ObservationReport

ObservationID 177 on 2023-02-08 19:33

Object			**C/2022-E3**		
Common Name	C/2022 E3				
Alternate Name	Comet ZTF				
Visual Magnitude	5				
Distance ▶Object					
Apparent Size					
Object R.A.			20230208-212756_C-2022 E3_ZWOASI294_0003-01_1280.jpg		
Object DEC			Link ▶Picture	C/2022-E3_20230208	
WikiLink	https://en.wikipedia.org/wiki/C/2022_E3_(ZTF)		Descpription	Comet	
			Constellation	Auriga	
Picture Data					
Work Status	Published		Quality	***	
Format	Photo		Picture Center R.A.	04h 54m 20.535s	
Tot./Act. Frames/Pane	100	85	Picture Center DEC	+33° 54' 44.278"	
H / V Panes	1	1	H/V FoV [°]	1,8268	1,2434
Exp. [s] / Frame	60		Above horizon [°]	69,5°	
Total Time / Pane [min]	85,00	85,00	View Direction	214,7°	
Camera Data	**ZWO**		**ASI294MC-Pro**	**ZWOASI294**	
Camera Angle [°]	272,6		Pixel Pitch [µm]	4,63	
Gain or ISO	120		Camera Temp. °C	-4	
Observation Data					
Observation Start	2023-02-08T19:33:49 UTC+/- +1h		Observation End	2023-02-08T21:27:56	
Observation Site	DE GÖ MBR		Site Elevation /Bortle	182	5
Province	NDS		Site Coordinates	51° 34' N, 9° 56' E	
Sky & Moon					
Sky Quality	2,01		Outside Temp. °C	-2	
Seeing Index 1	3		Seeing Index 2	1	
Moon Phase	3rd quarter		Moon Age [d]	18	
Moon Percent %	91		Distance▶Target	UNKNOWN	
MoonRise	20:16:00		MoonSet	09:11:00	
Optical Config.	**Config04c**		**L:1_E:100_C:1_O:-_T:89.7_F:-**		
Lens or Scope	TSO APO 90/600		FocalLength [mm]	599	
Type Of Build	APO Triplet Refractor		Diameter [mm]	90	
Brand	TS-Optics		Aperture / f-stop	6,66	
Addtional Optics	-		DawesLimitLink	1,74 Arcsec	
Filter	-		Optical Scale ["/px]	1,595	
Other Hardware & Software					
GuideScope	ZWO 30/120 mini		Mount	iOptron iEQ45 Pro	
GuiderHW	ASiairPro		SessionControl	ASiairPro	
GuiderSW	ASiairPro		PostProcessingSW	PixInsight + Lightroom	
More ...					
Work Folder	2023\20230208-193349_C-2022-E3_GOE-MBR				

Remarks

Comet C/2022 E3, comet aligned in front of the stars stripes

1. Session Planning

Used **SkySafari Pro** for the actual comet coordinates together with ASIAIR Pro for GoTo and telescope guiding.

2. Location and sky

Unfortunately the sky conditions were only mediocre with high speed winds in the upper atmosphere and a rather bright sky resulting in much background noise. But this was the second night after many weeks of bad weather and rain. Had to quickly install and calibrate everything between sunset and before the nearly full moon rose above the horizon at 20:16h, I was still a little late before I could start the nearly 2 hours of frame capturing that only started at 19:33h local time (UCT+1).

3. Session Results

There was clearly too much sky brightness and a lot of background noise in the picture, absolutely no ideal conditions. Due to 1 tracking error, many satellites and planes that crossed the line of view, only 85 out of 100 original frames could be used. Further details about the image post-processing are available here and subsequent pages: Pre-Processing Steps for Comets (starlust.de)

4. Plate Solving and Camera Rotation Results

ASIAIR rotation measurement:
Astrometry.net rotation measurement: 272,6° E of N
Plate Solve result (ASIAIR): 267,504° (after merdidian flip, added 180°)

5. Post Processing

Used PixInsight for:

- Image selection
- Automatic Weighted Batch Pre-processing for Comets
- Comet Alignment Tool
- Comet Integration stars as background using the Image Integration tool and Winsorized Sigma Clipping on normal Sigma High setting (2.9) to leave the moving stars in the background
- Automatic Background Extraction
- and Full Final Stretch

and Photoshop Lightroom for some background correction and color enhancement
No color or hue changes have been applied; the final image is showing natural colors.

6. Lessons Learned

Should have turned off the dithering which was unnecessary for this task and only wasted time. A meridian flip after frame #26 could unfortunately not be avoided.

7. Main logfile entries

Log enabled at 2023/02/08 19:31:00
2023/02/08 19:31:00 [Autorun|Begin] C2022E3 Start
2023/02/08 19:31:00 Target RA:4h55m52s DEC:+33°56'51"
2023/02/08 19:31:00 Shooting 100 light frames, exposure 60.0s Bin1
2023/02/08 19:31:00 Start Tracking
2023/02/08 19:31:00 [AutoFocus|Begin] Run AF before Autorun start, exposure 2.0s Bin1, temperature -1.4°C
2023/02/08 19:31:00 Find Focus Star
2023/02/08 19:31:05 Find Focus Star: detect and calculate star size 3.1 , EAF position 14419
2023/02/08 19:31:05 Find Focus Star: finding appropriate stars star size 3.1
2023/02/08 19:31:17 Find Focus Star: detect and calculate star size 3.7 , EAF position 14469
2023/02/08 19:31:17 Calculate V-Curve
2023/02/08 19:32:48 Auto focus succeeded, the focused position is 14420
2023/02/08 19:32:49 [AutoFocus|End] Auto focus succeeded
2023/02/08 19:32:49 Exposure 60.0s image 1#
2023/02/08 19:33:49 Exposure 60.0s image 2#
2023/02/08 19:34:50 Target RA:4h55m52s DEC:+33°56'50"
2023/02/08 19:34:50 Exposure 60.0s image 3#
…

2023/02/08 19:52:07 Exposure 60.0s image 20#

2023/02/08 19:58:13 Exposure 60.0s image 26#
2023/02/08 19:59:14 Stop Tracking
2023/02/08 19:59:14 [Meridian Flip|Begin] Wait 4min24s to Meridian Flip
2023/02/08 20:04:58 Mount slews to target position: RA:4h55m52s DEC:+33°56'50"
2023/02/08 20:05:02 Exposure 10.0s
2023/02/08 20:05:13 Plate Solve
2023/02/08 20:05:18 Solve succeeded: RA:4h55m53s DEC:+33°56'55" Angle = 86.983, Star number = 177
2023/02/08 20:05:18 The Mount has flipped
2023/02/08 20:05:18 [AutoCenter|End] The target is centered
2023/02/08 20:05:18 [Guide] Calibration data Flipped
2023/02/08 20:05:18 [Meridian Flip|End] Meridian Flip succeeded
2023/02/08 20:05:18 Start Tracking
2023/02/08 20:05:18 Wait for Mount Settle
2023/02/08 20:05:23 Start Tracking
2023/02/08 20:05:23 [AutoFocus|Begin] Run AF after Auto Meridian flipped, exposure 2.0s Bin1, temperature -3.0°C
2023/02/08 20:05:23 Find Focus Star
2023/02/08 20:07:17 Auto focus succeeded, the focused position is 14416
2023/02/08 20:07:17 [AutoFocus|End] Auto focus succeeded
2023/02/08 20:07:17 Exposure 60.0s image 27#
...
2023/02/08 21:02:08 Exposure 60.0s image 81#
2023/02/08 21:02:34 Stop Autorun Manually
2023/02/08 21:02:34 [Autorun|End] Pause Autorun
2023/02/08 21:03:50 [Guide] Dither
2023/02/08 21:03:50 [Guide] Dither Settle
2023/02/08 21:04:36 [Guide] Settle Done
2023/02/08 21:04:36 Exposure 60.0s image 81#
2023/02/08 21:05:37 Exposure 60.0s image 82#
2023/02/08 21:06:38 Target RA:4h55m44s DEC:+33°54'28"
2023/02/08 21:06:38 Exposure 60.0s image 83#
2023/02/08 21:07:39 Exposure 60.0s image 84#
2023/02/08 21:08:40 Exposure 60.0s image 85#
2023/02/08 21:09:41 [Guide] Dither
2023/02/08 21:09:41 [Guide] Dither Settle
2023/02/08 21:10:39 [Guide] Settle Done
2023/02/08 21:10:40 Exposure 60.0s image 86#
...
2023/02/08 21:14:44 Exposure 60.0s image 90#
2023/02/08 21:15:45 [Guide] Dither
2023/02/08 21:15:45 [Guide] Dither Settle
2023/02/08 21:16:43 [Guide] Settle Done
2023/02/08 21:16:43 Exposure 60.0s image 91#
...
2023/02/08 21:20:47 Exposure 60.0s image 95#
2023/02/08 21:21:48 [Guide] Dither
2023/02/08 21:21:48 [Guide] Dither Settle
2023/02/08 21:21:56 Stop Autorun Manually
2023/02/08 21:21:56 [Autorun|End] Pause Autorun
2023/02/08 21:22:11 [Guide] Dither
2023/02/08 21:22:11 [Guide] Dither Settle
2023/02/08 21:22:51 [Guide] Settle Timeout
2023/02/08 21:22:51 Exposure 60.0s image 96#
...
2023/02/08 21:26:56 Exposure 60.0s image 100#
2023/02/08 21:27:56 [Autorun|End] Finish Autorun
Log disabled at 2023/02/08 21:27:56