



EPHEMERIS

The official newsletter of the Prescott Astronomy Club (PAC)
e-phem-er-is: a time-based listing of future positions of solar system objects

JANUARY 2022

UPCOMING EVENTS



Wednesday, January 5 - Regular PAC meeting @ 6:30 PM at Prescott Public Library Founder's Suite. The meeting will also be conducted virtually on Zoom.

If you want to attend the meeting using zoom, please go to the club's website, PrescottAstronomyClub.org, and go to the Calendar for January 5, 2022 and click on the registration button. After submitting the registration page, you will receive an email with the link for the meeting.

All members are encouraged to attend the meeting as the board will present the 2022 budget. In addition, new board members Roland Albers, Art Arnold-Roksandich, Brian Blau, and EJ Van Horne will talk about one of their astronomical experiences.

Wednesday, January 12 - Arizona Astrophotography Association @ 7:00 PM. Currently there is no new topic and speaker to hold a meeting. Jeff Stillman will inform the members if that status changes.

Wednesday, January 12 - METASIG @ 5:00 PM at local restaurant. At this time, no events have been scheduled for METASIG. A coordinator for METASIG is currently needed.

IT'S TIME TO RENEW YOUR PAC MEMBERSHIP!

A new year is about to begin, and we all share high expectations for the Prescott Astronomy Club in 2022. Please help us get off to a good start by renewing your PAC membership soon. Dues have not changed - they are still \$25 for individuals and \$35 for a family - and are due by January 1st.

You can renew by going to prescottastronomyclub.org and clicking on the Join button. You then have the option of paying your dues online using Paypal or a credit card. Alternatively, you can print out a membership form and mail it with a check to the club treasurer at the listed address. If

your contact information has not changed in the last year, simply write ‘no changes’ on the membership form before mailing it to the treasurer.

PAC CHRISTMAS PARTY

Art Arnold-Roksandich, President

The Prescott Astronomy Club held its annual Christmas Party on Dec. 11, 2021 after taking a hiatus last year. There were 29 attendees for the pre-dinner social and 28 stayed for dinner. I had a good time presiding over the events. It was good to see familiar faces and socialize with people I hadn’t seen for a while. I only wish more people could have attended but understand the caution that people need to take.

Augie’s dinners were delicious and their service was excellent. Thanks to Sal Jordano and Susanne Vaughan for setting up the party. Susanne, our new treasurer, stepped up to finish the planning and coordination after Sal had to attend to a family situation. Thanks to them both for setting up this wonderful event.

Door prizes were given out: a pair of Astronomy drinking glasses, a glass light-up globe of constellations, 2 laser pointers, and 3 \$20 bills.

While we didn’t organize awards this year, we did recognize some of our contributors: John Carter for his advice, technical direction and lessons in Astrophotography, Jeff Stillman for carrying us through the year, setting up the Astrophotography meetings and providing lessons, Doug Tilley for putting together the picnic, David Viscio and John Baesemann for setting up the August star party.

The highlight of the evening was the presentation of the President’s award to Russ Chappel for his years (according to his wife, Pat, it has been 17 years) of dedication and service to the club. He has taken care of our website for the last 10 years, volunteered for many of the committees, and served as the METASIG coordinator, as well as being a good friend to many of us. Thank you, Russ.

Merry Christmas and Happy New Year! I hope to see you at the meeting at the Prescott Public Library January 5, 2022.

2022 STARRY NIGHTS SCHEDULE

For members’ planning purposes, here is the schedule for the Starry Nights public star parties.

<u>Date</u>	<u>Location</u>	<u>Sunset</u>	<u>Time</u>
Saturday, March 5	Pronghorn Park	6:30pm	7:30-9:30pm

Thursday, March 31	Highlands Center	6:50pm	7:00-9:00pm
Saturday, May 7	Pronghorn Park	7:19pm	8:15-10:15pm
Saturday, September 24	Pronghorn Park	6:25pm	7:30-9:30pm
Friday, October 28	Highlands Center	5:41pm	5:30-7:30pm
Saturday, November 19	Pronghorn Park	5:24pm	6:30-8:30pm

HUNTING THE HUNTER: OBSERVING ORION

David Prosper

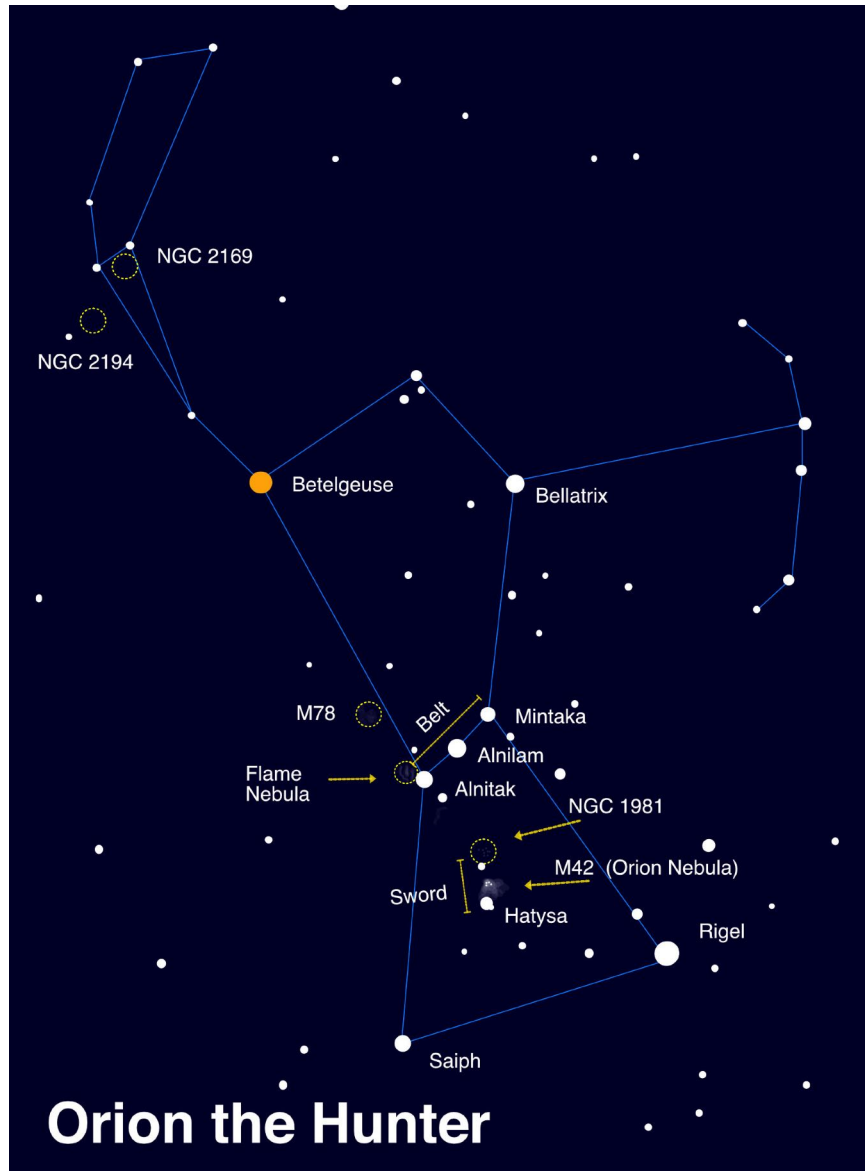
If you are outside on a clear January night, it's hard not to notice one distinctive star pattern above all: Orion! While we've covered Orion in earlier articles, we've never discussed observing the constellation as a whole. Perhaps you've received a new telescope, camera, or binoculars, and are eager to test it out. Orion, being large, prominent, and full of interesting, bright objects, is a perfect constellation to test out your new equipment and practice your observing skills - for beginners and seasoned stargazers alike.



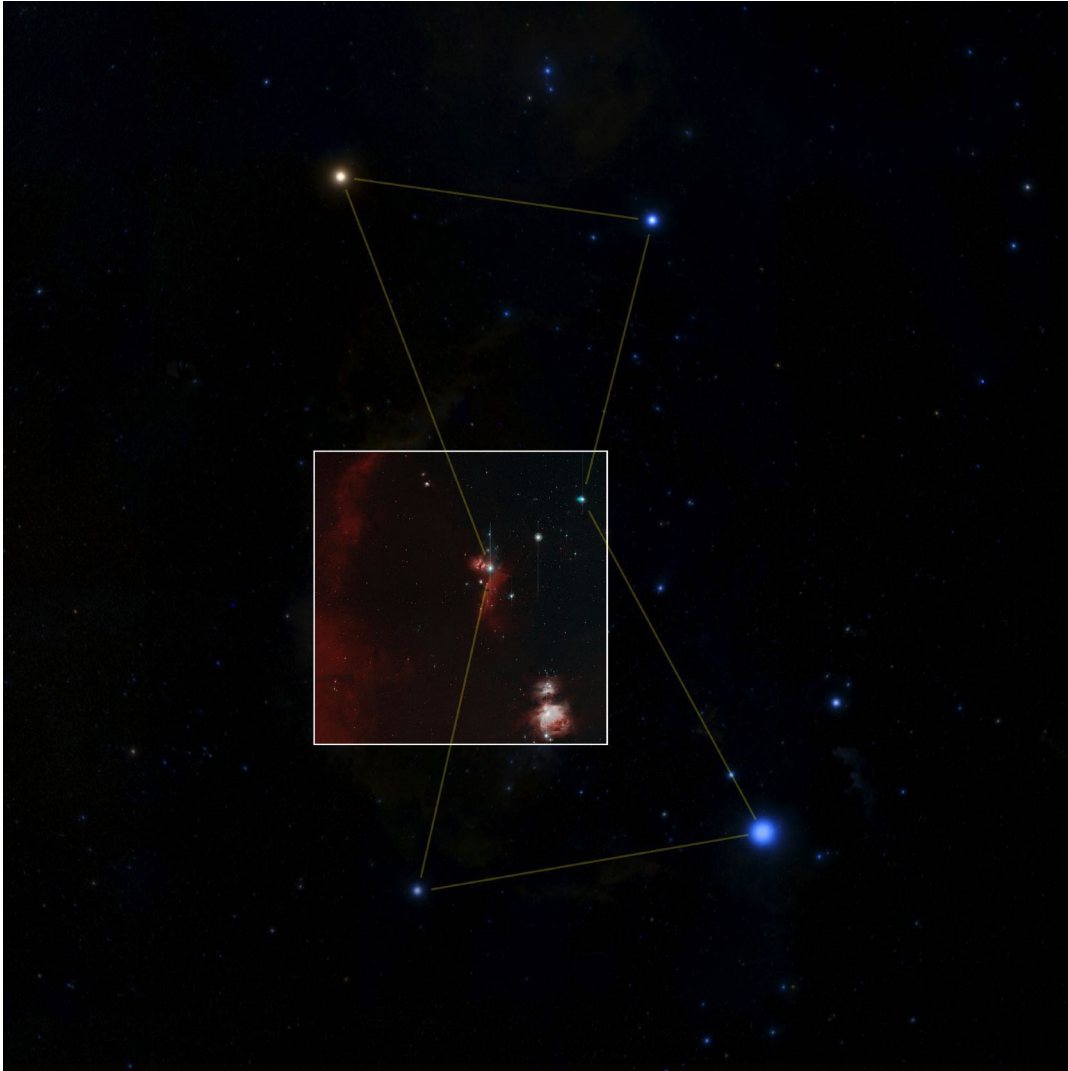
In Greek mythology, Orion is a strong hunter, with numerous legends about his adventures. Being such a striking group of stars, cultures from all around the world have many myths about this star pattern. There are so many that we can't list them all here, but you can find a wonderful interactive chart detailing many cultures' legends on the Figures in the Sky website at figuresinthesky.visualcinnamon.com.

What sights can you see in Orion? Look above the variable orange-red supergiant "shoulder star" Betelgeuse to find the stars making up Orion's "club," then move across from Betelgeuse towards the bright star Bellatrix (Orion's other "shoulder") and the stars of his bow and arrow - both essential tools for the Hunter. Many interesting sights lie near Orion's "belt" and "sword." Orion's belt is made up of three bright giant stars forming an evenly spaced line: Alnitak, Alnilam, and Mintaka. Move from the belt stars towards the stars Rigel and Saiph (Orion's "feet" or "knees") to arrive at Orion's distinctive Sword, parts of which may appear fuzzy to your unaided eyes. Binoculars reveal that fuzz to be the famed Orion Nebula (M42), perched right next to the star Hatysa! Diving in deeper with a telescope will show star clusters and more cloud detail around the Nebula, and additional magnification brings out further detail inside the nebula itself, including the "baby stars" of the Trapezium and the next-door neighbor nebula M43. Want to dive deeper? Dark skies and a telescope will help to bring out the reflection nebula M78, the Flame Nebula (NGC 2024), along with many star clusters and traces of dark nebula throughout the constellation. Very careful observers under dark clear skies may be able to spot the dark nebula known as the Horsehead, tracing an equine outline below both the Belt and the Flame Nebula. Warning: the Horsehead can be a difficult challenge for many stargazers, but very rewarding.

This is just a taste of the riches found within Orion's star fields and dust clouds; you can study Orion for a lifetime and never feel done with your observations. To be fair, that applies for the sky as a whole, but Orion has a special place for many. New telescopes often focus on one of Orion's treasures for their first test images. You can discover more of NASA's research into Orion's stars - as well as the rest of the cosmos - online at nasa.gov.



*Northern Hemisphere observers can find Orion during January evenings in the east/southeast skies. Can you spot the Orion nebula with your naked eye, in Orion's sword? How does it look via binoculars or a telescope? What other details can you discern? Please note that some deep sky objects aren't listed here for clarity's sake. For example, M43, a nebula located directly above M42 and separated by a dark dust lane, is not shown. Orion's Belt and Sword are crowded, since they star-forming regions! You can read more in our November 2019 article *Orion: Window Into a Stellar Nursery*, at bit.ly/orionlight . Image created with assistance from Stellarium.*



The inset image is the “first light” photo from the Zwicky Transient Facility, a large survey telescope designed to detect changes in the entire night sky by detecting “transient objects” like comets, supernovae, gamma ray bursts, and asteroids. For many astronomers, amateur and pro alike, Orion is often the “first light” constellation of choice for new equipment! Image Credit: Caltech Optical Observatories

NEW MEMBER LOOKING FOR OBSERVING PARTNERS

Fred Oswald (new PAC member) is looking for companions for informal observing at local dark-sky sites, such as Contreras Rd. near Iron Springs or Woodchute/Mingus Mtn. It is safer to go to these isolated spots with a group. If interested, contact Fred at fredoswald@gmail.com or phone/text 928-899-9197.

WHAT'S HAPPENING IN JANUARY 2022

This calendar from In-The-Sky.org shows the objects and events visible during January 2022.

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
						1 The Moon at perigee
2 C/2021 A1 (Leonard) at perihelion New Moon The Moon at perihelion M41 is well placed	3 Quadrantid meteor shower 2022 Conjunction of the Moon and Mercury The Earth at perihelion	4 Conjunction of the Moon and Saturn	5 Conjunction of the Moon and Jupiter Close approach of the Moon and Jupiter	6	7 Mercury at greatest elongation east	8 Venus at inferior solar conjunction
9 Mercury at dichotomy Moon at First Quarter	10 C/2019 L3 (ATLAS) at perihelion Mercury at highest altitude in evening sky	11	12 104P/Kowal at perihelion	13 Asteroid 7 Iris at opposition	14 The Moon at apogee	15 Mercury at perihelion M47 is well placed NGC 2403 is well placed
16 134340 Pluto at solar conjunction	17 Full Moon NGC 2451 is well placed	18 104P/Kowal reaches its brightest The Moon at aphelion Uranus ends retrograde motion	19 γ-Ursae Minorid meteor shower 2022	20 19P/Borrelly reaches its brightest NGC 2516 is well placed	21	22 Venus at perihelion
23 Mercury at inferior solar conjunction NGC 2547 is well placed	24	25 Moon at Last Quarter	26 Close approach of Mars and NGC 6530	27	28	29 Close approach of the Moon and Mars Conjunction of the Moon and Mars
30 The Moon at perigee Conjunction of the Moon and Mercury	31 The Moon at perihelion M44 is well placed IC2391 is well placed IC2395 is well placed New Moon					

For additional information and details, see: <https://in-the-sky.org/newscal.php> and www.telescopius.com . Observing lists of monthly ‘Binocular’ and ‘Telescope’ Showpieces can be found on the club website.

ALCON 2022

The 2022 Astronomical League Convention (ALCON 2022) will be held in Albuquerque, New Mexico on 28 to 30, July 2022. If you would like to attend the convention, please contact Jim Fordice at President@taas.org. If you have a question about ALCON 2022, send an email to 2022alcon_info@taas.org. Additional information can be found in newsletter appendix.

CALL FOR ASTRO-IMAGES

David Viscio, editor

I request all astrophotographer members of the club submit examples of their astro-images to share with club members by inclusion in the Ephemeris. Images can be sent to me at pkmist@gmail.com. Please include description of equipment, cameras, image capture parameters and processing.

NEED TO KNOW - ASK A MEMBER

A new 15-minute segment is being added to the regular general meetings where members can have their ‘burning’ questions answered by other knowledgeable members. If you have an astronomy related question you would like explained, submit the question to John Carter (jrcpvaz@icloudcom). You can also bring up the question at the meeting.

FOR SALE

Please visit the Classified Ads section of the club website to view the items posted there for sale:

<http://prescottastronomyclub.org/classified-ads/>

New items are added now and then, so don’t miss out on something that you would like to get for yourself...or a friend.



PAC MENTORS

If you need advice on the purchase of astronomy equipment, setting up equipment, astrophotography, etc., contact a PAC mentor.



Jeff Stillman - Astrophotography - (928) 379-7088

David Viscio - General - (928) 775-2918

Greg Lutes - Visual Observing - (928) 445-4430

Joel Cohen - Beginner's Astronomy: Selecting & Using a Telescope - (856) 889-6496

John Carter - Video Observing - (928) 458-0570

OBSERVING LISTS

Observing lists are available in PDF format on the PAC website to provide guidance and goals for visual and astrophotography programs.



Astroleague Lunar 100

Binocular Showpieces

Bright Nebulae

Caldwell

Dunlop 100

Face-On Spiral Galaxies

Globular Clusters

Herschel 400

Herschel II

Hidden Treasures

Messier

Open Clusters

Planet Maps

Planetary Nebulae

Royal Astronomical Society of Canada Finest NGC

Saguaro Astronomy Club Best NGC

S&T Lunar 100

Telescope Showpieces

The Secret Deep

PAC WEBSITE & YAHOO GROUPS

Website: <http://www.prescottastronomyclub.org>

E-mail: pacinfo@prescottastronomyclub.org

Arizona Astrophotography Association:

<https://www.facebook.com/groups/azastro>



BOARD OF DIRECTORS

President: Art Arnold-Roksandich

Vice President: Brian Blau

Secretary: Roland Albers

Treasurer: Susanne Vaughan

At Large: EJ Van Horne

At Large: Dave Covey

At Large: Ken Olson

At Large: Pat Bledsoe



PAC COORDINATORS

Astronomical League Coordinator: John Carter

Facebook: Open

Membership: Susanne Vaughan

METASIG: Open

Newsletter: David Viscio

Night Sky Network: Open

PAC Affiliate Partner w/ NAU Space Grant Program – Cory Shaw

PAC Store Sales - Open

Property Records: Open

Public Relations: Open

Refreshments: Open

Schools & Camps Outreach: Joel Cohen

Starry Nights Coordinator: David Viscio

Third Thursday Coordinator: Dave Covey

Webmaster: EJ Van Horne



THE PLEIADES, M45: NOVEMBER 26, 2021

Image Credit: David B. Viscio



*Stellarvue SV80 80mm f/6 triplet refractor with 0.8x reducer/field flattener
Canon EOS 60Da at ISO 3200, 1-minute exposures
60 light-frames, 60 dark-frames, 60 flat-frames, 60 dark flat-frames stacked in Deep Sky Stacker
Stacked raw image processed and optimized in Adobe Photoshop CS6*



ALCON 2022

July 28 – 30

EMBASSY SUITES HOTEL

1000 Woodward Pl. NE

Albuquerque, New Mexico 87102

<https://alcon2022.astroleague.org/>

(Website available by January 14, 2022)



Hosted by:

The Albuquerque Astronomical Society

www.TAAS.org