

**Highlights of the August Sky...**

--- 1<sup>st</sup> ---  
Dusk: Mars is 2° to lower left of Saturn; Venus is 7° to lower right.

--- 3<sup>rd</sup> ---  
Last Quarter Moon

--- 4<sup>th</sup> ---  
AM: Pleiades are 4° to lower left of Waning Crescent Moon.

--- 6<sup>th</sup> - 8<sup>th</sup> ---  
Dusk: Venus, Saturn and Mars are within 5° of one another.

--- 9<sup>th</sup> ---  
New Moon

--- 11<sup>th</sup> ---  
Dusk: Very thin crescent Moon is 3° to lower left of Mercury.

--- 12<sup>th</sup> ---  
Dusk: Waxing Crescent Moon is 7° below Venus-Saturn-Mars gathering.

Perseid Meteor Shower peaks.

--- 16<sup>th</sup> ---  
First Quarter Moon

--- 16<sup>th</sup> - 20<sup>th</sup> ---  
Dusk: Mars is less than 2° above Venus.

--- 17<sup>th</sup> ---  
Dusk: Antares is 1° below the Moon.

--- 24<sup>th</sup> ---  
Full Moon

--- 26<sup>th</sup> ---  
PM: The Moon is about 6° above Jupiter.

--- 31<sup>st</sup> ---  
AM: Pleiades are 8° to the left of the Moon.

Dusk: Spica is 1° above Venus.

# Prime Focus

A Publication of the Kalamazoo Astronomical Society

★ ★ ★ August 2010 ★ ★ ★

## This Months KAS Events

Observing Session: Saturday, August 7 @ 8:30 pm

*The Summer Triangle - Kalamazoo Nature Center*

Perseid Potluck Picnic: Saturday, August 14 @ 6:00 pm

*Kalamazoo Nature Center - See Page 4 for Details*

Observing Session: Saturday, August 14 @ 8:30 pm

*Moon, Perseids & More - Kalamazoo Nature Center*

Field Trip: Saturday, August 28 @ TBA

*Grand Rapids Celebration Cinema North - See Page 3 for Details*

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★ ★ ★ [www.kasonline.org](http://www.kasonline.org) ★ ★ ★

# July Meeting Minutes

The general meeting of the Kalamazoo Astronomical Society was brought to order by President Jack Price on Friday, July 9, 2010 at 7:13 pm. Approximately 30 members and guests were in attendance in the Cooper's Glen Auditorium, located in the main building at the Kalamazoo Nature Center.

The theme of the July meeting was the long standing tradition called "Gadget Night". This year seven KAS members brought a variety of gadgets, gizmos, and whatchamacallits to share. First up was an ingenious security/street light cover built by Bob Cox. It was made out of a plastic bucket and PVC pipe (see photo below). Works as well as a pellet gun, but it's legal!

Royce Goodchild shared two gadgets. The first was a scale model of a 6-inch Criterion Dynascope built by B. Christ Miniatures. Royce said Mr. Christ planned to retire in the near future. That would be a shame because his wonderful telescope models have been a staple at many national star parties. Royce also shared his William Optics ZenithStar 66 SD Patriot Edition refractor. William Optics built 50 telescopes in the series; one for each state and Royce owns the Michigan refractor. Royce bought the telescope as an investment, so you'll never see it at an observing session.

Richard Bell also shared two gadgets this year. First up was a red acrylic laptop screen cover made by [Lumensa](#). Richard chose this style because it has elastic straps with Velcro fasteners that loop around the back of the laptop screen. This makes it easy to attach to your laptop and doesn't mar it in anyway. Screen covers like these are a great way to preserve your night vision and keep glare from reaching your neighbors at star parties. Richard also shared his Celestron 9.25" EdgeHD Aplanatic Schmidt-Cassegrain Telescope, which came in much sooner than expected (see photo above). This modified SCT comes with a built in coma corrector and field flattener. Richard hopes to take some sweet images with this and the other telescopes he recently purchased in the near future.



Jason Hanflik shared a home planetarium given as a birthday gift years ago. This version casts shadows of the stars and constellations onto the walls and ceiling. (They also work great in dome tents!) Both Roger Williams and Don Stilwell brought wrist/ankle weights. These make great counterweights in a pinch and are easy to attach in the dark. Scott Macfarlane shared some elastic Velcro he uses to attach accessories like a Tel-Rad to his Dobsonian. He prefers this method instead sticking double sided tape on his telescope and marring the finish. Scott also shared a Meade MySky, which he said are no longer made due to the bad reputation they gained. These are similar to Celestron's Sky Scout devices, but have some interesting features (such as short video segments). Finally, Jack Price showed a battery powered red light along with the battery used to power it (which he stores in a cooler). Wouldn't be "Gadget Night" without a red flashlight! Thanks to everyone for bringing your gadgets to share!

Jack once again encouraged all members to attend at least one star party this summer (or Fall). The nearest one is the [Great Lakes Star Gaze](#) (GLSG); located 3 hours north near Gladwin, Michigan. The 2010 event will be held from October 7<sup>th</sup> - 10<sup>th</sup>. The [Black Forest Star Party](#) is held at Cherry Springs State Park in Potter County, Pennsylvania. That offers much darker skies than GLSG, but is an 8 hour drive from Kalamazoo. This year's event will take place from September 10<sup>th</sup> - 12<sup>th</sup>, but you'd better register soon as space is limited. Even darker is the [Okie-Tex Star Party](#) held near Kenton, Oklahoma (see page 6 for details). Jean DeMott reported that she's registered and ready to go!

Next up was upcoming events. The KAS will once again setup solar telescopes and pass out information at the Kindleberger Festival in Parchment on July 10<sup>th</sup>. (Thanks to Jean DeMott, Jason Hanflik, Rich Mather, Jack Price, Don Stilwell and Roger Williams for helping out.) The meeting adjourned at *exactly* 9:00 pm.



## Board Meeting Minutes

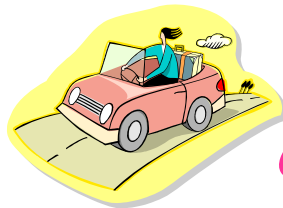
The KAS Board met on July 11, 2010 at Sunnyside Church. President Jack Price called the meeting to order at 5:10 pm. All board members were in attendance (Richard Bell, Rich Mather, Jean DeMott, Dick Gillespie, Jason Hanflik, Don Stilwell, and Roger Williams). The Treasurer's Report was presented by Rich, who indicated that with payment of an honorarium to Story Musgrave, the Astronomy Day 2010 budget was closed out. The June General Meeting honorarium of \$50 for Dr. Richard Frazin was waved. Reporting on the Robotic Telescope Committee, Richard said that there had been no success in finding an Arizona lawyer to review our agreement with Mike Patton. However, the owner of the Sky Village facility (Gene Turner) had offered a free backup pier at another of his facilities if the Patton site should be lost. Since summer meetings of the task force are difficult to arrange, Richard was planning to poll them by e-mail on a plan to go with the current agreement.

Under New Business, planned and proposed future events were summarized. The annual picnic was confirmed for Aug. 14 at KNC (see page 4 for details). Little response had been received for the proposed Science Central field trip to Fort Wayne, Indiana, and Richard said that it would be dropped if more interest didn't materialize soon. Other possible events were a Boy Scout 100<sup>th</sup> anniversary event Aug. 5-7 at the Air Zoo, where a talk on science or astronomy was requested (tepid Board interest), a Girl Scouts camporee at Lawton, where a star party was requested for Sept. 25, and the once-postponed trip to the IMAX theater in Grand Rapids for a movie on the Hubble Telescope (see page 3). Planning for the KAS 75<sup>th</sup> anniversary celebration was mentioned. Nothing has been done as yet, but serious planning can begin now that Astronomy Day 2010 is wrapped up. In regard to the anniversary, Rich Mather suggested that we consider buying a copy of the complete *Sky & Telescope* back issues on seven DVD's, currently available for \$249. The first disk opened would be used to try out the search function and to test its utility in fleshing out the history of KAS. If the search did not prove useful, the set could be returned, provided that no more than three disks had been opened. Following a motion by Don and second by Jason, the Board voted unanimously to purchase a set.

In further business, Dick asked for anyone interested in the Morehouse collection of astronomical records to check it out soon and take what they can use. Dick has no more storage space and will discard the material if there is no interest. Don asked about the proper disposition of the equipment checkout sheets for borrowed KAS gear. They were most recently kept by Dave Woolf, and Don planned to check with Dave regarding some current borrowings.

The next meeting was set for 5:00 pm on August 8 at Sunnyside. The meeting was adjourned at 6:15pm.

*Respectfully submitted by Roger Williams*



## Field Trip to Grand Rapids

Okay, so planning a field trip in the middle of July wasn't such a great idea. However, you've got to be crazy not to take part in our next field trip to Grand Rapids Celebration Cinema North on **Saturday, August 28<sup>th</sup>**. We'll enjoy a showing of *Hubble 3D* on the really, really big IMAX screen. Exact show times have yet to be announced by Celebration Cinema North, so we'll send out an e-mail with all the trip details to interested members in mid-August. (We're shooting for a late afternoon showing.) Then we'll enjoy dinner together at a nearby restaurant.

Interested members can also attend the Open House at the Grand Rapids Amateur Astronomical Association's Veen Observatory (weather permitting) after dinner.

Attendees can receive a discount on IMAX tickets if 15 or more people attend. So, please [contact us](#) ASAP and let us know you're coming along! Here's a [preview](#) of *Hubble 3D* to wet your appetite:

*Experience the gripping story - full of hope, crushing disappointment, dazzling ingenuity, bravery, and triumph - in Hubble 3D. Vividly captured in IMAX 3D, Hubble 3D recounts the amazing journey of the most important scientific instrument since Galileo's original telescope and the greatest success in space since the Moon Landing - the Hubble Space Telescope. Audiences will accompany the space walking astronauts as they attempt some of the most difficult tasks ever undertaken in NASA's history, and will experience up close the awesome power of the launches, the heartbreaking setbacks, and the dramatic rescues of this most powerful story. Hubble 3D will also reveal the cosmos as never before, allowing viewers of all ages to explore the grandeur of the nebulae and galaxies, the birth and death of stars, and some of the greatest mysteries of our celestial surroundings, all in amazing IMAX 3D.*



# The KAS Invites You to the Sixteenth Annual



## Perseid Potluck Picnic

**Saturday, August 14<sup>th</sup> @ Kalamazoo Nature Center**  
**Arrive at 6:00 pm • Dinner begins at 7:00 pm**  
**Observing after sunset (weather permitting)**



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. 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 and the 12" Schmidt-Cassegrain in Owl Observatory. 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 8:30 pm. Stargazers should be prepared to observe the Moon, Jupiter, deep sky delights of the summer Milky Way, and the near-peak of the Perseid Meteor Shower.



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



# Telescope Transformation

*Making Observing Easier*

by Tom Koonce & Don Bryden

What if the sky was clear and steady, the temperature was comfortable, and all that kept you from observing the stars was that you couldn't physically move your telescope outside? What if you were unable to stand for long periods of time at the eyepiece without significant pain? What if manipulating small parts with your hands made it difficult and frustrating to assemble your telescope for the night's viewing?

Situations like these are more common than major telescope manufacturers seem to acknowledge. The reality is that amateur astronomy has a 'mature' demographic, and many of us have physical limitations like these that hinder us from



being the best observers that we can be. The good news is that there are ways to maximize our enjoyment of astronomy through modification of commercial telescope equipment, adaptation, and innovation.

An excellent example of such modification and innovation was Antelope Valley Astronomy Club (Palmdale, CA) President, Don Bryden's recent project undertaken for a close observing friend. His friend, Duane, has some significant physical limitations and found it cumbersome, and sometimes even dangerous, to lift his C10, 10" f/4.7 Newtonian onto his CG-5 mount (pictured above).

The manual non-GoTo mount had small controls and locking levers that were difficult for Duane to manipulate. The telescope provided great views, but because of its weight, lack of handholds, and slippery sides, it had been dropped on occasion, luckily without serious damage, but it was clearly not the right telescope configuration for the user.

Don Bryden and another mutual friend first thought to help Duane with this project by simply mounting the Newtonian in a Dobsonian-style cradle mount. But as they thought this through, they realized that a solid tube Dobsonian would present transportability problems and be hard for Duane to store. Since Don had recently finished building a truss-tube Dobsonian for himself and had enjoyed the work, he



**Large knobs and thoughtful design details make the scope easy to use.**

suggested converting the C10 into a truss-tube scope. High level design considerations were that the resulting telescope would have to be simple for Duane to setup, use, and store. Other considerations were that since Duane has difficulty with the use of his hands, any hardware should be easy to manipulate, but hard to lose.

During the build process, the truss-tube Dob emerged and incorporated further considerations of the user's needs. The focuser was set at a 45 degree angle from the plane of the altitude motion for ease of use and the focuser height was tailored to a convenient height for Duane when in a seated position. A stable 14" base was added and dimensioned so that the secondary cage fits into the mirror box which fits into the base for convenient transport and storage. Each individual section is light weight with easy ways to hold onto them.

The spider and mirror cell were from the original design and required an Allen wrench for adjustment. Don made a slot in the side of the secondary cage so that the Allen wrench was

always available. No other tools are required for setup and adjustments. A major design decision was the method to attach the truss tubes in four groups of two at the top to wooden fittings that in turn receive the secondary cage. To make the attachment of the secondary cage to the truss-tube wooden fittings, bicycle seat post quick-release clamps were used which are simple to operate and impossible to lose.

The resulting scope was dubbed "Marvin the Martian" for its green color and custom Marvin the Martian emblem. It took approximately 20 hours of Don's labor spread over three months, allowing him time to think through the design challenges that arose. The telescope holds collimation well, is comfortable to use for Duane and is considered a resounding success by him. The telescope was entered in the 2010 Riverside Telescope Makers Conference contest and won a special Merit Award.

*Tom Koonce and Don Bryden are both members of the Antelope Valley Astronomy Club in Lancaster, California.*



## 2010 Okie-Tex Star Party

Have you been working hard? Are you feeling burned out? What you need is a vacation under some incredibly dark skies. You need to attend the 2010 Okie-Tex Star Party, hosted by the Oklahoma City Astronomy Club. The 27th annual event will be held from **October 2<sup>nd</sup> - 10<sup>th</sup>** at Camp Billy Joe, located in the panhandle of Oklahoma near the *very* small town of Kenton.

How dark are the skies above Camp Billy Joe? They rank 1 on the Bortle Scale according to the [Clear Sky Chart](#). It doesn't get any better than that. Indeed, Tele Vue founder Al Nagler recently said in an interview that Okie-Tex has the darkest skies he's ever seen in the continental United States (see the June 2010 edition of the *Reflector*, page 17). Uncle Al has been to A LOT of star parties representing Tele Vue, so this statement carries a great deal of credibility.



Take a look at the [Okie-Tex website](#) and then look deep down and tell yourself to head west this October! [Let us know](#) if you plan to attend.



# The Sun Can Still Remind Us Who's Boss

by Dr. Tony Phillips

Grab your cell phone and take a good long look. It's indispensable, right? It tells time, surfs the web, keeps track of your appointments and, by the way, also makes phone calls. Modern people can hardly live without one.

One good solar flare could knock it all out.

"In the 21st century, we're increasingly dependent on technology," points out Tom Bogdan, director of NOAA's Space Weather Prediction Center in Boulder, Colorado. "This makes solar activity an important part of our daily lives."

Indeed, bad space weather can knock out power systems, telecommunications, financial and emergency services — basically, anything that needs electronics to work. That's why NOAA is building a new fleet of "space weather stations," the GOES-R satellites.

"GOES-R will bring our existing fleet of weather satellites into the 21st century," says Bogdan. "They're designed to monitor not only Earth weather, but space weather as well."

NOAA's existing fleet of Geostationary Operational Environmental Satellites (GOES) already includes some space weather capabilities: solar ultraviolet and X-ray telescopes, a magnetometer and energetic particle sensors. GOES-R will improve upon these instruments and add important new sensors to the mix.

One of Bogdan's favorites is a particle detector named "MPS-Low," which specializes in sensing low-energy (30 eV – 30

keV) particles from the sun.

Who cares about *low-energy* particles? It turns out they can be as troublesome as their high-energy counterparts. Protons and other atomic nuclei accelerated to the highest energies by solar flares can penetrate a satellite's exterior surface, causing all kinds of problems when they reach internal electronics. Low-energy particles, particularly electrons, can't penetrate so deeply. Instead, they do their damage on the outside.

As Bogdan explains, "Low-energy particles can build up on the surfaces of spacecraft, creating a mist of charge. As voltages increase, sparks and arcs can zap electronics — or emit radio pulses that can be misinterpreted by onboard computers as a command."

The Galaxy 15 communications satellite stopped working during a solar wind storm in April 2010, and many researchers believe low-energy particles are to blame. GOES-R will be able to monitor this population of particles and alert operators when it's time to shut down sensitive systems.

"This is something new GOES-R will do for us," says Bogdan.

The GOES-R magnetometer is also a step ahead. It will sample our planet's magnetic field four times faster than its predecessors, sensing vibrations that previous GOES satellites might have missed. Among other things, this will help forecasters anticipate the buildup of geomagnetic storms.

And then there are the pictures. GOES-R will beam back striking images of the sun at X-ray and extreme UV wavelengths. These are parts of the electromagnetic spectrum where solar flares and other eruptions make themselves known with bright flashes of high-energy radiation. GOES-R will pinpoint the flashes and identify their sources, allowing forecasters to quickly assess whether or not Earth is in the "line of fire."

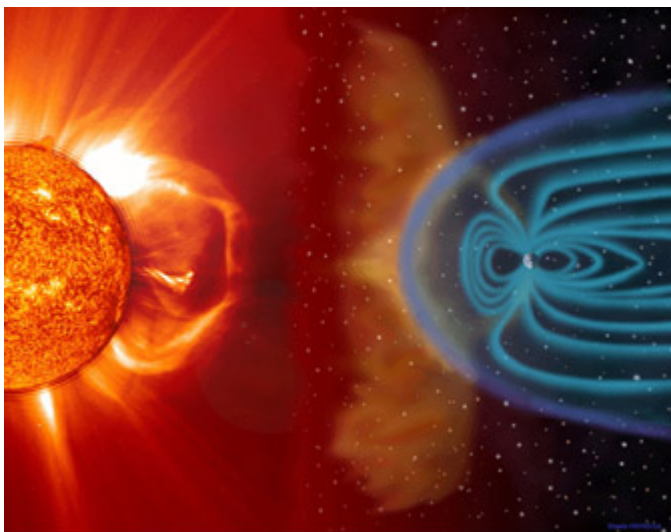
They might also be able to answer the question, *Is my cell phone about to stop working?*

The first GOES-R satellite is scheduled for launch in 2015. Check [www.goes-r.gov](http://www.goes-r.gov) for updates.

Space weather comes down to Earth in the clear and fun explanation for young people on SciJinks:

<http://scijinks.gov/space-weather-and-us>

*This article was provided by the Jet Propulsion Laboratory, California Institute of Technology, under a contract with the National Aeronautics and Space Administration.*



**In spite of Earth's protective magnetosphere, solar storms can wreak havoc with Earth satellites and other expensive electronics on the ground.**

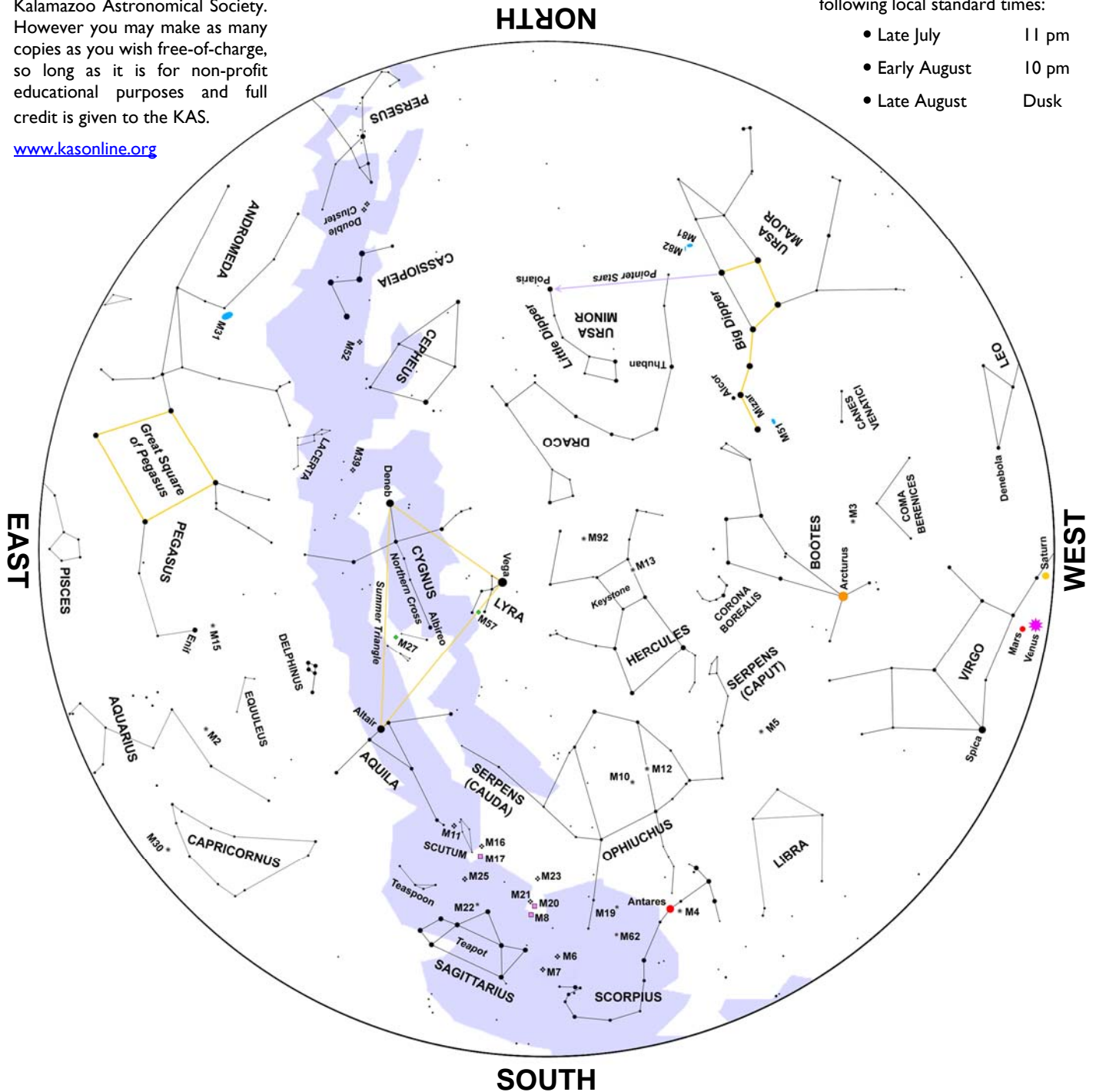
# August Night Sky.....

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.

[www.kasonline.org](http://www.kasonline.org)

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

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



**A**ugust picks up where July left off; with Mars and Saturn together in the western sky. The pair are separated by  $2^\circ$  on August 1<sup>st</sup>. Brilliant Venus will be quite obvious  $7^\circ$  to the lower right of the Mars-Saturn pairing. Begin your search 1 hour after sunset.

A Waning Crescent Moon will be  $4^\circ$  to the upper right of the Pleiades during the early morning hours of August 4<sup>th</sup>. Should be a grand site in binoculars.

The Perseid Meteor Shower peaks during the night of August 11<sup>th</sup>-12<sup>th</sup>.

The Moon will cause no interference. Upward estimates are 90 meteors/hour.

A Waxing Crescent Moon will be  $7^\circ$  below the Venus-Saturn-Mars gathering on August 12<sup>th</sup> & 13<sup>th</sup>. You'll want a clear view of the western horizon.

## KAS BOARD

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[E-MAIL a BOARD MEMBER](mailto:KAS@kalamazoomuseum.org)



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# Checkout the ShortTube!



The Kalamazoo Astronomical Society's Orion ShortTube 80mm refractor, mounted on the light 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. Contact the KAS Equipment Manager, **Dave Woolf**, today if you'd like to use it:

e-mail: [go4itbass@gmail.com](mailto:go4itbass@gmail.com)

phone: (269) 762-8269

## Kalamazoo Valley Museum Planetarium Show Schedule

### *The Little Star That Could*

Weekdays, 11am; Saturdays, 1pm; Sundays, 2pm

### *Saturday Summer Nights (Live)*

Saturdays at 2:00 pm

### *Ice Worlds*

Everyday at 3:00 pm



Planetarium admission is \$3.00 per person. The Kalamazoo Valley Museum is located at 230 North Rose Street in downtown Kalamazoo. For more information please call (269) 373-7990 or visit us on the web at [www.kalamazoomuseum.org](http://www.kalamazoomuseum.org)

## ☆ **OBSERVE** the **UNIVERSE** ☆

### AUGUST STARGAZING DATES

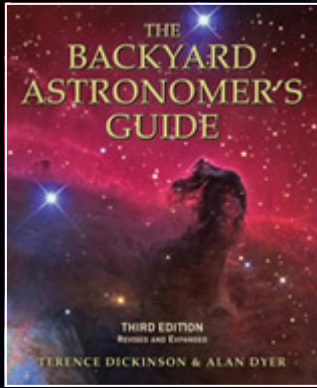
Kalamazoo Nature Center • 7000 N. Westnedge Ave.

**Saturday, August 7 @ 8:30 pm**  
*The Summer Triangle*

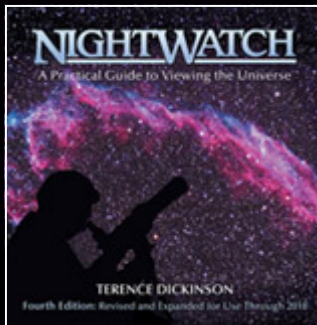
**Saturday, August 14 @ 8:30 pm**  
*Moon, Perseids & More*



with the **Kalamazoo Astronomical Society**



**\$49.95**



**\$35.00**



# THE SkySHOP



*Purchase Online - Delivery Available*



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**More available at: <http://skyshop.kasonline.org/>**

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