PrimeFocus

October 2024

WHEN:

October 18, 2024
Doors open at 7:00pm
Meeting at 7:30pm
Lecture at 8:00pm

WHERE:

Unitarian Church
1893 North Vasco Rd.
Livermore, CA 94551
and via Zoom

TVS QR CODE

INSIDE THIS ISSUE:

GALAXIES: ISLAND UNIVERSES
RICHARD BELL

This month's meeting presentation will be by Richrd Bell, President of the Kalamazoo Astronomical Society (kasonline.org). The topic is "Galaxies: Island Universes" and begins with the historical perspective of nebulae and comets, the understanding of distance and then a progression of galaxy formation (pre-recorded).

Richard Bell is the longest serving president in KAS history, the Webmaster and Editor of their newsletter "Prime Focus" (Sound familiar?). KAS was formed in 1936 and has an observatory in the Kalamazoo MI area as well as a very nice remote system in SE Arizona which houses a 20-inch Planewave CDK housed in a relocated member's observatory. KAS schedules online viewing sessions if you want to see what our telescope might also be able to do sometime in the future.

Galaxies, galaxies everywhere, as far as the Hubble Space Telescope can see. This view of nearly 10,000 galaxies is the deepest visible-light image of the cosmos. Called the Hubble Ultra Deep Field, this galaxy-studded view represents a core sample of the universe that cuts across 13 billion years of cosmic history. NASA, ESA, S. Beckwith (STScI) and the HUDF Team

NEWS AND NOTES

2024 Meeting Dates

Club Meeting	Board Meeting	PrimeFocus Deadline
Oct. 18	Oct. 21	Oct. 5
Nov. 15	Nov. 18	Nov. 2
Dec. 20	Dec. 23	Dec. 7

Money Matters

As of the last Treasurer's Report on 9/23/24, our club's account balance is $46,625.85, this includes $13,104.47 in the H2O Rebuild fund.

TVS Welcomes New Members

TVS welcomes new members Ravi Jha, Charles Wasicek, Keyur Khambholja, and Praveen Thalla. Please say hello and chat with them during our meetings.

2024 TVS Club Star Party Schedule

Save the dates for the 2024 Club Star Parties.
Del Valle star parties are also public outreach events. They are jointly hosted with the EBRPD and held at the Arroyo Staging Area (Coords: 37.6196638, -121.7528899). The public is invited for the first 1.5-2 hours, while club members can stay the remainder of the night.

November 9: Club/public star party at Del Valle Arroyo Road Staging Area. Set-up at 4:00pm, Observing 5:00 until 6:30pm. Club members are welcome to stay later after the public leaves.

Tesla Vintners star parties are open to only club members and their guests. These star parties end at midnight, but participants can leave earlier, should they wish.

October 26: Tesla Vintner's Star Party, 5143 Tesla Rd., Livermore. Set-up at 6:00pm, Observing 6:15-11-30pm.

H2O Open House star parties are open to only club members and their guests. The open house ends at midnight, and all participants are encouraged to stay the duration. The drive to H2O takes about 1 hour, and the caravan leaves promptly from the corner of Mines and Tesla Rds. No gas stations are available on the route, so be prepared. Admission is $3/car-bring exact change. H2O is a primitive site with two porta-potties. Bring water, food, and warm clothing, as needed. Red flashlights are to be used so observers can preserve their night vision.

CALENDAR OF EVENTS

October 25, 26, November 1, 2, 8, 9, 15, 16, 7:30-10:30 PM

What	Free Telescope Viewing
Who	Chabot Staff
Where	Chabot Space and Science Center, 10000 Skyline Blvd. Oakland, CA 94619
Cost	Free

Join Chabot astronomers on the Observatory Deck for a free telescope viewing! Weather permitting, this is a chance to explore stars, planets and more through Chabot's historic telescopes. Chabot's three large historic telescopes offer a unique way to experience the awe and wonder of the Universe. Three observatory domes house the Center's 8-inch (Leah, 1883) and 20-inch (Rachel, 1916) refracting telescopes, along with a 36-inch reflecting telescope (Nellie, 2003).

Are the skies clear for viewing tonight? Viewing can be impacted by rain, clouds, humidity and other weather conditions. Conditions can be unique to Chabot because of its unique location in Joaquin Miller Park. Before your visit, check out the Weather Station to see the current conditions at Chabot.

For more information, see:
https://chabotspace.org/events/events-listing/

November 4, 7:30 PM

What	Seeing Beyond Sight: Astronomical Images and the Aesthetics of the Sublime
Who	California Academy of Sciences
Where	Morrison Planetarium; 55 Music Concourse Drive, San Francisco, CA 94118
Cost	Public: $15; Members and seniors: $12

Over the last several decades, astronomers have used the Hubble Space Telescope to look deep into the Universe, a practice that continues with the James Webb Space Telescope. The images from these instruments, as well as those from ground-based telescopes and space probes, have introduced us to a celestial plentitude: pictures of galaxies that glitter with millions of points of light and nebulae that reach upward as giant gaseous columns; panoramas of Martian landscapes and close-ups of its geological features; aerial views of Jupiter's swirling clouds and Saturn's many rings in brilliant hues; visual reconstructions of black holes outlined in glowing orange.

Such cosmic pictures are based on scientific data, but they must address a vexing question: How to represent what our lies beyond our sight? This talk will consider how the aesthetics of astronomical images aid in the task. In particular, it will trace a recurring engagement

with the rhetorical and visual tropes of the sublime, whether a resemblance to 19th-century landscape paintings of the American West or a reprise of the psychedelic styles of 1960s counterculture. Through the aesthetics of the sublime, astronomical images convey the awesomeness of reaching beyond our sensory limits, even as the familiarity of these tropes tame or contain the potentially terrifying aspects of transcendence

Elizabeth A. Kessler is Advanced Lecturer in American Studies at Stanford University. Her research and teaching focus on 20th- and 21st-century American visual culture. Her diverse interests include: the role of aesthetics, visual culture, and media in modern and contemporary science, especially astronomy; the interchange between technology and ways of seeing and representing; the history of photography; and the representation of fashion in different media. Her book, Picturing the Cosmos: Hubble Space Telescope Images and the Astronomical Sublime, on the aesthetics of deep space images, was published in 2012. Her work has also appeared in Aperture, Technology and Culture, The Journal of Visual Culture, and other publications. She is currently writing a book on the anticipation and astronomy, as well as a second on portraiture in Silicon Valley.

For more information, see:
https://www.calacademy.org/events/benjamin-dean-astronomy-lectures/seeing-beyond-sight-astronomical-images-and-the-aesthetics

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TVS E-Group
To Join the TVS E-Group just send an email to TVS at info@trivalleystargazers.org asking to join the group. Make sure you specify the email address you want to use to read and post to the group.

October 10, 2024, Aurora Borealis, by Swaroop Shere (Photographed from Del Valle)

October 10, 2024, Aurora Borealis, by Michael Uyttersprot (Photographed from H2O)

October 10, 2024, Aurora Borealis, by Ken Sperber (Photographed from Flagstaff, AZ)

The Wizard Nebula, by Aris Pope

For a full resolution image see https://www.astrobin.com/acr2kq/C/

North American Nebula, by John Barclay
Please note that the image is rotated 90 degrees to fill the page. For a full resolution image see https://www.astrobin.com/5yqiqa/B/

Elephant Trunk Nebula (IC 1396), by John Barclay
For a full resolution image see https://www.astrobin.com/v5rfj9/

WHATS UP

Adapted from Sky & Telescope

All times are Pacific Standard Time

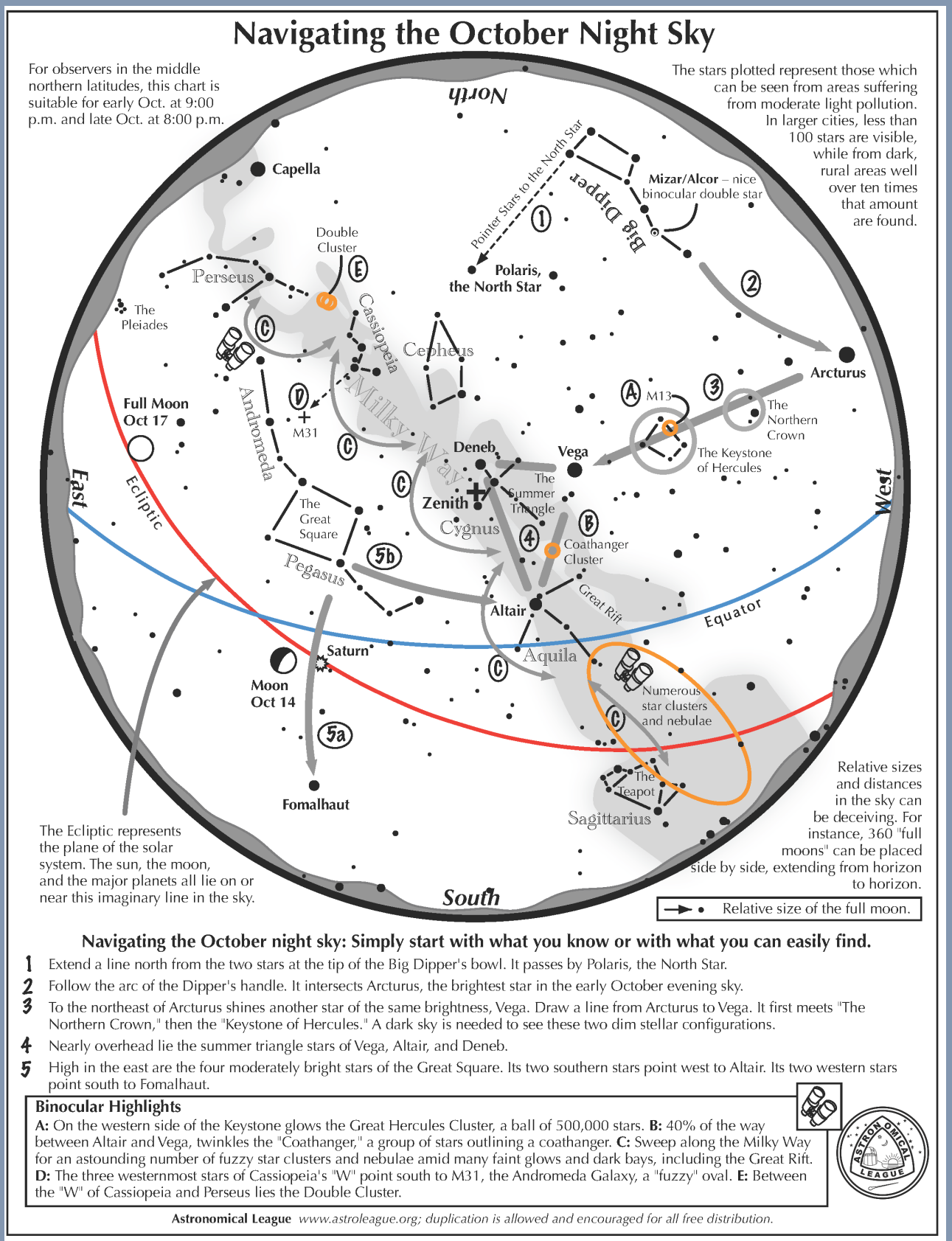
October 2024

17	**Thu**	**Full Moon**
19	Sat	Moon trails the Pleiades by 4° as they climb in the East
20	Sun	Evening Moon is about 5° upper left of Jupiter in Taurus
21-22	Mon-Tue	Orionid Meteor Shower is expected to peak
23	Wed	During the morning, Moon forms a triangle with Castor and Pollux high in the East
24	Thu	Moon is at third quarter
25	Fri	At dusk Venus is about 3° upper right of Antares
26	Sat	Moon is in Leo with Regulus about 3° to its lower right
30	Wed	Algol shines at minimum brightness from about 9:53pm to 11:53pm

November 2024

1	**Fri**	**New Moon**
2	Sat	Algol shines at minimum brightness from about 6:42pm to 8:42pm
4	Mon	At dusk looking south-southwest see the lunar crescent about 3 ½° lower left of Venus
9	Sat	Moon is at first quarter
10	Sun	Waxing Gibbous Moon and Saturn are about 30' apart
15	**Fri**	**Full Moon**

NAVIGATING THE NIGHT SKY FOR OCTOBER



Navigating the October night sky: Simply start with what you know or with what you can easily find.

1. Extend a line north from the two stars at the tip of the Big Dipper's bowl. It passes by Polaris, the North Star.
2. Follow the arc of the Dipper's handle. It intersects Arcturus, the brightest star in the early October evening sky.
3. To the northeast of Arcturus shines another star of the same brightness, Vega. Draw a line from Arcturus to Vega. It first meets "The Northern Crown," then the "Keystone of Hercules." A dark sky is needed to see these two dim stellar configurations.
4. Nearly overhead lie the summer triangle stars of Vega, Altair, and Deneb.
5. High in the east are the four moderately bright stars of the Great Square. Its two southern stars point west to Altair. Its two western stars point south to Fomalhaut.

Binocular Highlights

A: On the western side of the Keystone glows the Great Hercules Cluster, a ball of 500,000 stars. **B:** 40% of the way between Altair and Vega, twinkles the "Coathanger," a group of stars outlining a coathanger. **C:** Sweep along the Milky Way for an astounding number of fuzzy star clusters and nebulae amid many faint glows and dark bays, including the Great Rift. **D:** The three westernmost stars of Cassiopeia's "W" point south to M31, the Andromeda Galaxy, a "fuzzy" oval. **E:** Between the "W" of Cassiopeia and Perseus lies the Double Cluster.

Download pdf here: https://www.astroleague.org/wp-content/uploads/2024/10/2024-October.pdf

NASA NIGHT SKY NOTES

Catch Andromeda Rising!
By Dave Prosper; Updated by Kat Troche

Spot the Andromeda Galaxy! M31's more common name comes from its parent constellation, which becomes prominent as autumn arrives in the Northern Hemisphere. Surprising amounts of detail can be observed with unaided eyes when seen from dark sky sites. Hints of it can even be made out from light polluted areas. Use the Great Square of Pegasus or the Cassiopeia constellation as guides to find it. Credit: Stellarium Web

If you're thinking of a galaxy, the image in your head is probably the Andromeda Galaxy! Studies of this massive neighboring galaxy, also called M31, have played an incredibly important role in shaping modern astronomy. As a bonus for stargazers, the Andromeda Galaxy is also a beautiful sight.

Have you heard that all the stars you see at night are part of our Milky Way galaxy? While that is mostly true, one star-like object located near the border between the constellations of Andromeda and Cassiopeia appears fuzzy to unaided eyes. That's because it's not a star, but the Andromeda Galaxy, its trillion stars appearing to our eyes as a 3.4 magnitude patch of haze. Why so dim? Distance! It's outside our galaxy, around 2.5 million light years distant - so far away that the light you see left M31's stars when our earliest ancestors figured out stone tools. Binoculars show more detail: M31's bright core stands out, along with a bit of its wispy, saucer-shaped disc. Telescopes bring out greater

detail but often can't view the entire galaxy at once. Depending on the quality of your skies and your magnification, you may be able to make out individual globular clusters, structure, and at least two of its orbiting dwarf galaxies: M110 and M32. Light pollution and thin clouds, smoke, or haze will severely hamper observing fainter detail, as they will for any "faint fuzzy." Surprisingly, persistent stargazers can still spot M31's core from areas of moderate light pollution as long as skies are otherwise clear.

Generated version of the Andromeda Galaxy and its companion galaxies M32 and M110. Credit: Stellarium Web

Modern astronomy was greatly shaped by studies of the Andromeda Galaxy. A hundred years ago, the idea that there were other galaxies beside our own was not widely accepted, and so M31 was called the "Andromeda Nebula." Increasingly detailed observations of M31 caused astronomers to question its place in our universe – was M31 its own "island universe," and not part of our Milky Way? Harlow Shapley and Heber Curtis engaged in the "Great Debate" of 1920 over its nature. Curtis argued forcefully from his observations of dimmer than expected nova, dust lanes, and other oddities that the "nebula" was in fact an entirely different galaxy from our own. A few years later, Edwin Hubble, building on Henrietta Leavitt's work on Cepheid variable stars as a "standard candle" for distance measurement, concluded that M31 was indeed another galaxy after he observed Cepheids in photos of Andromeda, and estimated M31's distance as far outside our galaxy's boundaries. And so, the Andromeda Nebula became known as the Andromeda Galaxy.

While M31's disc appears larger than you might expect (about 3 Moon widths wide), its "galactic halo" of scattered stars and gas is much, much larger – as you can see here. In fact, it is suspected that its halo is so huge that it may already mingle with our Milky Way's own halo, which makes sense since our galaxies are expected to merge sometime in the next few billion years! The dots are quasars, objects located behind the halo, which are the very energetic cores of distant galaxies powered by black holes at their center. The Hubble team studied the composition of M31's halo by measuring how the quasars' light was absorbed by the halo's material. Credits: NASA, ESA, and E. Wheatley (STScI)

These discoveries inspire astronomers to this day, who continue to observe M31 and many other galaxies for hints about the nature of our universe. One of the Hubble Space Telescope's longest-running observing campaigns was a study of M31: the Panchromatic Hubble Andromeda Treasury (PHAT). Dig into NASA's latest discoveries about the Andromeda Galaxy, on their Messier 31 page.

Originally posted by Dave Prosper: September 2021
Last Updated by Kat Troche: September 2024

Tri-Valley Stargazers
P.O. Box 2476
Livermore, CA 94551
www.trivalleystargazers.org

Tri-Valley Stargazers Membership Application

Contact information:

Name: _____ Phone: _____

Street Address: _____

City, State, Zip: _____

Email Address: _____

Status (select one): _____ New member _____ Renewing or returning member

Membership category (select one): Membership term is for one calendar year, January through December.

_____ Student member ($10). Must be a full-time high-school or college student.

_____ Regular member ($30).

Hidden Hill Observatory Access (optional): Must be 18 or older.

_____ One-time key deposit ($20). This is a refundable deposit for a key to H2O. New key holders must first hear an orientation lecture and sign a usage agreement form before using the observing site.

_____ Annual access fee ($10). You must also be a key holder to access the site.

Donation (optional):

_____ Tax-deductible contribution to Tri-Valley Stargazers

Total enclosed: $ _____

Member agrees to hold Tri-Valley Stargazers, and any cooperating organizations or landowners, harmless from all claims of liability for any injury or loss sustained at a TVS function. TVS will not share information with anyone except as detailed in our Privacy Policy (http://www.trivalleystargazers.org/privacy.shtml).

Mail this completed form along with a check to: Tri-Valley Stargazers, P.O. Box 2476, Livermore, CA 94551.