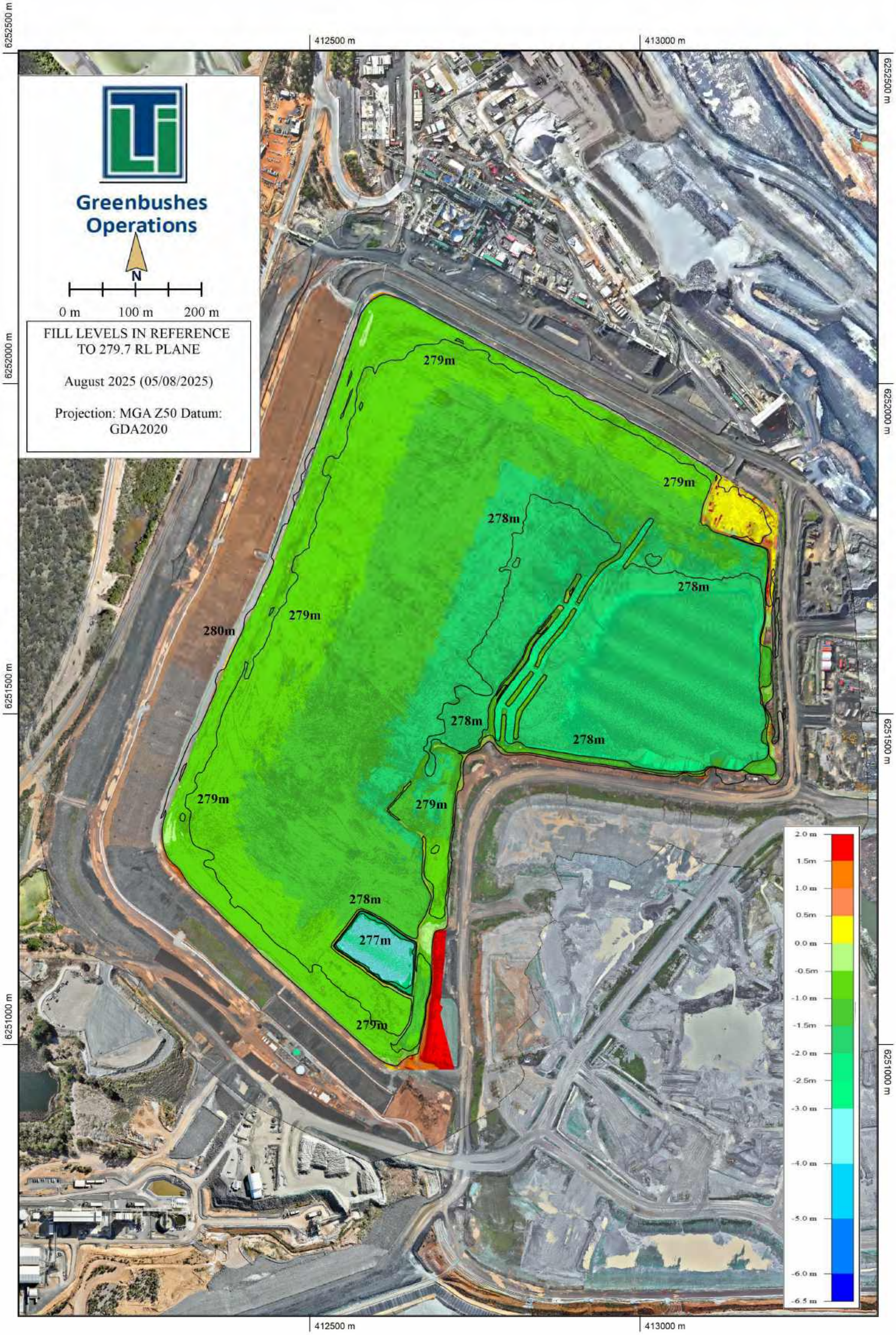

IN02 (Southern Wall) Extended, Channel: 11, Elevation: -3.4
Distance (mm)
6
4
2
0
−2
−4
−6
A-Axis
B-Axis
15-07-2025
01-08-2025
15-08-2025
01-09-2025
15-09-2025
01-10-2025

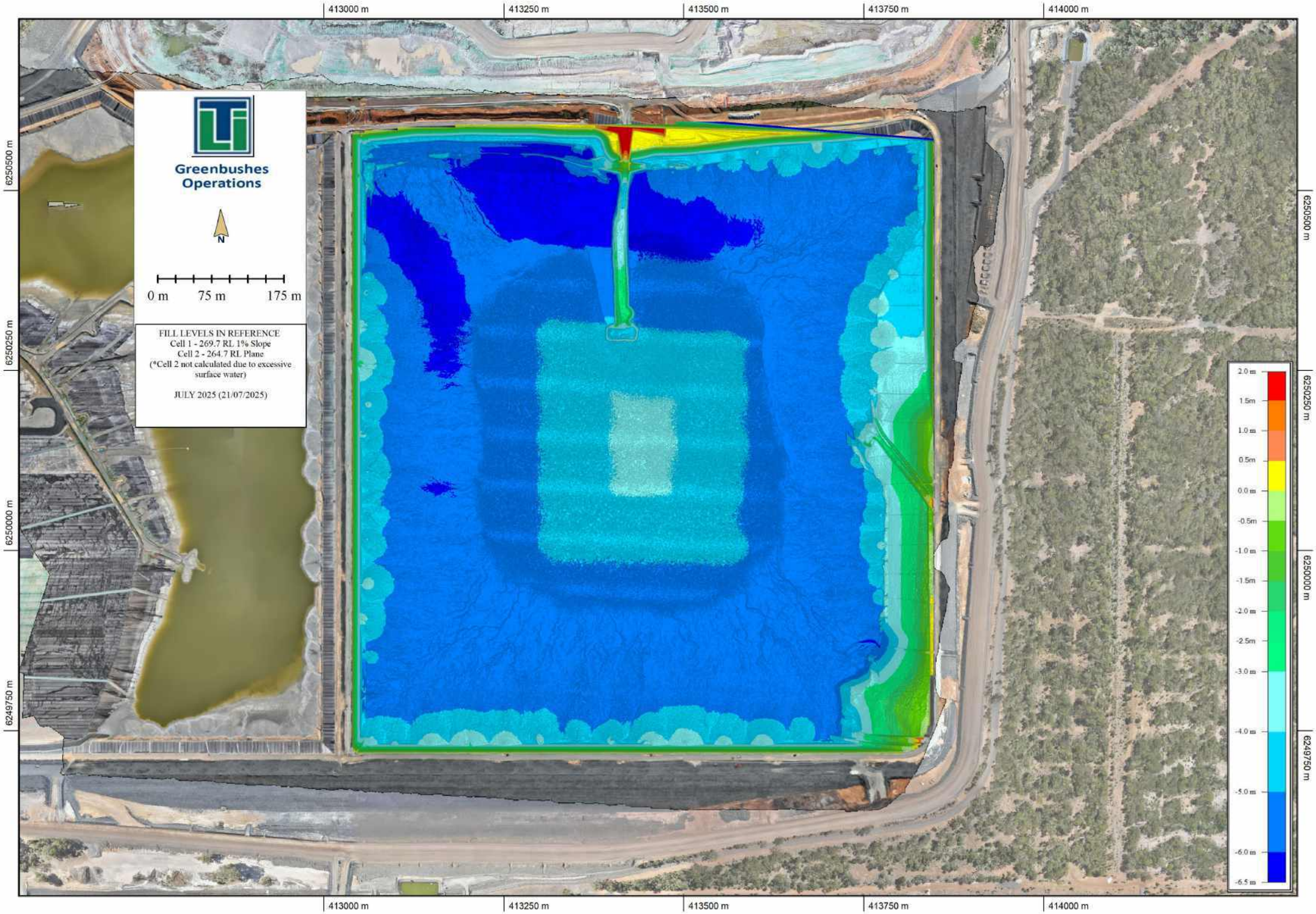

IN02 (Southern Wall) Extended, Channel: 12, Elevation: -1.4
Distance (mm)
6
4
2
0
−2
−4
−6
B-Axis
A-Axis
15-07-2025
01-08-2025
15-08-2025
01-09-2025
15-09-2025
01-10-2025

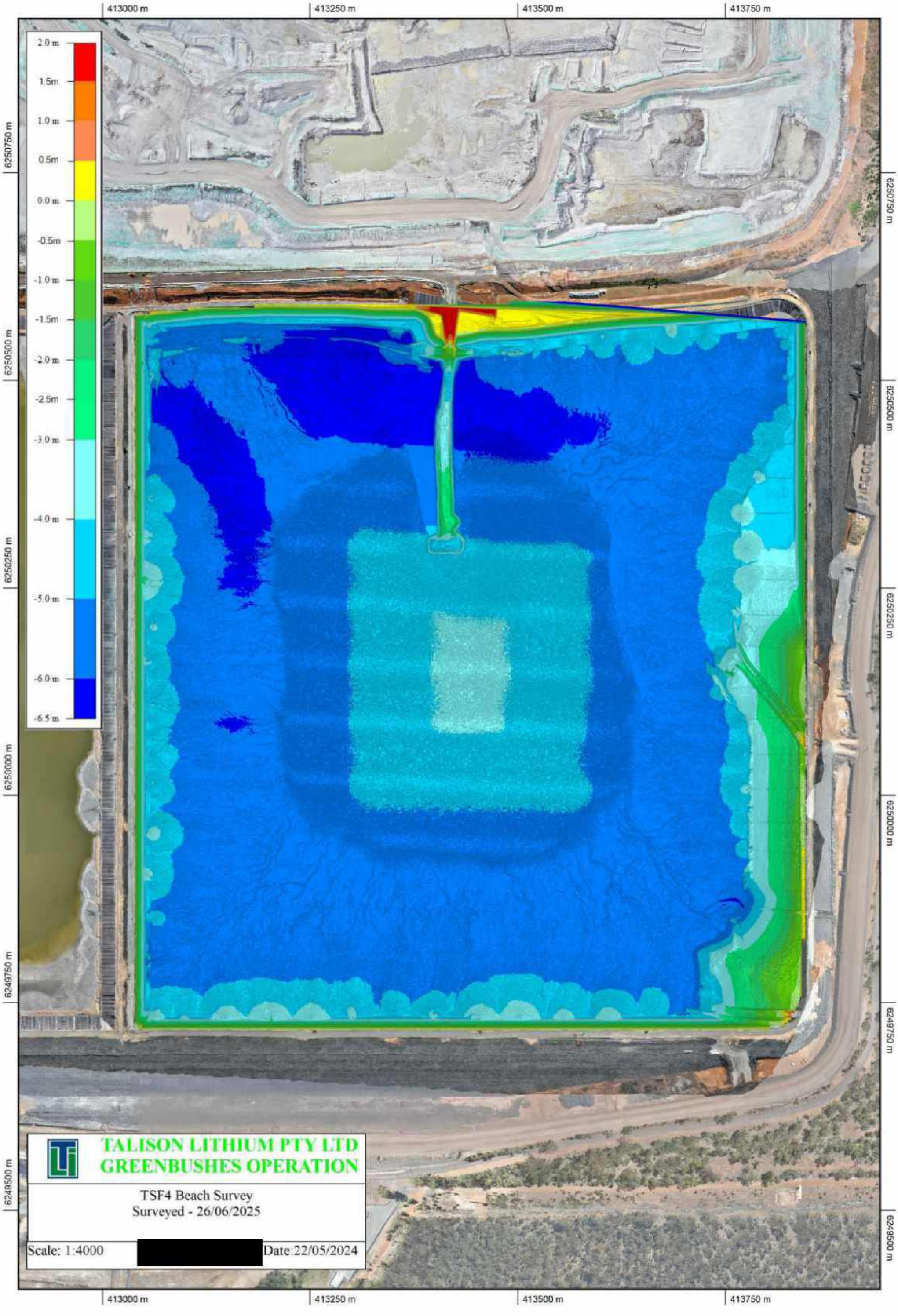
Appendix G

TSF2 and TSF4 volume survey


Greenbushes Operations
N
0 m
100 m
200 m
FILL LEVELS IN REFERENCE TO 279.7 RL PLANE
July 2025 (08/07/2025)
Projection: MGA Z50 Datum: GDA2020
279m
278m
279m
278m
279m
278m
278m
279m
279m
278m
277m
279m
2.0 m
1.5m
1.0 m
0.5m
0.0 m
-0.5m
-1.0 m
-1.5m
-2.0 m
-2.5m
-3.0 m
-4.0 m
-5.0 m
-6.0 m
-6.5 m
6252500 m
412500 m
413000 m
6252000 m
6251500 m
6251000 m


Greenbushes Operations
N
0 m
100 m
200 m
FILL LEVELS IN REFERENCE TO 279.7 RL PLANE
August 2025 (05/08/2025)
Projection: MGA Z50 Datum: GDA2020
279m
279m
278m
278m
280m
279m
278m
278m
279m
279m
278m
277m
279m
2.0 m
1.5m
1.0 m
0.5m
0.0 m
-0.5m
-1.0 m
-1.5m
-2.0 m
-2.5m
-3.0 m
-4.0 m
-5.0 m
-6.0 m
-6.5 m
412500 m
413000 m
6252500 m
6252000 m
6251500 m
6251000 m


413000 m
413250 m
413500 m
413750 m
414000 m
6250500 m
6250250 m
6250000 m
6249750 m
Greenbushes Operations
N
0 m
75 m
175 m
FILL LEVELS IN REFERENCE
Cell 1 - 269.7 RL 1% Slope
Cell 2 - 264.7 RL Plane
(*Cell 2 not calculated due to excessive surface water)
JULY 2025 (21/07/2025)
2.0 m
1.5m
1.0 m
0.5m
0.0 m
-0.5m
-1.0 m
-1.5m
-2.0 m
-2.5m
-3.0 m
-4.0 m
-5.0 m
-6.0 m
-6.5 m


413000 m
413250 m
413500 m
413750 m
6250750 m
6250500 m
6250250 m
6250000 m
6249750 m
6249500 m
2.0 m
1.5m
1.0 m
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-2.0 m
-2.5m
-3.0 m
-4.0 m
-5.0 m
-6.0 m
-6.5 m
TALISON LITHIUM PTY LTD
GREENBUSHES OPERATION
TSF4 Beach Survey
Surveyed - 26/06/2025
Scale: 1:4000
[redacted]
Date:22/05/2024

Greenbushes Operations

N

0 m 75 m 150 m

FILL LEVELS IN REFERENCE
Cell 1 - 269.7 RL 1% Slope
Cell 2 - 264.7 RL Plane
(*Cell 2 not calculated due to excessive surface water)

August 2025 (21/08/2025)

413000 m
413250 m
413500 m
413750 m
414000 m

6250500 m
6250250 m
6250000 m
6249750 m

2.0 m
1.5m
1.0 m
0.5m
0.0 m
-0.5m
-1.0 m
-1.5m
-2.0 m
-2.5m
-3.0 m
-4.0 m
-5.0 m
-6.0 m
-6.5 m

Greenbushes Operations

N

50 m 200 m

FILL LEVELS IN REFERENCE
Cell 1 - 269.7 RL 1% Slope
Cell 2 - 269.7 RL Plane

September 2025 (22/09/2025)

412000 m 412250 m 412500 m 412750 m 413000 m 413250 m 413500 m 413750 m 414000 m

6250750 m 6250500 m 6250250 m 6250000 m 6249750 m 6249500 m

2.0 m
1.5m
1.0 m
0.5m
0.0 m
-0.5m
-1.0 m
-1.5m
-2.0 m
-2.5m
-3.0 m
-4.0 m
-5.0 m
-6.0 m
-6.5 m

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Appendix D

Tailings storage data sheet

Appendix 1 – Tailings storage data sheet

	Project operator			
	Project name		Date 04/03/2026	
	TSF name TSF4 - Cell 1		Commodity	
	Name of data provider		Phone	
	TSF centre co-ordinates (GDA 94) m North		m East	
	Mining Tenement and Holder(s) details			
	TSF data			
	TSF status: Proposed ☐ Active ☐ Non Active ☐ Decommissioned ☐ Rehabilitated ☐ Closed ☐			
	Type of TSF: [1]		Number of cells: [2]	
	Hazard rating: [3]		TSF category: [4]	
	Catchment area: [5]		Nearest water course:	
	Date deposition started (mm/yy):		Date deposition completed (mm/yy):	
	Tailings discharge method: [6]		Water recovery method: [7]	
	Bottom of facility sealed or lined? Y / N		Type of seal or liner: [8]	
	Depth to original groundwater level m Current groundwater level m		Original groundwater TDS/pH mg/l	
	Ore process: [9]		Tailings Deposition rate: [10]	
(Cell 1Only)	Impoundment volume (present) 5,022,441 m^3		Expected maximum (RL 1277.5 raise) 12,140,000 m^3	
(Cell 1 Only)	Mass of solids stored (present) 7,031,417 tonnes		Expected maximum (RL 1277.5 raise) 17,000,000 tonnes	
	Above ground facilities			
	Foundation soils		Foundation rocks	
	Starter bund construction materials: [11] Waste rock/Clay/BGM		Wall lifting by: Upstream ☐ Downstream ☐ Centre line ☐	
	Wall construction method/materials: Waste rock/Clay/BGM		Wall lifting material: [12] mechanically ☐ hydraulically ☐	
	Present maximum wall height agl: [13] 25 m		Expected maximum (Cell 1 Only) 32.5 m	
(Cell 1 Only)	Crest length (present) 3,347 m		Expected maximum (Cell 1 Only) 3800 m	
(Cell 1 Only)	Impoundment area (present) 69.87 ha		Expected maximum 71.25 ha	
	Below ground (in-pit) facilities			
	Initial pit depth (maximum) m		Area of pit base ha	
	Thickness of tailings (present) m		Expected maximum m	
	Current surface area of tailings ha		Final surface area of tailings ha	
	Properties of tailings and return water			
	TDS mg/l pH		Solids content	Deposited density t/m^3
	Potentially hazardous substances: [14]		WAD CN	Total CN mg/l
			Any other NPI listed substances in the TSF? [15] Y / N	

Appendix E

Safety in Design Register

HSE040 - GHD SAFETY IN DESIGN RISK ASSESSMENT

Project Name:	Tallison TSF4 Cell 1 Redesign to a height of RL 1277.5m	**Document Name:**	GHD Safety in Design Risk Assessment	**Author:**	Various
Project Number:	12685165	**Document Number:**	12685165-GHD-00-00-REG-PM-00001	**Date Established:**	4/03/2026
Client:	Tallison Lithium Pty Ltd	**Revision Number:**	0	**Checked by:**	S Waldek

Register applies to Cell 1 works only

Design Life Cycle:	Investigation and Design	Setup, Construction and Commissioning	Operation	Maintenance	Disposal/closure													
						INITIAL RISK RATING							**RESIDUAL RISK RATING**					
Revision	**Design Ref**	**Design Life Cycle Stage** Select from drop down menu	**Hazards** What could cause injury or ill health, damage to property or damage to the environment	**Risk** What could go wrong and what might happen as a result	**Existing Control Measures**	**Consequence**	**Likelihood**	**Risk Rating**	**Potential Control Measures** (Consider Design Controls - Elimination, Substitution, Isolation, Engineering, Administration / Training, PPE)	**Responsibility**	**By When**	**Decision / Status**	**Consequence**	**Likelihood**	**Risk Rating**	**Comments**
1 - Investigation and Design																
A	1.01	Investigation and Design	Not sufficient data available to undertake a detailed design	Design not being implemented according to site/material conditions	Survey and geotechnical investigation provided prior to design phase	B – MAJOR	3 – POSSIBLE	LOW	Qualified responsible person sign-off on all design drawings are required. If information is not sufficient, designer has to request more investigations	GHD	Design phase	IN PROGRESS	B – MAJOR	1 – VERY UNLIKELY	NEGLIGIBLE	This raise of an existing TSF already (and recently) designed by GHD - the likelihood here is very unlikely.
A	1.02	Investigation and Design	Piping failure	Internal erosion of embankment / foundation could result in breach and loss of storage and /or injury	BGM liner to control seepage. Regular inspections of the pond area to assess its condition, with particular focus on changes in the observed seepage and movement of the TSF	C – SEVERE	3 – POSSIBLE	MODERATE	Construction to be performed as per design and supervised by qualified person. Adequate QA/QC from contractor, during installation and construction of liner. Operations manual and procedures to be reviewed (and updated if required) related to the critical design assumptions / requirements for this and future lifts	Talison / Contractor	Design and construction phase	IN PROGRESS	C – SEVERE	2 – UNLIKELY	LOW	BGM was selected to meet design and site conditions requirements. QA/QC controls in place for previous raises to be continued during RL 1275 m raise.
A	1.03	Investigation and Design	Stability and integrity of the structure	Slope instability resulting in breach and loss of storage, failure, and /or injury/fatalities	Design undertaken according to ANCOLD and best practices. BGM liner adopted in the project. Minimum pond distance of 200 m from walls. Maximum Operating Level (MOL) to be read in conjunction with the pond distance requirement. Lower value to be used.	E – CATASTROPHIC	2 – UNLIKELY	SIGNIFICANT	Construction to be supervised by qualified person and performed as per design and technical specification. Operation to be undertaken according to OMS Regular inspections to be undertaken by site personnel to verify design performance	GHD / Contractor / Talison	Design, construction and operational phase	IN PROGRESS	E – CATASTROPHIC	1 – VERY UNLIKELY	MODERATE	Pond distance of around 150m from embankments is observed at the time of the Cell 1 redesign
A	1.04	Investigation and Design	Overtopping failure	Insufficient freeboard leading to overtopping of the embankment resulting in failure and injuries/fatalities	Pond designed to have a storage for an event of 1 in 1,000 years and duration of 72hrs having an allowance of 0.9 m freeboard	E – CATASTROPHIC	2 – UNLIKELY	SIGNIFICANT	Temporary pumping/pumps are available in case of a large rainfall event	Talison	Construction and operational phase	IN PROGRESS	E – CATASTROPHIC	1 – VERY UNLIKELY	MODERATE	
A	1.05	Investigation and Design	Seismic Event	Foundation failure and/or liquefaction of tailings and embankment instability with tailings release	The existing site specific Seismic Hazard Assessment was considered during the design. Centreline raise methodology adopted to limit reliance on tailings strength. Embankment material selected is not liquefiable. Deposition schedule/strategy considered in order that tailings meet requirement for centreline raise.	C – SEVERE	2 – UNLIKELY	LOW	Adequate management of tailings, ensuring that pond level and distance from embankments are meeting design requirements. Fulfil deposition strategy requirements regarding centreline raise method.	Talison	Construction and operational phase	IN PROGRESS	C – SEVERE	1 – VERY UNLIKELY	LOW	Pond distance of around 150m from embankments is observed at the time of the Cell 1 redesign
A	1.06	Investigation and Design	Works not completed as designed	Insufficient volume of construction materials (rockfill and subgrade)	Continuous assessment of material available as construction progresses	C – SEVERE	2 – UNLIKELY	LOW	Monitor construction volumes and early notification of a materials shortfall to enable suitable alternate sources to be located	Talison	Construction phase	IN PROGRESS	C – SEVERE	1 – VERY UNLIKELY	LOW	
A	1.07	Investigation and Design	Limited monitoring instrumentation	VWPs installed in tailings, embankment and foundation not capturing data if phreatic surface rises above designed levels - compromising tailings strength.	Design has VWPs installed in foundation. Two inclinometers and survey markers installed along the perimeter embankment. Elevated drains considered in the design.	C – SEVERE	2 – UNLIKELY	LOW	Ongoing monitoring and assessment throughout life of project	Talison	Design	COMPLETED	C – SEVERE	1 – VERY UNLIKELY	LOW	
A	1.08	Investigation and Design	Slope Stability	Deposition pipe design impacts wall structure stability. Resulting in compromised wall stability leading to damage causing safety risk, production and financial impact.		C – SEVERE	3 – POSSIBLE	MODERATE	Talison monitor and inspect operation regularly, operate dam as per Ops Manual	Talison	Full life of facility	IN PROGRESS	C – SEVERE	2 – UNLIKELY	LOW	
A	1.09	Investigation and Design	Tailings Characterisation	Deposition / Decant strategies not achieved due to tailings not behaving as per design characteristics because of changes in tailings composition and/or production. This could result in reduced life of TSF4. Impact to quality and quantity of decant water leading to operational difficulty to supply water to processing plant.	Where possible, review process plant changes against water balance and deposition strategies.	B – MAJOR	3 – POSSIBLE	LOW	Follow requirements of Operations Manual; Review beach slopes periodically and reassess capacity as needed	Talison	Full life of facility	IN PROGRESS	B – MAJOR	2 – UNLIKELY	NEGLIGIBLE	
2 - Setup, Construction and Commissioning																
A	2.01	Setup, Construction and Commissioning	Major flood during construction	Floods / flows resulting in discharge of tailings to environment.	Pond designed to have a storage for an event of 1 in 1,000 years and duration of 72hrs having an allowance of 0.9 m freeboard	C – SEVERE	2 – UNLIKELY	LOW	Pumps are available in case of a large rainfall event. Review weather forecasts and implement protection works. Daily work plans. Monitor decant pond level. Discharge tailings according to deposition strategy and in locations that help to push the decant pond away from the works area.	Talison / Contractor	Construction phase	IN PROGRESS	C – SEVERE	1 – VERY UNLIKELY	LOW	
A	2.02	Setup, Construction and Commissioning	Major flood during construction	Floods / flows resulting in slippery ground. Plant &/or personnel falling into water, leading to injury	Pond designed to have a storage for an event of 1 in 1,000 years and duration of 72hrs having an allowance of 0.9 m freeboard	C – SEVERE	2 – UNLIKELY	LOW	Pumps are available in case of a large rainfal event. Review weather forecasts and implement protection works. Daily work plans. Monitor decant pond level. Discharge tailings according to deposition strategy and in locations that help to push the decant pond away from the works area.	Talison / Contractor	Construction phase	IN PROGRESS	C – SEVERE	1 – VERY UNLIKELY	LOW	
A	2.03	Setup, Construction and Commissioning	Stability and integrity of the structure	Failure of the sand benches used in the centre line raise resulting in damage to plant or injury/death of personnel	Sand benches are mechanically prepared and use conservative strength parameters in design.	C – SEVERE	2 – UNLIKELY	LOW	Keep minimum pond distance of 200 m from walls. Construction to be performed as per design and supervised by qualified person.	Talison / Contractor	Construction phase	IN PROGRESS	C – SEVERE	1 – VERY UNLIKELY	LOW	
A	2.04	Setup, Construction and Commissioning	Interaction between people and construction machinery on the crest	Interfacing multiple contractors/workfronts leading to vehicle or machinery accident.	Standard operating procedures such as daily prestarts, workfront management and positive communications.	C – SEVERE	2 – UNLIKELY	LOW	Contractors to maintain and adhere to QA/QC requirements during installation and construction.	Talison / Contractor	Construction phase	IN PROGRESS	C – SEVERE	1 – VERY UNLIKELY	LOW	
A	2.05	Setup, Construction and Commissioning	Liquefaction of tailings	Liquefaction of tailings due to overstressing during construction causing injury	Use of conservative strength parameters in design. Mechanically placed tailings platform considered for this design.	C – SEVERE	2 – UNLIKELY	LOW	Keep minimum pond distance of 200 m from walls. Construction to be performed as per design and supervised by qualified person.	Talison / Contractor	Construction phase	IN PROGRESS	C – SEVERE	1 – VERY UNLIKELY	LOW	Pond distance of around 150m from embankments is observed at the time of the Cell 1 redesign

Design Life Cycle:	Investigation and Design	Setup, Construction and Commissioning	Operation	Maintenance	Disposal/closure	INITIAL RISK RATING						RESIDUAL RISK RATING					
Revision	**Design Ref**	**Design Life Cycle Stage** Select from drop down menu	**Hazards** What could cause injury or ill health, damage to property or damage to the environment	**Risk** What could go wrong and what might happen as a result	**Existing Control Measures**	**Consequence**	**Likelihood**	**Risk Rating**	**Potential Control Measures** (Consider Design Controls - Elimination, Substitution, Isolation, Engineering, Administration / Training, PPE)	**Responsibility**	**By When**	**Decision / Status**	**Consequence**	**Likelihood**	**Risk Rating**	**Comments**
A	2.06	Setup, Construction and Commissioning	Foundation overburden	Foundation overstressing due to embankment rockfill placement resulting in failure of weak layers	A pre-loading rockfill berm was constructed during starter embankment works. VWPs installed in foundation to monitor pore pressure development	D – CRITICAL	3 – POSSIBLE	SIGNIFICANT	Keep monitoring foundation pore pressure and settlements and interrupt works for pore pressure dissipation if required	GHD / Talison	Construction and operational phase	IN PROGRESS	D – CRITICAL	2 – UNLIKELY	MODERATE	Presence of weak layer in foundation that requires monitoring. Mitigation measures undertook during design and additional ongoing measures to be kept during construction/operation as descr bed
A	2.07	Setup, Construction and Commissioning	Damage of BGM liner	Damage of BGM liner during installation process resulting to an increase of liner permeability, leading to potential seepage	BGM installation QA/QC requirements. Underdrainage system below BGM is installed and would indicate leakages.	B – MAJOR	3 – POSSIBLE	LOW	Contractor to maintain and adhere to QA/QC requirements during installation and construction of liner. Replace damaged/not approved BGM liner during installation. Monitoring leakage detection system during construction and operation.	Talison / Contractor	Construction and operational phase	IN PROGRESS	D – CRITICAL	2 – UNLIKELY	MODERATE	
A	2.08	Setup, Construction and Commissioning	Damage of BGM liner	Damage of BGM liner during installation process resulting to an increase of liner permeability, leading to piping failure	BGM installation QA/QC requirements. Underdrainage system below BGM is installed and would indicate leakages.	D – CRITICAL	3 – POSSIBLE	SIGNIFICANT	Contractor to maintain and adhere to QA/QC requirements during installation and construction of liner. Replace damaged/not approved BGM liner during installation. Monitoring leakage detection system during construction and operation.	Talison / Contractor	Construction and operational phase	IN PROGRESS	D – CRITICAL	2 – UNLIKELY	MODERATE	
A	2.09	Setup, Construction and Commissioning	Instability of embankment during construction	Rock fall from downstream embankment, leading to injury or death	Appropriate PPE. Safety bunds	D – CRITICAL	3 – POSSIBLE	SIGNIFICANT	Establish a safe work method statement (SWMS). Establish exclusion zones downstream to where rockfill works are being undertaken.	Talison / Contractor	Construction phase	IN PROGRESS	D – CRITICAL	1 – VERY UNLIKELY	MODERATE	
A	2.1	Setup, Construction and Commissioning	Work near overhead power lines	Damaging services leading to electrocution - injury or death	High voltage powerline installed outside TSF4 1295 m footprint.	E – CATASTROPHIC	2 – UNLIKELY	SIGNIFICANT	Implementation of site specific safety procedures and respect minimum distance from high voltage powerline to undertake works. If required, isolate services before activities nearby.	Talison / Contractor	Construction and operational phase	IN PROGRESS	E – CATASTROPHIC	1 – VERY UNLIKELY	MODERATE	
A	2.11	Setup, Construction and Commissioning	Buried services	Damage of buried services caused by inaccurate documentation and/or poor survey conducted to identify buried services prior to excavation Loss/damage to equipment and potential workers injury	Design considers location of known buried services	C – SEVERE	2 – UNLIKELY	LOW	Confirm type of buried services in the area, plan and isolate prior to excavation. Making sure buried services are as-built correctly	Talison / Contractor	Construction and operational phase	IN PROGRESS	C – SEVERE	2 – UNLIKELY	LOW	
A	2.12	Setup, Construction and Commissioning	Vehicle operations on crest and slopes	Collision or vehicle rollover down slope leading to injury or death	Crest designed to an adequate width allowing vehicle movement and safety bunds. Ensure drivers are adequately trained and inducted to drive	E – CATASTROPHIC	2 – UNLIKELY	SIGNIFICANT	Selection of appropriate construction equipment. Continuous operational diligence and rigour. Positive radio communication. Operator to remain in vehicle.	Talison / Contractor	Construction and operational phase	IN PROGRESS	E – CATASTROPHIC	1 – VERY UNLIKELY	MODERATE	
A	2.13	Setup, Construction and Commissioning	Damage of existing instrumentation	Machinery or light vehicle hitting existing instrumentation causing permanent damage and lost of monitoring	Instrument protection (earth bunds, and vwps are buried)	B – MAJOR	3 – POSSIBLE	LOW	Establish a safe work/traffic distance from instrumentation. Site specific induction of site staff	Talison / Contractor	Construction and operational phase	IN PROGRESS	B – MAJOR	2 – UNLIKELY	NEGLIGIBLE	
A	2.14	Setup, Construction and Commissioning	Excavations (for example risks from earth collapsing or engulfment)	Working on unconsolidated soft tailings. Fall of personnel or equipment resulting in injury or death.	Working platforms constructed of dry tailings	D – CRITICAL	3 – POSSIBLE	SIGNIFICANT	Risk assessment before any excavation work. Construct firm working platform (tailings or waste rock) Contractors to develop detailed method statement to undertake these works.	Talison / Contractor	Construction and operational phase	IN PROGRESS	D – CRITICAL	2 – UNLIKELY	MODERATE	This work is not standard bulk earthworks. Recommend that Talison insist on a detailed safe work method from the contractor.
A	2.15	Setup, Construction and Commissioning	Instability of embankment during construction	Working on unconsolidated soft tailings to construct causeways leading to failure/settlement. Injury or equipment damage	The design includes a construction platform of mine waste over existing soft tailings to be placed during the construction of the causeways. The design allows for a significant quantity of mine waste to be included down to the floor of TSF4 at an angle of 3:1. Due to the nature of the work, it is not possible to confirm if this will all be required or will be enough for the works.	D – CRITICAL	3 – POSSIBLE	SIGNIFICANT	Risk assessment before any construction works, safe work planning. Contractors to develop detailed method statement to undertake these works.	Talison / Contractor	Construction and operational phase	IN PROGRESS	D – CRITICAL	2 – UNLIKELY	MODERATE	This work is not standard bulk earthworks. Recommend that Talison insist on a detailed safe work method from the contractor.
A	2.16	Setup, Construction and Commissioning	Inappropriate tailings and decant management leading to lower strength tailings beach	Tailings beach strength reduction caused by poor operation or management of tailings discharge or decant pond. This includes allowing a large decant pond, long/irregular spigot cycles resulting in tailings deposition in thick layers, or discharge of tailings with a low solids content. This can lead to: • tailings beach strength insufficient to enable upstream raising requiring design change. • Plant and/or equipment sinks into the tailings during construction resulting in submergence and harm to operators including potential for fatality. • Potential for excessive (future) embankment deformation	Design considered a mechanically place sandy tailings platform. Operation procedures as minimum pond distance from walls of 200m	D – CRITICAL	2 – UNLIKELY	MODERATE	Keep operation procedures to control pond distance. Operation of TSF in accordance with established spigot cycles	Talison	Construction and operational phase	IN PROGRESS	D – CRITICAL	1 – VERY UNLIKELY	MODERATE	
A	2.17	Setup, Construction and Commissioning	Business as usual construction risks for the contractors.	While some specific risks have been captured in this risk register, not all BaU items for a project of this nature have been listed.		D – CRITICAL	2 – UNLIKELY	MODERATE	Ongoing monitoring and assessment of BaU construction risks	Talison / Contractor	Construction phase	IN PROGRESS	D – CRITICAL	1 – VERY UNLIKELY	MODERATE	
A	2.18	Setup, Construction and Commissioning	Failure of the TSF4/TSF1 interface wall	Buttressing of TSF1 at interface with TSF4 Cell 1 is required for the overall wall stability. Construction related loading rate results in increased pore water pressure in the TSF1 tailings. TSF1 is founded on the clayey foundation and has no drainage, therefore pore pressure dissipation is relatively slow. If insufficient time is allowed for the pore pressures to dissipate, this can lead to static liquefaction of tailings supporting upstream raise of TSF1 at interface with TSF4. This can lead to death or injury, loss of equipment, loss of production. Depending on tailings elevations at TSF1/TSF4, the cascade failure risk can not be excluded.	TSF4 northern embankment of the RL 1277.5m raise is positioned to minimise/avoid the encroachment on TSF1 tailings. Existing instrumentation at TSF1 shall be monitored continuously for pore pressures during any loading of TSF1 tailings.	E – CATASTROPHIC	3 – POSSIBLE	EXTREME	Loading rate to be assessed - field trials are planned. Safe work methods to be developed.	Talison / Contractor	Construction phase	IN PROGRESS	E – CATASTROPHIC	2 – UNLIKELY	SIGNIFICANT	
3 - Operation																	
A	3.01	Operation	TSF fills quicker than anticipated.	Fast tracked raising caused by production being greater than anticipated or tailings density is less than anticipated, due to changes in production (rather than inadequate management at the TSF). This can lead to inappropriate tailings strength imposing risk for future raises	Design based on Talison supplied production and forecasts and TSF2 consolidated tailings density.	C – SEVERE	3 – POSSIBLE	MODERATE	Keep operating TSF according to design and Operation Plan. Carry out density reconciliation as part of the regular facility performance monitoring.	Talison	Construction and operational phase	IN PROGRESS	C – SEVERE	2 – UNLIKELY	LOW	

Design Life Cycle:	Investigation and Design	Setup, Construction and Commissioning	Operation	Maintenance	Disposal/closure	INITIAL RISK RATING						RESIDUAL RISK RATING				
Revision	Design Ref	Design Life Cycle Stage Select from drop down menu	Hazards What could cause injury or ill health, damage to property or damage to the environment	Risk What could go wrong and what might happen as a result	Existing Control Measures	Consequence	Likelihood	Risk Rating	Potential Control Measures (Consider Design Controls - Elimination, Substitution, Isolation, Engineering, Administration / Training, PPE)	Responsibility	By When	Decision / Status	Consequence	Likelihood	Risk Rating	Comments
A	3.02	Operation	Differential settlement of tailings	Tailings density not achieved leading to formation of cracks and/or low points on perimeter embankment. Ultimately it can lead to BGM failure - which can result in internal erosion of the embankment with TSF failure causing environmental damage, cost from lost production, clean up and reconstruct, regulatory restrictions, community discontent, and a potential fatality or permanent incapacity	Existing TSF operating plan with controlled location of decant pond. Design considered a mechanically place sandy tailings platform. Monitoring system in place	E – CATASTROPHIC	2 – UNLIKELY	SIGNIFICANT	Keep operation procedures to control pond distance. Operation of TSF in accordance with established spigot cycles. Keep routine inspections and monitoring	Talison	Construction and operational phase	IN PROGRESS	E – CATASTROPHIC	1 – VERY UNLIKELY	MODERATE	
A	3.03	Operation	Structural collapse of dividing embankment	Structural collapse of dividing wall leading to uncontrolled release of water and tailings from one cell to the other resulting in overtopping	Divider embankment designed for operational purposes, not affecting TSF overall stability, Construction QA. Pond to be maintained centralized	E – CATASTROPHIC	2 – UNLIKELY	SIGNIFICANT	Keep operation procedures and construction controls as per design	Talison / Contractor	Construction and operational phase	IN PROGRESS	E – CATASTROPHIC	1 – VERY UNLIKELY	MODERATE	
A	3.04	Operation	Dust generation on tailings beach	Tailings beach dries out and dust generated causing environmental & health impacts	During high winds personnel are to remain in cabin of vehicles or indoors at cr b rooms. Site dust control plan	B – MAJOR	3 – POSSIBLE	LOW	Talison to develop dust monitoring and management procedures specific for TSF4 active phase	Talison	Construction and operational phase	IN PROGRESS	B – MAJOR	2 – UNLIKELY	NEGLIGIBLE	
A	3.05	Operation	Extreme Weather	High rainfall event & concentrated flow leading to erosion, ongoing settlement, damage to dam, overtopping, etc and subsequent failure Consequence: Loss of dam integrity	Develop/update TARPs for TSF4. Implement appropriate response plans when trigger levels are reached.	C – SEVERE	3 – POSSIBLE	MODERATE	Keep monitoring TSF and operating it as per OMS. Follow procedures according to TARPS. bring to the attention of the EOR.	Talison	Construction, operational and closure phase	IN PROGRESS	C – SEVERE	2 – UNLIKELY	LOW	
A	3.06	Operation	Liquefaction of tailings	Static liquefaction triggered by different mechanisms (e.g.: rate of embankment rise, increase of phreatic conditions due to poor management/operation, induced due to flood conditions, toe distress - erosion, excavations for buttressing) resulting in instability	TSF designed considering conservative strength parameters. Existing operating plan according to design. Instrumentation in place that can indicate performance trend changes.	E – CATASTROPHIC	2 – UNLIKELY	SIGNIFICANT	Keep monitoring TSF and operating it as per OMS. Follow procedures according to TARPS.	Talison	Construction, operational and closure phase	IN PROGRESS	E – CATASTROPHIC	1 – VERY UNLIKELY	MODERATE	
A	3.07	Operation	Liquefaction of tailings	Liquefaction of tailings induced by seismic event leading to loss of shear strength and instability	TSF designed for an OBE with a 1 in 475 AEP and SEE with a 1 in 5,000 AEP, as per recommended by ANCOLD for a High B TSF.	E – CATASTROPHIC	2 – UNLIKELY	SIGNIFICANT	Post earthquake visual inspection, survey and review of site conditions, including review of instrumentation	Talison	Construction, operational and closure phase	IN PROGRESS	E – CATASTROPHIC	1 – VERY UNLIKELY	MODERATE	
A	3.08	Operation	Tailings pipeline failure	Tailings delivery pipeline failure affecting personnel when operating spigots OR when carrying out maintenance works with release of tailings outside TSF	Spigot orientation limit movement into the facility. Set number of spigots to be opened any one time, limiting pressure build up	C – SEVERE	3 – POSSIBLE	MODERATE	Talison to keep operation and maintenance of pipeline according to procedures/controls and review/update them on a constant basis. Activities requiring personnel to be in line of fire to be only completed when pipeline flushed and non operational. Consider implement solid continuous barrier such as windrow. Site personnel induction to include topics like weight of pipe when full, potential stored energy, and likely impacts (injury or death).	Talison	Construction and operational phase	IN PROGRESS	C – SEVERE	2 – UNLIKELY	LOW	
A	3.09	Operation	Inspection work in, over or adjacent to water where there is a risk of drowning	Falling into water causing injury or drowning	PPE in accordance with Talison standard requirements. Windrows.	D – CRITICAL	2 – UNLIKELY	MODERATE	Induction and training of staff. Prepare safe work plan.	Talison	Construction and operational phase	IN PROGRESS	D – CRITICAL	1 – VERY UNLIKELY	MODERATE	
A	3.1	Operation	Tailings pipeline failure	Failure of slurry delivery pipeline on slope embankments leading to erosion and or possible release of tailings. Internal erosion of smaller sized particles	Frequent pipeline maintenance procedure, ensure all pipe bolts are in place	C – SEVERE	3 – POSSIBLE	MODERATE	Maintenance schedule combined with aerial surveillance	Talison	Construction and operational phase	IN PROGRESS	C – SEVERE	2 – UNLIKELY	LOW	
A	3.11	Operation	Mobile plant & equipment	Vehicle falling into the TSF caused by loosely compacted backfill or loosing control of the vehicle. Loss of equipment and/or injury/fatality	Adopt safe edge clearance. Area to be demarcated by safety windrows (incorporated into the design).	E – CATASTROPHIC	1 – VERY UNLIKELY	MODERATE	Safe work method statements and other administrative controls, consider additional safety offsets at key work fronts	Talison Contractor	Full life of facility	IN PROGRESS	E – CATASTROPHIC	1 – VERY UNLIKELY	MODERATE	
A	3.12	Operation	Personnel/Operations – Vehicle interactions	Risk: Interaction between personnel and vehicles (LV) Cause: Inspection activities (e.g. spigots) Consequence: Potential for fatality	Design incorporates separation of LV and pedestrians/workers via windrows.	D – CRITICAL	2 – UNLIKELY	MODERATE	Safe work method statements and other administrative controls	Talison	Construction and operational phase	IN PROGRESS	D – CRITICAL	1 – VERY UNLIKELY	MODERATE	
A	3.13	Operation	Trafficability of accessways – All weather – inspections/operations	Access being blocked restricting access in the area. Loss of access to dam and infrastructure for inspection etc	Routine site maintenance	A – MINOR	2 – UNLIKELY	NEGLIGIBLE	Additional site inspections and maintenance before and after extreme weather events	Talison	Construction and operational phase	IN PROGRESS	A – MINOR	2 – UNLIKELY	NEGLIGIBLE	
A	3.14	Operation	Failure of the TSF4/TSF1 interface wall	TSF1 tailings at the upstream toe excavated lower than assumed, can lead to low factors of safety and instability of the interface wall, leading to slope failure, death or injury, loss of equipment and production	Design assumptions are specified in the Addendum report.	E – CATASTROPHIC	3 – POSSIBLE	EXTREME	Any excavations planned beyond the assumptions shall be consulted with the EoR, stability assessment to be carried out as needed	Talison	Construction and operational phase	IN PROGRESS	E – CATASTROPHIC	2 – UNLIKELY	SIGNIFICANT	
4 - Maintenance																
A	4.01	Maintenance	Blockage of outlet pipes	Blockage of outlet pipes causing pore pressure raise decreasing material effective strength	Existing OMS with inspection plan	C – SEVERE	3 – POSSIBLE	MODERATE	Keep TSF regular inspections and operation according to OMS and clearing of debris	Talison	Construction and operational phase	IN PROGRESS	C – SEVERE	1 – VERY UNLIKELY	LOW	

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