

## Highlights of the August Sky . . .

--- 1<sup>st</sup> ---

**DUSK:** Venus hangs above the western horizon after sunset, with red-orange Mars in the southeast. Jupiter and Saturn are between them.

--- 4<sup>th</sup> ---

**Last Quarter Moon**  
2:18 pm EDT

--- 6<sup>th</sup> ---

**AM:** A waning crescent Moon is near the Hyades cluster.

--- 11<sup>th</sup> ---

**New Moon**  
5:58 am EDT

--- 12<sup>th</sup> ---

**AM:** The Perseid meteor shower peaks. Best in early morning hours of the 12<sup>th</sup> and 13<sup>th</sup>.

--- 14<sup>th</sup> ---

**DUSK:** Brilliant Venus and a waxing crescent Moon are about 6° apart. The star Porrima (in Virgo) is less than 2° below the Moon.

--- 16<sup>th</sup> ---

**PM:** Jupiter is only ½° above the star Zubenelgenubi (Alpha Librae), while the Moon is 7° to the upper right.

--- 18<sup>th</sup> ---

**First Quarter Moon**  
3:49 am EDT

--- 20<sup>th</sup> ---

**PM:** A waxing gibbous Moon is 4° to the upper right of Saturn.

--- 22<sup>nd</sup> & 23<sup>rd</sup> ---

**PM:** The Moon is about 9° to the upper right of Mars on the 22<sup>nd</sup> and 8° to the upper left on the 23<sup>rd</sup>.

--- 26<sup>th</sup> ---

**Full Moon**  
7:56 am EDT

--- 31<sup>st</sup> ---

**DUSK:** Venus and Spica are separated by about 1°.

# Prime Focus

A Publication of the Kalamazoo Astronomical Society

★ ★ ★ August 2018 ★ ★ ★

## This Months **KAS** Events

**Observing Session: Saturday, August 4 @ 9:00 pm**  
*The Moon, Mars, Jupiter & Saturn - Kalamazoo Nature Center*

**Perseid Potluck Picnic: Saturday, August 11 @ 6:00 pm**  
*Kalamazoo Nature Center - See Page 4 for Details*

**Observing Session: Saturday, August 11 @ 9:00 pm**  
*Perseid Meteor Shower - Kalamazoo Nature Center*

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# July Meeting Minutes

The general meeting of the Kalamazoo Astronomical Society was brought to order by President Richard Bell on Friday, July 13, 2018 at 7:05 pm EDT. Approximately 31 members and guests were in attendance at the Kalamazoo Area Math & Science Center (KAMSC). Mike Sinclair threatened the maintenance department at Old Central with bodily harm (using his aluminum baseball bat) if they did not fix the ventilation system in the presentation center, so it was MUCH cooler in there this month!

Richard began his President's Report by stating he'd rather be at Cherry Spring State Park in Pennsylvania, but the weather conditions did not justify going at the time his schedule permitted. Scott Macfarlane and Don Stilwell left for Cherry Springs the day before the meeting and presumably had good skies on both Thursday and Friday (hopefully at least one of them will write a report for a future issue of *Prime Focus* in the near future). The KAS Remote Telescope (as we're now calling it) has been shutdown for the "monsoon" season, but work continues on a User's Agreement. It will be made available to the membership once it is approved by the Board. We are set to participate at another Kindleberger Festival on July 14<sup>th</sup>. (Editor's Note: Special thanks to Richard Bell, Jean DeMott, Jack Price, Roger Williams, and Dave Woolf for volunteering.) Richard ended by discussing our *Mars Watch* event on July 27<sup>th</sup> and 28<sup>th</sup> at the Nature Center. Volunteers are needed for the indoor and outdoor activities. Observing may be hampered thanks to the recent global dust storm.

Six juniors and four seniors from KAMSC launched two high-altitude research balloons on Saturday, May 5<sup>th</sup> and Sunday, May 6<sup>th</sup> respectively. Members from each team were in attendance at the meeting to present their results. The junior team, consisting of team leader Samantha Cobado and crew members Allie Al-Faraj, Carter Briggs, Sierra Eaton, Roberts Kalnins, and Wade Poling, had their balloon *KARB IIA* reach an altitude of 106,795 ft (20.23 mi or 32.55 km). The seniors – with team leader Griffin Abbott (KAS member and the only member of his team able to attend) and crew



**KAMSC Senior and KAS Member Griffin Abbott gave a brief report on his team's recent balloon launch.**



**Joe Comiskey shared his redesigned downward-looking binocular mount as part of *Gadget Night*.**

Owen Langejans, Zach Siwik, and Deborah Torres – maxed out at 65,000 ft (12.31 mi or 19.81 km). Both balloons had several cameras and a set of scientific instrumentation, including temperature and pressure gauges as well as Geiger-Muller tubes calibrated to measure X-rays and cosmic radiation. The senior balloon, *KARB IB*, landed just outside of Jackson while *KARB IIA* landed on the outskirts of Wixom (about 25 miles northwest of Ann Arbor). This marks the third successful set of missions in the past two years, with several more launches yet to come.

Jean DeMott offered her traditional July snack of ice cream floats and wafer cookies during the break. Thank you, Jean! Only two members and one guest had items to share during the traditional *Gadget Night* portion of the meeting. Chicago-area amateur Darren Drake, who often visits us in July while volunteering at Camp Eberhart near Three Rivers, shared an artificial star he uses to collimate his Newtonian before it gets dark (he also shared this with us in 2012 and, coincidentally, that meeting was on the 13<sup>th</sup> as well). Darren also shared a home-built refracting telescope.

Richard shared several gadgets (of sorts). The first were his custom printed "Bell Observatory" hat and T-shirt made by InkPixi. They sent him a special offer in the mail recently. Richard then shared the custom foam he designed on My Case Builder for his Astro-Tech 65mm f/6.5 refractor and eyepiece accessory case. See a review in the [May 2015](#) issue of *Prime Focus* for more information. Finally, Richard brought his new Celestron 9.25-inch 0.7× EdgeHD Focal Reducer. Richard had waited 9 long years for Celestron to release this accessory for his telescope and can't wait to finally to use it for astrophotography. Joe Comiskey shared the latest version of his downward-looking binocular mount. This version allows him to observe from the seated position and enables him to quickly release his binoculars in case he wants to take a direct look at something in the sky.

The meeting concluded at 9:16 pm after hearing observing reports and discussing recent astronomical news.



# Observations

by **Richard S. Bell**

*Mars Watch 2018* was successfully held at the Kalamazoo Nature Center on both Friday, July 27<sup>th</sup> and Saturday, July 28<sup>th</sup>. Thanks in part to increased publicity in traditional and social media we enjoyed high attendance on Friday and Saturday. Friday was the heaviest of the two nights. Well over 100 people attended Dave DeBruyn's presentation in the Cooper's Glen Auditorium at the Nature Center. Approximately 80 people attended my presentation on Saturday night.



Skies were remarkably clear on both nights - at least on Earth. I had a long line of people waiting to view Mars at my telescope on Friday. Due to packing up inside, I arrived late at the observing on Saturday but still saw several people viewing the Red Planet (and more) through KAS member telescopes. Mars certainly was a disappointment thanks to the global dust storm, but you can't control the Martian weather any more than its terrestrial counterpart. At least Jupiter and Saturn were in peak form. We did enjoy a transiting Great Red Spot on Saturday night, which is always a treat.

Several members volunteered their time during *Mars Watch* and I am very grateful for it. They brought snacks to share, helped setup and take down displays, staffed our greeting table, or provided a telescope. This event would not have been possible without their support, so I would like to thank the following (an asterisk next to their name indicates they helped out on both nights): Jean DeMott\*, Joe Comiskey\*, Becky Csia\*, Kalman Csia, Manisha Golas, Arya Jayatilaka\*, Jim Kurtz\*, Scott Macfarlane, Rich Mather\*, Ninah Miller\*, Chris Roberts, Josh Taylor, Don Stilwell\*, Roger Williams, Arthur Woodworth\*, and Karen Woodworth\*. Apologies if I missed you.

Mars' perihelic opposition may be past, but it will remain a prime target for several more weeks. It will be 24" in diameter until August 7<sup>th</sup> and 20" until September 1<sup>st</sup>. Let's hope the dust settles so we can explore its rusty surface at Public Observing Sessions for the rest of the season.



## The Best Meteor Shower of the Year

by **Jane Houston Jones & Jessica Stoller-Conrad**

If you're a fan of meteor showers, August is going to be an exciting month! The Perseid meteor shower is the best of the year, and in 2018, the peak viewing time for the shower is on a dark, moonless night — perfect for spotting meteors.

The best time to look for meteors during this year's Perseid shower is at the peak, from 4pm EDT on August 12<sup>th</sup> until 4am EDT on the August 13<sup>th</sup>. Because the new Moon falls on the peak night, the days before and after the peak will also provide very dark skies for viewing meteors. On the days surrounding the peak, the best time to view the showers is from a few hours after twilight until dawn.

Meteors come from leftover comet particles and bits from broken asteroids. When comets come around the Sun, they leave a dusty trail behind them. Every year Earth passes through these debris trails, which allows the bits to collide with our atmosphere and disintegrate to create fiery and colorful streaks in the sky — called meteors.

The comet that creates the Perseid meteor shower — a comet called Swift-Tuttle — has a very wide trail of cometary dust. It's so wide that it takes Earth more than three weeks to plow all the way through. Because of this wide trail, the Perseids have a longer peak viewing window than many other meteor showers throughout the year.

In fact, this year you should be able to see some meteors from July 17<sup>th</sup> to August 24<sup>th</sup>. The rates of meteors will increase during the weeks before August 12<sup>th</sup> and decrease after August 13<sup>th</sup>. Observers should be able to see between 60 and 70 meteors per hour at the shower's peak.

The Perseids appear to radiate from the constellation Perseus, which is where we get the name for this shower. Perseus is visible in the northern sky soon after sunset this time of year. Observers in mid-northern latitudes will have the best views.

However, you don't have to look directly at the constellation Perseus to see meteors. You can look anywhere you want to; 90-degrees left or right of Perseus, or even directly overhead, are all good choices.

While you're watching the sky for meteors this month, you'll also see a parade of the planets Venus, Mars, Jupiter and Saturn — and the Milky Way also continues to grace the evening sky. In next month's article, we'll take a late summer stroll through the Milky Way. No telescope or binoculars required!

Catch up on all of NASA's current — and future — missions at [www.nasa.gov](http://www.nasa.gov).

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*The KAS Invites You to the Twenty-Fourth Annual*

# PERSEID POTLUCK PICNIC



*Mark your calendar. Hope for good weather. It's time for the big social event of the summer for the KAS. So get ready to party! Here are the details:*

The KAS will provide the hot dogs, hamburgers, and veggie burgers (by order). You will be required to bring your own beverages, table service, lawn chairs, bug spray, and a dish to pass. Condiments will be provided by the KAS.



While dinner is cooking we will have solar observing available through KAS member telescopes (weather permitting). Feel free to bring any type of outdoor games or toys to pass the time while we wait for dinner.



After dinner, we'll hold a Public Observing Session - gates open at 9:00 pm. Stargazers should be prepared to observe Venus, Mars, Jupiter, Saturn, the deep sky delights of the summer Milky Way, and the near-peak of the Perseids.

This gathering will take place rain or shine, so be prepared for whatever Mother Nature throws our way!

**WHEN:**



**Saturday, August 11, 2018**

**WHERE:**



**Kalamazoo Nature Center**

**Arrive at 6pm • Dinner starts at 7pm 7000 North Westnedge Ave.**



# New Library Acquisitions

by Karen Woodworth

The Kalamazoo Astronomical Society Members' Library benefits greatly from the donations of members. Here is a list of books and materials that have been added to the library since the beginning of 2018. Special thanks go to Eric Schreur and Becky Csia for their donations. The next opportunity to check out items from the KAS Members' Library will be at the September General Meeting.

*A Chart of the Heavens*  
(1968, map)

— Hansen Planetarium

*All About Telescopes*  
(1985 edition)

— Sam Brown

*Amateur Telescope Making* (1933)

— Albert G. Ingalls, ed.

*Amateur Telescope Making* (Book Three)  
(1953; 1971 printing)

— Albert G. Ingalls, ed.

*Astronomer* (Astronomy software on CD-ROM)

*Astronomy Magazine Infinite Cosmos* DVD Series (2007):

*Constellations*

*Cosmic Collisions*

*Dark Matter/Dark Energy*

*The End of Earth: Deep Space Threats to Our Planet*

*Jupiter the Giant Planet*

*Life and Death of a Star*

*Mars the Red Planet*

*The Moon*

*Runaway Universe*

*Saturn: Lord of the Rings*

*Secrets of the Sun*

*Spaceship Earth*

*The Dynamic Universe: An Introduction to Astronomy*  
(2nd edition textbook, 1985)

— Theodore P. Snow

*The Dynamic Universe: An Introduction to Astronomy*  
(Study guide to 2nd edition of textbook)

— Theodore P. Snow,

*The Dynamic Universe: An Introduction to Astronomy*  
(Instructor's manual to textbook, 1983)

— Theodore P. Snow

*Foundation* (2004 edition)

— Isaac Asimov

*Horizons: Exploring the Universe*  
(1985, instructor's manual for 2nd edition of textbook)  
— Michael A. Seeds

*Horizons: Exploring the Universe*, 4th ed.  
(1993, text)  
— Michael A. Seeds

*Horizons: Exploring the Universe Tonight*  
(1981, study guide to textbook by Seeds)  
— George Reed

*How and Why to Make A User-Friendly Sidewalk Telescope*  
(1991, plywood-bound edition)  
— John L. Dobson

*Hubble 15th Anniversary Press Packet* (2005)  
— Space Telescope Science Institute

*Interactive Lesson Guide for Astronomy: Cooperative Learning Activities* (1998; revised 2000 edition)  
— Michael Zeilik

*Lick Observatory* (15th edition)  
— University of California

*Live From the Sun: Teacher's Guide* (1999)  
— Geoff Haines-Stiles & Erna Akuginow, editors

*The Planispheric Astrolabe*  
(1979 edition)  
— National Maritime Museum

*Redshift*  
(Multimedia Astronomy on CD-ROM w/ User Guide, 1994)  
— Maris Multimedia

*The Sky: Level I for Celestron*  
(Astronomy software on CD-ROM with manual for v. 5)

*The Sun, the Earth, and Near-Earth Space: A Guide to the Sun-Earth System* (2009)  
— John A. Eddy

*The Supernova* (1976)  
— NASA

*Topographic Map of Mars*  
(1982 reprint of 1976 map)  
— U.S. Geological Survey

*The Universe at Your Fingertips: An Astronomy Activity and Resource Notebook* (1995; in two red binders)  
— Andrew Fraknoi, ed.

For a complete listing of the KAS Library collection please visit: <http://www.kasonline.org/library.html>



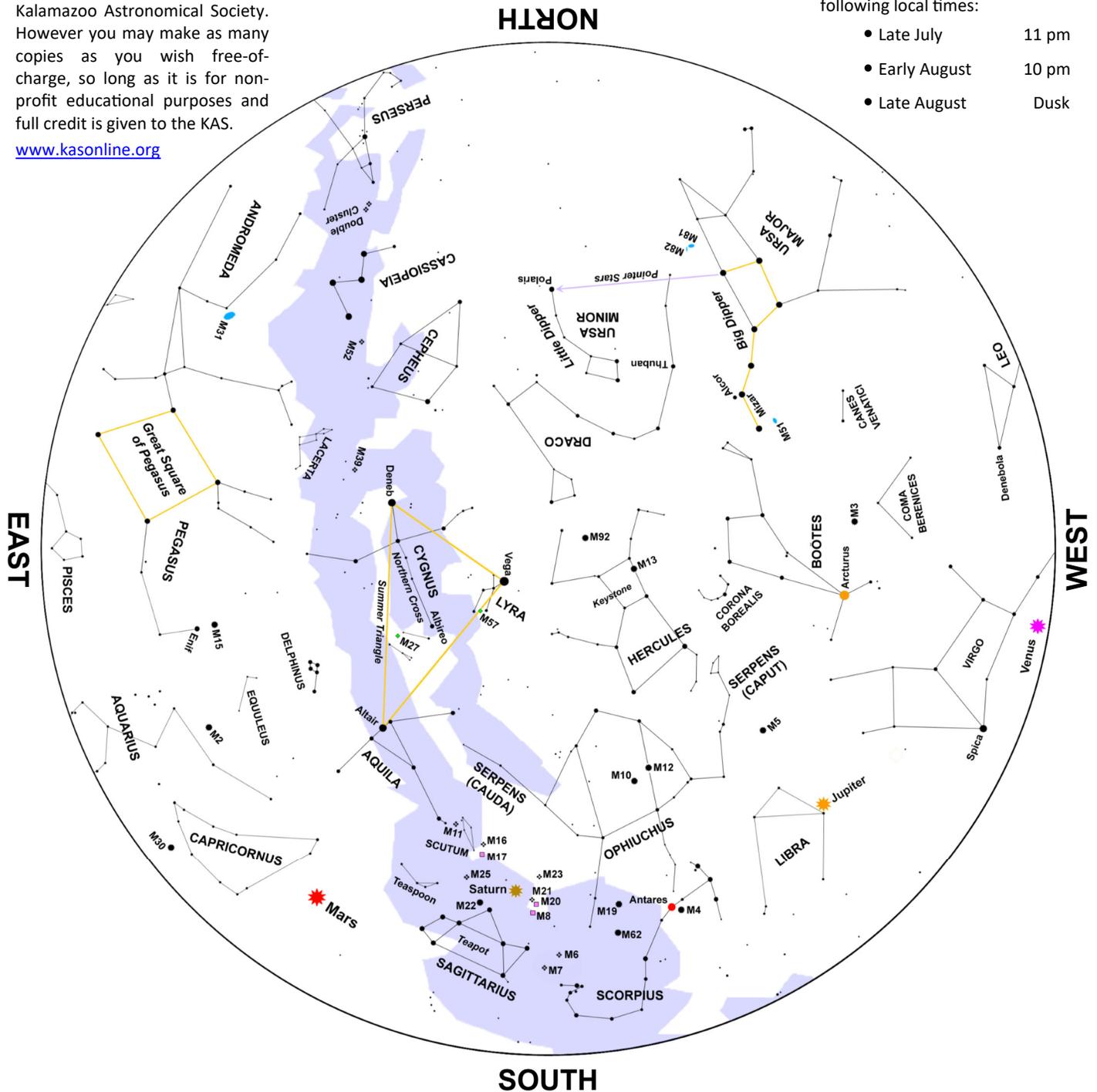
# — August Night Sky —

This star map is property of the Kalamazoo Astronomical Society. However you may make as many copies as you wish free-of-charge, so long as it is for non-profit educational purposes and full credit is given to the KAS.

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This map represents the sky at the following local times:

- Late July 11 pm
- Early August 10 pm
- Late August Dusk



A planetary parade will be visible in the evening sky throughout the month of August. Almost all the planets visible with the unaided eye arc low across the southern sky. Only Mercury is left out, which is at inferior conjunction on August 8<sup>th</sup>.

Starting in the western sky after sunset

we find the Evening Star, Venus, which will steadily brighten throughout the month as it grows in angular diameter. Next is Jupiter which will only be  $\frac{1}{2}^\circ$  above the star Zubenelgenubi in Libra on August 16<sup>th</sup>. Saturn can be found in the heart of the Milky Way above the Teapot asterism in Sagittarius. Mars starts the month at its maximum brilliancy and

rises earlier each night now that its perihelic opposition is past.

The famed Perseid meteor shower peaks on the night of August 12<sup>th</sup>/13<sup>th</sup>. At maximum, you can expect to see *at least* 50 meteors per hour. New Moon is on August 11<sup>th</sup>, so it is a great year to enjoy this shooting star spectacular!

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Read about the latest news and activities of the Kalamazoo Astronomical Society. Stay informed about upcoming events in the night sky.

*All this and more in 280 characters or less!*

— <http://twitter.com/kzooastro/> —

## ***Checkout the ShortTube!***

The Kalamazoo Astronomical Society's Orion ShortTube 80mm refractor, mounted on the light weight and ultra-portable EQ-1 mount, is available for loan.

This little scope gives great wide-field views and can be setup in a snap. Visit the [Telescopes for Loan](#) webpage and contact KAS Equipment Manager Arya Jayatilaka today if you'd like borrow it.



## ***Public Observing Sessions***

**Saturday, August 4<sup>th</sup>**

*Features: Moon, Mars, Jupiter & Saturn*

**Saturday, August 11<sup>th</sup>**

*Features: Perseid Meteor Shower*

*Gates Open: 9:00 pm • Observing Begins: 9:30 pm*

**Kalamazoo Nature Center**

— **7000 N. Westnedge Ave.** —



*The Kalamazoo Astronomical Society presents...*

# *Perseid Meteor Shower Watch*

*Witness the most famous and spectacular of all meteor showers!*

**Saturday, August 11<sup>th</sup> @ 9:00 pm**

**Kalamazoo Nature Center - 7000 N. Westnedge Ave.**

Kalamazoo Astronomical Society  
c/o KAMSC  
600 West Vine, Suite 400  
Kalamazoo, MI 49008

STAMP

