ObservationReport

ObservationID 161 on 2022-10-31 00:39

Object			**B33**		
Common Name	Horsehead Nebula				
Alternate Name	IC434				
Visual Magnitude	0				
Distance ▶Object	1375 ly				
Apparent Size	8 × 6'				
Object R.A.	05hr 40' 54"		20221031_055820_IC434_ZWOASI294-0003-NX-BX.jpg		
Object DEC	-02º 28' 00"		Link ▶Picture	B33_20221031	
WikiLink	https://en.wikipedia.org/wiki/Horsehead_Nebula		Descpription	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 Data					
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' 47.	
Sky & Moon					
Sky Quality	1,46		Outside Temp. °C	19	
Seeing Index 1	4		Seeing Index 2	2	
Moon Phase	1st quarter		Moon Age [d]	5,3	
Moon Percent %	39		Distance▶Target	UNKNOWN	
MoonRise	14:16:00		MoonSet	21:44:00	
Optical Config.	**TS600AS294**		**TS600AS294E100T78**		
Lens or Scope	TS600		FocalLength [mm]	599	
Type Of Build	APO Triplet Refractor		Diameter [mm]	90	
Brand	TS-Optics		Aperture / f-stop	6,66	
Addtional Optics	M63 WO Rotator		DawesLimitLink	1,74 Arcsec	
Filter	-		Optical Scale ["/px]	1,595	
Focuser	TS600 Rack + Pinion				
Focuser Position	0,00		EAF Position	0	
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\20221031-003939_B33_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 fist 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 where 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)). 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 NoiseXTermnator 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 BlurXTermnator 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 accroding to the planned rotation as given by Telescopius.com.
ASIAIR rotation measurement:

Before Meridian Flip: -103.259
After Meridian Flip: 76.8233
Calculation: 180° - 103.259° = 76,741° (corresponds nearly with measured 76.8233° in Astrometry.net)

Astrometry.net rotation measurement:

Final image: 103,3° (corresponds witth 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