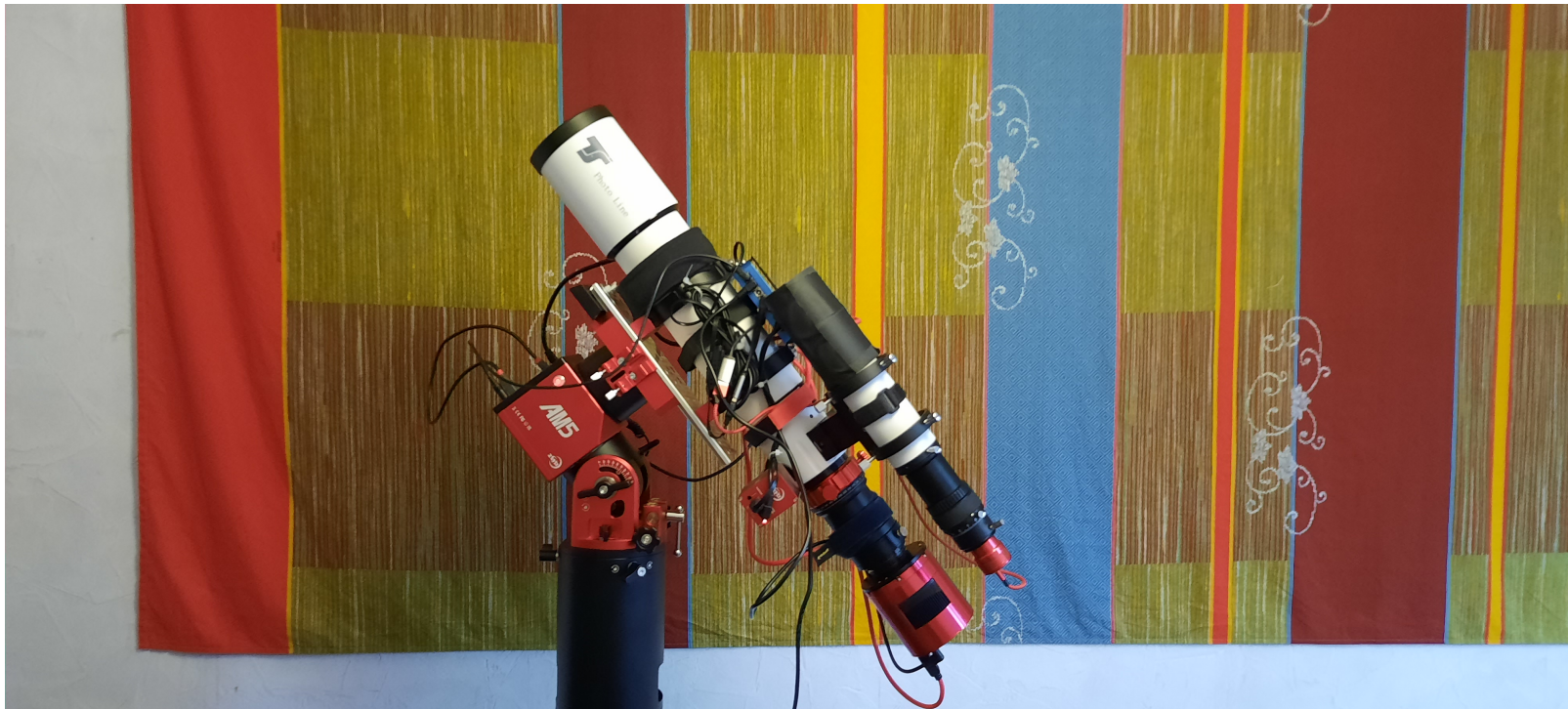


# AM5 guiding issue investigations

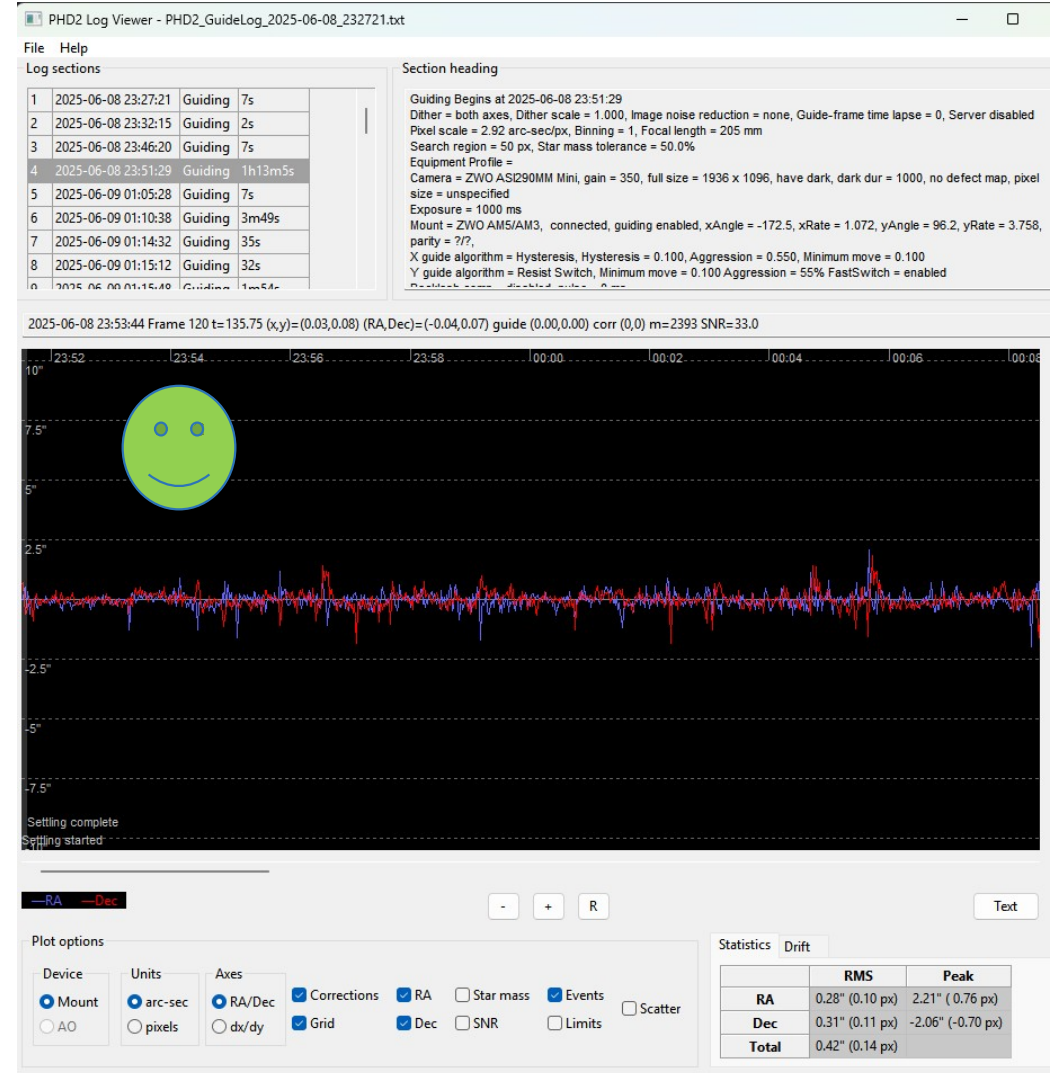
## August 25



31 May 25

# Beginning June 25 (1/2)

9 Jun 25



# Beginning June 25 (2/2)

10 June 25:  
One night (5h) without issues

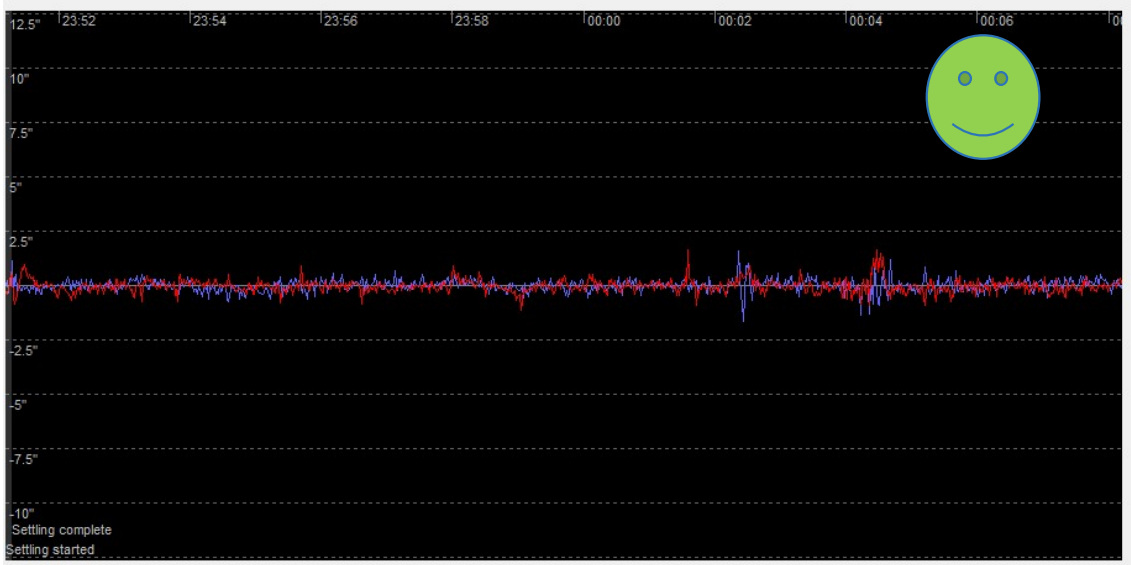
Log sections

1	2025-06-09 23:46:08	Guiding	7s
2	2025-06-09 23:51:10	Guiding	2h25m50s
3	2025-06-10 02:22:00	Guiding	2h50m1s

Section heading

Guiding Begins at 2025-06-09 23:51:10  
 Dither = both axes, Dither scale = 1.000, Image noise reduction = none, Guide-frame time lapse = 0, Server disabled  
 Pixel scale = 2.92 arc-sec/px, Binning = 1, Focal length = 205 mm  
 Search region = 50 px, Star mass tolerance = 50.0%  
 Equipment Profile =  
 Camera = ZWO ASI290MM Mini, gain = 350, full size = 1936 x 1096, have dark, dark dur = 1000, no defect map, pixel size = unspecified  
 Exposure = 1000 ms  
 Mount = ZWO AMS/AM3, connected, guiding enabled, xAngle = -172.5, xRate = 1.072, yAngle = 96.2, yRate = 3.758, parity = ??,  
 X guide algorithm = Hysteresis, Hysteresis = 0.100, Aggression = 0.550, Minimum move = 0.100  
 Y guide algorithm = Resist Switch, Minimum move = 0.100 Aggression = 55% FastSwitch = enabled  
 Debug mode = disabled auto = Off

2025-06-09 23:58:22 Frame 383 t=432.69 (x,y)=(0.08,0.05) (RA,Dec)=(-0.09,0.04) guide(0.00,0.00) corr(0,0) m=2908 SNR=36.9



Plot options

Device:  Mount  AO

Units:  arc-sec  pixels

Axes:  RA/Dec  dx/dy

Corrections  RA  Star mass  Events  Scatter

Grid  Dec  SNR  Limits

Statistics Drift

	RMS	Peak
RA	0.30" (0.10 px)	2.09" (0.72 px)
Dec	0.31" (0.11 px)	2.30" (0.79 px)
Total	0.43" (0.15 px)	

PHD2 Log Viewer - PHD2\_GuideLog\_2025-06-09\_234608.txt

File Help

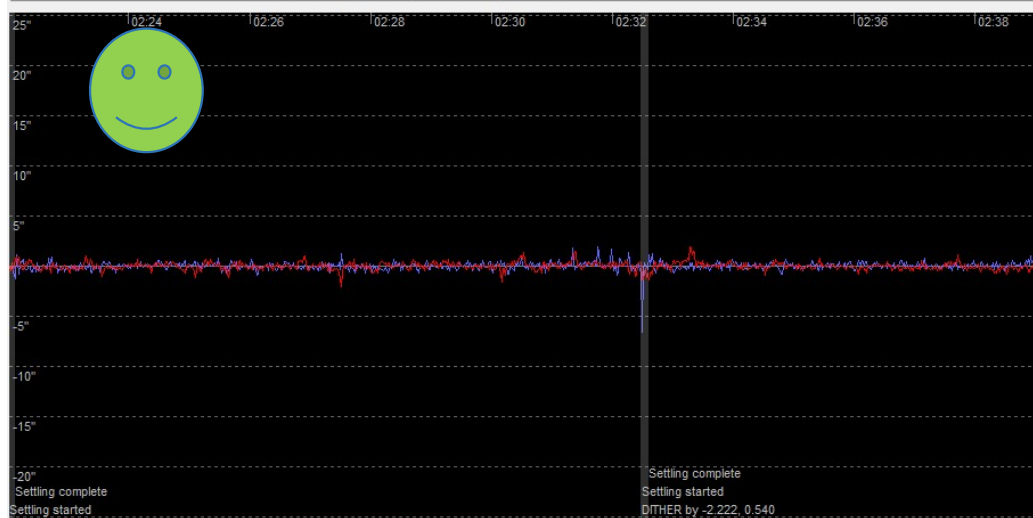
Log sections

1	2025-06-09 23:46:08	Guiding	7s
2	2025-06-09 23:51:10	Guiding	2h25m50s
3	2025-06-10 02:22:00	Guiding	2h50m1s

Section heading

Guiding Begins at 2025-06-10 02:22:00  
 Dither = both axes, Dither scale = 1.000, Image noise reduction = none, Guide-frame time lapse = 0, Server disabled  
 Pixel scale = 2.92 arc-sec/px, Binning = 1, Focal length = 205 mm  
 Search region = 50 px, Star mass tolerance = 50.0%  
 Equipment Profile =  
 Camera = ZWO ASI290MM Mini, gain = 350, full size = 1936 x 1096, have dark, dark dur = 1000, no defect map, pixel size = unspecified  
 Exposure = 1000 ms  
 Mount = ZWO AMS/AM3, connected, guiding enabled, xAngle = -172.5, xRate = 1.072, yAngle = 96.2, yRate = 3.758, parity = ??,  
 X guide algorithm = Hysteresis, Hysteresis = 0.100, Aggression = 0.550, Minimum move = 0.100  
 Y guide algorithm = Resist Switch, Minimum move = 0.100 Aggression = 55% FastSwitch = enabled  
 Debug mode = disabled auto = Off

2025-06-10 02:27:45 Frame 306 t=345.57 (x,y)=(0.08,-0.05) (RA,Dec)=(-0.07,-0.06) guide(0.00,0.00) corr(0,0) m=3631 SNR=41.8



Plot options

Device:  Mount  AO

Units:  arc-sec  pixels

Axes:  RA/Dec  dx/dy

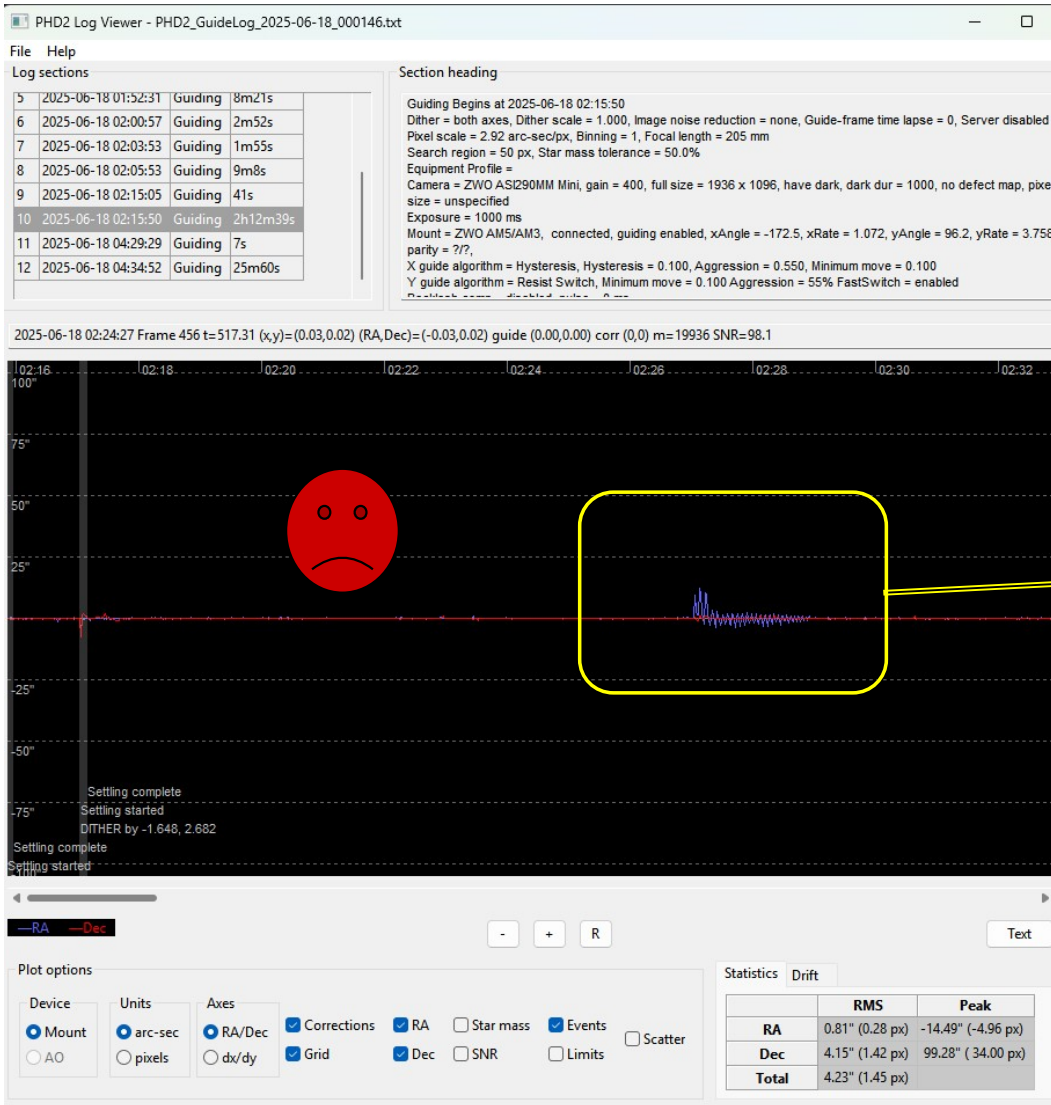
Corrections  RA  Star mass  Events  Scatter

Grid  Dec  SNR  Limits

Statistics Drift

	RMS	Peak
RA	0.67" (0.23 px)	-13.79" (-4.72 px)
Dec	0.95" (0.32 px)	23.61" (8.09 px)
Total	1.16" (0.40 px)	

# First issue: Ra Oscillations (1/1)



18 June 25: first oscillations

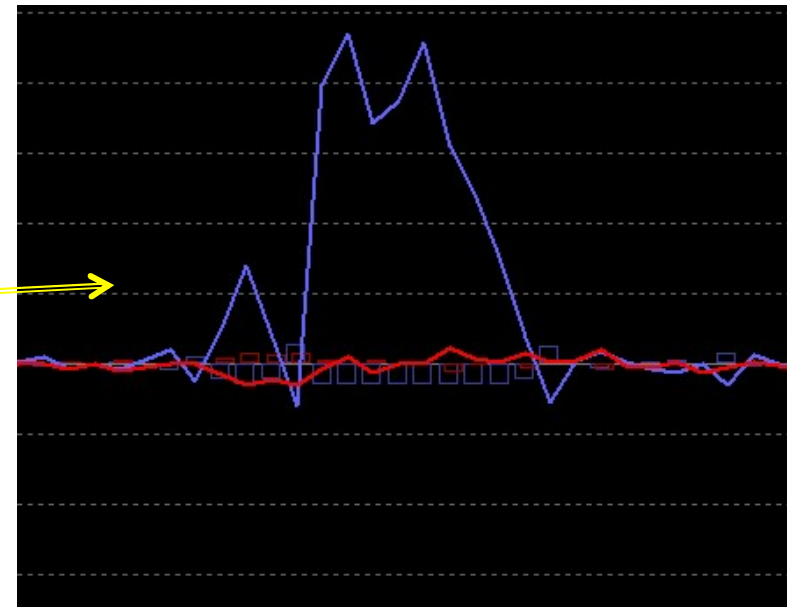
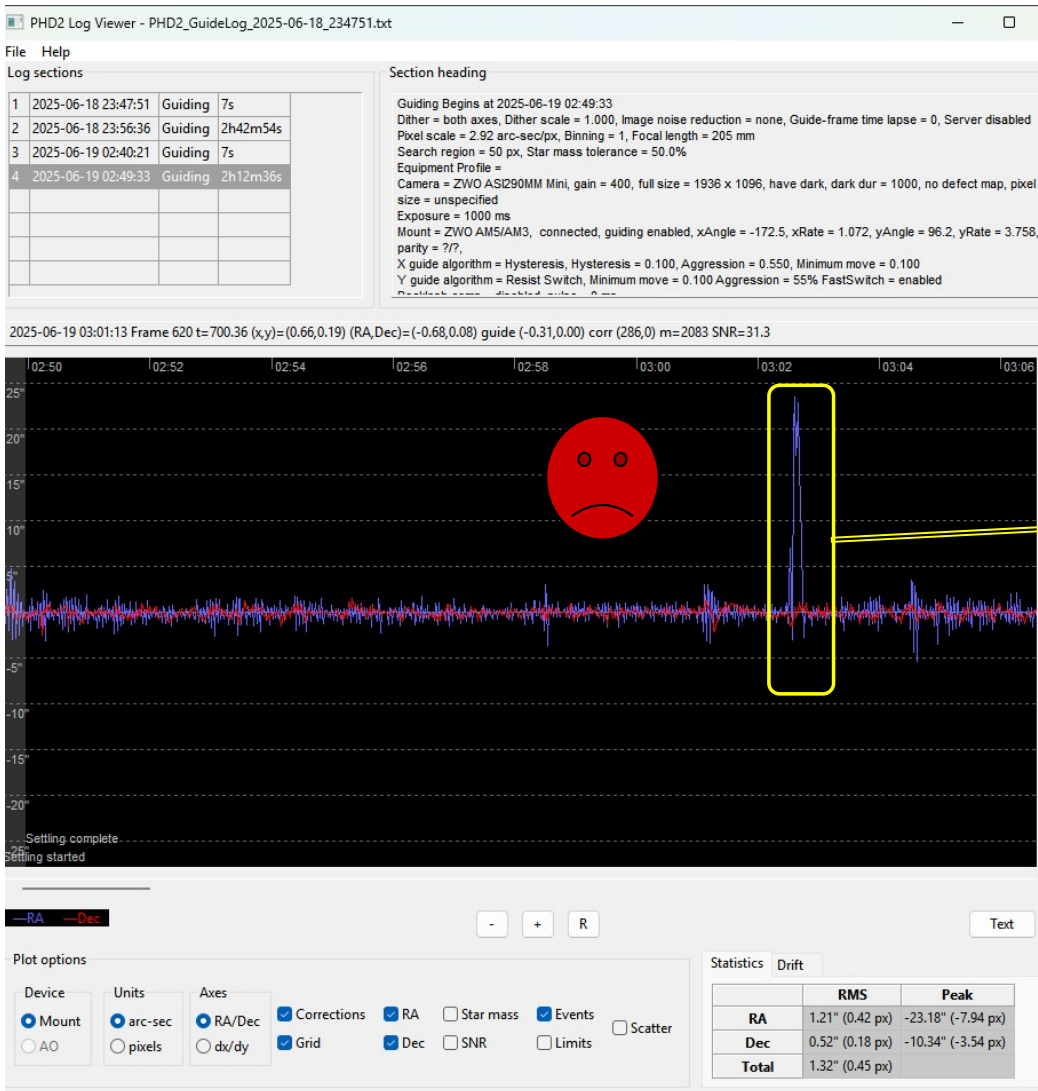
Period: 5 or 6s

Time: 2 minutes



# Second issue: Ra Spikes (1/1)

19 June 25: first RA spike  
issue time: ~20s



# 15 August: Nightmare night

After Two months, the issues appear more often and the guiding waveform become strange (see next slide)

PHD2 Log Viewer - PHD2\_GuideLog\_2025-08-15\_230143.txt

Log sections	Section heading
6 2025-08-15 23:33:23 Guiding 12s	Guiding Begins at 2025-08-15 23:42:11 Dither = both axes, Dither scale = 1.000, Image noise reduction = none, Guide-frame time lapse = 0, Server disabled Pixel scale = 2.92 arc-sec/px, Binning = 1, Focal length = 205 mm Search region = 50 px, Star mass tolerance = 50.0%
7 2025-08-15 23:42:11 Guiding 1h1m43s	Equipment Profile = Camera = ZWO ASI290MM Mini, gain = 400, full size = 1936 x 1096, have dark, dark dur = 1000, no defect map, pixel size = unspecified Exposure = 1000 ms Mount = ZWO AMS/AM3, connected, guiding enabled, xAngle = -179.6, xRate = 2.767, yAngle = 91.3, yRate = 3.922, parity = ?/? X guide algorithm = Hysteresis, Hysteresis = 0.100, Aggression = 0.400, Minimum move = 0.200 Y guide algorithm = Resist Switch, Minimum move = 0.200 Aggression = 45% FastSwitch = enabled
8 2025-08-16 00:52:31 Guiding 40m55s	
9 2025-08-16 01:34:30 Guiding 7s	
10 2025-08-16 01:43:16 Guiding 1h1m21s	
11 2025-08-16 02:53:16 Guiding 1h1m15s	
12 2025-08-16 04:03:11 Guiding 1h1m33s	
13 2025-08-16 05:13:24 Guiding 54m31s	

2025-08-15 23:48:42 Frame 347 t=391.94 (x,y)=(0.14,-0.01) (RA,Dec)=(-0.14,-0.01) guide (0.00,0.00) corr (0,0) m=4588 SNR=47.2



PHD2 Log Viewer - PHD2\_GuideLog\_2025-08-15\_230143.txt

Log sections	Section heading
6 2025-08-15 23:33:23 Guiding 12s	Guiding Begins at 2025-08-16 00:52:31 Dither = both axes, Dither scale = 1.000, Image noise reduction = none, Guide-frame time lapse = 0, Server disabled Pixel scale = 2.92 arc-sec/px, Binning = 1, Focal length = 205 mm Search region = 50 px, Star mass tolerance = 50.0%
7 2025-08-15 23:42:11 Guiding 1h1m43s	Equipment Profile = Camera = ZWO ASI290MM Mini, gain = 400, full size = 1936 x 1096, have dark, dark dur = 1000, no defect map, pixel size = unspecified Exposure = 1000 ms Mount = ZWO AMS/AM3, connected, guiding enabled, xAngle = -179.6, xRate = 2.767, yAngle = 91.3, yRate = 3.922, parity = ?/? X guide algorithm = Hysteresis, Hysteresis = 0.100, Aggression = 0.500, Minimum move = 0.200 Y guide algorithm = Resist Switch, Minimum move = 0.200 Aggression = 45% FastSwitch = enabled
8 2025-08-16 00:52:31 Guiding 40m55s	
9 2025-08-16 01:34:30 Guiding 7s	
10 2025-08-16 01:43:16 Guiding 1h1m21s	
11 2025-08-16 02:53:16 Guiding 1h1m15s	
12 2025-08-16 04:03:11 Guiding 1h1m33s	
13 2025-08-16 05:13:24 Guiding 54m31s	

2025-08-16 01:00:17 Frame 413 t=466.45 (x,y)=(0.14,0.11) (RA,Dec)=(-0.14,0.11) guide (0.00,0.00) corr (0,0) m=4160 SNR=44.7

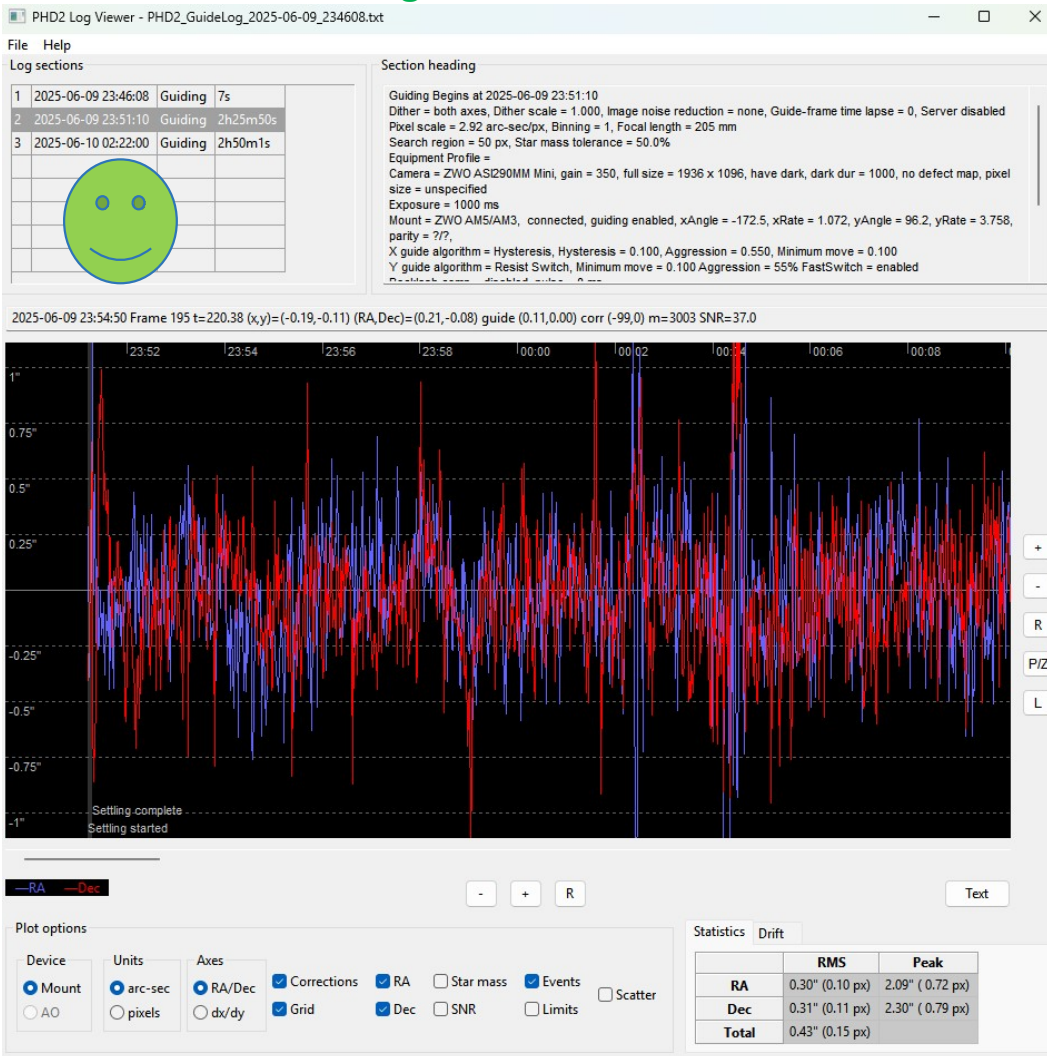
2nd guiding (40mn)

Plot options: Device: Mount, Units: arc-sec, Axes: RA/Dec, Corrections, RA, Dec, Events, Grid, Scatter.

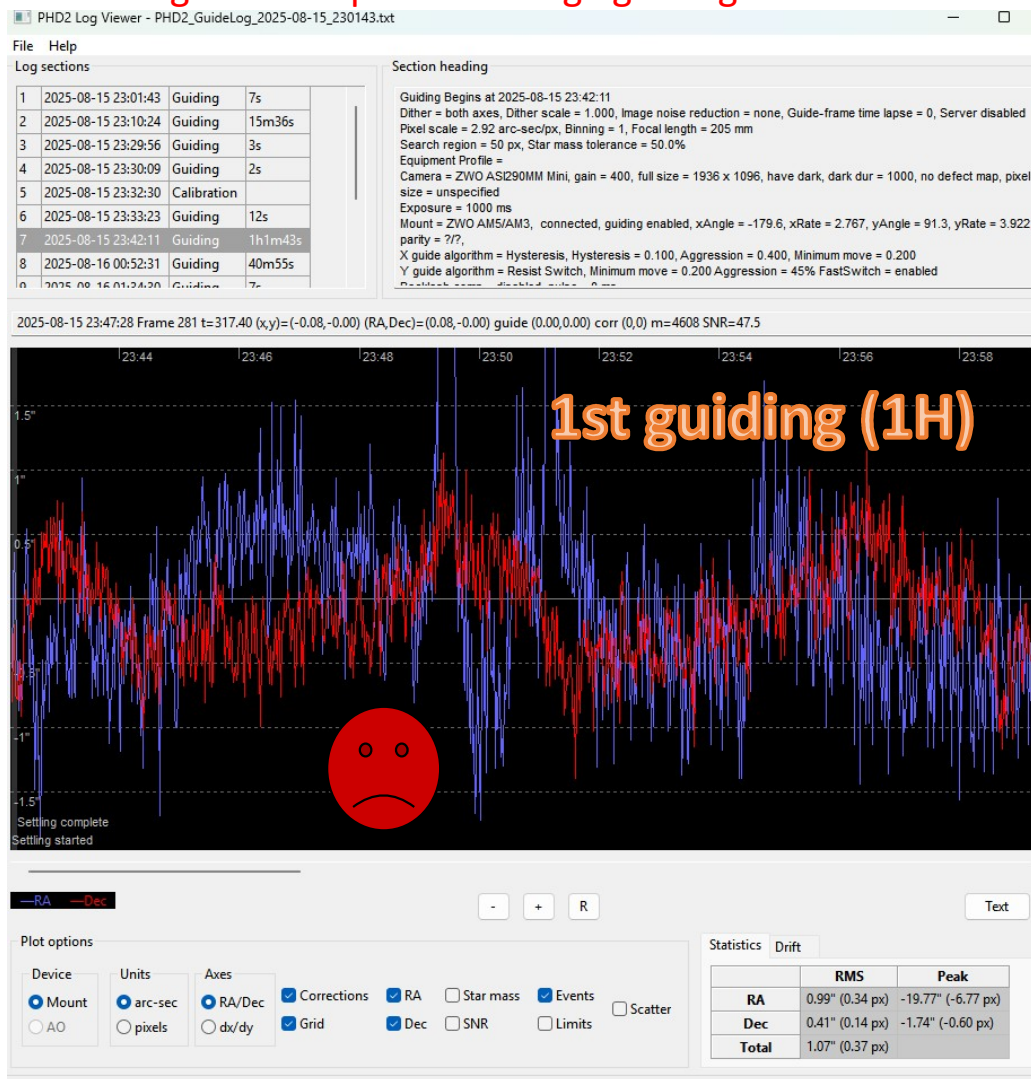
Statistics	RMS	Peak
RA	0.71" (0.24 px)	-3.89" (-1.33 px)
Dec	0.35" (0.12 px)	-2.25" (-0.77 px)
<b>Total</b>	<b>0.79" (0.27 px)</b>	

# 15 August: Nightmare night

10 June 25: One night without issues



15 August 25:  
 Bad night: 2 RA spikes + strange guiding waveforms



# 15 August: Nightmare night

PHD2 Log Viewer - PHD2\_GuideLog\_2025-08-15\_230143.txt

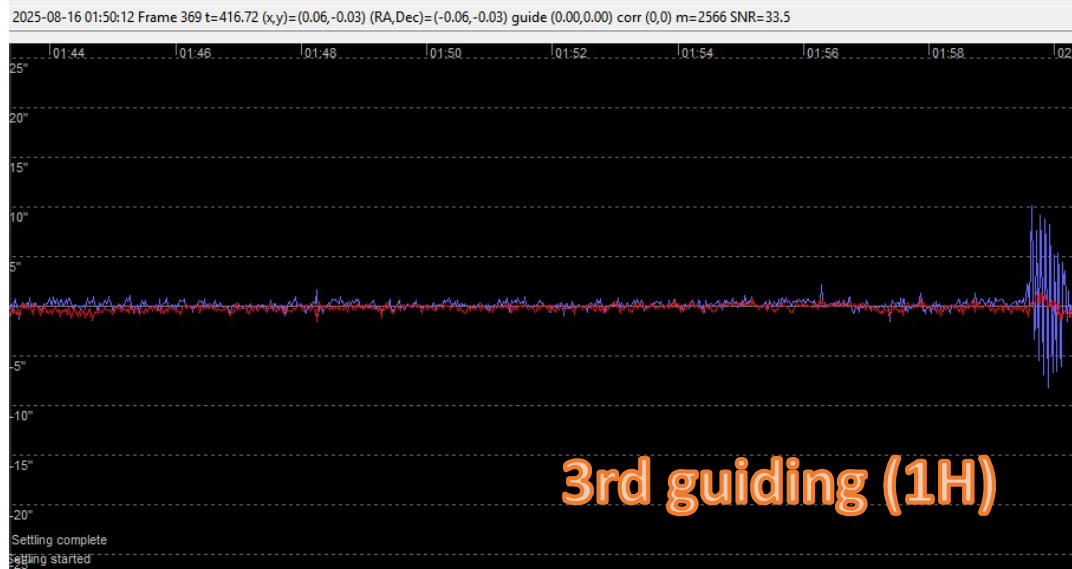
File Help

Log sections

6	2025-08-15 23:33:23	Guiding	12s
7	2025-08-15 23:42:11	Guiding	1h1m43s
8	2025-08-16 00:52:31	Guiding	40m55s
9	2025-08-16 01:34:30	Guiding	7s
10	2025-08-16 01:43:16	Guiding	1h1m21s
11	2025-08-16 02:53:16	Guiding	1h1m15s
12	2025-08-16 04:03:11	Guiding	1h1m33s
13	2025-08-16 05:13:24	Guiding	54m31s

Section heading

Guiding Begins at 2025-08-16 01:43:16  
 Dither = both axes, Dither scale = 1.000, Image noise reduction = none, Guide-frame time lapse = 0, Server disabled  
 Pixel scale = 2.92 arc-sec/px, Binning = 1, Focal length = 205 mm  
 Search region = 50 px, Star mass tolerance = 50.0%  
 Equipment Profile =  
 Camera = ZWO ASI290MM Mini, gain = 400, full size = 1936 x 1096, have dark, dark dur = 1000, no defect map, pixel size = unspecified  
 Exposure = 1000 ms  
 Mount = ZWO AM5/AM3, connected, guiding enabled, xAngle = -179.6, xRate = 1.690, yAngle = 91.3, yRate = 3.922, parity = ??,  
 X guide algorithm = Hysteresis, Hysteresis = 0.100, Aggression = 0.500, Minimum move = 0.200  
 Y guide algorithm = Resist Switch, Minimum move = 0.200 Aggression = 45% FastSwitch = enabled  
 Debug mode = disabled guide = 0ms



—RA —Dec

Plot options

Device:  Mount  AO  
 Units:  arc-sec  pixels  
 Axes:  RA/Dec  dx/dy  
 Corrections  RA  Star mass  Events  Scatter  
 Grid  Dec  SNR  Limits

Statistics Drift

	RMS	Peak
RA	2.02" (0.69 px)	-25.22" (-8.64 px)
Dec	0.40" (0.14 px)	2.21" (0.76 px)
Total	2.06" (0.70 px)	

PHD2 Log Viewer - PHD2\_GuideLog\_2025-08-15\_230143.txt

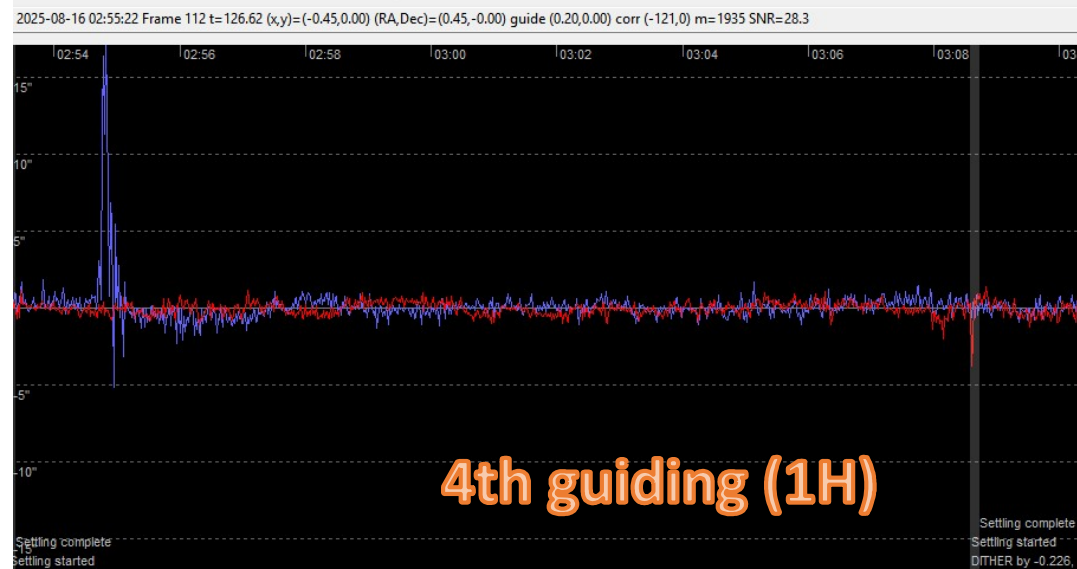
File Help

Log sections

6	2025-08-15 23:33:23	Guiding	12s
7	2025-08-15 23:42:11	Guiding	1h1m43s
8	2025-08-16 00:52:31	Guiding	40m55s
9	2025-08-16 01:34:30	Guiding	7s
10	2025-08-16 01:43:16	Guiding	1h1m21s
11	2025-08-16 02:53:16	Guiding	1h1m15s
12	2025-08-16 04:03:11	Guiding	1h1m33s
13	2025-08-16 05:13:24	Guiding	54m31s

Section heading

Guiding Begins at 2025-08-16 02:53:16  
 Dither = both axes, Dither scale = 1.000, Image noise reduction = none, Guide-frame time lapse = 0, Server disabled  
 Pixel scale = 2.92 arc-sec/px, Binning = 1, Focal length = 205 mm  
 Search region = 50 px, Star mass tolerance = 50.0%  
 Equipment Profile =  
 Camera = ZWO ASI290MM Mini, gain = 400, full size = 1936 x 1096, have dark, dark dur = 1000, no defect map, pixel size = unspecified  
 Exposure = 1000 ms  
 Mount = ZWO AM5/AM3, connected, guiding enabled, xAngle = -179.6, xRate = 1.690, yAngle = 91.3, yRate = 3.922, parity = ??,  
 X guide algorithm = Hysteresis, Hysteresis = 0.100, Aggression = 0.500, Minimum move = 0.200  
 Y guide algorithm = Resist Switch, Minimum move = 0.200 Aggression = 45% FastSwitch = enabled  
 Debug mode = disabled guide = 0ms



—RA —Dec

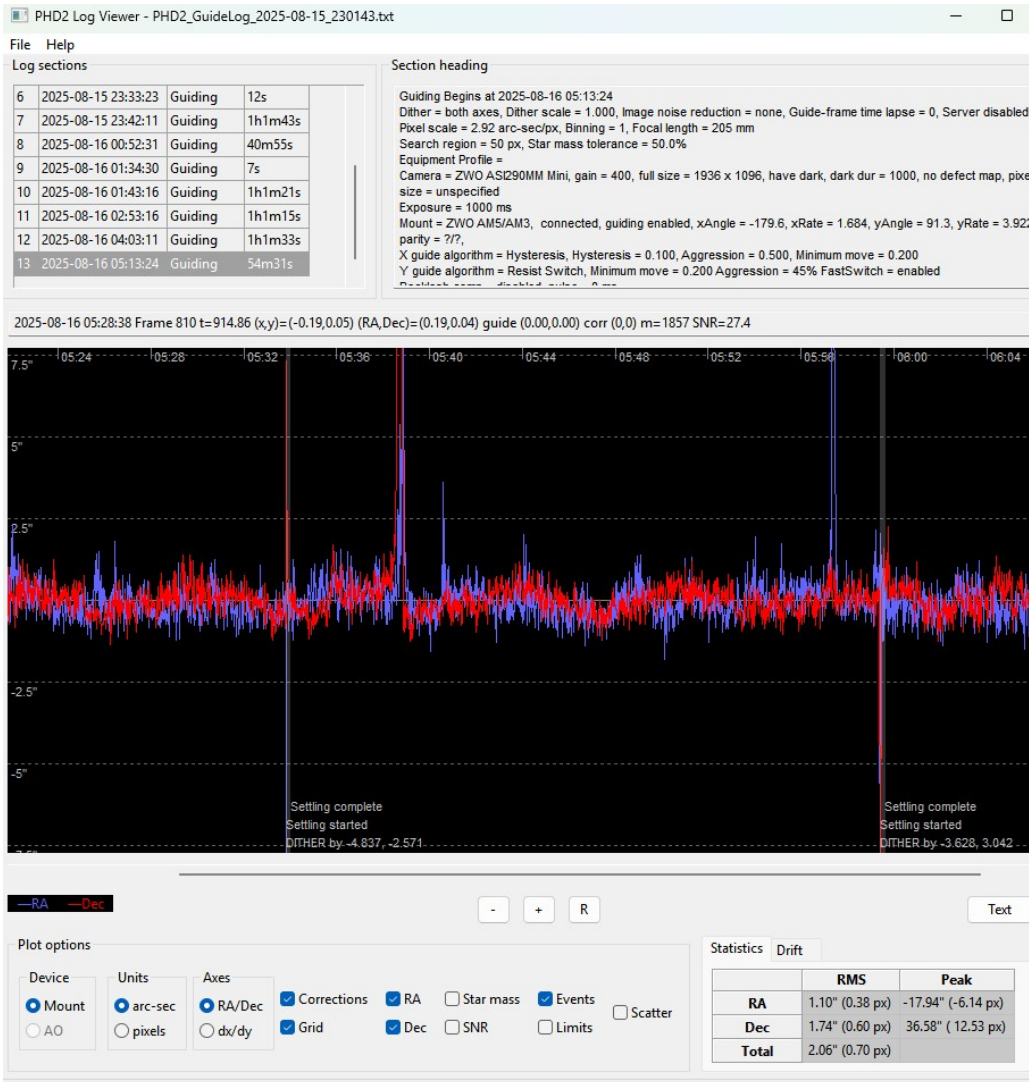
Plot options

Device:  Mount  AO  
 Units:  arc-sec  pixels  
 Axes:  RA/Dec  dx/dy  
 Corrections  RA  Star mass  Events  Scatter  
 Grid  Dec  SNR  Limits

Statistics Drift

	RMS	Peak
RA	1.48" (0.51 px)	-21.68" (-7.43 px)
Dec	0.45" (0.15 px)	-1.99" (-0.68 px)
Total	1.54" (0.53 px)	

# 15 August: Nightmare night



After this night, I have ask for support.  
 I read the topics about RA issues.