Highlights of the February Sky. . .

- - - 1st - - -

Full Moon @ 5:09 pm EST

- - - 2nd - - -

PM: The Moon occults Regulus at 8:45 pm EST. It reappears at 9:43 pm.

- - - 6th - - -

PM: A waning gibbous Moon and Spica in Virgo are about 1½° apart.

- - - 9th - - -

Last Quarter Moon @ 7:43 am EST

- - - 11th - - -

AM: Antares is 3¾° to the upper right of a waning crescent Moon.

- - - 17th - - -

New Moon @ 7:01 am EST

- - - 18th - - -

DUSK: Mercury is 50′ (0.8°) above a very young Moon, with Venus about 7° below low in the west-southwest.

- - - 19th - - -

DUSK: Saturn is 3¾° to the lower left of a waxing crescent Moon.

- - - 22nd - - -

DUSK: A waxing crescent Moon is about 6° to the lower right of Saturn in the west-southwest.

- - - 23rd - - -

DUSK: The almost-first-quarter Moon is right outside of the Pleiades cluster in Taurus.

- - - 24th - - -

First Quarter Moon @ 7:28 am EST

- - - 27th - - -

AM: Jupiter is 3° to the lower left of a waxing gibbous Moon.

DUSK: The Moon forms a line with Castor and Pollux in Gemini.

Prime Focus

A Publication of the Kalamazoo Astronomical Society

★ ★ ★ February 2026 ★ ★ ★

This Month's KAS Events

General Meeting: Friday, February 6 @ 7:00 pm

Kalamazoo Area Math & Science Center • See Page 10 for Details

Online Viewing: Saturday, February 14 @ 9:00 pm

Held on Zoom • Click to Register • Visit OVS Page for Details

Member Observing: Friday, February 20 @ 8:00 pm

February Freeze Out • Visit Schedule Page for Details

***Introduction to Amateur Astronomy* Series Begins**

Held on Zoom • See Page 5 for Dates, Times & Topics

Inside the Newsletter. . .

Observations by Richard S. Bell

For the past few years, I have been anticipating and dreading the impending significant drop in KAS membership.

As shown in the graph below, membership has been steadily increasing since the "new age" began in 1996. This was a time when several new members, including myself, became more actively involved with the KAS. We relocated to KAMSC after the Kalamazoo Public Museum & Planetarium closed its doors at the end of 1995. The closure forced us to find regular guest speakers at our general meetings, and this, along with increased outreach, caused our membership to grow.

Membership was actually decreasing before 2020; that's when the coronavirus pandemic hit. People were looking for new or alternate things to do. We embraced online activities, including our general meetings and the *Introduction to Amateur Astronomy* lecture series. Many clubs struggled during the pandemic, but we thrived. Just look at the way membership spiked until 2024. That, of course, was the year of the last total solar eclipse in the 48 contiguous states until 2044. Both the Eclipse Series and the third online installment of the lecture series were very successful.

This dramatic increase ended at the end of 2025 and looks to continue this year. This is certainly not the kind of news I want to share during our 90th anniversary celebration! High membership retention has been part of the secret to our success over the past five years or so. I'm sure we'll get more renewals before we purge the member roster on March 7th, but as it stands right now, we look to lose about 78 memberships. We are also gaining new members, but not nearly at the rate we were from 2020 to 2024.

People seem to be reverting to their normal pre-pandemic lives and no longer feel that they have time to attend KAS activities. In early 2025, one supporting member (from out of state) told me that now that the Eclipse Series was past, he no longer needed his KAS membership. To put it simply, that person joined the KAS for the *wrong* reason. We are not merely a resource or product to utilize and then discard. People who love astronomy and space exploration should join the KAS to learn from and share their passion with other members. Members should also attend and participate in KAS activities more often, but that's a problem all clubs will always have!

There are certainly plenty of reasons to maintain your membership and join the KAS in 2026. Our 90th anniversary celebration continues on February 6th with Prof. Christopher Stubbs from Harvard University. Join us and visit the schedule page for all the other special guest speakers and presenters we have planned.

January Meeting Minutes

Using the 1945 Kalamazoo Amateur Astronomical Association gavel, KAS President Richard Bell officially ushered in the 90th year of the Kalamazoo Astronomical Society at 7:05 pm EST on January 9, 2026. Approximately 45 members and guests attended in person at the Kalamazoo Area Mathematics & Science Center (KAMSC), while around 75 additional people joined via Zoom.

Our first of many special guest speakers this year was Professor Sara Seager, a professor of physics, planetary science, and aeronautics and astronautics at the Massachusetts Institute of Technology, where she holds the Class of 1941 Professor Chair. The title of her presentation was *Venus as a Potentially Habitable Planet*.

Prof. Seager noted that a few billion years ago, cyanobacteria on Earth "discovered photosynthesis" and eventually reengineered the atmosphere to fill it with oxygen. Without vegetation and photosynthetic bacteria, Earth's atmosphere would virtually have no oxygen. Astronomers like Prof. Seager have looked for signs of oxygen on exoplanets. In 1930, the astronomer James Jeans wrote in an astronomy textbook about searching for oxygen on other planets in the solar system, including Venus, and finding none.

From the astronomer's viewpoint, Earth has only had significant atmospheric oxygen for the past billion years, about ⅕ of its total history. What kind of other gases might be produced by life on another world? Life on Earth alone produces thousands of molecules, albeit in tiny quantities. Astronomers calculate the sea of molecules that populate chemical space and create algorithms to filter them.

Out of all the potential gases as potential biosignatures, Prof. Seager named her favorite: phosphine (PH_3). Phosphine is rare on Earth but is only associated with life. It also has unique spectral features compared to background gases.

The discovery of phosphine at the parts per billion (ppb) level in Venus' atmosphere was announced on September 14, 2020, by an international team that included Prof. Seager and was led by Prof. Jane Greaves, a radio astronomer at Cardiff University in Wales. (From its ground to first rotational state, phosphine emits radio waves.)

The controversial discovery was based on data from the James Clerk Maxwell Telescope on Mauna Kea in Hawaii and confirmed by the Atacama Large Millimeter/submillimeter Array (ALMA) in the Atacama Desert of northern Chile.

Prof. Seager covered some of the basic facts about Venus. In terms of its mass (82%), radius (95%), and surface gravity (90%), it is the most Earth-like planet in the solar system. Venus had a retrograde rotation, which, at 243 days, is longer than its 225-day year. At 900° F, it has the hottest surface in the solar system and a crushing surface pressure 90 times that of Earth's. This pressure is far too high to sustain life as we know it.

On the other hand, its atmosphere is much more hospitable at an altitude of 48 to 60 km, where the temperature is 80° C at 48 km and 0° C at an altitude of 60 km. Prof. Seager did point out that the clouds at these altitudes are composed primarily of sulfuric acid, hydrochloric acid, and hydrofluoric acid. These molecules are very destructive to most life on Earth. Prof. Seager even played a video in which she poured sulfuric acid into a container with sugar as a proxy for life, since DNA contains sugar. The result is an exothermic reaction that creates dehydrated carbon.

Part of our DNA, the nucleic acid bases, is stable in sulfuric acid for periods up to a year. Therefore, Prof. Seager began searching for a DNA-like molecule that could survive the harsh conditions in Venus's upper atmosphere. Last year, they discovered just such a molecule called PNA, peptide nucleic acid. The usual sugar-phosphate backbone is replaced by an N-(2-aminoethyl)-glycine (AEG) backbone. There are also amino acids and some peptides that are stable for many months in Venus-like conditions.

Prof. Seager shared a graphic that highlighted many planned missions to Venus. The European Space Agency (ESA) has an orbiter called Envision. NASA also has an orbiter called Veritas and a probe named Davinci that will study Venus from its clouds down to the planet's surface.

There are many other concept missions on the drawing boards. India is planning Shukrayaan-1, an orbiter scheduled for launch in March 2028. China has a proposed orbiter called Voice that will study Venus' climate evolution, surface-atmosphere interactions, and search for life signals in the cloud. It aims to orbit Venus sometime in 2027.

NASA is developing an advanced Venus aerobot (aerial robotic balloon) to explore the planet's atmosphere for 100+ days, navigating sulfuric acid clouds at 52 to 62 km altitudes to study chemistry, climate, and seismic activity.

The "Chasing the Long-term Variability of Our Nearest Neighbor Planet Venus" (CLOVE) mission, developed by South Korea, is the world's first long-

term, multi-satellite CubeSat project designed to monitor Venus. The first CubeSat is supposed to launch this year and continue for 15 years.

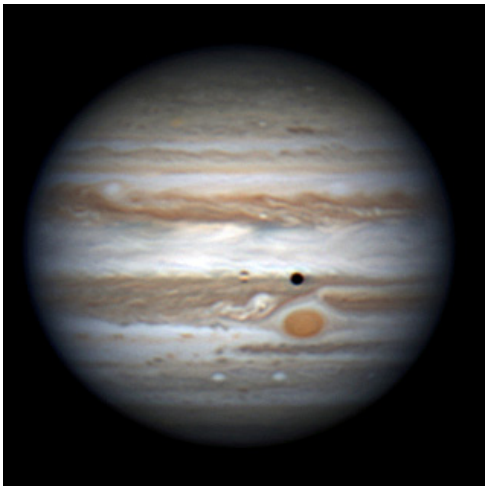
Prof. Seager has gathered a team of people and started a project called Morning Star Missions to Venus. They have teamed up with a company based in New Zealand and California called Rocket Lab. The founder, Peter Beck, has always wanted to send a mission to Venus.

The first mission will launch a probe that will fall through Venus' atmosphere and measure the sizes of sulfuric acid droplets. It is slated to launch later this year. Another mission will launch samples into Venus' orbit using a two-ton rocket, which a spacecraft returning to Earth would then pick up. Prof. Seager went through this program in more detail, and anyone interested should watch her full presentation on our YouTube channel. If successful, Morning Star would be the first private mission to another planet.

Thanks to Mike Sinclair for providing snacks during the break. Philip Wareham offered to bring snacks to the February meeting.

Richard then proceeded with his President's Report. The third KAS membership renewal email will be sent out around mid-January. This mailing will be followed by a direct mail later in mid-February. Anyone who has not renewed will be removed from the roster and email list on March 7th. When in doubt about your member status, check the Membership Roster webpage.

Our five-part *Introduction to Amateur Astronomy* series will return for its 10th installment beginning on January 17th. Over 500 people from around the world have registered thus far.



Richard has reserved a hotel room and bought his ticket for the Northeast Astronomy Forum on April 11th and 12th. He's still hoping a respectable contingent of KAS members will join him.

Finally, Richard informed the members about the break-in that occurred at the Kalamazoo Storage Center, located at 3003 S Burdick St. He asked Vice President Jack Price to provide additional details.

The break-in occurred around Christmas Day. There were about 25 units in total broken into, including ours. Jack met with police to inspect our unit. They had opened most of the items and discarded them on the floor.

Some of the items missing were the Celestron CPC 800 GPS telescope and TeleVue eyepieces donated by the late Fred Dutton. The Orion Atlas EQ mount donated by Molly Williams after the passing of Roger was taken as well.

They also stole the vacuum pump and bell jar we used for no-sound-in-space demonstrations at outreach events. About five days after the break-in, a KDPS detective called Jack to report the recovery of some items. They returned three of our accessory cases, which included some accessories for the CPC 800 and an Orion 20mm Centering Eyepiece.

Jack visited several pawn shops around town around January 2nd. Two days later he got a call from one that had a telescope brought in. He inspected it, and it appears to be our CPC 800. The detective was notified, and he is in the process of getting it returned to us.

In observing and imaging report, Sean Hogan reported observing a transit of Jupiter's moon Io with his 8-inch Dobsonian from St. Joseph on December 28th. KAS member Greg Shanos imaged it from his home in Sarasota, Florida (pictured on the lower left).

Dave Woolf mentioned observing a Herschel 400 object low in the southern sky from his observatory in Hickory Corners.

Jack Price said a few members posted some good observing reports on our Facebook group page. That reminded Richard that he posted an impressive image of the Horsehead Nebula taken by Tim Kurtz, who is currently at the Arizona Sky Village, to our Facebook page (pictured above).

In holiday gift news, Dave Woolf received a William Optics GuideStar 61 that he will be using as a guider for imaging. Matt Borton got a Lunt 60 double-stack H-alpha filter for his solar observing/imaging rig. Eric Klein purchased an EQStarVSP for his Vixen Great Polaris mount, which will give it full GoTo capabilities.

In astronomical news, Jack Price reported that astronomers using the Hubble Space Telescope discovered Cloud 9, a failed dwarf galaxy anchored by its halo of dark matter.

Richard Bell heard that, for the first time ever, NASA will have to re-

turn its entire crew to Earth early from the International Space Station due to a medical emergency being experienced by one of the astronauts.

Sean Hogan mentioned that the James Webb Space Telescope captured an image related to how early solar systems form.

Mike Dupuis mentioned that Harvard professor Avi Loeb is claiming that interstellar comet 3I/Atlas is an alien spacecraft, even after its closest approach to Earth on December 19, 2025. Needless to say, we won't be inviting him to give a presentation anytime soon (or ever).

Pete Mumbower read that SpaceX is lowering the altitude of their Starlink satellites, which will increase their brightness. Mike Sinclair added that the reason could be because the satellites are coming down faster than was predicted thanks to solar maximum.

Philip Wareham reported that a company named Orbital Reflector is seeking approval from the FCC to launch satellites equipped with mirrors to illuminate farmland at night for extended plant growth.

In outreach opportunities, Don Stilwell mentioned that we need help during the Hastings Public Library's Family Science Night on Wednesday, February 18th. This event will run from 6:00 to 7:30 pm. Richard Bell also mentioned that there are multiple upcoming outreach opportunities for members, including STEM Night at Paramount Charter Academy on January 28th.

After covering upcoming events, including special guest speaker Prof. Christopher Stubbs from Harvard University, during the next general meeting on February 6th, the meeting concluded at 8:49 pm.

The featured talk can be viewed in its entirety on our YouTube Channel.

Introduction to AMATEUR ASTRONOMY

The five-part lecture series designed to help you become a star-hopping skymaster begins this month! Participants who attend ALL FIVE parts and sign in as instructed will receive a Certificate of Completion. **Please register** if you haven't done so already. Here are the topics:

Every amateur astronomer, whether a novice or advanced, should own at least one good pair of binoculars. Binoculars bridge the gap between the unaided eye and a telescope in terms of magnification, field of view, and convenience. They also make an ideal first "telescope" because of their ease of use, portability, versatility, and low cost. Which binoculars are ideal for astronomy? You'll be amazed at what you can see!

Sooner or later, every amateur astronomer faces the decision of purchasing a first telescope. There are literally hundreds of choices today! What's the difference between a refractor and a reflector? Which telescope is the right one for you? To make this daunting task easier, we'll compare several of the top telescopes available today and tell you which ones to avoid. We'll also look at the countless array of accessories available for your telescope.

Held Exclusively on Zoom

Visit the *Introduction to Amateur Astronomy* **web page** for more information on the entire series.

Star Parties in 2026

Pack your bags, collimate that scope, and clean those eyepieces! It's time to hit the road and attend a star party (or two). Listed below are some of the major star parties that have already announced their dates for 2026. Registration procedures and deadlines for each star party may be different (or even passed), so please visit their websites for the latest information.

If you plan to attend any of the events listed (or not listed) here, then let us know. Maybe other KAS members would like to attend as well. Plus, if you do attend any star parties this year, please consider writing a report for *Prime Focus*. Clear Skies!

Death Valley Dark Sky Festival
Death Valley National Park, California
February 6 – 8
https://shorturl.at/oJh4b

Winter Star Party
Scout Key, Florida
February 15 – 22
https://www.scas.org/winter-star-party/

Staunton River Star Party
Staunton River State Park, Virginia
March 16 – 22
http://chaosastro.org/starparty-home/

Northeast Astronomy Forum
Suffern, New York
April 11 – 12
https://www.neafexpo.com/

Mid-South Stargaze
French Camp, Mississippi
April 15 – 18
https://rainwaterobservatory.org/events

Texas Star Party
Fort Davis, Texas
May 10 – 17
https://texasstarparty.org/

Grand Canyon Star Party
Grand Canyon, Arizona
June 6 – 13
https://is.gd/GrandCanyonStarParty

Rocky Mountain Star Stare
Gardner, Colorado
June 10 – 14
http://www.rmss.org/

Cherry Springs Star Party
Cherry Springs State Park, Pennsylvania
June 11 – 14
http://www.cherrysprings.org/

Bryce Canyon Astro Festival
Bryce Canyon National Park, Utah
June 24 – 27
https://is.gd/brca_astrofest

Golden State Star Party
Bieber, CA
July 11 – 15
https://goldenstatestarparty.org/

Nebraska Star Party
Merritt Reservoir, Nebraska
July 12 – 17
https://www.nebraskastarparty.org/

Oregon Star Party
Indian Trail Spring, Oregon
July 14 – 19
https://oregonstarparty.org/

Washington State Star Party
Jameson Lake, WA
July 14 – 18
https://www.tmspa.com/

Green Bank Star Quest
Green Bank, West Virginia
July 15 – 18
http://www.greenbankstarquest.org/

Almost Heaven Star Party
Circleville, West Virginia
August 10 – 16
https://www.ahsp.org/

Saskatchewan Summer Star Party
Maple Creek, SK
August 12 – 16
https://sssp.saskatoon.rasc.ca/

Starfest
Ayton, Ontario
August 13 – 16
https://www.nyaa.ca/

Stellafane
Springfield, Vermont
August 13 – 16
https://stellafane.org/

Black Forest Star Party
Cherry Springs State Park, Pennsylvania
September 11 – 14
https://bfsp.org/

Connecticut Star Party
Goshen, Connecticut
September 11 – 13
https://asnh.org/

Peach State Star Gaze
Deerlick Astronomy Village, Georgia
October 4 – 11
https://atlantaastronomy.org/pssg/

Eldorado Star Party
Eldorado, Texas
October 5 – 10
http://www.eldoradostarparty.org/

Okie-Tex Star Party
Kenton, Oklahoma
October 9 – 17
http://www.okie-tex.com/

10 Best Things To See In The Winter Night Sky

Orion

With the naked eye, you may see a star at the center of the misty patch. Binoculars reveal a few more, but the view through a telescope will show four tiny stars twinkling from the nebula's heart.

Sigma Orionis

At a magnification of 35x, you'll see a row of three stars similar to Orion's belt with a bright white star close to the middle star.

M79

At 35x it appears midway between two magnitude nine stars. It has a bright core, but if you want to resolve the cluster into its individual stars, you'll need to up the magnification to at least 100x.

R Leporis

A variable star, it changes in brightness from magnitude 5.5 to 11.7 over a period of roughly 430 days and should be easily seen with binoculars when at its brightest.

Messier 41

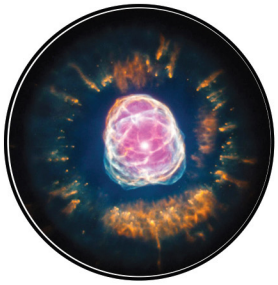
Through a telescope you'll see that many of the stars are blue-white and of similar brightness; however, there is a pair of stars just a little brighter than the others, with one of the pair shining with an orange hue.

NGC 2362

Appears just off-center as a brilliant white star surrounded by a multitude of much fainter stars.

Castor & Pollux

Both stars are white and of almost equal brightness. The secondary star appears a little fainter and could show pale blue and violet flashes, whereas the primary may show hints of pale green.

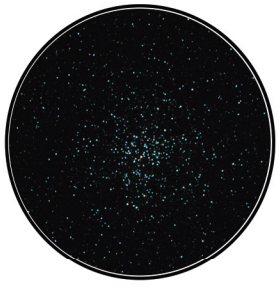


NGC 2392

Notice a secondary ring of faint nebulosity that forms a circle about the brighter, central nebula. It may look like a parka jacket sungly surrounding a face, but you'll need a medium scope to see it.

Messier 35

Easily seen with binoculars, you might be able to resolve some of its member stars with 10x50's. A small telescope will provide a fine view; it appears larger than M41 but less condensed.



Messier 36, 37 & 38

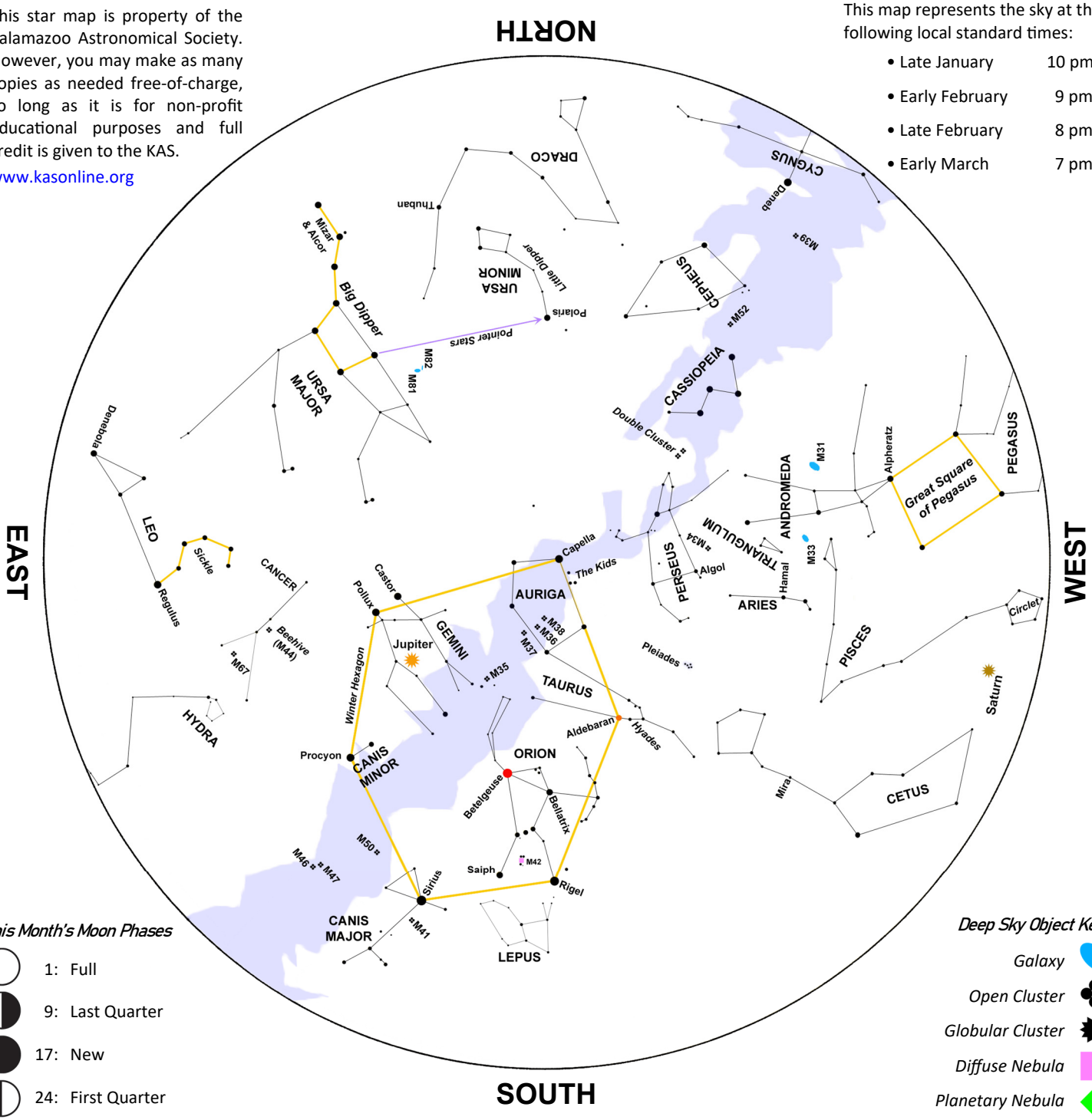
All three clusters are easily seen with binoculars. At magnification 6.8, M38 is the faintest, but it appears more densely populated than the others, with the brightest stars forming a clear X or K pattern.

HIGH POINT SCIENTIFIC

February Night Sky

This map represents the sky at the following local standard times:

- Late January 10 pm
- Early February 9 pm
- Late February 8 pm
- Early March 7 pm



This Month's Moon Phases

- 1: Full
- 9: Last Quarter
- 17: New
- 24: First Quarter

Deep Sky Object Key

- *Galaxy*
- *Open Cluster*
- *Globular Cluster*
- *Diffuse Nebula*
- *Planetary Nebula*

The Moon, just one day past full, will occult Leo's brightest star, Regulus, on the evening of February 2nd. From West Michigan, Leo's blazing heart suddenly disappears at about 8:45 pm EST, only to dramatically reappear at 9:43 pm. Make sure to observe the occultation with binoculars or a telescope for a better view.

A waning gibbous Moon and Virgo's brightest star, Spica, will be only 1½° apart when they rise above the east-southeastern horizon on the evening of February 6th. On the morning of February 11th, the waning crescent Moon will be positioned 3½° to the upper right of Antares.

Grab your binoculars shortly after sunset on February 18th to search for a very young waxing crescent Moon, just one day past new. You can find Mercury, the elusive innermost planet, only 50′ (0.8°) above the Moon. Venus will be ~7° below this pair.

A waxing crescent Moon will be near Saturn, which is located 3¾° to the lower left, at dusk on February 19th. On February 23rd, the first-quarter Moon will appear near the Pleiades in the evening sky. Binoculars will be required!

KAS 90th Anniversary Special Event

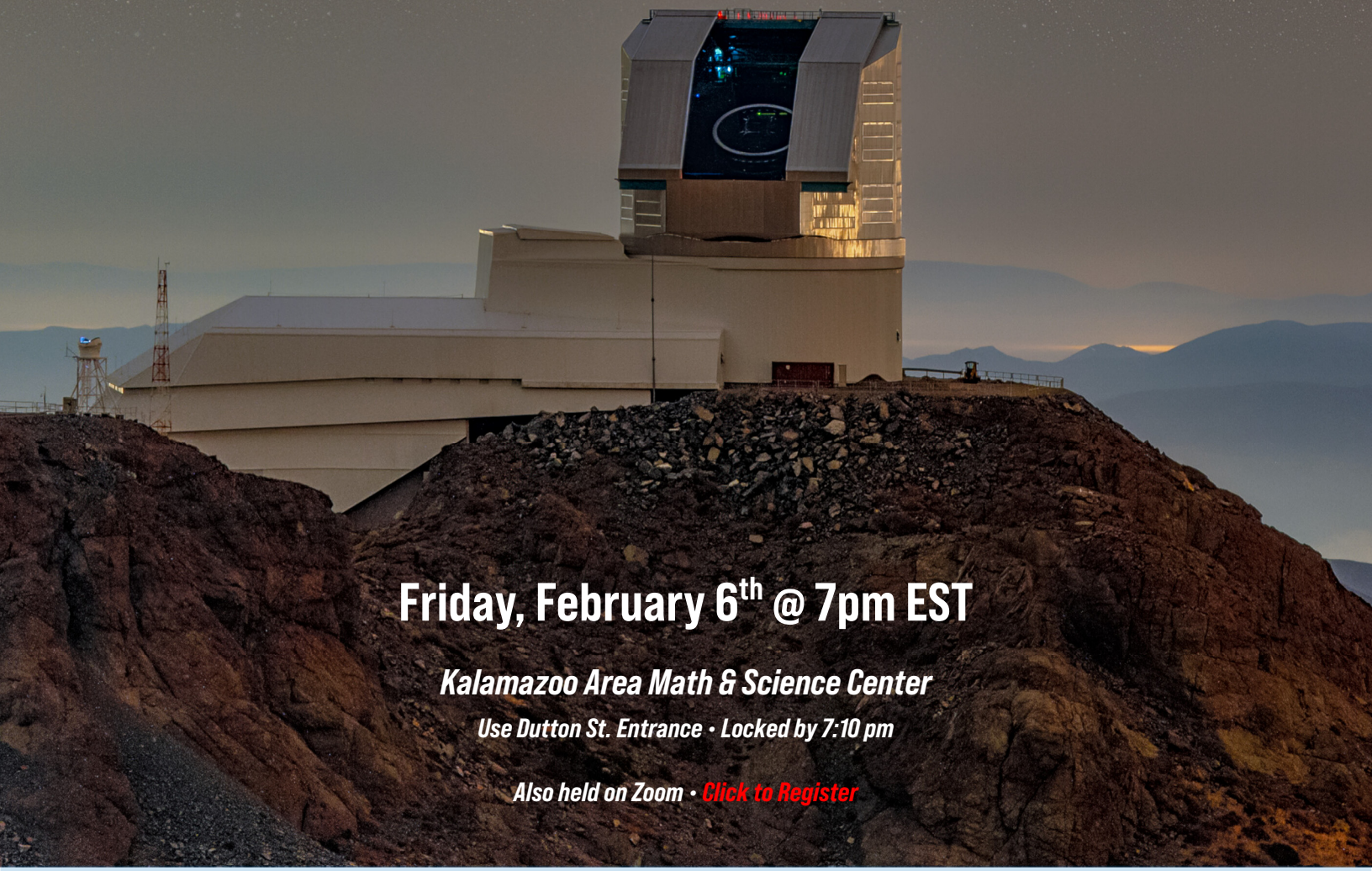
The Vera C. Rubin Observatory

A New Eye Opens on the Universe

presented via Zoom by

Prof. Christopher Stubbs

Harvard University



Friday, February 6th @ 7pm EST

Kalamazoo Area Math & Science Center

Use Dutton St. Entrance • Locked by 7:10 pm

Also held on Zoom • Click to Register