

# J-PARC installation of GPS

**Receiver**  
PolarRx5TR-4101725 (TOK)  
IP Address (Eth):  
Uptime: 0d 00:26:20

**Position**  
Lat: N/A N/A  
Lon: N/A N/A  
Hgt: N/A N/A

**Status**  
Tracked Sats: 0  
Time: N/A  
Temp: 46.00 °C — V: 12.08 volts

**Legend:**  
 No GNSS PVT  
 Overall Quality  
 Corrections  
 Wifi  
 Spectrum clean  
 Status  
 Int. Logging  
 Ext. Logging  
 Internal  
 OSNMA

**Navigation:** Overview | GNSS | Timing | Station | Communication | Corrections | Data Output | Logging | Admin

Admin > About

**Receiver Identification**

Component	Attribute	Description
hwplatform	product	PolarRx5TR
	name	SSRC7
	serialnr	4101725
	rxfullid	SN23424101725
mainboard	type	GRB00261000BE1106
	rev	11
bioboard	type	BIO00281000AA0103
	serialnr	3093337
	rxfullid	SN23043093337
flashcard	transfermode	1-bit
usb	speed	full speed
	host	enabled
firmware	version	5.5.0
files		
components		

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[Permitted Capabilities](#)  
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## Ethernet Status

IP Address	10.128.1.37
Hostname	
Netmask	255.255.248.0
Gateway	10.128.0.1
MAC Address	8C:1C:DA:52:77:9D

Temporary installation to look at the sky

MAC: 8C:1C:DA:52:77:9D

Assigned IP: 10.128.1.37

Web interface (on JPARC network/VPN):

→ port forward e.g. 80 to 1234

→ <https://t2k-login.j-parc.jp/beam/hk-sept01/scr?fra0=home.html>



# Antenna and cable



Antenna SN: 6109  
Cable (25m): GPSCAB1

Switch off the fixed position for station  
→ upon using final location, need to compute exact coordinates with PPP



Station > Position

**Status Settings**

**Position Mode**

Mode  Static  Rover

StandAlone

SBAS

Reference position  auto  Geodetic1  Cartesian1

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**Antenna Reference Point Static Position - Geodetic**

**Geodetic1**

ARP Latitude  deg

ARP Longitude  deg

ARP Altitude  m

Datum

**Use Current**

---

**Antenna Reference Point Static Position - Cartesian**

**Cartesian1**

ARP X  m

ARP Y  m

ARP Z  m

Datum

**Use Current**

---

**Advanced Settings**

**Default** **Ok**

**Found coordinates:**

Position	
Lat: N36°26'54.0198"	0.000m
Lon: E140°36'19.9834"	0.000m
Hgt: 55.642m	0.000m



# Delays in cabling

100 m long cable in Paris, cable delay was 505.00ns

→ very few satellites used in CGGTTS

G16 FF 60732 001400

G26 FF 60732 001400

G16 FF 60732 003000

G26 FF 60732 003000

G16 FF 60732 004600

G26 FF 60732 004600

G16 FF 60732 011800

G04 FF 60732 013400

G16 FF 60732 013400

→ behaviour observed back in summer 2023

→ setting it to  $X_c = 126$  ns for now (25 m long cable)

Antenna Phase Center Coordinates Parameters **Delays**

$X_{S,i}$ : delay in antenna for signal  $i$   
 $X_{R,i}$ : delay in RF section of receiver for signal  $i$   
 $X_C$ : delay in RF cable (including amplifier and splitter)  
 $X_P$ : delay in PPS cable  
 $X_O$ : delay between PPS IN connector and internal receiver time reference ( $X_O = 0$  on Polaris5TR when auto-calibration is enabled)

**Internal Delays**

	GPSL1	GPSL2	GL0L1	GL0L2	GALE1	GALE5a	BDSB1I	BDSB2I
INTDLY ( $X_S+X_R$ )	25.832 ns	22.871 ns	0.000 ns	0.000 ns	28.242 ns	25.431 ns	0.000 ns	0.000 ns

**Cable Delay**

CABDLY ( $X_C$ )

**Reference Delay**

REFDLY ( $X_P+X_O$ )

**PPS IN Parameters**

Enable compensation of PPSIN internal delay:  off  auto

To enable CGGTTS logging, go to the [Log Sessions page](#).

Default Ok



# Possible locations on NU1 roof





# Location 4 support structure



## Summary:

Temporary location for seeing the sky:

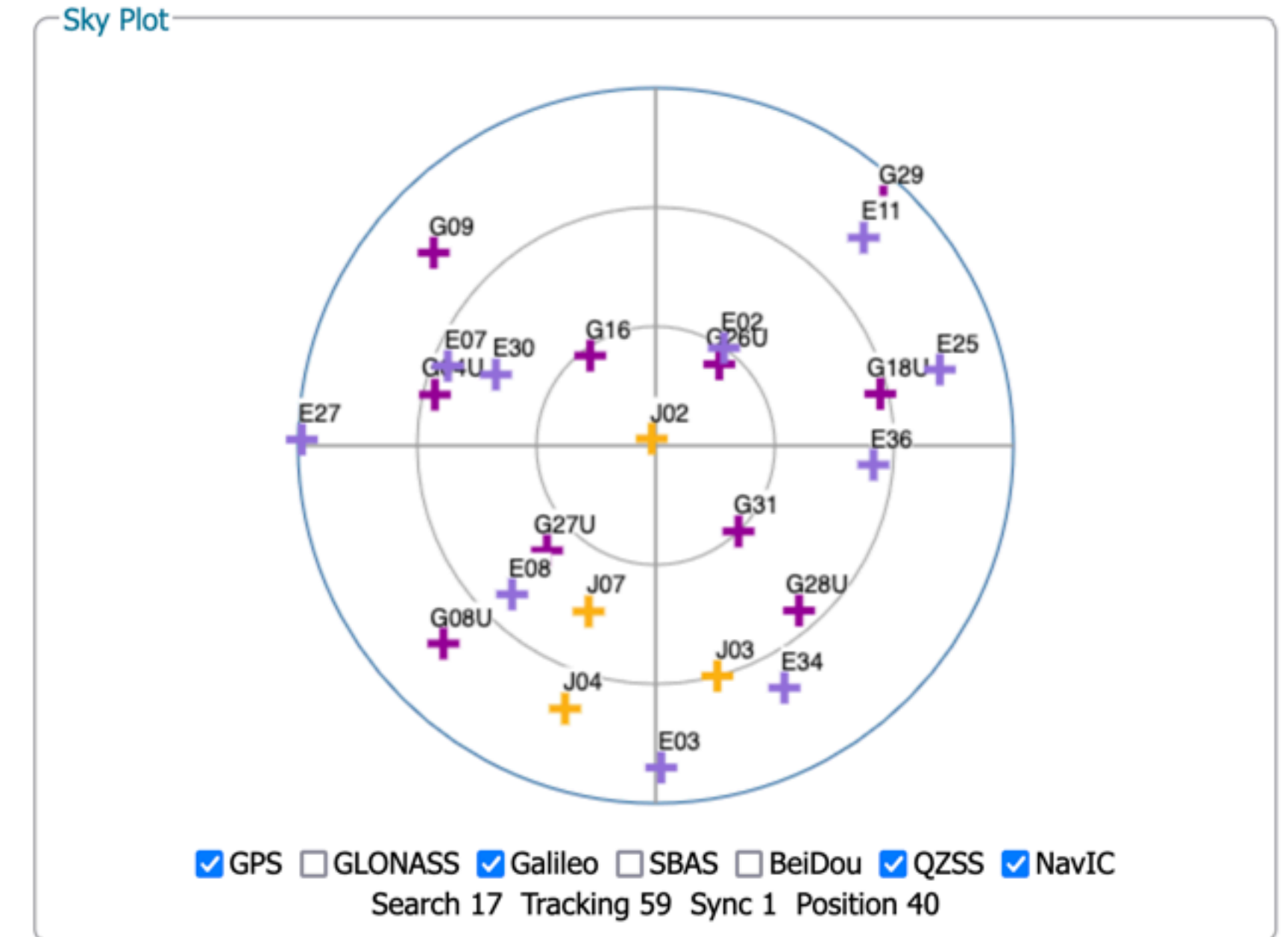
- easily accessible
- issue are no support structure and large wall behind

Took about an hour of RINEX data

Used PPP system in Canada on RINEX file (ITRF)

Very short duration (< 1h) and then longer survey

- Done before and after cable delay change
- Issue with the CGGTTS:
  - assumed wrong global coordinates
  - will need to reprocess CGGTTS using RINEX





# PPP summary results

The estimated coordinates **NAD83(CSRS) 2025-02-25** for the **TOK\_00JP\_\_R\_20250560000\_01D\_30S\_MO.rnx.A** RINEX file are as follows:

Latitude N36° 26' 54.0582" ± 0.208 m (95%)  
 Longitude E140° 36' 19.9399" ± 0.088 m (95%)  
 Ellipsoidal Height 54.028 m ± 0.466 m (95%)  
 [36.44834951,140.60553885,54.028]

UTM Zone 54 (North)  
 Northing 4033751.126 m  
 Easting 464650.397 m  
 Scale factor (point) 0.99961540  
 Scale factor (combined) 0.99960692  
 [4033751.126,464650.397,54.028]

Cartesian coordinates  
 X -3969571.341 ± 0.385 m (95%)  
 Y 3260000.051 ± 0.321 m (95%)  
 Z 3768357.770 ± 0.133 m (95%)  
 [-3969571.341,3260000.051,3768357.770]

Orbits and Clocks Used: **NRCAN Ultra-rapid**  
 GNSS Data: **GPS**  
 GRS80 ellipsoid used for (x,y,z) to (lat,lon,h) transformation

Fixing position to PPP results

If I click on the "Use current"

Antenna Reference Point Static Position - Cartesian

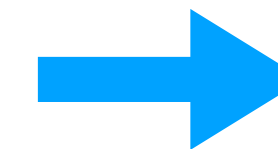
Cartesian1	
ARP X	-3969573.5755 m
ARP Y	3260000.4835 m
ARP Z	3768357.7769 m
Datum	WGS84

Use Current

Advanced Settings

Default Ok

**2 meters difference in X**



Station > Position

Status Settings

Position Mode

Mode  Static  Rover

StandAlone

SBAS

Reference position  auto  Geodetic1  Cartesian1

Antenna Reference Point Static Position - Geodetic

Geodetic1

ARP Latitude 0.000000000 deg

ARP Longitude 0.000000000 deg

ARP Altitude 0.0000 m

Datum WGS84

Use Current

Antenna Reference Point Static Position - Cartesian

Cartesian1	
ARP X	-3969571.3410 m
ARP Y	3260000.0510 m
ARP Z	3768357.7700 m
Datum	WGS84

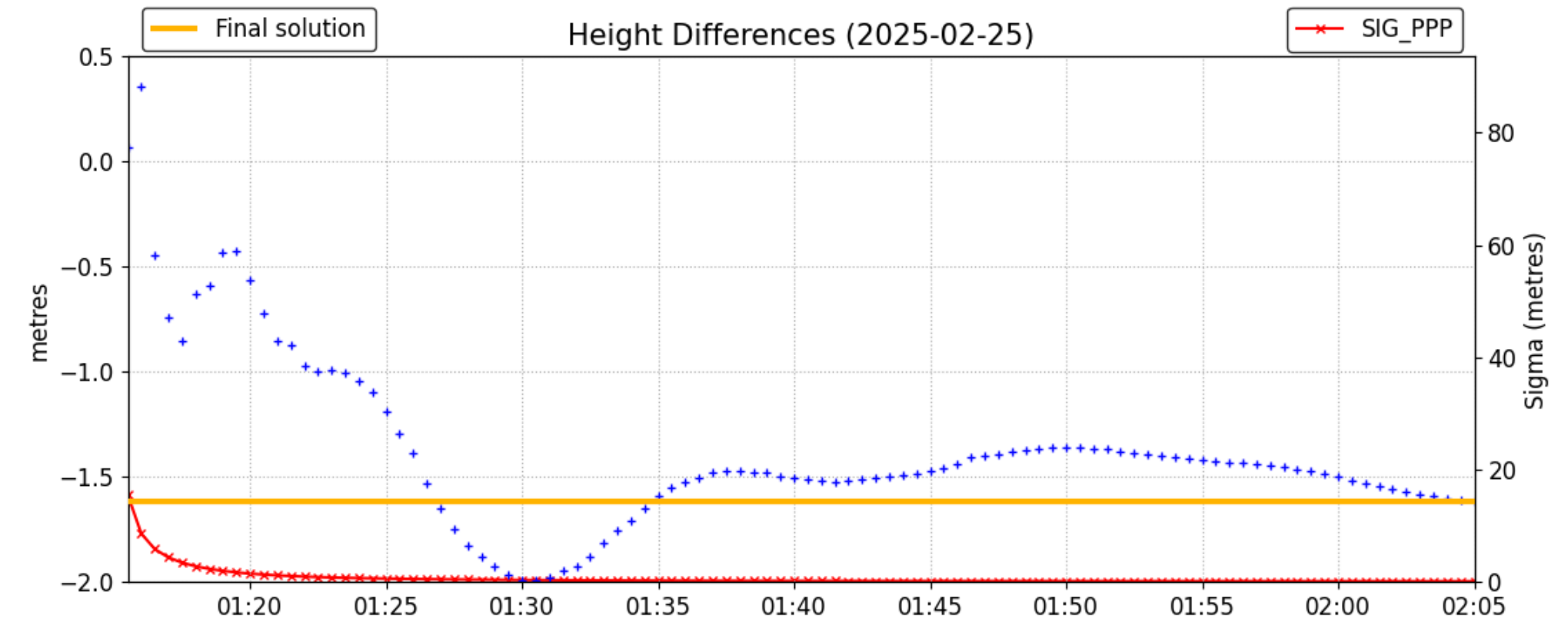
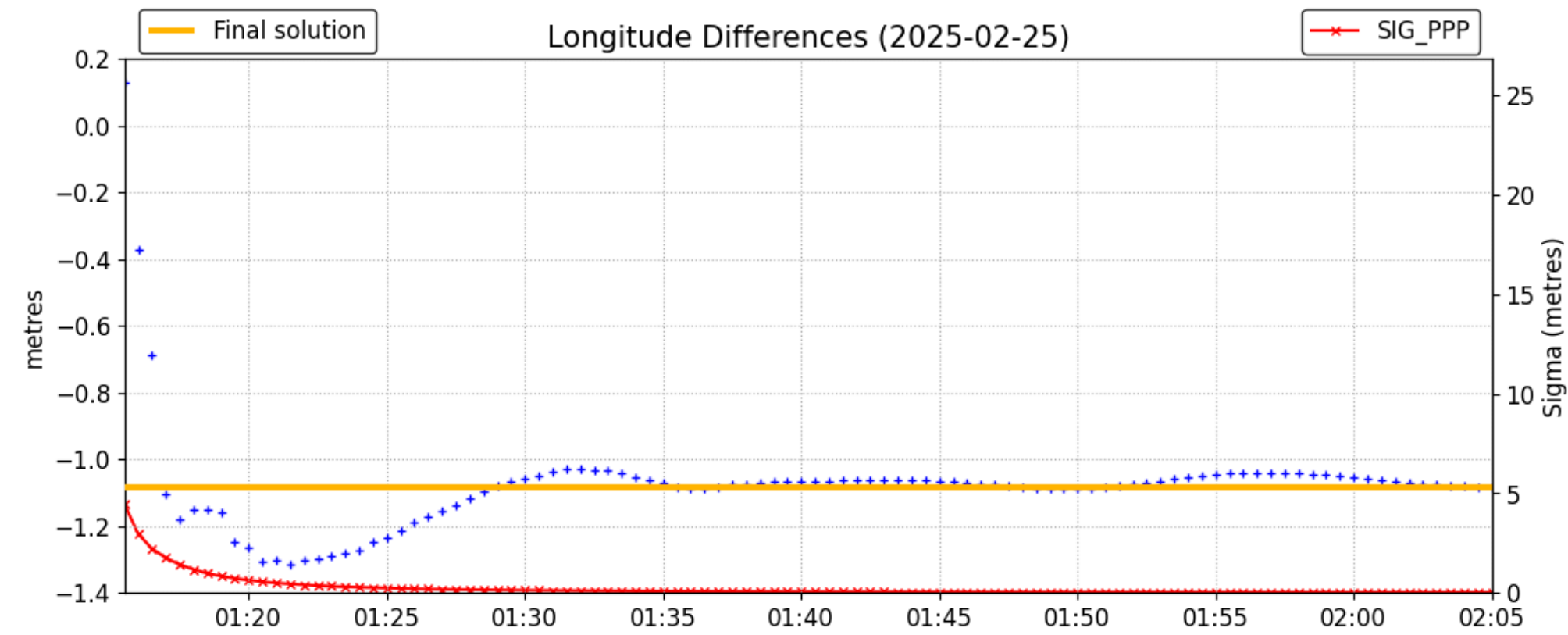
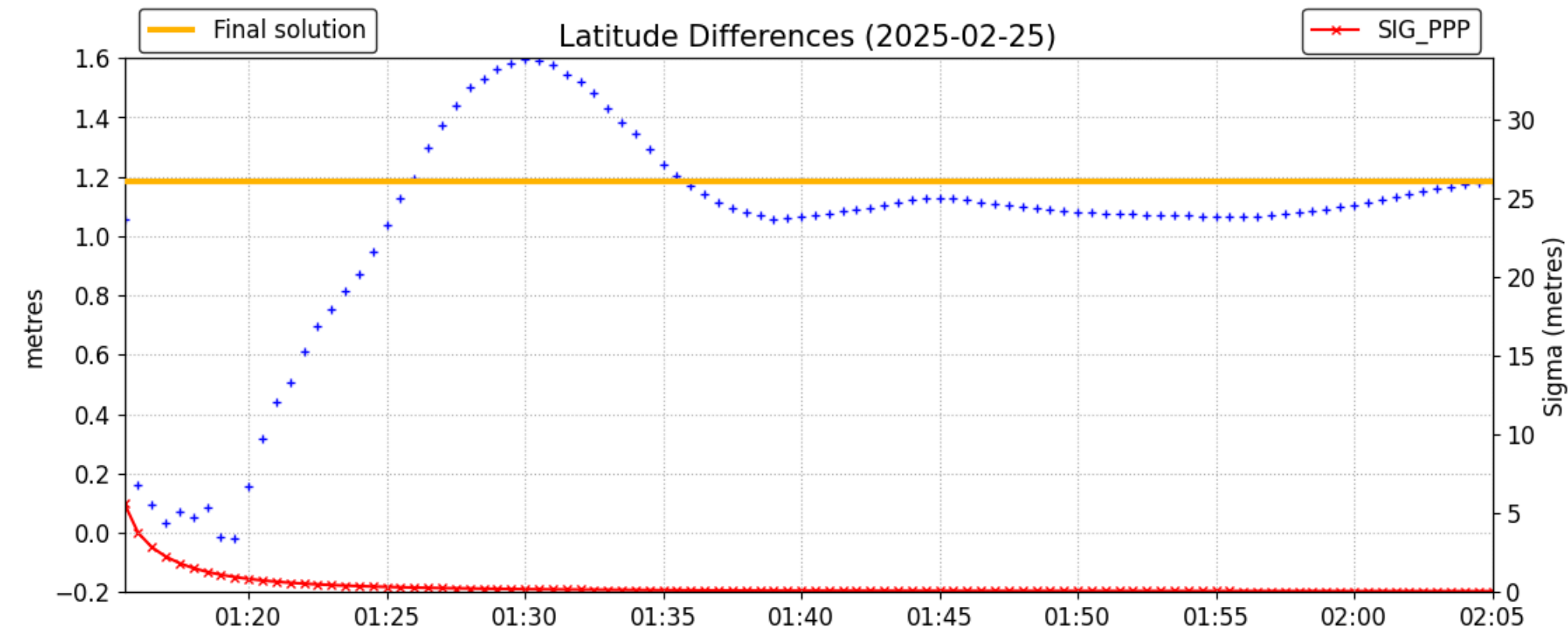
Use Current

Advanced Settings

Default Ok

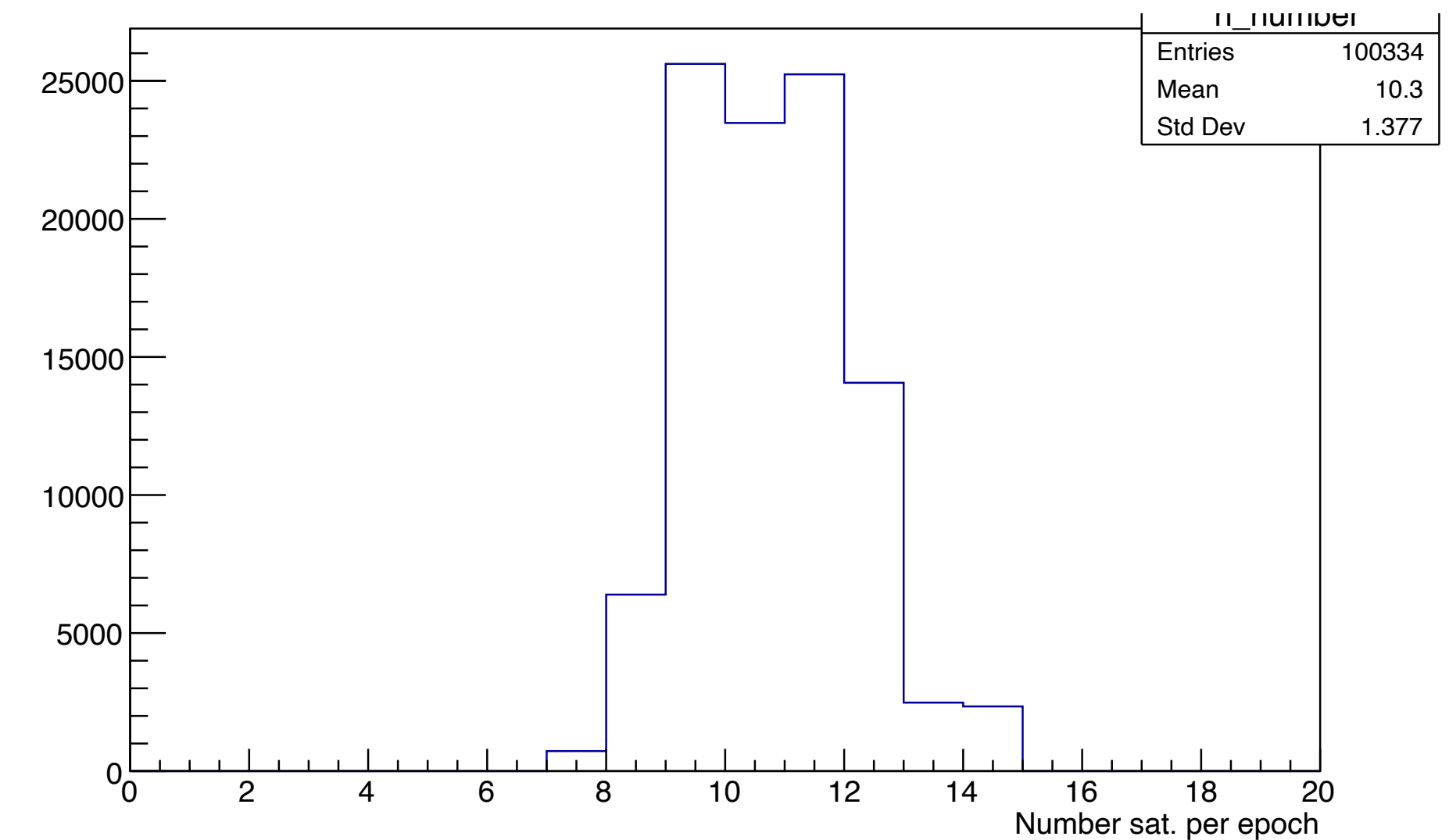
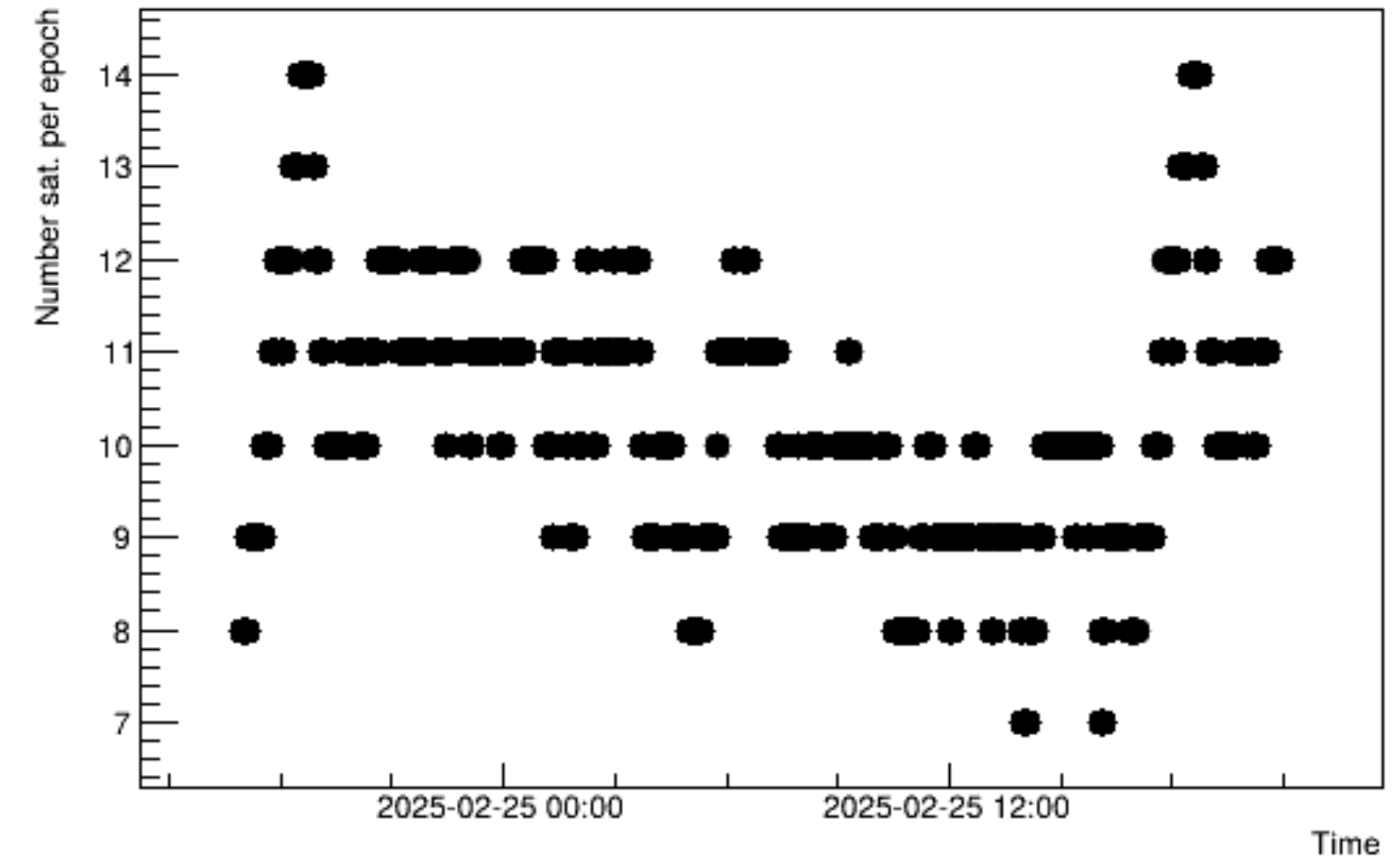
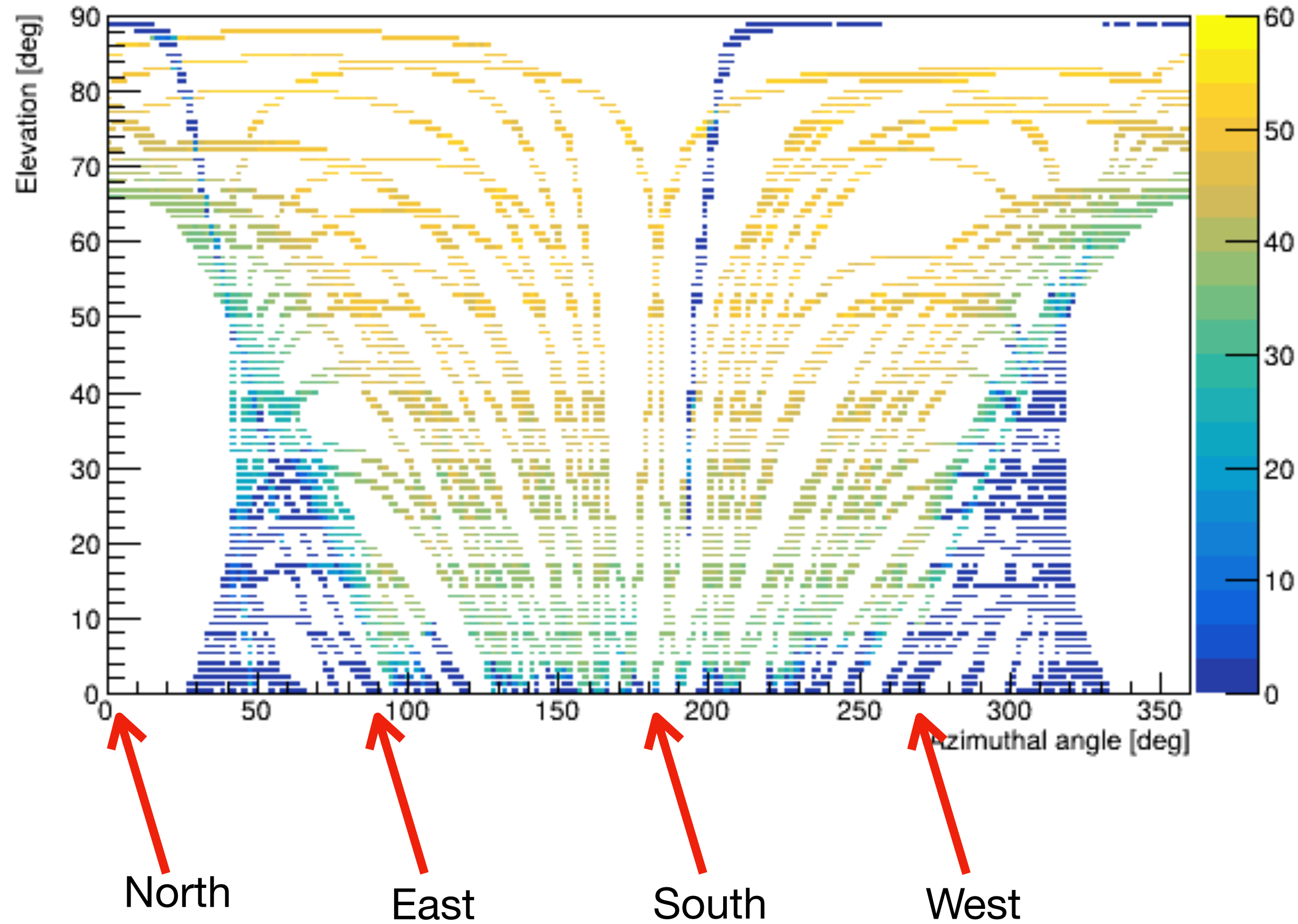


# Convergence of PPP





# Number of satellites Location 1





# CGGTTS files

To be reprocessed with RINEX files



# Location 2b

Stopped data taking on 2025/02/26 around 2:51pm JST from location 1  
Restarted data taking on 2025/02/26 around 3:30 JST at location 2b





# PPP Summary results

The estimated coordinates **ITRF20 2025-02-26** for the **TOK\_00JP\_\_R\_20250570000\_01D\_30S\_MO.rnx** RINEX file are as follows:

Latitude N36° 26' 53.8276" ± 0.004 m (95%)  
 Longitude E140° 36' 20.0615" ± 0.003 m (95%)  
 Ellipsoidal Height 54.280 m ± 0.018 m (95%)  
 [36.44828544,140.60557263,54.280]

UTM Zone 54 (North)  
 Northing 4033744.007 m  
 Easting 464653.395 m  
 Scale factor (point) 0.99961539  
 Scale factor (combined) 0.99960688  
 [4033744.007,464653.395,54.280]

Cartesian coordinates  
 X -3969576.683 ± 0.013 m (95%)  
 Y 3260000.520 ± 0.011 m (95%)  
 Z 3768352.201 ± 0.010 m (95%)  
 [-3969576.683,3260000.520,3768352.201]

Orbits and Clocks Used: **NRCAN Ultra-rapid**  
 GNSS Data: **GPS**  
 GRS80 ellipsoid used for (x,y,z) to (lat,lon,h) transformation

Station > Position

Timing > CGGTTS

Antenna Phase Center Coordinates
Parameters
Delays

Mode	manual
Phase Center X	-3969576.6833 m
Phase Center Y	3260000.5203 m
Phase Center Z	3768352.2010 m
<input checked="" type="checkbox"/> Use same coordinates for all constellations	

To enable CGGTTS logging, go to the [Log Sessions page](#).

Default Ok

Status
Settings

**Position Mode**

Mode  Static  Rover

StandAlone

SBAS

Reference position  auto  Geodetic1  Cartesian1

**Antenna Reference Point Static Position - Geodetic**

Geodetic1

ARP Latitude  deg

ARP Longitude  deg

ARP Altitude  m

Datum

Use Current

**Antenna Reference Point Static Position - Cartesian**

Cartesian1

ARP X  m

ARP Y  m

ARP Z  m

Datum

Use Current

— **Advanced Settings** —

Default Ok



# PPP summary results

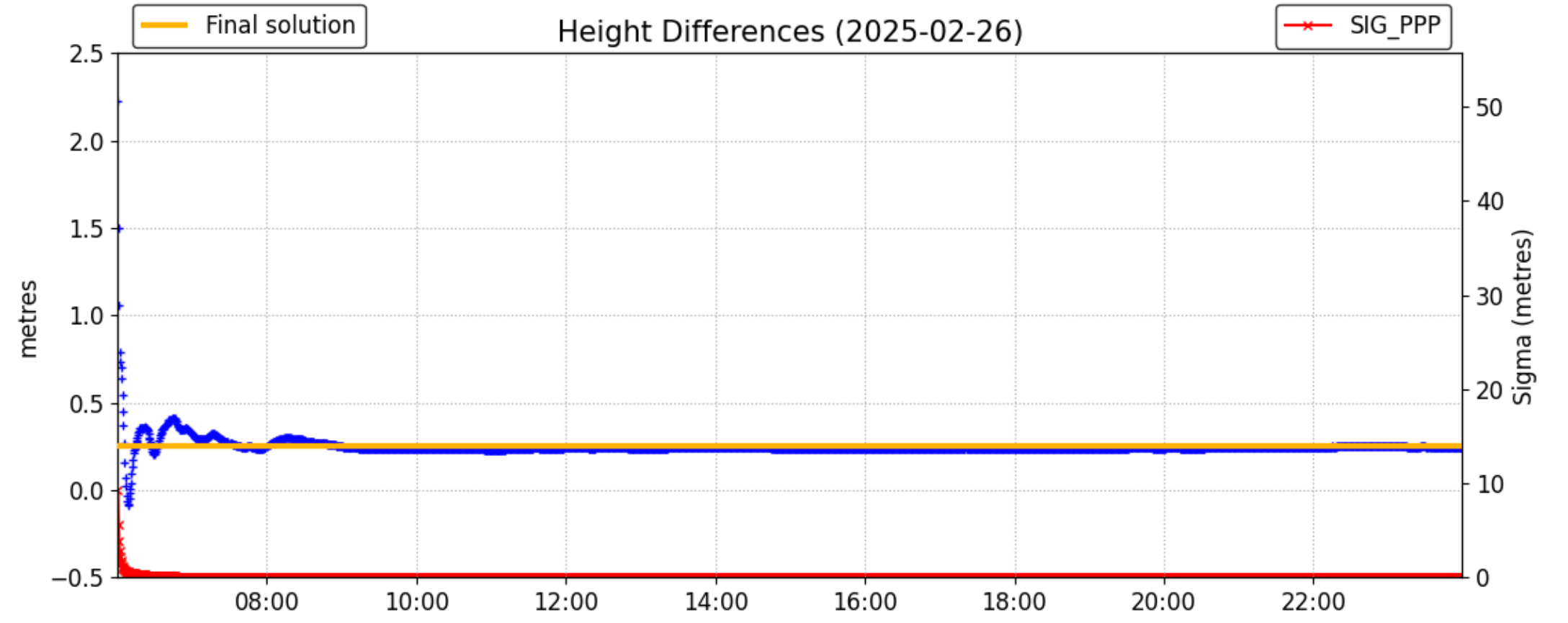
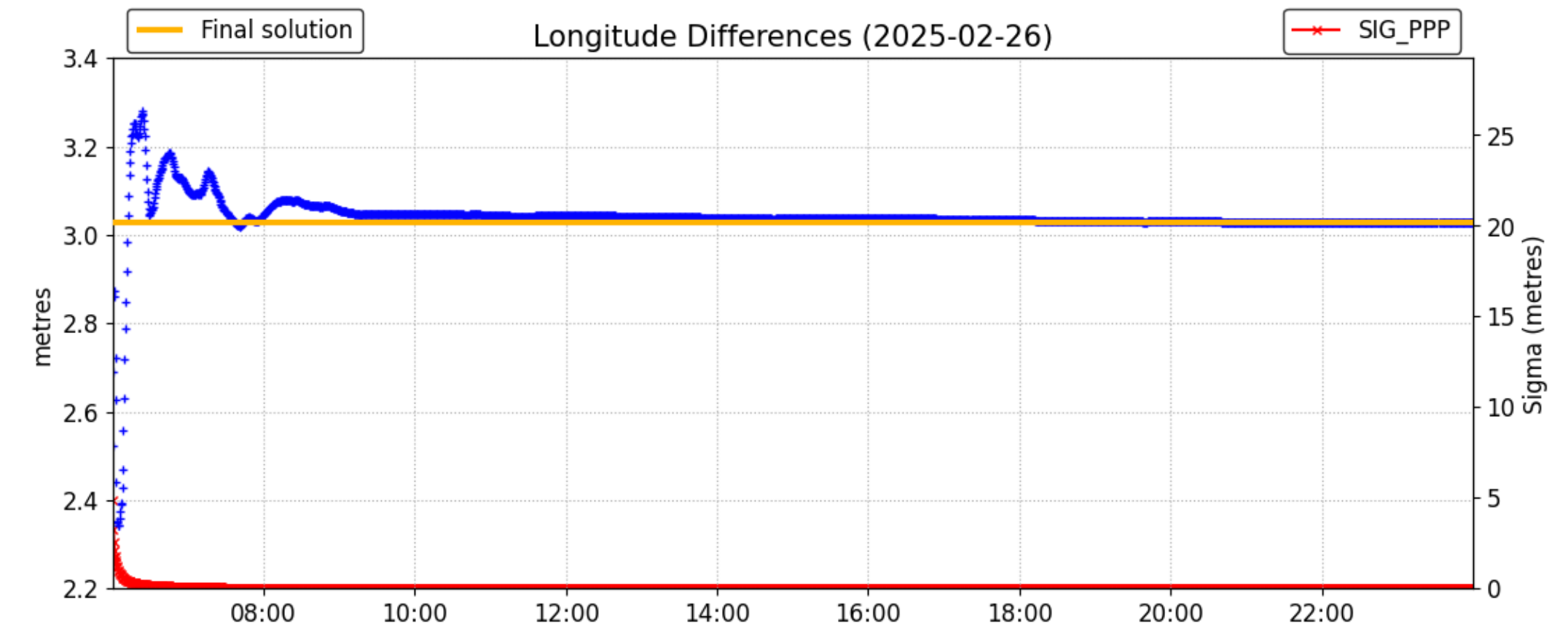
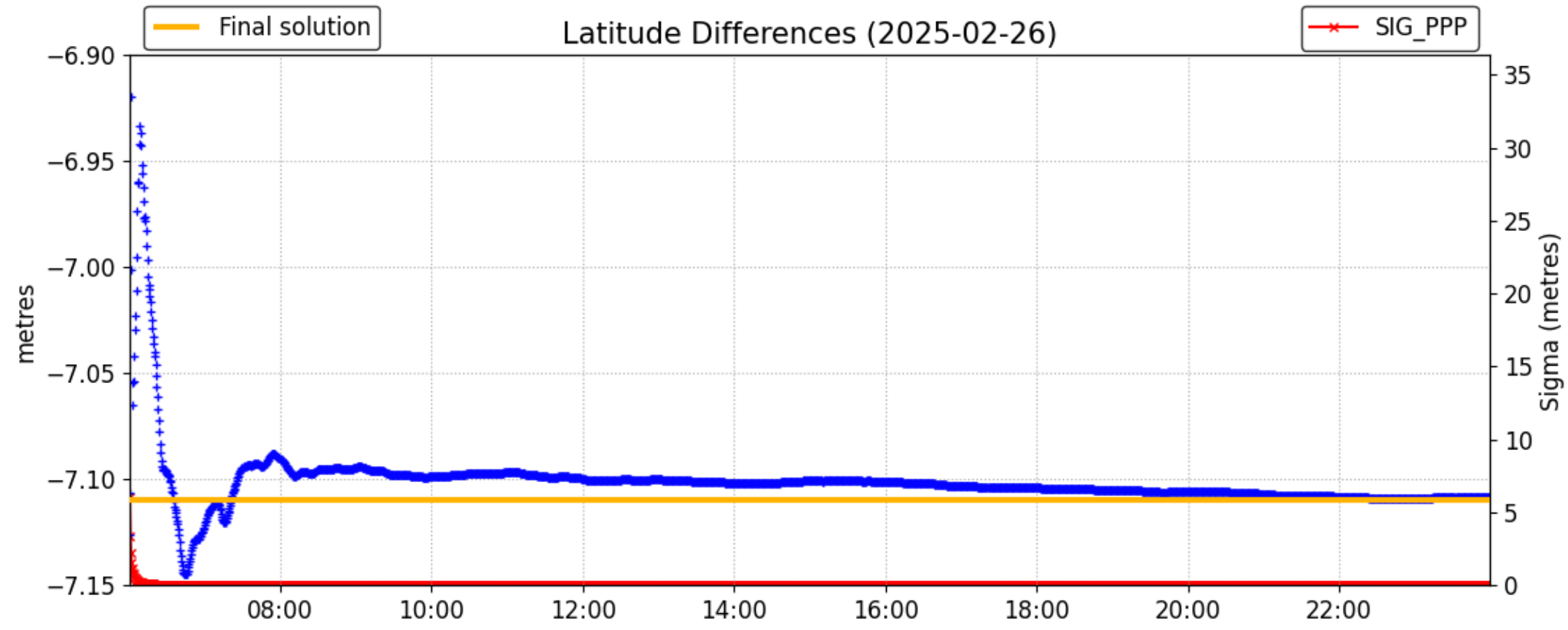
<b>Data Start</b>		<b>Data End</b>	<b>Duration of Observations</b>
2025-02-26 06:00:30.00		2025-02-26 23:59:30.00	17:59:00
<b>Processing Time</b>		<b>Product Type</b>	
03:23:38 UTC 2025/02/27		NRCan Ultra-rapid	
<b>Observations</b>		<b>Frequency</b>	<b>Mode</b>
Phase and Code		Double	Static
<b>Elevation Cut-Off</b>	<b>Rejected Epochs</b>	<b>Fixed Ambiguities</b>	<b>Estimation Steps</b>
7.5 degrees	0.00 %	93.60 %	30.00 sec
<b>Antenna Model</b>	<b>APC to ARP</b>		<b>ARP to Marker</b>
SEPCHOKE_B3E6 SPKE	L1 = 0.127 m L2 = 0.141 m		H:0.000m / E:0.000m / N:0.000m

(APC = antenna phase center; ARP = antenna reference point)

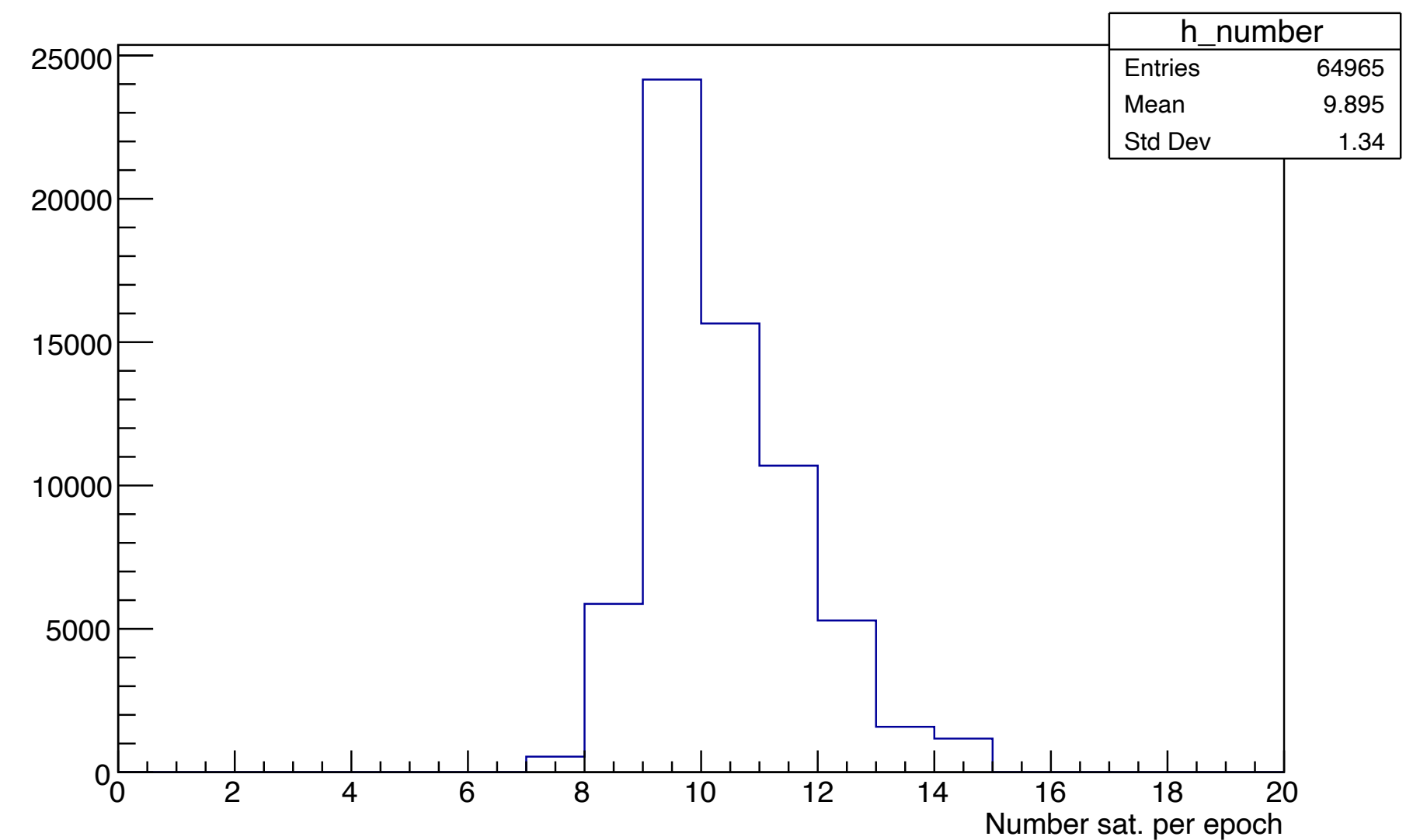
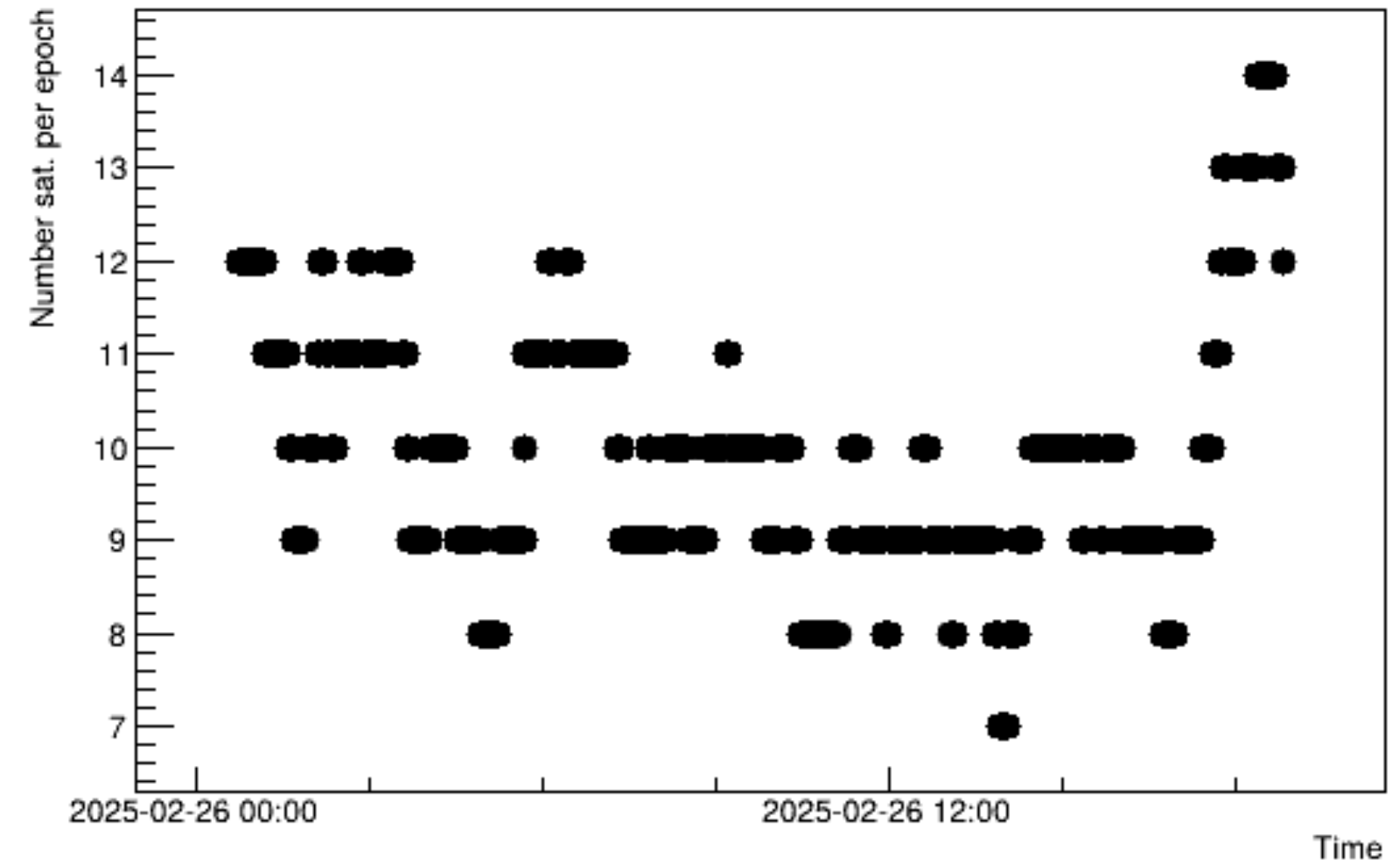
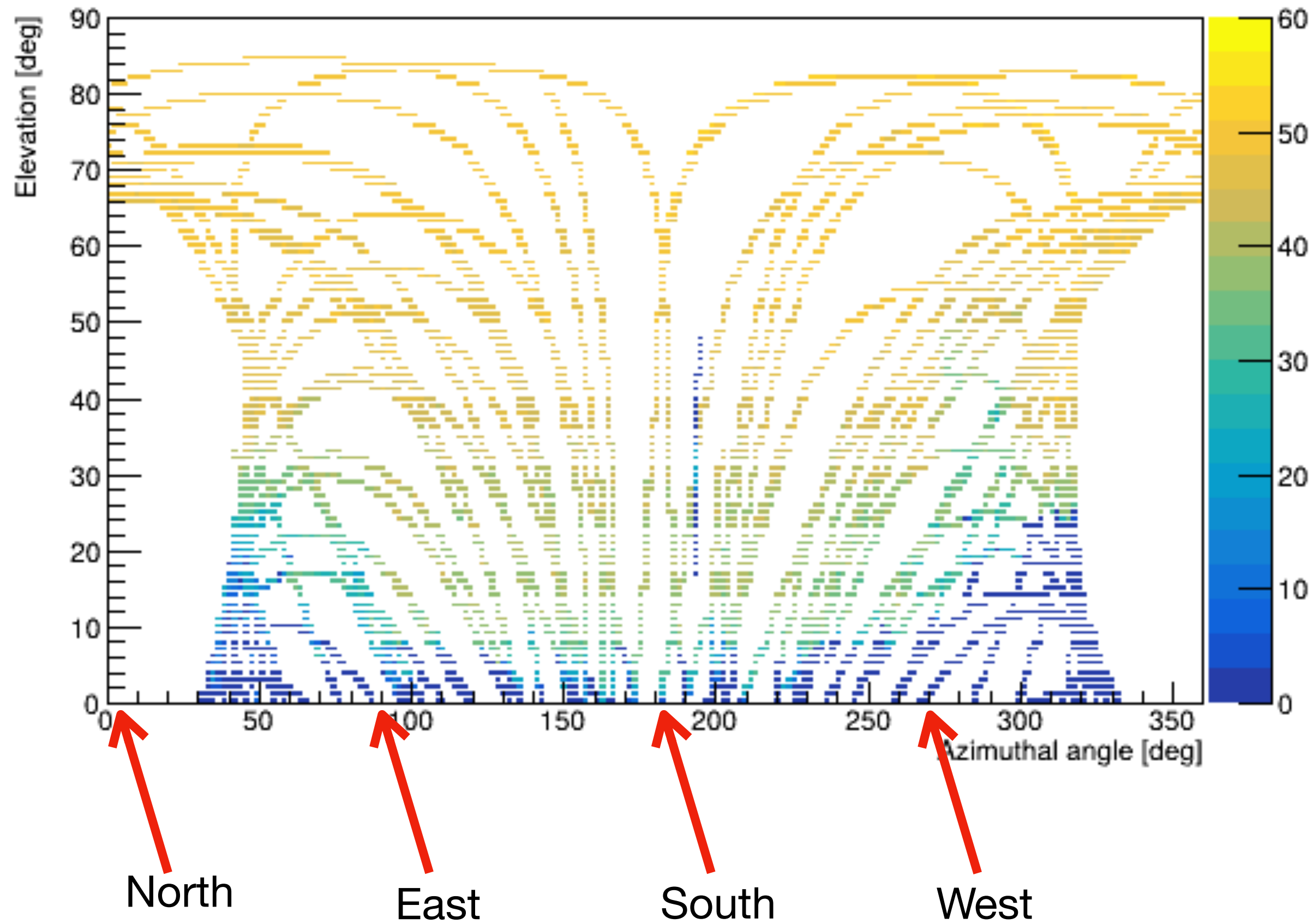
## Estimated Position for TOK\_00JP\_\_R\_20250570000\_01D\_30S\_MO.rnx

	Latitude (+n)	Longitude (+e)	Ell. Height
<b>ITRF20 (2025.2)</b>	36° 26' 53.82758"	140° 36' 20.06145"	54.280 m
<b>Sigmas(95%)</b>	0.004 m	0.003 m	0.018 m
<b>A priori*</b>	36° 26' 54.05822"	140° 36' 19.93987"	54.028 m
<b>Estimated – A priori</b>	-7.109 m	3.028 m	0.252 m

# Convergence of PPP







# CGGTTS files