



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

March 2022

UPCOMING EVENTS



Wednesday, March 2 - Regular PAC meeting @ 6:30 PM at Prescott Public Library Founder's Suite hosted by Art Arnold-Roksandich. This will be a hybrid meeting with both in-person and Zoom.

Registration is not necessary. The URL link for Zoom is on the new website and included in the email reminder sent to the membership.

Dr. Rogier Windhorst, Arizona State University and Interdisciplinary Scientist for the James Webb Space Telescope (JWST), will describe JWST's mission and its current status. Since 2002, Dr. Windhorst has been Interdisciplinary Scientist for JWST, with which he plans to make detailed a study of the epoch of First Light, when the universe was much less than one billion years old. He hopes to observe the First Stars directly during the first 500 Myr via so-called "cluster caustic transits", where gravitational lensing from foreground galaxy clusters can temporarily produce extreme magnifications of these individual early stars that happen to be in exactly the right location behind the cluster. His JWST GTO team also plans to monitor the best survey field at the North Ecliptic Pole (NEP) to find the earliest supernovae with JWST in the first billion years, faint variable brown dwarf stars in our Galaxy, faint variable Active Galactic Nuclei, and to study the host galaxies of the first quasars seen less than one billion years after the Big Bang.

Saturday, March 5 - Starry Nights Public Star Party @ 7:30 PM at Pronghorn Park, Prescott Valley. Volunteers are needed to bring telescopes for public viewing. Please notify Brian Blau, legba42@gmail.com, if you intend to participate.

Thursday, March 31 - Starry Nights Public Star Party @ 7:00 PM at the Highlands Center for Natural History, Prescott. 100+ people have pre-registered to attend this event. Volunteers are needed to bring telescopes for public viewing. Please notify Brian Blau, legba42@gmail.com, if you intend to participate.

EDITOR FOR PAC NEWSLETTER (EPHEMERIS) NEEDED

David Viscio, Editor

It has been a pleasure serving PAC as newsletter editor. But after almost 13 years as the editor, I have decided it is time to pass this responsibility on to someone else. Soon after I joined the club in September 2009, I volunteered to be editor as a way to contribute to the club's mission. I encourage a newer, younger member to take on this task as a means to contribute to the club. Preparing the newsletter takes only a few hours at the end of each month in the comfort of your own home. I will gladly sit with the new editor and show them all my information sources and 'tricks' for preparing the newsletter. If you are interested in volunteering, contact the president, Art Arnold-Roksandich (p@prescottastronomyclub.org) and me (pkmist@gmail.com). Thank you

METASIG COORDINATOR NEEDED

Art Arnold-Roksandich, PAC President

METASIG has been an important social part of the Prescott Astronomy Club for many years. It stands for "Meet, Eat, and Talk Astronomy Special Interest Group" and is open to anybody. It is a chance for club members to meet socially and get to know each other. Unfortunately, we had to suspend it during Covid. Several members are requesting us to start up METASIG again, and the board feels that it is time. We need someone to help coordinate with local restaurants hosting the METASIG meeting once a month as well as obtain counts of participants. Usually, 20-30 people attend. If you are interested or like more information please contact me, the president at p@prescottastronomyclub.org or any officer/director of the club.

NEW WEBSITE

E. J. Horne, Webmaster

You've probably noticed that the club website is undergoing changes. After many years of service, Russ Chappell has retired as webmaster and E. J. Van Horne is taking over. The owner of the theme used to format the old website, who has generously allowed us to use the theme free of charge for many years, has asked us to replace his theme with something else, which has been done, but with limited content. E. J. will be working to migrate additional features of the old website to the new theme. You may contact him at webmaster@prescottastronomyclub.org with questions or concerns.

Thanks to Russ for his dedication to the club and to contributing to its success by supporting the website!

EMBRACING THE EQUINOX

David Prosper

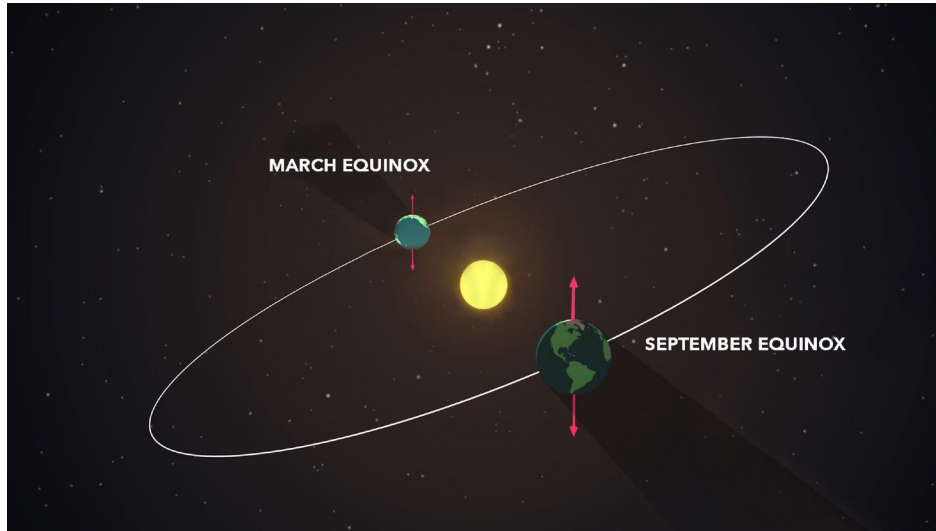
Depending on your locale, equinoxes can be seen as harbingers of longer nights and gloomy weather, or promising beacons of nicer temperatures and more sunlight. Observing and predicting equinoxes is one of the earliest skills in humanity's astronomical toolkit. Many ancient observatories around the world observed equinoxes along with the more pronounced solstices. These days, you don't need your own observatory to know when an equinox occurs, since you'll see it marked on your calendar twice a year! The word "equinox" originates from Latin, and translates to equal (equi-) night (-nox). But what exactly *is* an equinox?



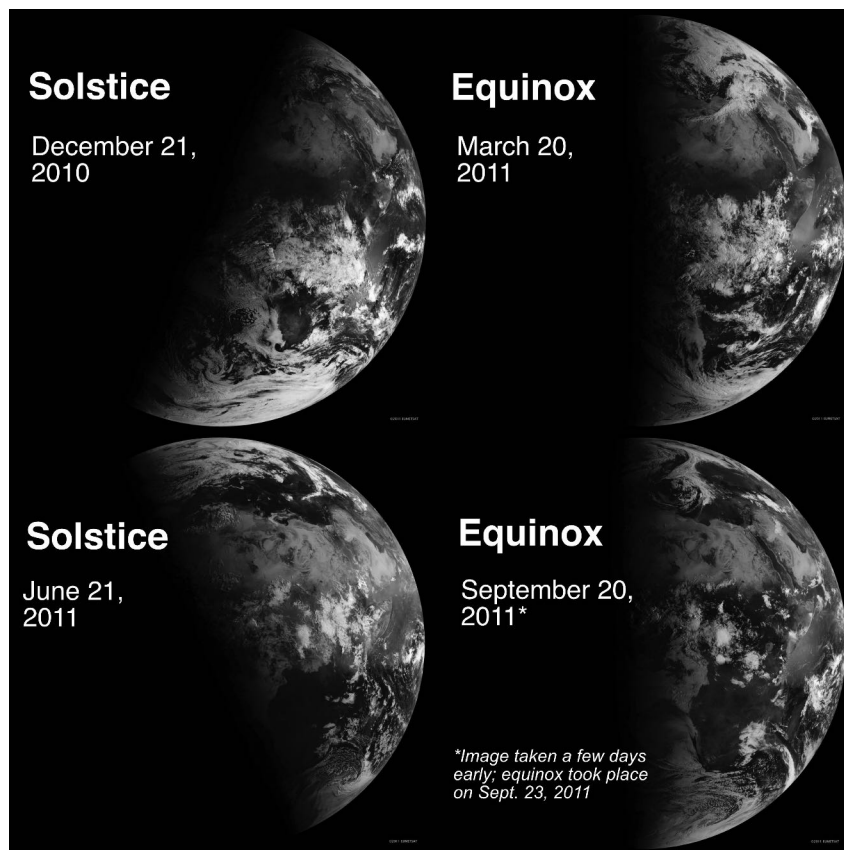
An equinox occurs twice every year, in March and September. In 2022, the equinoxes will occur on March 20, at exactly 15:33 UTC (*or 11:33 am EDT*), and again on September 23, at 01:04 UTC (*or September 22 at 9:04 pm EDT*). The equinox marks the exact moment when the center of the Sun crosses the plane of our planet's equator. The day of an equinox, observers at the equator will see the Sun directly overhead at noon. After the March equinox, observers anywhere on Earth will see the Sun's path in the sky continue its movement further north every day until the June solstice, after which it begins traveling south. The Sun crosses the equatorial plane again during the September equinox, and continues traveling south until the December solstice, when it heads back north once again. This movement is why some refer to the March equinox as the northward equinox, and the September equinox as the southward equinox.

Our Sun shines equally on both the Northern and Southern Hemispheres during equinoxes, which is why they are the only times of the year when the Earth's North and South Poles are simultaneously lit by sunlight. Notably, the length of day and night on the equinox aren't precisely equal; the date for that split depends on your latitude, and may occur a few days earlier or later than the equinox itself. The complicating factors? Our Sun and atmosphere! The Sun itself is a sphere and not a point light source, so its edge is refracted by our atmosphere as it rises and sets, which adds several minutes of light to every day. The Sun doesn't neatly wink on and off at sunrise and sunset like a light bulb, and so there isn't a *perfect* split of day and night on the equinox - but it's very close.

Equinoxes are associated with the changing seasons. In March, Northern Hemisphere observers welcome the longer, warmer days heralded by their vernal, or spring, equinox, but Southern Hemisphere observers note the shorter days – and longer, cooler nights - signaled by their autumnal, or fall, equinox. Come September, the reverse is true. Discover the reasons for the seasons, and much more, with NASA at [nasa.gov](https://www.nasa.gov)



This (not to scale) image shows how our planet receives equal amounts of sunlight during equinoxes. Credit: NASA/GSFC/Genna Duberstein



Scenes of Earth from orbit from season to season, as viewed by EUMETSAT. Notice how the terminator - the line between day and night - touches both the North and South Poles in the equinox images. See how the shadow is lopsided for each solstice, too: sunlight pours over the Northern Hemisphere for the June solstice, while the sunlight dramatically favors the Southern Hemisphere for the December solstice. Source: bit.ly/earthequinox Images: NASA/Robert Simmon

WHAT'S HAPPENING IN MARCH 2022

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

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		1	2 Conjunction of Mercury and Saturn Close approach of Mercury and Saturn New Moon	3 9P/Tempel at perihelion IC2602 is well placed Conjunction of Mars and Pluto	4	5 Conjunction of Venus and Pluto Jupiter at solar conjunction
6 Close approach of the Moon and Uranus Lunar occultation of Uranus	7	8	9 NGC 3532 is well placed	10 Moon at First Quarter The Moon at apogee	11	12 Conjunction of Venus and Mars
13 Neptune at solar conjunction	14 γ-Normid meteor shower 2022	15 Close approach of Venus and Mars	16 22P/Kopff at perihelion	17	18 Full Moon	19
20 The Moon at aphelion March equinox Venus at greatest elongation west Venus at dichotomy	21	22	23 The Moon at perigee	24 Moon at Last Quarter	25	26
27 Conjunction of the Moon and Mars Close approach of the Moon and Mars	28 Conjunction of the Moon and Venus Conjunction of the Moon and Saturn Close approach of the Moon, Venus and Saturn Close approach of the Moon and Saturn 136472 Makemake at opposition Close approach of Venus and Saturn	29 Conjunction of Venus and Saturn The Moon at perihelion	30 Conjunction of the Moon and Jupiter	31		

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 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 Art Arnold-Roksandich p@prescottastronomyclub.org. You can also bring up the question at the meeting.

FOR SALE

Revolution Video Imaging System for sale. Details are in the Appendix.

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.



Open - Astrophotography

David Viscio - General & Astrophotography - (928) 775-2918

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

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

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



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



WITCH HEAD NEBULA (IC2118)

Image Credit: Chris Holmes





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

For Sale

Revolution Video Imager - v. R2

System includes:

Video camera, 7-inch Color Monitor, 12-volt Battery & Charger
Camera & Monitor Control Pads, Various Cables, 0.5x focal reducer
12-Volt Cigarette Plug Power Cable, UV/IR Blocking Filter
Instruction Manual, Carrying Case

Great tool for public outreach

Original price (2020): \$299

Asking price: \$150 (negotiable)

Contact: David Viscio, pkmist@gmail.com

