



# 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

## MAY 2021

### UPCOMING EVENTS



Wednesday, May 5 - Regular PAC meeting @ 6:30 PM. The meeting will be conducted virtually on Zoom hosted by Jeff Stillman. Invitations will be sent to all members. Guests can register on our webpage. To participate in the meeting, one must register by e-mail.

Wednesday, May 12 - METASIG @ 5:00 PM at local restaurant. At this time, no Zoom events will be conducted for METASIG. Anyone wishing to organize a meeting should coordinate with Russell Chappell.

Thursday, May 20 - Third Thursday Presentation @ 6:00 PM via Zoom from the Prescott Public Library. Dr. Shane Byrne, Professor of Planetary Sciences, University of Arizona, will present "*Exploring Ancient Mars from Above and Below*". Ancient Mars was quite a different place than the dry dusty place we know today. Billions of years ago, rivers meandered across the surface with familiar features like deltas. We are still piecing together the story of this ancient landscape from orbiters above and rovers down below. Working together, these spacecraft have opened a window to an ancient world that could have been much more hospitable to life.

### ANNUAL PAC PICNIC

by Jeff Stillman

PAC is considering hosting the annual picnic this year at the Watson Lake ramada on August 28th , 12p to 4pm. The expenditure for the picnic was not included in the annual budget due to the state of the COVID pandemic when the budget was approved, therefore the expense needs approval from the membership. At the next general meeting, on May 5th , we will be bringing up the proposal to host the annual picnic and voting on the expenditure. The PAC board needs your response as to whether you would attend this picnic. Please plan on attending the May general meeting to provide your response. If you can't attend the meeting but plan on attending the picnic, please respond via email to [p@prescottastronomyclub.org](mailto:p@prescottastronomyclub.org) .

## VIRGO'S GALACTIC HARVEST

David Prosper

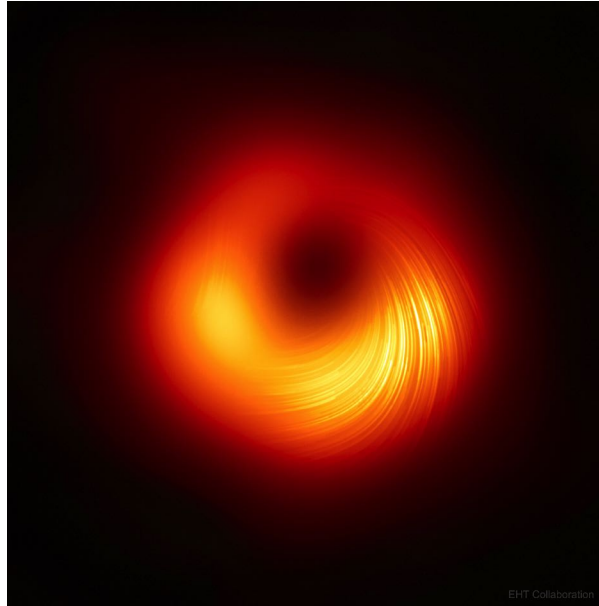
May is a good month for fans of galaxies, since the constellation Virgo is up after sunset and for most of the night, following Leo across the night sky. Featured in some ancient societies as a goddess of agriculture and fertility, Virgo offers a bounty of galaxies as its celestial harvest for curious stargazers and professional astronomers alike.



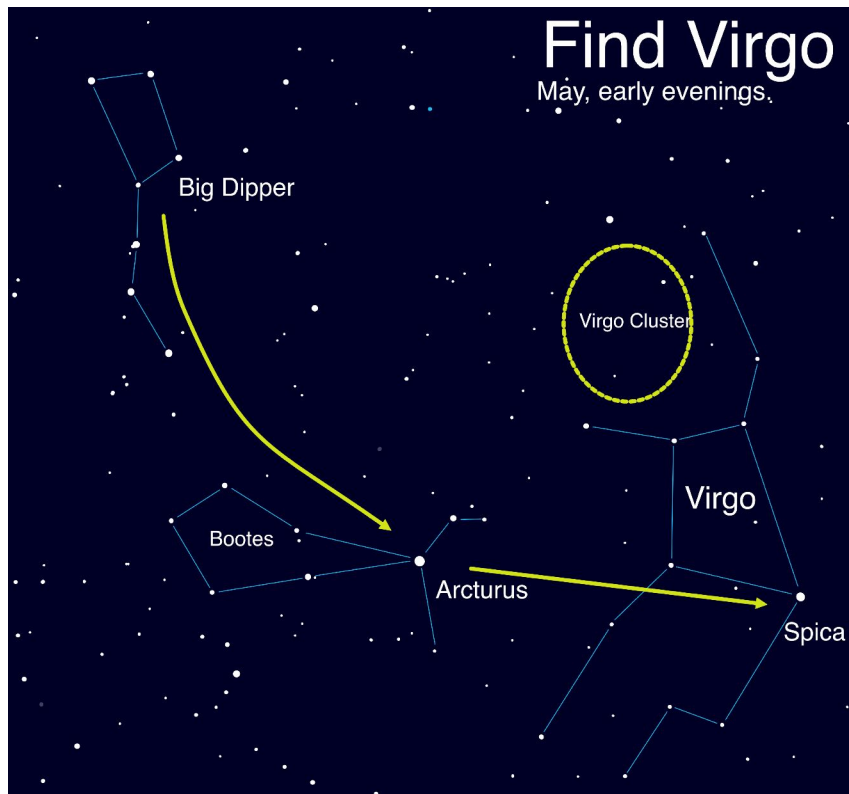
Virgo is the second-largest constellation and largest in the Zodiac, and easily spotted once you know how to spot Spica, its brightest star. How can you find it? Look to the North and start with the Big Dipper! Follow the general curve of the Dipper's handle away from its "ladle" and towards the bright orange-red star Arcturus, in Boötes – and from there continue straight until you meet the next bright star, Spica! This particular star-hopping trick is summed up by the famous phrase, "arc to Arcturus, and spike to Spica."

This large constellation is home to the Virgo Cluster, a massive group of galaxies. While the individual stars in Virgo are a part of our own galaxy, known as the Milky Way, the Virgo Cluster's members exist far beyond our own galaxy's borders. Teeming with around 2,000 known members, this massive group of galaxies are all gravitationally bound to each other, and are themselves members of the even larger Virgo Supercluster of galaxies, a sort of "super-group" made up of groups of galaxies. Our own Milky Way is a member of the "Local Group" of galaxies, which in turn is *also* a member of the Virgo Supercluster! In a sense, when we gaze upon the galaxies of the Virgo Cluster, we are looking at some of our most distant cosmic neighbors. At an average distance of over 65 million light years away, the light from these galaxies first started towards our planet when the dinosaurs were enjoying their last moments as Earth's dominant land animals! Dark clear skies and a telescope with a mirror of six inches or more will reveal many of the cluster's brightest and largest members, and it lends itself well to stunning astrophotos.

Virgo is naturally host to numerous studies of galaxies and cosmological research, which have revealed much about the structure of our universe and the evolution of stars and galaxies. The "Universe of Galaxies" activity can help you visualize the scale of the universe, starting with our home in the Milky Way Galaxy before heading out to the Local Group, Virgo Cluster and well beyond! You can find it at [bit.ly/universeofgalaxies](http://bit.ly/universeofgalaxies).



*The first image of a black hole's event horizon was taken in the center of one of the most prominent galaxies in Virgo, M87! This follow up image, created by further study of the EHT data, reveals polarization in the radiation around the black hole. Mapping the polarization unveils new insights into how matter flows around and into the black hole - and even hints at how some matter escapes! More details: [apod.nasa.gov/apod/ap210331.html](https://apod.nasa.gov/apod/ap210331.html). Credit: Event Horizon Telescope Collaboration*



*Find Virgo by “arcng to Arcturus, then spiking on to Spica.” Please note that in this illustration, the location of the Virgo Cluster is approximate - the borders are not exact.*

## WHAT'S HAPPENING IN MAY 2021

This calendar from In-The-Sky.org shows the objects and events visible during May 2021.

| Sunday  | Monday   | Tuesday  | Wednesday                               | Thursday                                  | Friday  | Saturday  |
|---|--|--|---|---|---|---|
|   |  |  |   |   |   | 1   |
| 2   | 3<br>Conjunction of the Moon and Saturn<br>Close approach of the Moon and Saturn<br>Moon at Last Quarter | 4<br>Conjunction of the Moon and Jupiter<br>Close approach of the Moon and Jupiter | 5                                       | 6<br>η-Aquariid meteor shower 2021        | 7   | 8<br>η-Lyrid meteor shower 2021   |
| 9<br>The Moon at perihelion   | 10   | 11<br>New Moon<br>The Moon at apogee<br>M5 is well placed<br>Mercury at dichotomy  | 12<br>Conjunction of the Moon and Venus | 13<br>Conjunction of the Moon and Mercury | 14  | 15<br>Conjunction of the Moon and Mars<br>Close approach of the Moon and Mars |
| 16  | 17<br>Mercury at highest altitude in evening sky<br>Mercury at greatest elongation east                  | 18   | 19<br>Moon at First Quarter             | 20  | 21  | 22  |
| 23<br>Saturn enters retrograde motion   | 24   | 25<br>The Moon at perigee  | 26<br>Full Moon<br>Total lunar eclipse  | 27<br>The Moon at aphelion                | 28<br>M4 is well placed<br>Conjunction of Venus and Mercury | 29  |
| 30<br>Conjunction of the Moon and Saturn<br>Close approach of the Moon and Saturn | 31   |  |   |   |   |   |

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

## **VOLUNTEERS NEEDED FOR PAC BOARD**

Volunteers are needed to fill two positions on the PAC board: Secretary and Vice President. The Secretary position is the most critical. Please consider helping the club with its mission.

## **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@icloud.com](mailto:jrcpvaz@icloud.com)). 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](mailto:pacinfo@prescottastronomyclub.org)

Astrophotography special interest group:

<https://groups.yahoo.com/neo/groups/pacastrophotography/info>



## BOARD OF DIRECTORS

President: Jeff Stillman  
Vice President: Open  
Secretary: Open  
Treasurer: Art Arnold-Roksandich

At Large: Jason Hoover  
At Large: Dave Covey  
At Large: Doug Tilley  
At Large: Pat Bledsoe



## **PAC COORDINATORS**

Astronomical League Coordinator: John Carter

Facebook: Adam England

Highland Center Coordinator: David Viscio

Membership: Art Arnold-Roksandich

METASIG: Russell Chappell

Newsletter: David Viscio

Night Sky Network: John Carter

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

PAC Store Sales - John Verderame

Property Records: Open

Public Relations: Adam England

Refreshments: Open

Schools & Camps Outreach: Don Beaman & Joel Cohen

Starry Nights Coordinator: Don Beaman & Joel Cohen

Third Thursday Coordinator: Dave Covey, Marilyn Unruh

Webmaster: Russell Chappell



## **APOD: APRIL 9, 2021: MESSIER 106**

*Image Credit: NASA, Hubble Legacy Archive, Kitt Peak National Observatory;  
Amateur Data & Processing Copyright: Robert Gendler*



*Close to the Great Bear (Ursa Major) and surrounded by the stars of the Hunting Dogs (Canes Venatici), this celestial wonder was discovered in 1781 by the metric French astronomer Pierre Mechain. Later, it was added to the catalog of his friend and colleague Charles Messier as M106. Modern deep telescopic views reveal it to be an island universe - a spiral galaxy around 30 thousand light-years across located only about 21 million light-years beyond the stars of the Milky Way. Along with a bright central core, this stunning galaxy portrait, a composite of image data from amateur and professional telescopes, highlights youthful blue star clusters and reddish stellar nurseries tracing the galaxy's spiral arms. It also shows off remarkable reddish jets of glowing hydrogen gas. In addition to small companion galaxy NGC 4248 at bottom right, background galaxies can be found scattered throughout the frame. M106, also known as NGC 4258, is a nearby example of the Seyfert class of active galaxies, seen across the spectrum from radio to X-rays. Active galaxies are powered by matter falling into a massive central black hole.*