Howard Astronomical League

November 18, 2021

Astro Humor

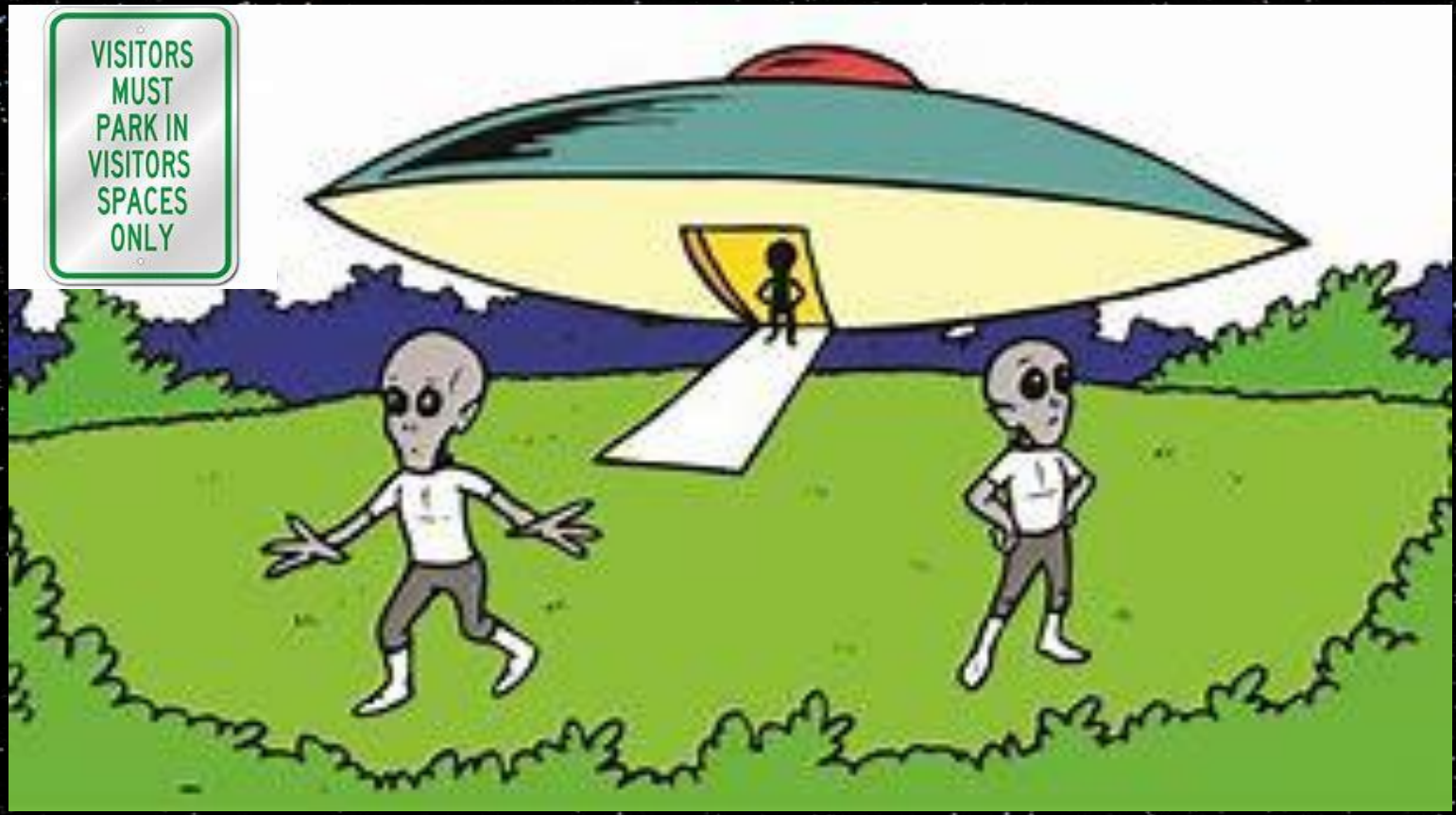
The Romans naming Planets

This looks huge, let's name it
King Of The Gods (Jupiter)

Modern Astronomers naming Exoplanets

OGLE-05-390L b

Welcome New Members and Guests



Officer Reports

HAL Officers/Positions 2021

President	Phil Whitebloom	president@howardastro.org
1st Vice President	Victor Sanchez	1stvp@howardastro.org
2nd Vice President	Jim Tomney	2ndvp@howardastro.org
Treasurer	Joel Goodman	hal_treasurer@howardastro.org
Secretary	Yvonne Chiarelli	secretary@howardastro.org
Event Coordinator	David Stein	events@howardastro.org
Publicity Chair +	Joel Goodman	halpublicity@howardastro.org
Observatory Director *	Dale Ghent	observatory@howardastro.org
Librarian +	Bob Dutilly	librarian@howardastro.org
ALCor +	Steve Jaworiwsky	halcor@howardastro.org
Webmaster *	Ken Sall	Use "Contact Us" Page

* Appointed as voting officers of the board of directors by President with board approval

\+ Appointed non-voting member of the board except when position filled by an elected officer

2022 HAL Elections

Election Committee Chair: Jim Johnson

Elections held at the January 20th, 2022 HAL general meeting to elect the 2022 Board of Directors

President	2nd Vice President	Treasurer
1st Vice President	Secretary	Event Coordinator

All offices are considered open to all interested HAL members. Send nominations (self or others) to election@howardastro.org by 7pm on January 19th, 2022

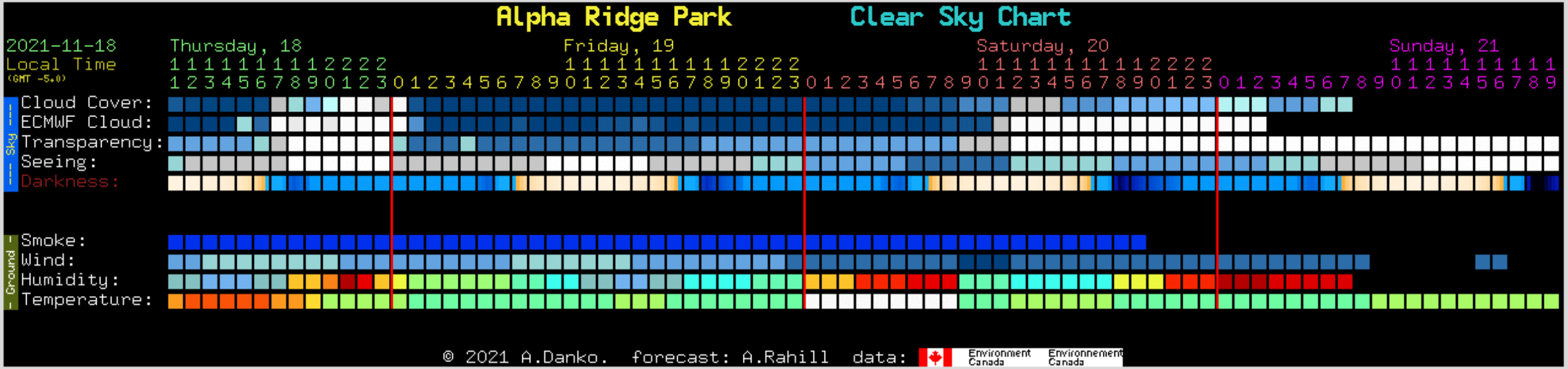
New Board's term begins February 1st, 2022

Partial Eclipse of the Moon
Longest Eclipse in 580 Years

https://www.shadowandsubstance.com/wp-content/uploads/2021/11/Produce.mp4

Event	UTC Time	Time in Baltimore*	Visible in Baltimore
Penumbral Eclipse begins	Nov 19 at 06:02:09	Nov 19 at 1:02:09 am	Yes
Partial Eclipse begins	Nov 19 at 07:18:42	Nov 19 at 2:18:42 am	Yes
Maximum Eclipse	Nov 19 at 09:02:55	Nov 19 at 4:02:55 am	Yes
Partial Eclipse ends	Nov 19 at 10:47:04	Nov 19 at 5:47:04 am	Yes
Penumbral Eclipse ends	Nov 19 at 12:03:40	Nov 19 at 7:03:40 am	Maybe, touching horizon

Alpha Ridge Park Clear Sky Clock



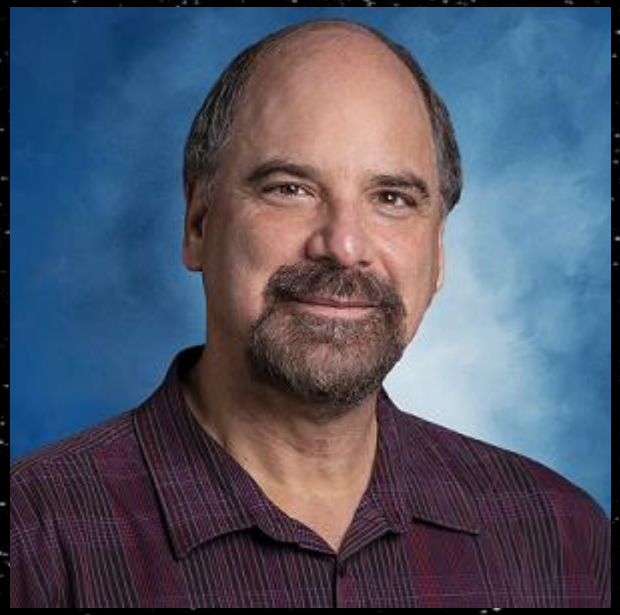
HAL December Activities and Events

December 13th – 6:30PM to 8:30PM
HAL Public Moon Viewing Event
Howard County Central Library

December 14th – 7:00PM to 8:00PM
Maryland STEM Festival
Hybrid Program on JWST
Tentative – Details TBD

December 16th – 7:00PM to 9:00PM
HAL Holiday Party
Hybrid from Robinson Nature Center

November's Guest Presenter



Dr. Carey Lisse
Johns Hopkins University
Applied Physics Laboratory

Topic: New Horizons and Kuiper Belt

THE UNISTELLAR EVSCOPE: AN INTRODUCTION

61 Cygni

Eastern Veil Nebula (C33)

Triangulum Galaxy (M33)

GRACE COVENTRY

Presentation to the Howard Astronomical League
November 18, 2021

BACKGROUND

- **Unistellar** founded in Marseilles, France in 2015
- **Mission**: “Disrupt the astronomy market with the first consumer telescope that is easy to use and powerful enough to allow you to experience the beauty of space and scientific discovery”

- Raised $2M for initial development via Kickstarter campaign in 2017
- Prototype debuted at CES in 2017
- First telescopes shipped in 2019
- Over **5000 owners worldwide** today

Bubble Nebula (NGC 7635)

Omega Nebula (M17)

EVSCOPE SPECIFICATIONS

Optics	
Design	Newtonian reflector with digital eyepiece
Aperture	4.5”
Focal length	450 mm
Focal ratio	f/4
Magnification	Optical 50x (fixed); Digital up to 400x; manual focus
Max. magnitude	15
Mount	Motorized alt/azimuth (integrated with OTA)
Imaging	
Sensor	Sony IMX224 OSC (eVscope 1)
Image Resolution	2560x1920, PNG format
Storage	16GB - 64GB

Hardware	
Connectivity	Built-in Wi-Fi
Power	Rechargeable internal battery (6-8 hrs. use)
Weight	20 lbs. (with tripod)
Included	Tripod, Bahtinov mask
Optional	Backpack
Versions	
eVscope 1	$2999 (discontinued)
eQuinox	$2799 (no eyepiece, better battery life)
eVscope 2	$4299 (larger sensor, improved eyepiece, backpack included)

Helix Nebula (C63)

Pinwheel Galaxy (M101)

M10 Globular Cluster

Vega

EVSCOPE DIFFERENTIATORS

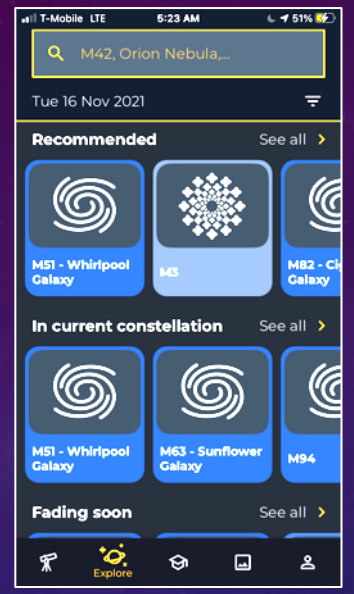
Wizard Nebula (NGC 7380)

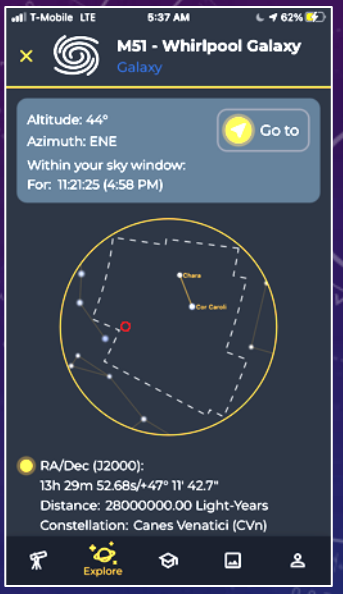
Albireo (Beta Cygni)

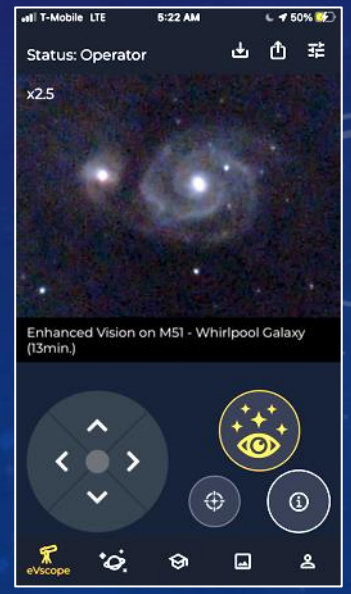
- Designed as a **digital telescope** from the ground up
- Strong focus on **ease of use**, especially for newcomers
- Cuts through **light pollution** well
- **Autonomous Field Detection**: eVscope plate solves and slews automatically, with no need for polar alignment or user training
- **Enhanced Vision** mode: continuously takes 4 second exposures, automatically plate-stacks and de-rotates each sub in real time, on the telescope: this is where “the magic happens”
- Compelling **use cases** for the eVscope:
  - **Starting** astronomy
  - **Social** astronomy
  - **Survey** astronomy

STARTING ASTRONOMY

- eVscope enables "**point and click**" astrophotography that does not require extensive prior knowledge or technical capability
- "**Instant gratification**" – detailed images of deep sky objects within minutes, without complex image post-processing

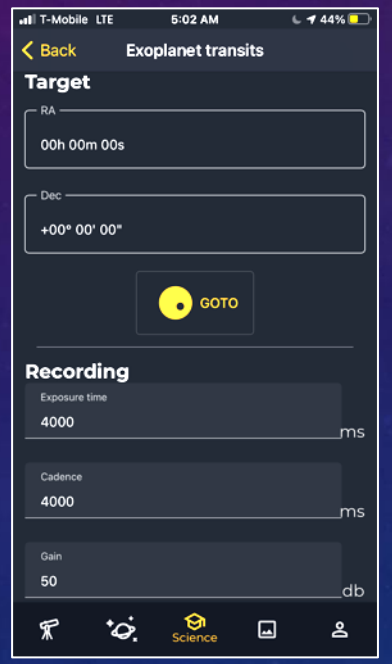


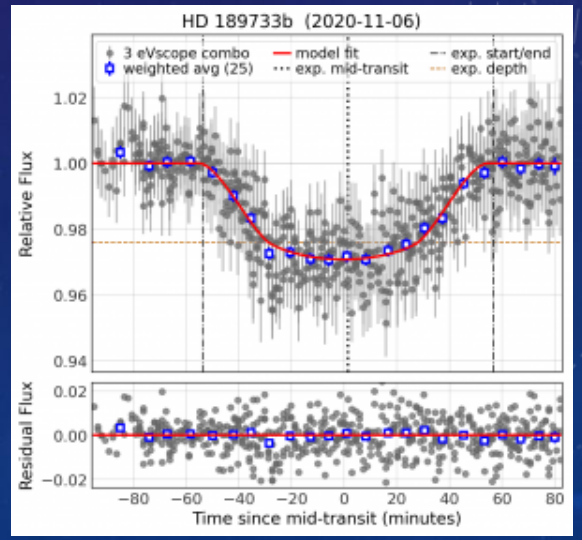




SOCIAL ASTRONOMY

- **Personally Social**
  - Up to **10 users at a time** can be connected on their mobile devices, take turns controlling the scope
  - **Share** images directly from the scope
  - **Easy** to transport, less than five minutes to set up and start stargazing
- **Globally Social**
  - **Unistellar Network**: Citizen Science program that includes coordinated observations for exoplanet transits, asteroid occultations and Near Earth Object identifications (in partnership with SETI Institute)
  - Weekly **observing challenges** and other events
  - Slack channel, US Facebook group

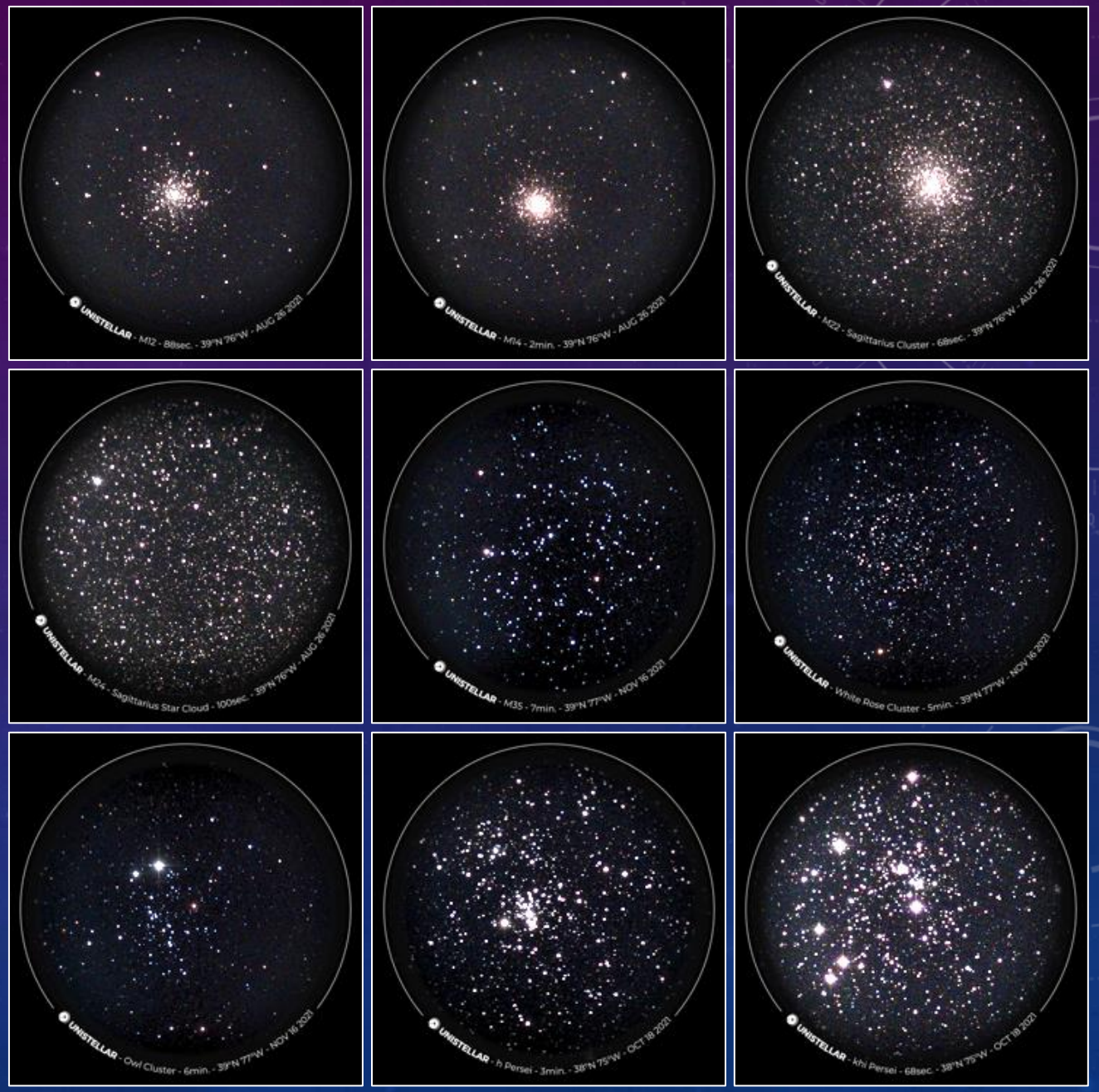




Exoplanet transit light curve from multiple eVscope observers

SURVEY ASTRONOMY

- eVscope app and telescope design make it easy to survey large numbers of objects in a short period of time
- Overlay option when saving images to incorporate metadata
- At right: Collection of stellar cluster images taken in Bortle 7/8 conditions



EVSCOPE LIMITATIONS

- Not designed for planetary imaging (though moon images are detailed)
- Generally better suited to imaging galaxies / nebulae 5 arc-minutes or greater in size; there are exceptions, e.g. the Ring Nebula (right)
- Fixed imaging train (but can incorporate a filter)
- App is stable and intuitive, but would benefit from a larger object database (can enter coordinates manually)

Ring Nebula (M57)

FINAL THOUGHTS

“The best telescope is the one you use”

The eVscope provides an intuitive, immersive and rewarding path to marvel in the wonders of the deep sky

Running Man Nebula (NGC 1977)

Horsehead Nebula (IC 434)

Flame Nebula (NGC 2024)

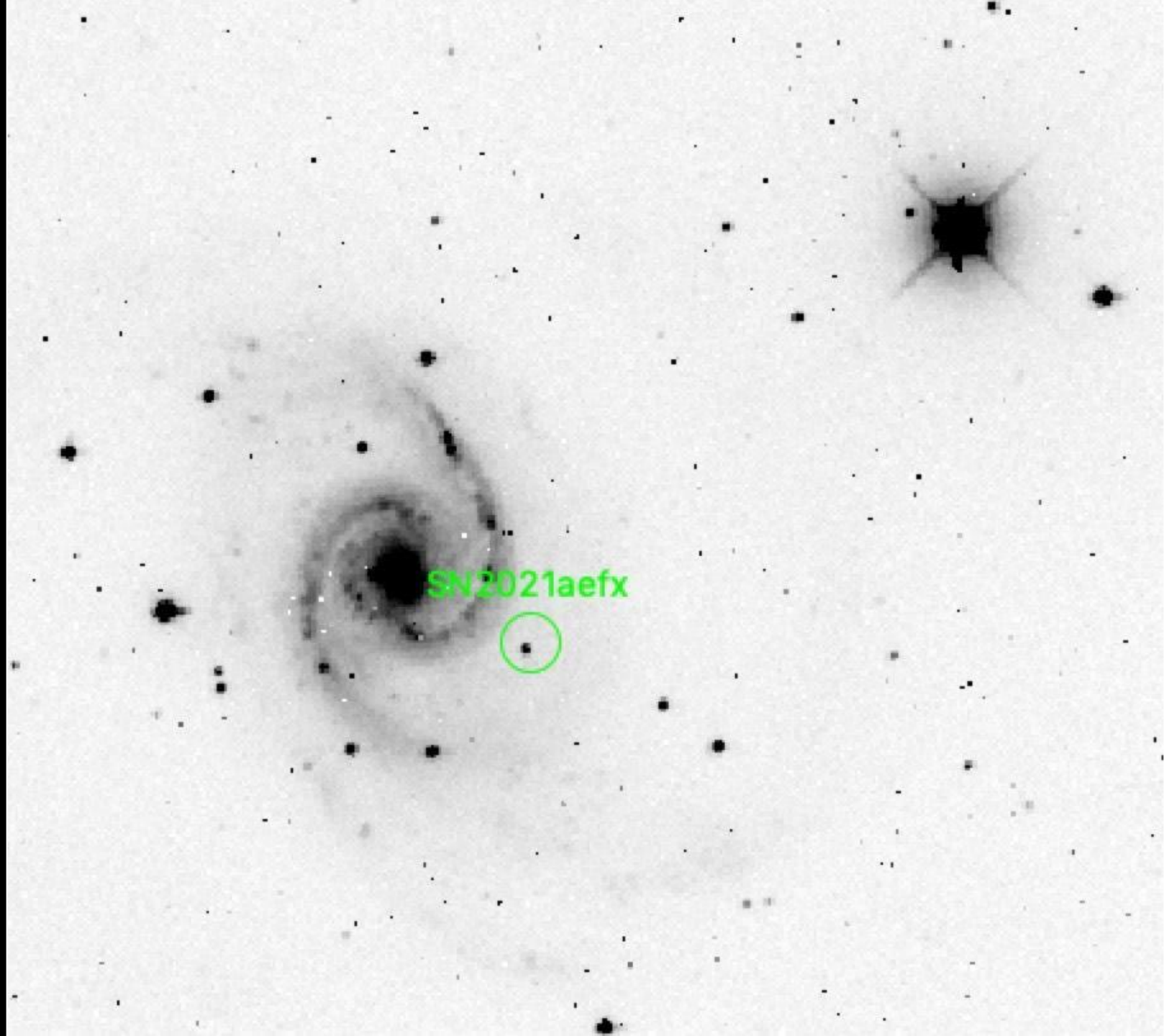
Orion Nebula (M42)

HAL Members Astro Photos And Art

Possible Hypernova

SN2021 aefx

Southern Hemisphere supernova



Chuck Cynamon


Jupiter, Io and shadow, 11-05-21, 20:59:51 EDT, 20" f3.5 Dob, w 2x Power Mate, Neximage 5, Best 600 of 1500 frames, AS!, Registax, WP., Ian Slepian
Jupiter, Io and shadow, 11-05-21, 21:07:06 EDT, 20" f3.5 Dob, 2x PM, Neximage 5, best 600 of 1500 frames, AS!, Registax, WP., Ian Slepian
Jupiter, Io and shadow, 11-05-21, 21:14:48 EDT, 20" f3.5 Dob, w 2x Power Mate, Neximage 5, best 600 of 1500 frames, AS!, Registax, WP., Ian Slepian

Ian Slepian

Tian Mengnan
Soul Nebula

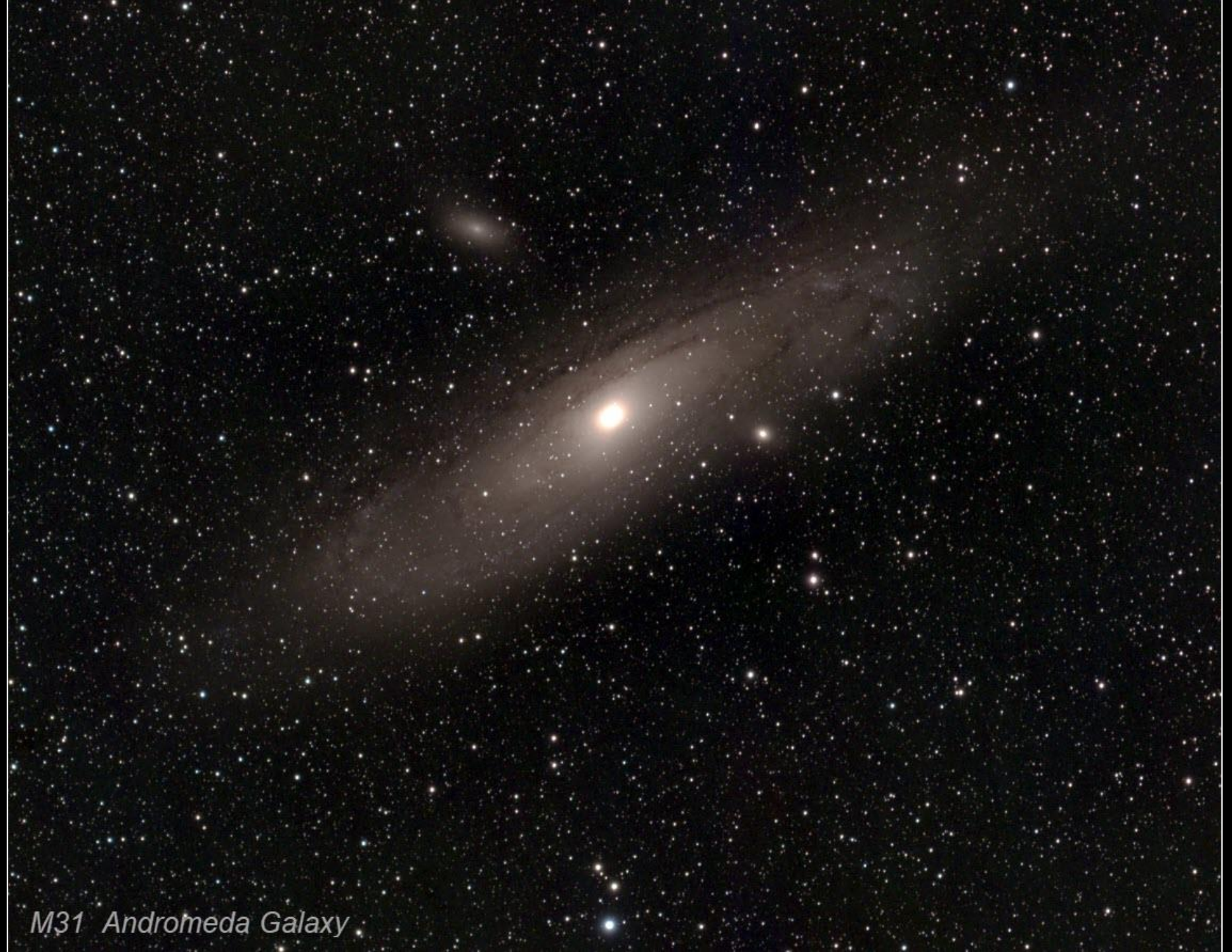
Chris and Jared Chase
NGC 1499 – California Nebula

Chris and Jared Chase
M45 - Pleiades

NGC 6960
Veil Nebula

M31
Andromeda Galaxy

IC 18486960
Soul Nebula

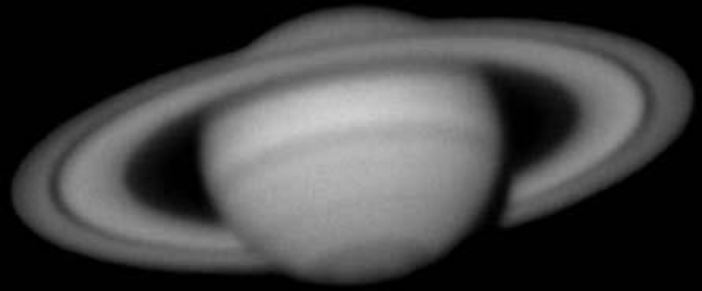


Jim Lane

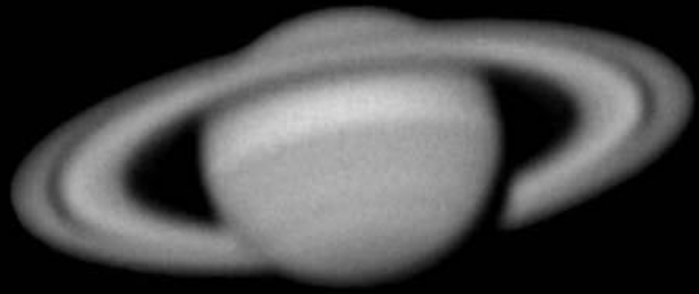
Saturn Composite Image

ZWO ASI290MM
TeleVue 2.5x PM
Meade LX850

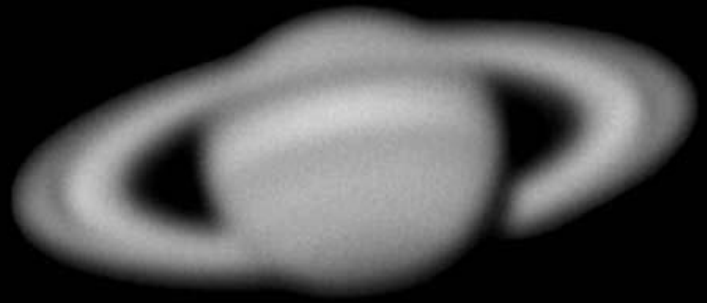
Jim Johnson
Ashton MD
2021-09-11



Red

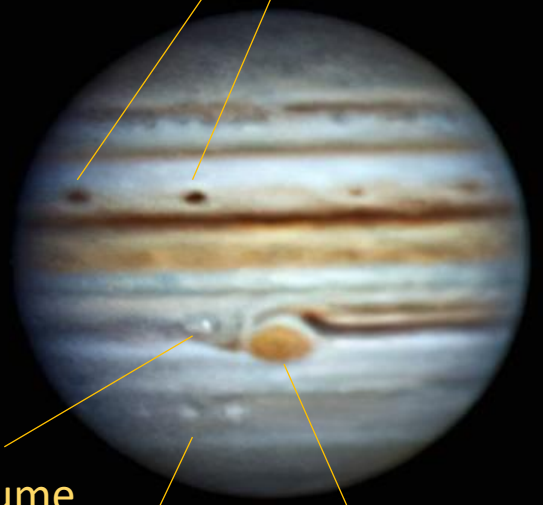


Green



Blue

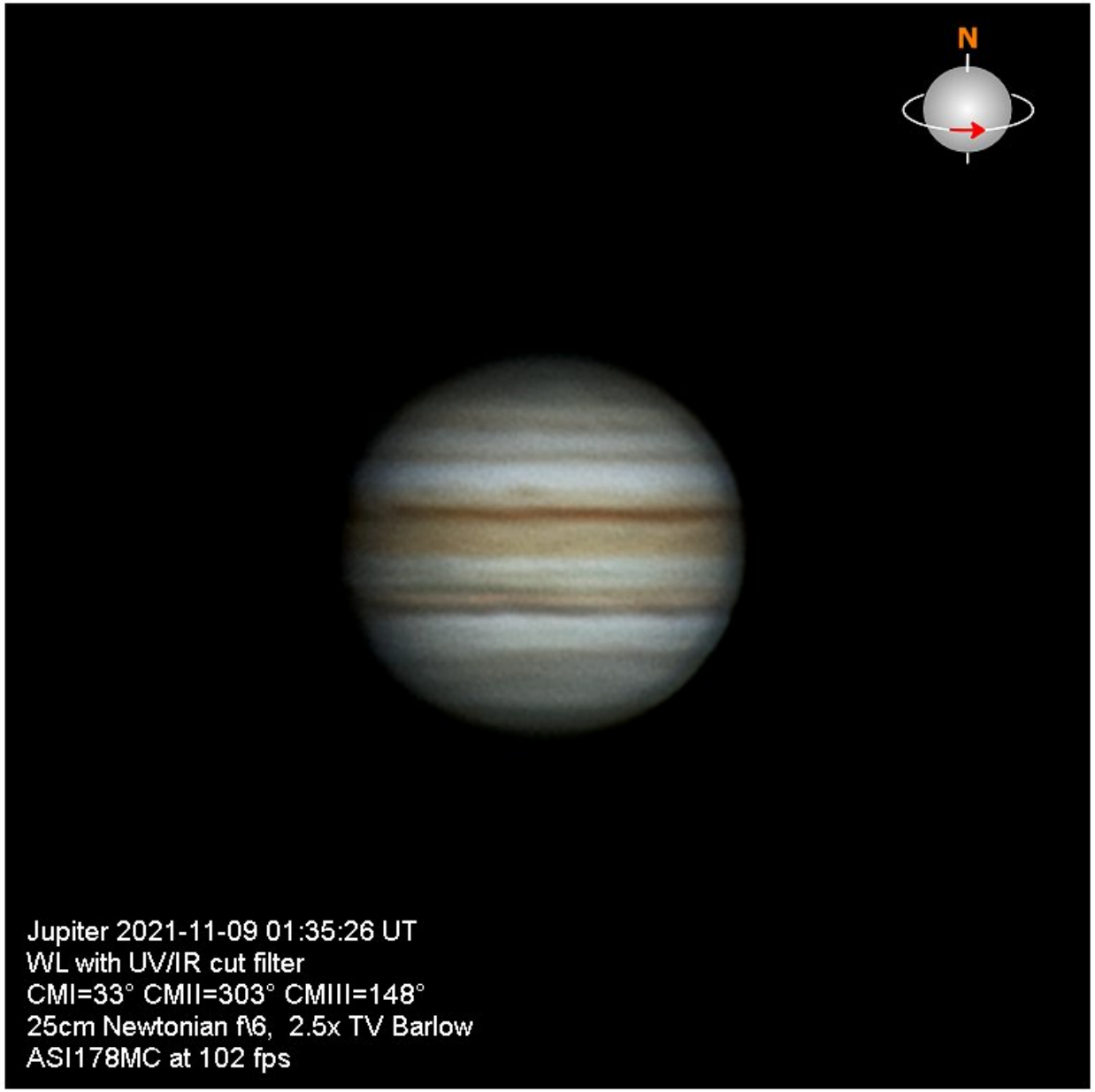
LRGB

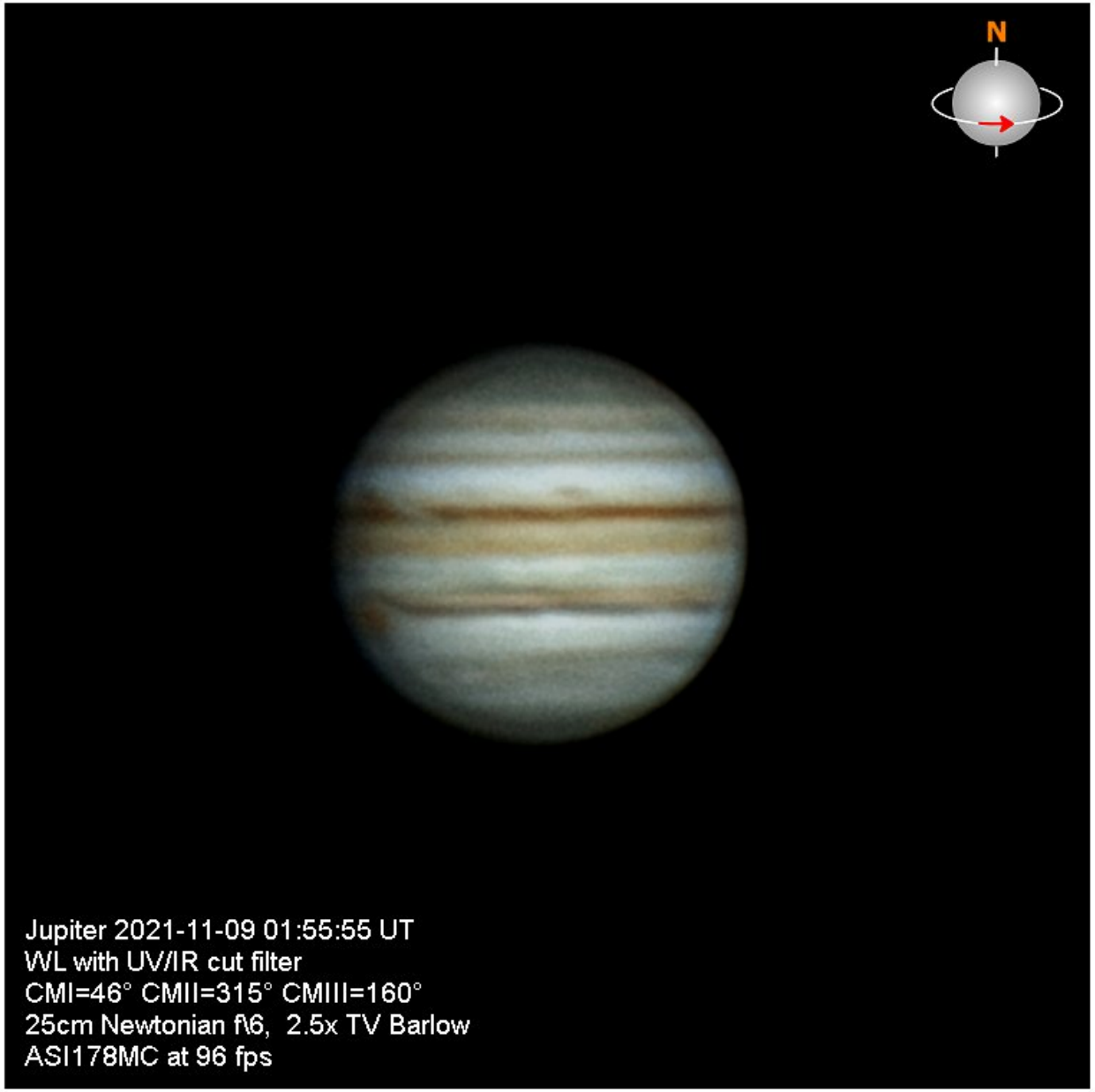


Jupiter 2021-10-02 01:52:09 UT
WL with IR cut filter
CMI=167° CMII=6° CMIII=201°
25cm Newtonian f\6, 2.5x TV Barlow
ASI178MC at 97 fps

Jim Tomney
Towson, MD USA


Northern Lights and Big Dipper
Grindavik, Iceland
October 5, 2021 11:51 GMT


N
Jupiter 2021-11-09 01:35:26 UT
WL with UV/IR cut filter
CMI=33° CMII=303° CMIII=148°
25cm Newtonian f\6, 2.5x TV Barlow
ASI178MC at 102 fps


N
Jupiter 2021-11-09 01:55:55 UT
WL with UV/IR cut filter
CMI=46° CMII=315° CMIII=160°
25cm Newtonian f\6, 2.5x TV Barlow
ASI178MC at 96 fps

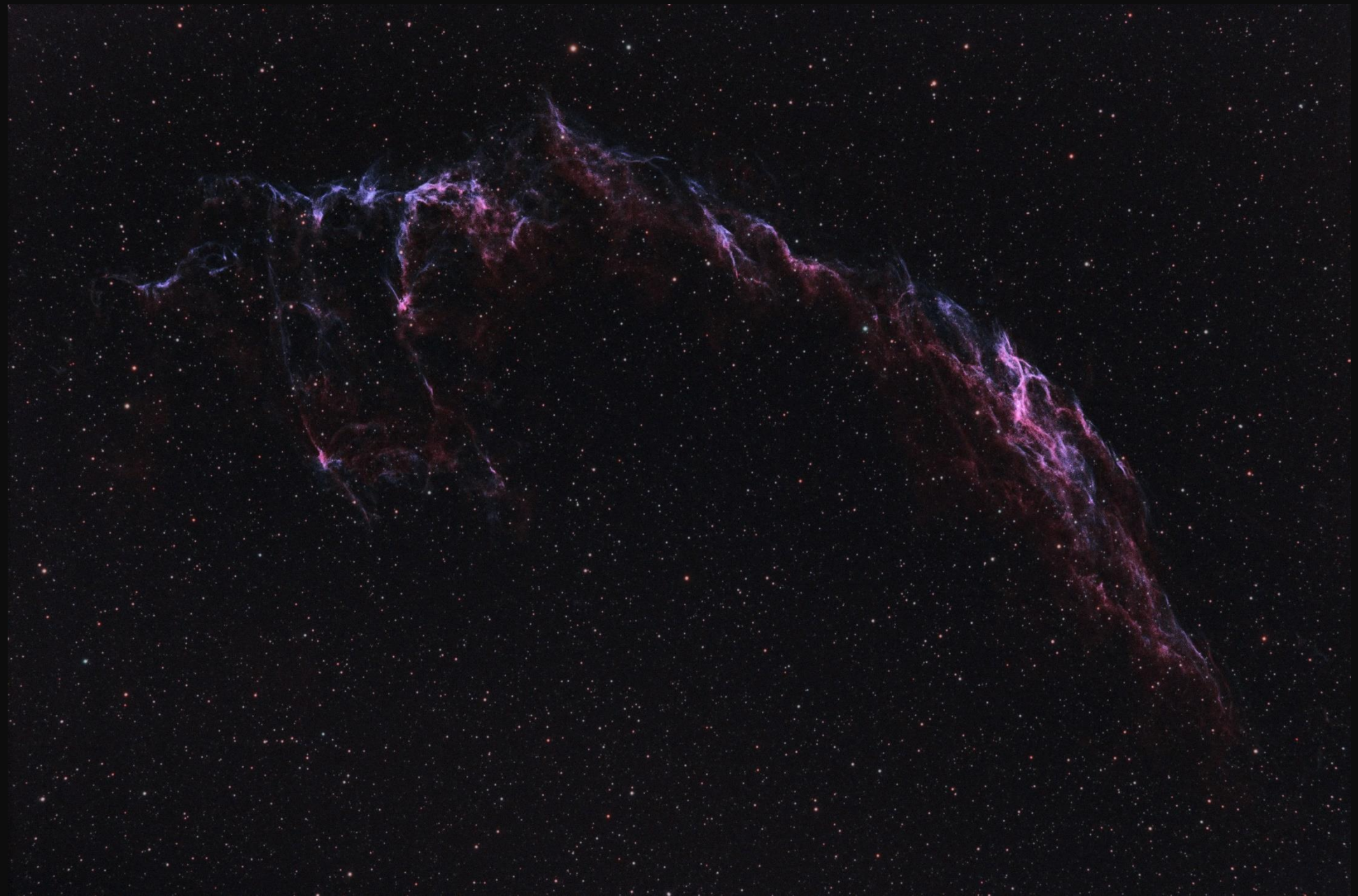
Jim Tomney


Brad Martin – M33

Brad Martin – Soul Nebula

E. Veil Nebula – Ellicott City, MD (Sept. 18, 19)

Sky-Watcher Esprit 100 - 100/550mm (f/5.5), ZWO ASI183MC-Pro, Gain-111, ZWO Duo filter, 39x360s (3 hr. 54 min.) – John Nagy



Cygnus Wall (North America Nebula) – Ellicott City, MD (Sept. 24, 26)

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Helix Nebula (NGC 7293) – Ellicott City, MD (Sept. 29) and Carrs Mill Park (Oct. 1)

Sky-Watcher Esprit 100 - 100/550mm (f/5.5), ZWO ASI183MC-Pro, Gain-111, ZWO Duo filter, 25x180s, 55x240s (4 hr. 55 min.) – John Nagy

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Dumbbell Nebula (M 27) – Ellicott City, MD (Oct. 18, 19)

Sky-Watcher Esprit 100 - 100/550mm (f/5.5), ZWO ASI183MC-Pro, Gain-111, Optolong L-Pro filter, 12x120s, 56x180s (3 hr. 12 min.) – John Nagy

Andromeda Galaxy (M 31) – Ellicott City, MD (Oct. 27)

William Optics Redcat - 51/250mm (f/4.9), ZWO ASI183MC-Pro, Gain-111, Optolong L-Pro filter, 240x60s (4 hr.) – John Nagy

Heart Nebula (IC 1805) – Ellicott City, MD (Nov. 4)

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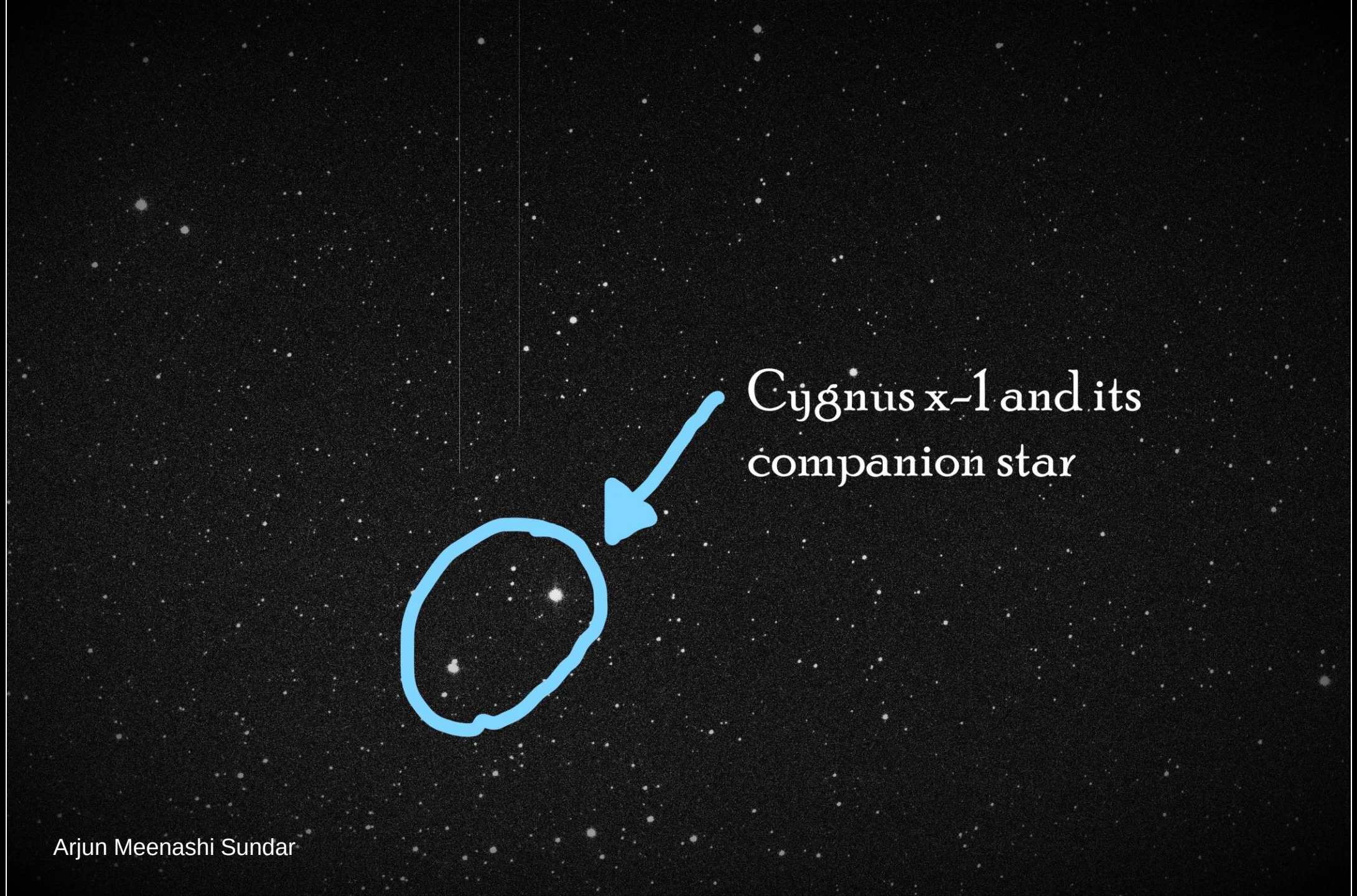
115x180s (5 hr. 45min.) – John Nagy

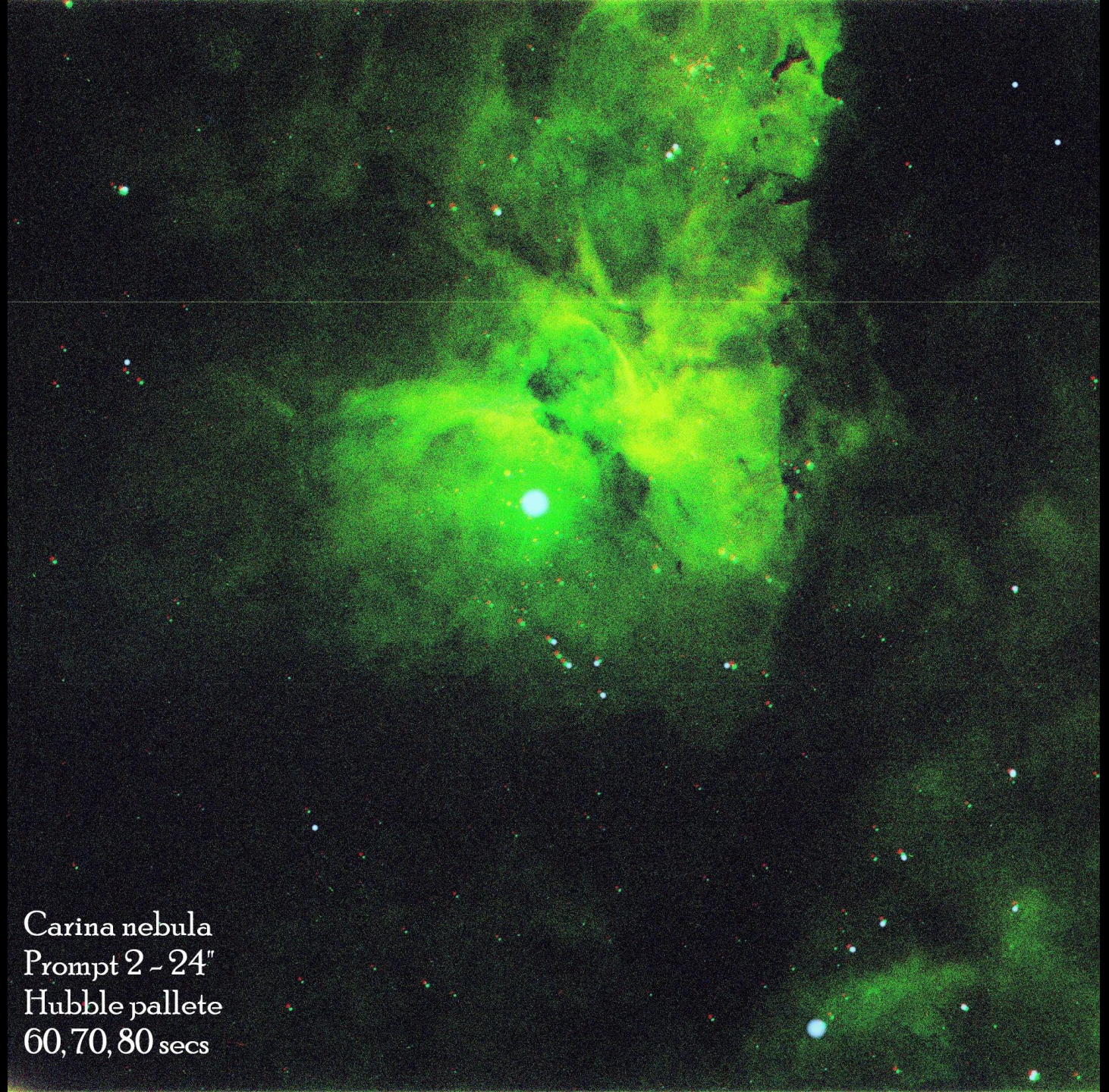


Arjun Meenashi Sundar

RRRT 24" scope
Tulip nebula ~ Sh2-101
60sec exposure
Bi-color HOO
Constellation: Cygnus

Arjun Meenashi Sundar

Arjun Meenashi Sundar



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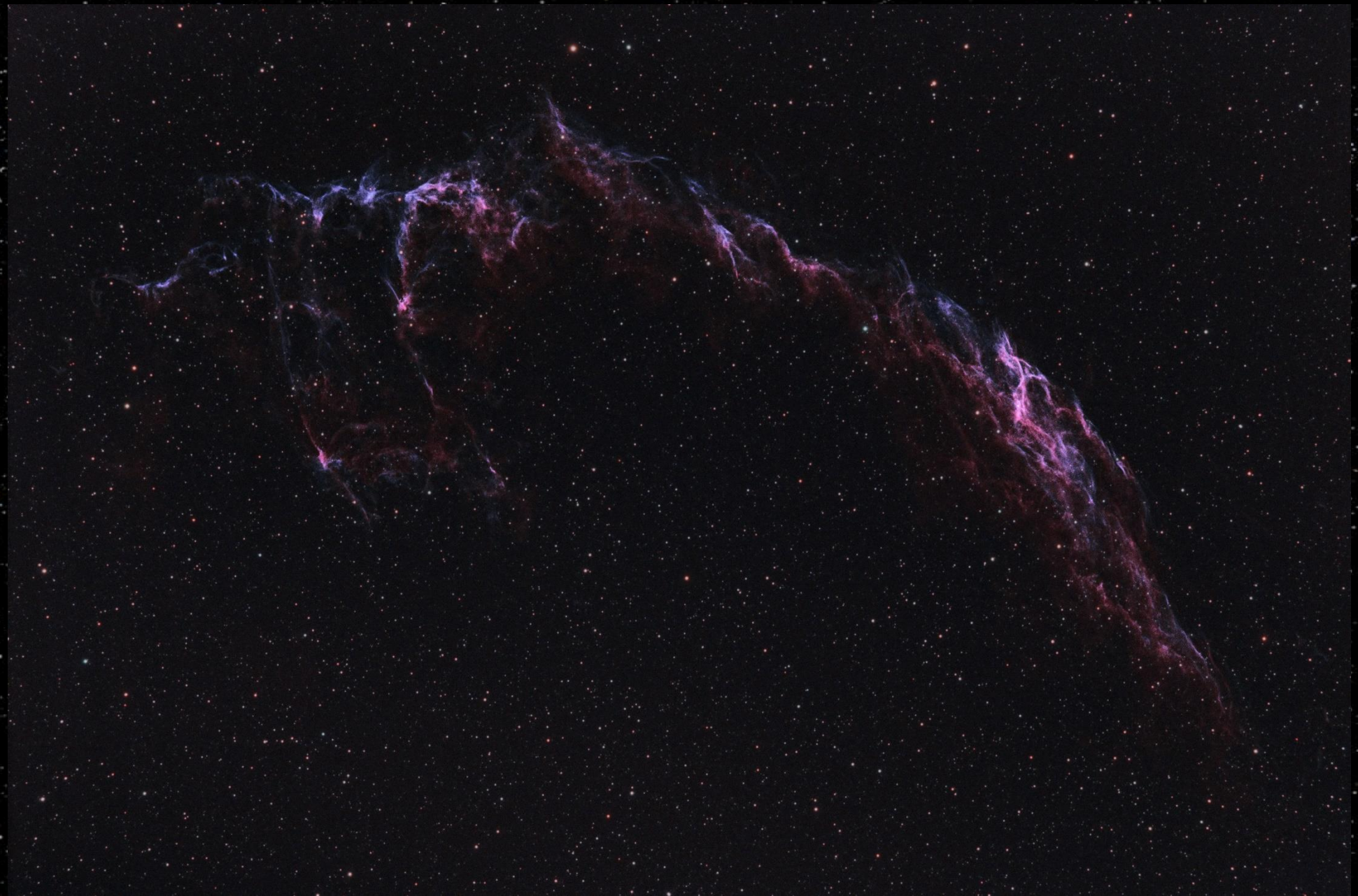

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The Moon - 2021-11-16 02:21 UTC

Jim Johnson, Ashton MD
ZWO ASI078
TeleVue NP101is
Losmandy G11

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Dominic Albanese

Thank You

CLEAR SKIES!