

ObservationReport

all measures in mm

ObservationID

161

on

2022-10-31 00:39

Object

Common Name Horsehead Nebula
Alternate Name IC434
Visual Magnitude 0
Distance ► Object 1375 ly
Apparent Size 8 × 6'
Object R.A. 05hr 40' 54"
Object DEC -02° 28' 00"
WikiLink https://en.wikipedia.org/wiki/Horsehead_Nebula

B33



20221031_B33_ASI294_0161-03WM.jpg

Link ► Picture [B33_20221031](#)
Description Dark Nebula
Constellation Orion

Picture Data

Work Status	Published	Quality	*****
Format	Photo	Picture Center R.A.	5h46m49s
Tot./Act. Frames/Pane	60 60	Picture Center DEC	-1°58'21"
H / V Panes	1 1	H/V FoV [°]	1,8268 1,2434
Exp. [s] / Frame	300	Above horizon [°]	0
Total Time / Pane [min]	300,00 300,00	View Direction	N

Camera Data

ZWO	ASI294MC-Pro	ZWOASI294	
Camera Angle [°]	-103,259	Pixel Pitch [µm]	4,63
Gain or ISO	120	Camera Temp. °C	-10

Observation Site

Observation Start	2022-10-31T00:39:39 UTC+/- +h	Observation End	2022-10-31T05:58:20
Observation Site	ES La Palma Jardin	Site Elevation /Bortle	470 3
Province	La Palma	Site Coordinates	28° 38' 52.0" N, 017° 53' 4

Sky & Moon

Sky Index Total Clouds	2,8	%	Moon Rise Set	14:16:00 21:44:00
Outside Temp. °C	19		Moon Age [d]	5,3
Moon Phase % Illum.	1st quarter 39	%	Moon ► Target Dist.	UNKNOWN

Optical Configuration

TS600AS294	TS600ASI294T252		
Lens or Scope	TSO APO 90/600	Focuser	M90 TS600 Rack + Pinion
Type Of Build	APO Triplet Refractor	Focuser Position [mm]	0,00 EAF Steps 0
Brand	TS-Optics	Optical Factor	1
Additional Optics	M63 WO Rotator	FoL norm actual [mm]	599
Filter	-	DawesLimitLink	1,74 Arcsec
Diameter [mm]	90	Optical Scale ["/px]	1,595
Aperture / f-stop	6,66		

Other Hardware & Software

GuideScope	Omegon 50/200	Mount	EQ6R-PRO
GuiderHW	ASiAirPro	SessionControl	ASiAirPro
GuiderSW	ASiAirPro	PostProcessingSW	BlurXTerminator, PS, LrC, NoiseXTerminator, PixInsight

More ...


Work Folder [2022\20221031_B33_0161_La-Palma-Jardin](#)

Comment

Remarks

1. Session Planning

This was my very first attempt to take a picture of

- B 33 - Horsehead nebula
- IC434 (the red emission nebula behind B 33) and 
- NGC 2024 Flame Nebula

in the Orion constellation.

The exposure session (ASIAIR Plan) was activated at 22:17 and the initialization, targeting and exposure taking started as programmed at 0:30 on the next day. I went to bed shortly after activating the plan and had a real surprise next morning when I dismantled the scope and had a first look at one of the 60 unprocessed images taken during the night.

2. Location and sky:

I took the images on the terrace of our bungalow of the La Palma Jardin facility located in Celta - El Paso - La Palma (Canary Islands) in Spain during the late night using an ASIAIR plan that was generated using the Skyatlas function of ASIAIR to center the target. The manual camera rotation was already adjusted during the earlier night. Unfortunately the sky properties were not too good, we had extremely high air humidity (>90%) and a dew point only 1° below the actual temperature resulting in sudden fog formation, but apparently the situation improved during the night, although the humidity is visible around the brighter stars in this image.

3. Session Results

I took 60 exposures of 5 minutes each (totaling to 5 hours of light) to collect enough light for this very beautiful target. The TS-Optics 90/600 APO refractor with a field of view of 1,8x1,2° was quite optimal for this target.

4. Post Processing

Image selection, registration, background improvement and color correction were done in PixInsight ([Post Processing using PixInsight \(starlust.de\)](https://www.starlust.de/post-processing-using-pixinsight)). No further image post processing was required.

No color or hue changes have been applied, the final image is showing natural colors.

Addendum on 2024-03-11:

Version 20221031_055820_IC434_ZWOASI294-0002-NX.jpg

was further enhanced with NoiseXTerminator for quality improvement with the parameters:

```
var P = new NoiseXTerminator;
P.ai_file = "NoiseXTerminator.2.pb";
P.denoise = 0.72;
P.detail = 0.59;
```

Version: 20221031_055820_IC434_ZWOASI294-0003-NX-BX.jpg

was further enhanced with BlurXTerminator for quality improvement with the parameters:

```
var P = new BlurXTerminator;
P.ai_file = "BlurXTerminator.4.pb";
P.correct_only = false;
P.correct_first = false;
P.nonstellar_then_stellar = false;
P.lum_only = false;
P.sharpen_stars = 0.15;
P.adjust_halos = -0.50;
P.nonstellar_psf_diameter = 0.00;
P.auto_nonstellar_psf = true;
P.sharpen_nonstellar = 1.00;
```

5. Plate Solve and Camera Rotation

This picture was also the first successful result in setting the the camera angle exactly as I planned the frame by first shooting images using the Skyatlas in ASIAIR Preview mode on a target near the expected position B 33 in the earlier night to set the rotation according to the planned rotation as given by Telescopius.com.

ASIAIR rotation measurement:

Before Meridian Flip: -103.259

After Meridian Flip: 76.8233

Calculation: $180^\circ - 103.259^\circ = 76,741^\circ$ (corresponds nearly with measured 76.8233° in Astrometry.net)

Astrometry.net rotation measurement:

Final image: $103,3^\circ$ (corresponds with ASIAR rotation)

Plate Solve result (ASIAIR):

RA:5h42m27s DEC:-2°21'40" Angle = -103.268, Star number = 186

6. Main logfile entries

2022/10/30 22:17:34 Plan IC434 Start

2022/10/31 00:30:47 Solve succeeded: RA:5h46m49s DEC:-1°58'21 Angle = -103.259, Star number = 144

2022/10/31 00:34:30 Auto focus succeeded, the focused position is 20595

2022/10/31 00:34:38 Exposure 300.0s image 1# ...

2022/10/31 04:08:29 Exposure 300.0s image 42#

2022/10/31 04:13:30 [Guide] Stop Guiding

2022/10/31 04:13:31 Stop Tracking

2022/10/31 04:18:11 Meridian Flip 1# Start

2022/10/31 04:19:47 Solve succeeded: RA:5h42m28s DEC:-2°21'43; Angle = 76.8233, Star number = 133

2022/10/31 04:19:47 [AutoCenter|End] The target is centered

2022/10/31 04:19:47 [Meridian Flip|End] Meridian Flip succeeded

2022/10/31 04:21:43 Auto focus succeeded, the focused position is

20594 2022/10/31 04:24:58 Exposure 300.0s image 43# ...

2022/10/31 05:53:19 Exposure 300.0s image 60#

2022/10/31 05:58:20 [Autorun|End] Finish Autorun

2022/10/31 05:59:48 EAF back to zero position

2022/10/31 05:59:48 Shutdown ASIAIR Log disabled at 2022/10/31 05:59:48