

## AUGUST 2008 (VOLUME 16, NO. 8) Visit our website at www.ccas.us

# In This Issue

The Sky Over Chester County: August 20082
August Observing Highlights
Welcome!
Treasurer's Report & Membership Renewals3
Observations Gets New Editor4
Mason-Dixon Star Party4
Black Forest Star Party5
Through the Eyepiece5
NASA Space Place7
Cartoon by Nicholas La Para8
CCAS Information Directory 10-11
Map and Directions to the BVA 12-13



The Moon Credit: Dave Hockenberry, CCAS Member

# Important August Dates

1st • CCAS Monthly Observing Session, Myrick Conservancy Center, BVA (inclement weather date August 2nd).

26th • Deadline for newsletter submissions for the September 2008 edition of Observations.

# CCAS Autumn Schedule

# September

5th • CCAS Monthly Observing Session 9th • CCAS Monthly Meeting

# October

3rd • CCAS Monthly Observing Session

14th • CCAS Monthly Meeting

## November

11th • CCAS Monthly Meeting

28th • CCAS Monthly Observing Session

## December

9th • CCAS Holiday Party 26th • CCAS Monthly Observing Session



# **The sky over Chester County** August 15, 2008 at 9:00 p.m. EDT

Note: the constellation stick figures used on the chart above were adapted from the book *The Stars: A New Way to See Them*, by H. A. Rey. This excellent guide to learning the constellations can be purchased at many area book stores, or from online booksellers

8/31 6:28 a.m. 7:33 p.m. EDT Last Quarter 8/23 New Moon 8/30		<u>Date</u> 8/1 8/15 8/31	<u>Sunrise</u> 5:59 a.m. 6:13 a.m. 6:28 a.m.	<u>Sunset</u> 8:14 p.m. EDT 7:57 p.m. EDT 7:33 p.m. EDT	<u>Moon Phases</u> New Moon 8/01 First Quarter 8/08 Full Moon 8/16 Last Quarter 8/23 New Moon 8/30
--	--	------------------------------------	---	--	---

## August Observing Highlights

by Don Knabb, CCAS Observing Chair

August 1	New Moon, 6:13 a.m.
August 8	First quarter Moon, 4:20 p.m.
August 12	Perseid meteor shower peaks tonight.
August 13-16	Mercury, Venus and Saturn are close together but very low in the west just after sunset.
August 16	Full Moon, 5:16 p.m. This full moon was called the Green Corn Full Moon by

some Native American tribes.

- August 23Last Quarter Moon, 7:50 p.m.
- August 30 New Moon, 3:58 p.m.

**The Planets:** Wow, what a collection of planetary highlights we have to enjoy during August! Mercury, Venus, Mars and Saturn are low in the west just after sunset and bright Jupiter is in the east. With a bit of effort you can even find Uranus and Neptune with your binoculars or telescope later at night during August.

**Mercury:** In mid-August, from the 13<sup>th</sup> to the 16<sup>th</sup>, Mercury dances with Venus and Saturn in the glow of the sunset. The planets are so low in the bright sunset that you will need binoculars to see Mercury and Saturn.

**Venus:** The "evening star" has finally emerged from behind the Sun and is catching up to us as we follow our orbital paths. Watch as Venus gets higher and brighter in the sky as the month progresses.

**Mars:** As the Phoenix lander digs into the Martian polar ice, the Red Planet fades in brightness as we enjoy the warm nights of August. When Mercury, Venus and Saturn are close together at mid-month, Mars will be quite a distance to their upper left.

**Jupiter:** Bright Jupiter is in eastern Sagittarius during August. As you look for the wonderful deep sky objects in this area take some time to turn your telescope to the King of the Planets. Jupiter will be at its highest position in the sky around 11:00 p.m. early in the month and at 9:00 p.m. at month's end.

**Saturn:** Saturn is fading into the sunset during August and you will most likely need binoculars to catch the ringed beauty before it fades below the horizon.

**Uranus and Neptune:** Both gas giants are in good viewing position if you stay up late. Neptune is at opposition on August 15<sup>th</sup> so it is at its best viewing position in the sky around midnight. Uranus is a few hours behind but will still be fairly high in the sky after you find Neptune, and Uranus is much brighter, with a distinct green color. Use the finder charts at SkyandTelescope.com/UranusNeptune to aid your quest.

**Pluto:** Pluto is in northwestern Sagittarius during August. Finder charts are in the June issue of Sky and Telescope. **The Moon:** On August 1<sup>st</sup> the Moon comes directly between the Sun and the Earth creating a total solar eclipse in the Arctic, Siberia and northern China. Also, grab your binoculars and get up early on August 28<sup>th</sup> to see a thin crescent Moon close to the Beehive Cluster.

**Constellations:** The summer constellations of Scorpius and Sagittarius are about as high as they will get, so enjoy the many sights that inhabit the deep southern sky. Overhead, Bootes with bright Arcturus is now beginning to drop into the western half of the sky and the Summer Triangle rises to the top of the sky as the night progresses. If you stay up late the Great Square of Pegasus is rising in the east.

**Messier/deep sky:** Set up your binoculars or telescope and dive deep into the many wonders of the southern sky! There are so many clusters and nebulas in the area of Sagittarius that you can spend an entire observing session enjoying their company. This is also a great time to aim your binoculars or telescope directly overhead and study the globular clusters in Hercules, M13 and M92. They will be quite bright being directly overhead, therefore you will see them through the least amount of atmosphere, so don't miss this opportunity.

**Comets:** There are no bright comets in the sky during August.

**Meteor showers:** Yeah! The Perseid meteors are back! This is considered the most dramatic of all meteor showers and it peaks in the early morning hours of August 12th. But, being a work day I will make the evening before my observing time. Earlier in the evening you will see fewer meteors, but if you are lucky you will see an "Earth grazer", a meteor that comes into the atmosphere at a shallow angle and travels a long distance across the sky. If you see a fireball that does this you will probably shout out loud (I know I have)!

## Welcome!

This month we welcome a new member to the Society: Gabriel Given. We're glad you decided to join us under the stars! Clear Skies to you!

★ ★ **Treasurer's Report** by Bob Popovich

\*

\*

#### May 2008 Financial Summary

Beginning Balance	\$1,570
Deposits	143
Disbursements	33
Ending Balance	\$1,680

## Membership Renewals Due

08/2008	Fellwock
	Fragale
	Knabb
09/2008	Bogucki
	De Lucia
	Foley
	Gustainis
	Lurcott

### Membership Renewals

You can renew your CCAS membership by writing a check payable to "Chester County Astronomical Society" and sending it to our Treasurer:

#### Bob Popovich 416 Fairfax Drive Exton, PA 19341-1814

The current dues amounts are listed in the CCAS *Information Directory* on page 9 in this newsletter.

\* \* \* \* \*

### **OBSERVATIONS Gets New Editor**

by Kathy Buczynski

Since September, 1995, Jim Anderson has had the responsibility of editing, formatting and distributing our newsletter, *Observations*. Jim has also written quite a few articles, edited those that were submitted and coordinated incoming articles from members and outside sources.

Jim has decided to step down as newsletter editor, and I cannot pass up this opportunity to congratulate Jim and thank him for his contribution over the years.

Jim has helped the newsletter grow from just a few blackand-white pages, welcoming new members, listing programs and sharing astronomical highlights to the colorpacked, fully informative, award-winning publication it is today. He has gone from printing and mailing a copy for each member to emailing all but 5. The newsletter has been expanded under Jim's coordination to include articles from NASA's "Space Place", Nicholas LaPara's monthly cartoon and until recently, Bob Popovich's "Astronomus" articles. In addition, our Observing Chair and club Secretary, Don Knabb, has contributed articles on observing highlights and often including photographs. All of this coordinated and edited beautifully by Jim.

In 2000, 2001 and 2004, Jim was awarded second place for the Astronomical League's *Mabel Sterns' Award for Outstanding Newsletter Editor.* And, I'm pleased to say, in 2006 Jim was rewarded in full for his outstanding work and took first place for that award and received recognition from the Astronomical League and his fellow CCAS members.



Jim has done this at the same time he was participating in the Education Committee's efforts in outreach and teaching multiple classes, sometimes with very little notice. And since 2005 has served as Program Chair and Vice President of your Society; a position he will continue to hold. In 2006, Jim was awarded the first "Edwin T. Lurcott Founders Award" for contributions to the Society over and above what would typically be expected from an individual member.

And, on a personal note, when I had my hands full in my personal life, Jim was there to back me up and support me. I knew that I could rely on him.

Thank you for your contribution, Jim and I hope you will continue to contribute an article or two to the newsletter and participate in teaching classes.

A new direction:

Please welcome John Hepler as our new newsletter editor. John has been our webmaster since 2005 and in his first year won "Webmaster of the Year" from the Astronomical League. Quite an accomplishment!

John has done an excellent job for us coordinating email lists and organizing the website. John has the communication and technical skills to take this responsibility and run with it.

Congratulations, John and thank you. We look forward to you putting your expertise to work on our monthly publication.

Contributions to the newsletter can be sent to John at <u>newsletter@ccas.us</u>. And if you have contributions to the website, please email them to <u>webmaster@ccas.us</u>.

\* \* \* \* \*

#### Mason-Dixon Star Party 2008

#### July 30 to August 3, 2008

The 19th Annual Mason Dixon Star Party is a fun event for all members of the family. This location offers a large and level camping and observing area with unlimited space for attendees in southern York country, with reasonably dark skies. This event will also bracket a new moon to provide optimal observing.

The Milky Way is easily seen at this site and stars can be seen less than 10 degrees above the horizon!



This is a fun filled Star Party geared for everyone! There will be workshops, speakers, vendors, field trips and raffle prizes for all ages. We also have camping areas, bunk houses, food, showers and facilities, horse shoe pits, sand volley ball courts and a swimming pool too!

For more information and on-line registration see:

#### http://masondixonstarparty.org/

\* \* \* \* \*

### Black Forest Star Party: Sept. 5-7, 2008

This star party is held at Cherry Springs State Park in Potter County, Pennsylvania. Cherry Springs State Park

is one of the darkest sites in the state of Pennsylvania and has been designated as Pennsylvania's first Dark Sky Park by the PA Department of Conservation and Natural Resources (DCNR). CCAS members who have attended past Star Parties at Cherry Springs have attested to the excellent observing conditions at the Park.

Registration for the Black Forest Star Party is now open. More information and on-line registration is at:

#### http://www.bfsp.org

# \* \* \* \* \* \* \* \* \* \* \* \* \* \* \*

## Through the Eyepiece: The Lagoon and Trifid Nebulas in Sagittarius

by Don Knabb, CCAS Observing Chair

We only have a few months to enjoy the deep southern sky with Sagittarius and Scorpius spending their brief time near the horizon. Without fail, the first two objects I look for when I pick up my binoculars or set up my telescope are the Lagoon Nebula and the Trifid Nebula. These giant clouds of glowing gas are within one field of view in binoculars.



Sky map credit: http://upload.wikimedia.org/wikipedia/commons/8/80/Sagittarius\_constellation\_map.png

To find them look to the northwest of the "teapot" of Sagittarius. I usually find the two stars that define the top of the spout of the teapot and scan upward until I find the two bright fuzzy spots that are M8 and M20.

My favorite object in this area is M8, the Lagoon Nebula. For me, this is the summer equivalent of the Orion Nebula. This object is vastly larger than our solar system, but is more than 5,000 light years away. It is an emission nebula, which is a vast cloud of gas that is glowing like a neon tube due to ultraviolet radiation from hot, young stars within.

The name Lagoon Nebula is derived from the dark channel, the "lagoon", that seems to divide the object in two. In binoculars, the Lagoon is a distinct oval cloudlike patch with a definite core, like a pale celestial flower. The nebula has a fragile star cluster superimposed on it, making this one of the leading celestial sights of summer night skies.

From a very dark site, the Lagoon Nebula is said to be visible to the unaided eye but I have not been able to see it without binoculars. The Lagoon nebula is a beautiful sight in any size telescope.

This nebula is a giant cloud of interstellar matter which is currently undergoing vivid star formation, and has already formed a considerable cluster of young stars.

The Lagoon Nebula is a magnificent object for the amateur astrophotographer. Here is a picture from Brent Crabb of Southern California.



Photo credit: Brent Crabb, Astrophotographer, Orange County, California

Just above the Lagoon Nebula is a smaller fuzzy grey area. This is the Trifid Nebula, also known as Messier 20. The nebula's name means "divided into three lobes". The object is a remarkable collection of open cluster, emission nebula (the lower, red portion), reflection nebula (the upper, blue portion) and dark nebula (the separation within the emission nebula.

In the sky, the Trifid nebula M20 is situated roughly 2 degrees northwest of the larger Lagoon Nebula M8. Below is a striking astrophoto of M20, again from Brent Crabb of Southern California.



Photo credit: Brent Crabb, Astrophotographer, Orange County, California

The energetic processes of star formation create not only the colors but the chaos in this beautiful deep sky object. The redglowing gas results from high-energy starlight striking interstellar hydrogen gas. The dark dust filaments that lace M20 were created in the atmospheres of cool giant stars and in the debris from supernovae explosions. Which bright young stars light up the blue reflection nebula is still being investigated. The light from M20 we see today left perhaps 3000 years ago, although the exact distance remains unknown. Light takes about 50 years to cross M20.

The sources I researched for this article vary in their opinion of who discovered the Trifid Nebula. One source says it was discovered by the French astronomer Legentil de La Galaisière before 1750 and named by the English astronomer Sir John Herschel for the three dark rifts that seem to divide the nebula and join at its center. Other articles state that Charles Messier discovered this object on June 5, 1764, and described it as a cluster of stars of 8th to 9th magnitude, enveloped in nebulosity.

So grab your binoculars or set up your telescope and enjoy these and the numerous other deep sky objects in Sagittarius!

#### Information credits:

Pasachoff, Jay M. 2000. A Field Guide to the Stars and Planets. New York, NY. Houghton Mifflin. Dickinson, Terence 2006. Nightwatch: a practical guide to viewing the universe. Buffalo, NY. Firefly Books 2008 Skywatch. Sky and Telescope magazine http://www.seds.org/messier/m/m008.html http://www.astropix.com/HTML/D\_SUM\_S/M8.HTM http://www.britannica.com/EBchecked/topic/605155/Trifid-Nebula http://www.seds.org/messier/m/m020.html



#### Death of a Supergiant

By all outward appearances, the red supergiant appeared normal. But below the surface, hidden from probing eyes, its core had already collapsed into an ultra-dense neutron star, sending a shock wave racing outward from the star's center at around 50 million kilometers per hour.

The shock wave superheated the plasma in its path to almost a million degrees Kelvin, causing the star to emit high-energy ultraviolet (UV) radiation. About six hours later, the shock wave reached the star's surface, causing it to explode in a Type IIP supernova named SNLS-04D2dc.

Long before the explosion's visible light was detected by telescopes on Earth, NASA's Galaxy Evolution Explorer (GALEX) space telescope captured the earlier pulse of UV light — scientists' first glimpse of a star entering its death throes."

This UV light has traveled through the star at the moment of its death but before it was blown apart," explains Kevin Schawinski, the University of Oxford astrophysicist who led the observation. "So this light encodes some information about the state of the star the moment it died."

And that's exactly why astronomers are so excited. Observing the beautiful nebula left behind by a supernova doesn't reveal much about what the star was like before it exploded; most of the evidence has been obliterated. Information encoded in these UV "pre-flashes" could offer scientists an unprecedented window into the innards of stars on the verge of exploding.



Sequence of images shows supernova start to finish. The top left image shows the galaxy before the supernova. At top right, the bright UV flash called the shock breakout indicates a red supergiant has collapsed. At bottom left, moments later, the flash is mostly gone. As the debris expands, it heats up again and becomes brighter (bottom right). The supernova became 10 times the size of the original over the following few days, thus becoming visible to supernova hunters.

In this case, Schawinski and his colleagues calculated that just before its death, the star was 500 to 1000 times larger in diameter than our sun, confirming that the star was in fact a red supergiant. "We've been able to tell you the size of a star that died in a galaxy several billion light-years away," Schawinski marvels.

"GALEX has played a very important role in actually seeing this for a few reasons," Schawinski says. First, GALEX is a space telescope, so it can see far-UV light that's blocked by Earth's atmosphere.

Also, GALEX is designed to take a broad view of the sky. Its relatively small 20-inch primary mirror gives it a wide, 1.2degree field of view, making it more likely to catch the UV flash preceding a supernova. With these advantages, GALEX is uniquely equipped to catch a supernova before it explodes. "Just when we like to see it," Schawinski says.

For more information, visit <u>www.galex.caltech.edu</u>, "Ultraviolet Gives View Inside Real 'Death Star'." Kids can check out how to make a mobile of glittering galaxies at spaceplace.nasa.gov/en/kids/galex\_make1.shtml.

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

×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×



Cartoon by Nicholas La Para

+	+	+	*	+	+	+	+	+	+	+	+	+	+	+	+
^	^	^	^	^	~	^	^	^	~	~	~	^	^	^	~

# **CCAS Information Directory**

### Join the Fight for Dark Skies!

You can help fight light pollution, conserve energy, and save the night sky for everyone to use and enjoy. Join the nonprofit International Dark-Sky Association (IDA) today. Individual memberships start at \$30.00 for one year. Send to:

International Dark-Sky Association 3225 North First Avenue Tucson, AZ 85719

> Telephone: 520-293-3198 Fax: 520-293-3192 E-mail: ida@darksky.org

For more information, including links to helpful information sheets, visit the IDA web site at:

### www.darksky.org

Note that our CCAS Webmaster John Hepler has a link to the IDA home page set up on our Society's home page at www.ccas.us.

## Dark-Sky Website for PA

The Pennsylvania Outdoor Lighting Council has lots of good information on safe, efficient outdoor security lights at their web site:

#### www.POLCouncil.org



# **Good Outdoor Lighting Website**

One of the biggest problems we face in trying to reduce light pollution from poorly designed light fixtures is easy access to good ones. When you convince someone, a neighbor or even yourself, to replace bad fixtures, where do you go for good lighting fixtures? Now there is a web site and business intended to address that very problem. At this site you can find information on all kinds of well-designed (that is, star-friendly) outdoor lighting fixtures. This company, Starry Night Lights, intends to make available all star-friendly fixtures they can find, and information on them, in one place. Check it out, and pass this information on to others. Help reclaim the stars! And save energy at the same time!

# http://www.starrynightlights.com/



# Local Astronomy Store: Skies Unlimited

There is an astronomy equipment store called *Skies Unlimited* in our area, in Pottstown to be specific, at:

# Suburbia Shopping Center

52 Glocker Way

Pottstown, PA 19465

Telephone: 610-327-3500 or 888-947-2673

# http://www.skiesunlimited.net/





*Green	Earth	Lighting
\$	Formerly	0 0
Outdo	or Lighting	Associates

## http://www.greenearthlighting.com



# Find out about Lyme Disease!

Anyone who spends much time outdoors, whether you're stargazing, or gardening, or whatever, needs to know about Lyme Disease and how to prevent it. You can learn about it at:

#### www.LymePA.org

Take the time to learn about this health threat and how to protect yourself and your family. It is truly "time well spent"!



#### New Astronomy Store Opens in Manayunk

## **Spectrum Scientifics**

#### www.spectrum-scientifics.com

# **CCAS Information Directory**

#### **CCAS Lending Telescopes**

Contact Kathy Buczynski to make arrangements to borrow one of the Society's lending telescopes. CCAS members can borrow a lending telescope for a month at a time; longer if no one else wants to borrow it after you. Kathy's phone number is 610-436-0821.

#### **CCAS Lending Library**

Contact our Librarian, Linda Lurcott Fragale, to make arrangements to borrow one of the books in the CCAS lending library. Copies of the catalog are available at CCAS meetings, and on the CCAS website. Linda's phone number is 610-269-1737.

#### Contributing to Observations

Contributions of articles relating to astronomy and space exploration are always welcome. If you have a computer, and an Internet connection, you can attach the file to an e-mail message and send it to

#### newsletter@ccas.us

Or mail the contribution, typed or handwritten, to:

John Hepler 500 W. Rosedale Ave. Apt. A-3 Trinity Bldg. West Chester, PA 19382

#### Get CCAS Newsletters via E-mail

You can receive the monthly newsletter (in full color!) via e-mail. All you need is a PC or Mac with an Internet e-mail connection. To get more information about how this works, send an e-mail request to John Hepler, the newsletter editor, at:

## newsletter@ccas.us CCAS Website

John Hepler is the Society's Webmaster. You can check our Website at:

# http://www.ccas.us/

John welcomes any additions to the site by Society members. The contributions can be of any astronomy subject or object, or can be related to space exploration. The only requirement is that it is your own work; no copying copyrighted material! Give your contributions to John Hepler (484-266-0699) or e-mail to webmaster@ccas.us

### **CCAS** Purpose

The Chester County Astronomical Society was formed in September 1993, with the cooperation of West Chester University, as a non-profit organization dedicated to the education and enjoyment of astronomy for the general public. The Society holds meetings (with speakers) and observing sessions once a month. Anyone who is interested in astronomy or would like to learn about astronomy is welcome to attend meetings and become a member of the Society. The Society also provides telescopes and expertise for "star nights" for school, scout, and other civic groups.

#### **CCAS Executive Committee**

For further information on membership or society activities you may call:

President:	Kathy Buczynski 610-436-0821
Vice Pres:	Jim Anderson 610-857-4751
ALCor and	
Treasurer:	Bob Popovich 610-363-8242
Secretary:	Don Knabb 610-436-5702
Librarian:	Linda Lurcott Fragale
Observing:	Don Knabb 610-436-5702
Education:	Kathy Buczynski 610-436-0821
Webmaster and	
Newsletter:	John Hepler
	484-266-0699
Public Relations:	Deb Goldader 610-304-5303



#### **CCAS Membership Information**

The present membership rates are as follows:

REGULAR MEMBER	\$ 25/year
SENIOR MEMBER	\$ 10/year
STUDENT MEMBER	\$ 5/year
JUNIOR MEMBER	\$ 5/year
FAMILY MEMBER	\$ 35/year

#### Membership Renewals

Check the Treasurer's Report in each issue of *Observations* to see if it is time to renew. If you need to renew, you can mail your check, made out to "Chester County Astronomical Society," to:

> Bob Popovich 416 Fairfax Drive Exton, PA 19341-1814

Phone: 610-363-8242 e-mail: B2N2@verizon.net

#### Sky & Telescope Magazine Group Rates

Subscriptions to this excellent periodical are available through the CCAS at a reduced price of **\$32.95**, much less than the newsstand price of \$66.00, and also cheaper than individual subscriptions (\$42.95)! Buying a subscription this way also gets you a 10% discount on other Sky Publishing merchandise.

To start a new subscription, make sure you make out the check to the Chester County Astronomical Society, note that it's for *Sky & Telescope*, and mail it to Bob Popovich.

To **renew** your "club subscription" contact Sky Publishing directly. Their phone number and address are in the magazine and on their renewal reminders.

If you have **any** questions call Bob first **(610-363-8242).** 

#### Astronomy Magazine Group Rates

Subscriptions to this excellent periodical are available through the CCAS at a reduced price of **\$34.00** which is much less than the individual subscription price of \$42.95 (or \$60.00 for two years). If you want to participate in this special Society discount offer, **contact our Treasurer Bob Popovich.** 



To get to the Myrick Conservation Center of the Brandywine Valley Association from West Chester, go south on High Street in West Chester past the Courthouse. At the next traffic light, turn right on Miner Street, which is also PA Rt. 842. Follow Rt. 842 for about 6 miles. To get to the observing site at the BVA property, turn off Route 842 into the parking lot by the office: look for the signs to the office along Route 842. From that parking lot, go up the farm lane to the left; it's about 800 feet or so to the top of the hill. If you arrive after dark, please turn off your headlights and just use parking lights as you come up the hill (so you don't ruin other observers' night vision).

