



# Observations

A Monthly Publication Of The  
CHESTER COUNTY ASTRONOMICAL SOCIETY

Vol. 19, No. 6

Two-Time Winner of the Astronomical League's Mabel Sterns Award # 2006 & 2009

June 2011

## In This Issue

CCAS Spring/Summer	
2011 Events .....	2
May 2011 Meeting Minutes.....	2
Nicholas's Humor Corner.....	2
June 2011 Meeting	
Guest Speaker.....	3
Astronomy Resources Online .....	3
50th Anniversary of JFK Speech.....	3
The Sky Over Chester County:	
June 2011 .....	4
June 2011 Observing	
Highlights.....	5
Through the Eyepiece: The	
Silver Needle Galaxy .....	6
NASA Space Place.....	8
CCAS Directions: Brandywine	
Valley Association .....	9
Membership Renewals .....	10
New Member Welcome!.....	10
CCAS Directions: WCU Map .....	10
Treasurer's Report .....	10
CCAS Information Directory .....	11-12

## Last Launch of Endeavor



The last launch of the space shuttle Endeavor, May 16, 2011. This photo was taken seconds after liftoff on mission STS-134 to the ISS. Endeavor delivered the Alpha Magnetic Spectrometer 2 (AMS), a detector that over the next few years could detect a significant abundance of specific types of dark matter, charged antimatter, and even a strangely possible variation of familiar matter called strangelets. (Photo courtesy of NASA)

## Membership Renewals Due

06/2011	Hebding Kovacs Siskind
08/2011	Given & Family Knabb & Family Loving & Family Lurcott Fragale Morgan
09/2011	Arunapuram Baudat & Family Catalano-Johnson & Family De Lucia Lurcott

## Important June 2011 Dates

- 1st • New Moon 5:03 p.m.
- 6th-12th • Saturn makes its closest approach to the double star Gamma Virginis
- 8th • First Quarter Moon 1:11 p.m.
- 15th • Full Moon 4:14 p.m.
- 21st • Summer begins, 1:16 p.m.
- 23rd • Last Quarter Moon 7:48 a.m.



## CCAS Upcoming Nights Out

CCAS has several "nights out" scheduled over the next few months. Members are encouraged to help out during these events any way they can. See below for more information.

- ☒ **Friday, June 3, 2011** - Monthly Observing Session, Myrick Conservation Center, BVA. See pg. 11 for directions.
- ☒ **Saturday, October 1, 2011** - Fall National Astronomy Day. Anson Nixon Park, Kennett Square, PA.

## Spring/Summer 2011 Society Events

### June 2011

**1st** • PA Outdoor Lighting Council monthly meeting starting at 7:30 p.m. Meetings are open to the public. For more information and directions, visit the [PA Outdoor Lighting Council](#) website.

**3rd** • CCAS Monthly Observing Session, Myrick Conservancy Center, BVA (inclement weather date June 4th). The observing session starts at sunset.

**10th** • DVD Lecture Series: "Ripples in the Cosmic Background Radiation", half-hour video presentation of a lecture by Professor Alex Filippenko, UC Berkeley. Room 113, Merion Science Center (former Boucher Building), West Chester University. The presentation immediately precedes the monthly meeting and starts at 7:00 p.m.

**10th** • CCAS Monthly Meeting, Room 113, Merion Science Center (former Boucher Building), West Chester University. The meeting starts at 7:30 p.m. Guest Speaker: Jerry Lodriguss: "Secrets of DSLR Astrophotography."

**20th** • Open call for articles and photographs for the June 2011 edition of [Observations](#).

**26th** • Deadline for newsletter submissions for the June 2011 edition of [Observations](#).

### July 2011

**1st** • CCAS Monthly Observing Session, Myrick Conservancy Center, BVA (inclement weather date July 2nd). The observing session starts at sunset.

**6th** • PA Outdoor Lighting Council monthly meeting starting at 7:30 p.m. Meetings are open to the public. For more information and directions, visit the [PA Outdoor Lighting Council](#) website.

**20th** • Open call for articles and photographs for the August 2011 edition of [Observations](#).

**26th** • Deadline for newsletter submissions for the August 2011 edition of [Observations](#).

## Minutes from the May 10, 2011 CCAS Monthly Meeting

by Don Knabb, CCAS Secretary and Observing Chair

- Approximately 16 members were in attendance.
- DVD presentation: *Modern Telescopes* was shown.
- John Hepler purchased a new DVD series called *Experiencing Hubble: Understanding the Greatest Images of the Universe*. We will begin viewing this collection of 12 videos in September.
- Program – Dr. Ross Fadley of Haverford College presented *Examining Dark Matter with Gravitational Lensing*.
- The election process was completed with Roger Taylor reelected President, Don Knabb elected Vice President, Liz Smith elected Treasurer and Ann Miller elected Secretary. These changes become effective in September.
- CCAS handout for star parties – Roy Kalinowski presented an idea he has begun to develop for a handout at star parties. This could be in addition to the tri-fold hand out about the club, or incorporate that information into one document.
- Roy will continue to develop this idea with assistance and input from the executive committee.

## Nicholas's Humor Corner

by Nicholas La Para

# ASTRONOMY NEWS

## DWARF PLANET CONCERNS

- \* In a bid to improve its image, the International Astronomical Union (IAU) has launched an "Adopt a Dwarf Planet" campaign.
- \* The IAU is also lobbying congress for a "Planets With Disabilities" act.

LAPARA

## June 2011 Guest Speaker

by Dave Hockenberry, CCAS Program Chair

Originally slated to present at our April meeting, Jerry Lodriguss had to reschedule his visit with us due to illness. He's back this month with a presentation entitled "Secrets of DSLR Astrophotography."

Please note that inclement weather or changes in speakers' schedules may affect the program. In the event there is a change to the program, CCAS members will be notified via e-mail with as much advance notice as possible.

We are looking for presenters for our 2011-2012 season. If you are

interested in presenting or know someone who would be an interesting guest speaker, please contact our Program Chairperson Dave Hockenberry at [programs@ccas.us](mailto:programs@ccas.us).

We are also looking for Constellation of the Month (COM) presenters for the 2011-2012 season. COM is a great way to learn the night sky and a useful tool if you are pursuing one of the Astronomical League's observing club awards. Participating is easy! Contact Kathy Buczynski at [vp@ccas.us](mailto:vp@ccas.us) for a COM template to fill out.

## Astronomy Resources Online

by Liz Smith

The Department of Physics and Astronomy at the University of Nebraska-Lincoln has an amazing online resource of animations covering a wealth of astrophysical phenomena. The link to the simulations is:

<http://astro.unl.edu/animationsLinks.html>

The simulations are organized under an extensive list of categories. Here are just a few: Coordinates & Motions; Lunar Cycles; Renaissance Astronomy; Light & Spectra; Telescopes &

*(Continued on page 10)*

## 50th Anniversary of Kennedy's Speech to Put a Man on the Moon

by John Hepler, CCAS Webmaster & Newsletter Editor

May 25th, 1961 was a momentous day in the history of space exploration. It was on this day that President John F. Kennedy spoke before a Joint Session of Congress, in Washington DC, USA.

During this speech, Kennedy made the following famous declaration:

*"...I believe that this nation should commit itself to achieving the goal, before this decade is out, of landing a man on the Moon and returning him safely to the Earth. No single space project in this period will be more impressive to mankind, or more important in the long-range exploration of space; and none will be so difficult or expensive to accomplish..."*



*Vice President Lyndon Johnson (left) and Speaker of the House Sam Rayburn (right) listen as JFK delivers his famous speech to put an American on the moon before the end of the decade.*

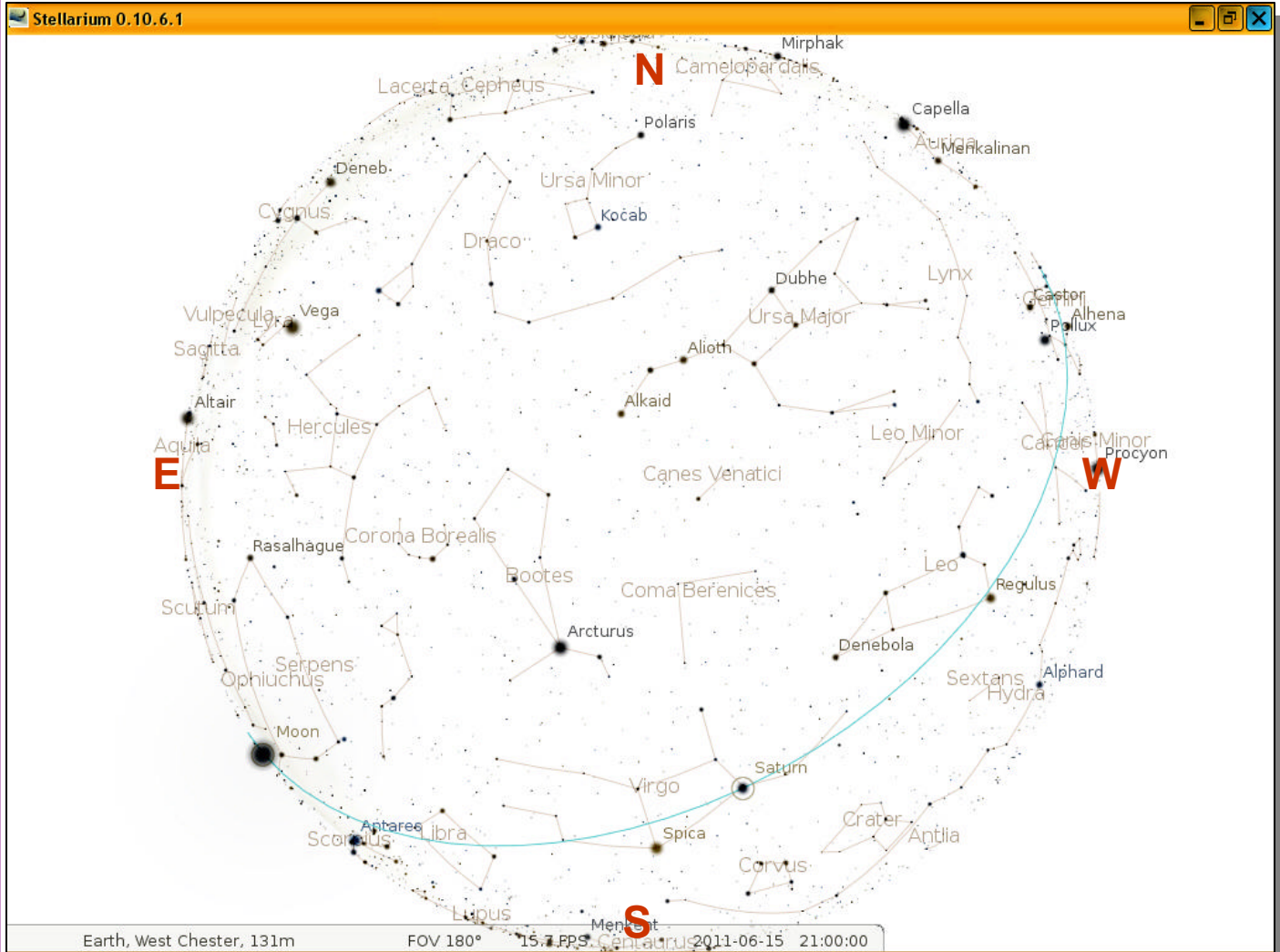
The Moon landing was achieved July 20, 1969, when Neil Armstrong fulfilled the President's

dream. You can see part of [Kennedy's speech on YouTube](#).

# The Sky Over Chester County

June 15, 2011 at 9:00 p.m. ET

Note: This screen capture is taken from Stellarium, the free planetarium software available for download at [www.stellarium.org](http://www.stellarium.org).



Date	Civil Twilight Begins	Sunrise	Sunset	Civil Twilight Ends	Length of Day
6/01/2011	5:02 a.m. EDT	5:34 a.m. EDT	8:23 p.m. EDT	8:55 p.m. EDT	14h 49m 13s
6/15/2011	4:58 a.m. EDT	5:31 a.m. EDT	8:31 p.m. EDT	9:04 p.m. EDT	14h 59m 53s
6/30/2011	5:02 a.m. EDT	5:35 a.m. EDT	8:33 p.m. EDT	9:06 p.m. EDT	14h 58m 33s

Moon Phases					
First Quarter	6/08/2011	1:11 p.m. EDT	Last Quarter	6/23/2011	7:48 a.m. EDT
Full Moon	6/15/2011	4:14 p.m. EDT	New Moon	6/01/2011	5:03 p.m. EDT

## June 2011 Observing Highlights

by Don Knabb, CCAS Secretary & Observing Chair

- June 1 New Moon, 5:03 p.m.  
June 3 The waxing crescent Moon is near Castor and Pollux  
June 6-12 Saturn makes its closest approach to the double star Gamma Virginis  
June 8 First-quarter Moon, 1:11 p.m.  
June 10 The waxing gibbous Moon is near Saturn and Spica  
June 15 Full Moon, 4:14 p.m.  
June 21 Summer begins at 1:16 p.m.  
June 23 Last Quarter Moon, 7:48 a.m.

**The Best Sights This Month:** Saturn continues to be the best object for telescopic observation during June, assuming you stay up late enough for the sky to become fully dark! Late in the month the southern constellations Sagittarius and Scorpius fill the sky with Messier objects!

**Mercury:** Late in the month look for Mercury about 45 minutes after sunset when it falls into line with the stars Castor and Pollux.

**Venus:** Venus is falling lower into the glow of the dawn as it races ahead of us in our journey around the Sun. About a half hour before sunrise you can find our sister planet shining brightly at magnitude -3.8.

**Mars:** Mars is essentially lost in the glow of the rising Sun during June.

**Jupiter:** By the end of the month Jupiter is rising about 4 hours before the Sun. The best time for observation is just before the sky begins to brighten with the sunrise when Jupiter is high in the sky.

**Saturn:** The ringed planet shines at reasonable brightness as soon as the glow of the sun fades from the sky. The entire month of June finds Saturn near the double star Gamma Virginis, with the separation only  $\frac{1}{4}$  degree around June 11th. This should be a nice telescopic sight.

**Uranus and Neptune:** Uranus and Neptune will be in much better viewing position later in the year when they enter the evening sky.

**The Moon:** Full Moon is on June 15th. I really enjoy the June full Moon as it hangs low in the sky and lights up the trees with a warm glow. The June full Moon was called the Full Strawberry Moon by Native American tribes. This name was universal to every Algonquin tribe. However, in Europe they called it the Rose Moon.

**Constellations:** Ah, the summer sky. Yes, you must stay up later to see the stars but at least you won't be shivering! Say goodbye to Leo the Lion as he dives into the west. Look for Scorpius if you have a clear southern horizon and see the bright star Antares shining like a red heart in the big bug of summer. In the east we have bright Vega in Lyra followed by the birds of summer: Cygnus the Swan and Aquila the Eagle.

**Messier/Deep Sky:** There are many wonderful deep sky objects to see during June. My favorites this time of year are the globular clusters. Look for M3 and M5 high overhead, then find M4 near Antares in Scorpius. Then seek M10 and M12 in Ophiuchus. Of course I cannot forget to mention the brightest globular cluster in northern skies, M13 in Hercules.

**Comets:** There are no bright comets visible during June.

**Meteor Showers:** On June 27/28 you might catch a few meteors from the Boötid shower. The meteors will appear to radiate from the constellation Boötes the Herdsman which is high in the sky during June. The best time to see these bits of comet dust is between when it gets dark and midnight.

## Through the Eyepiece: The Silver Needle Galaxy in Canes Venatici

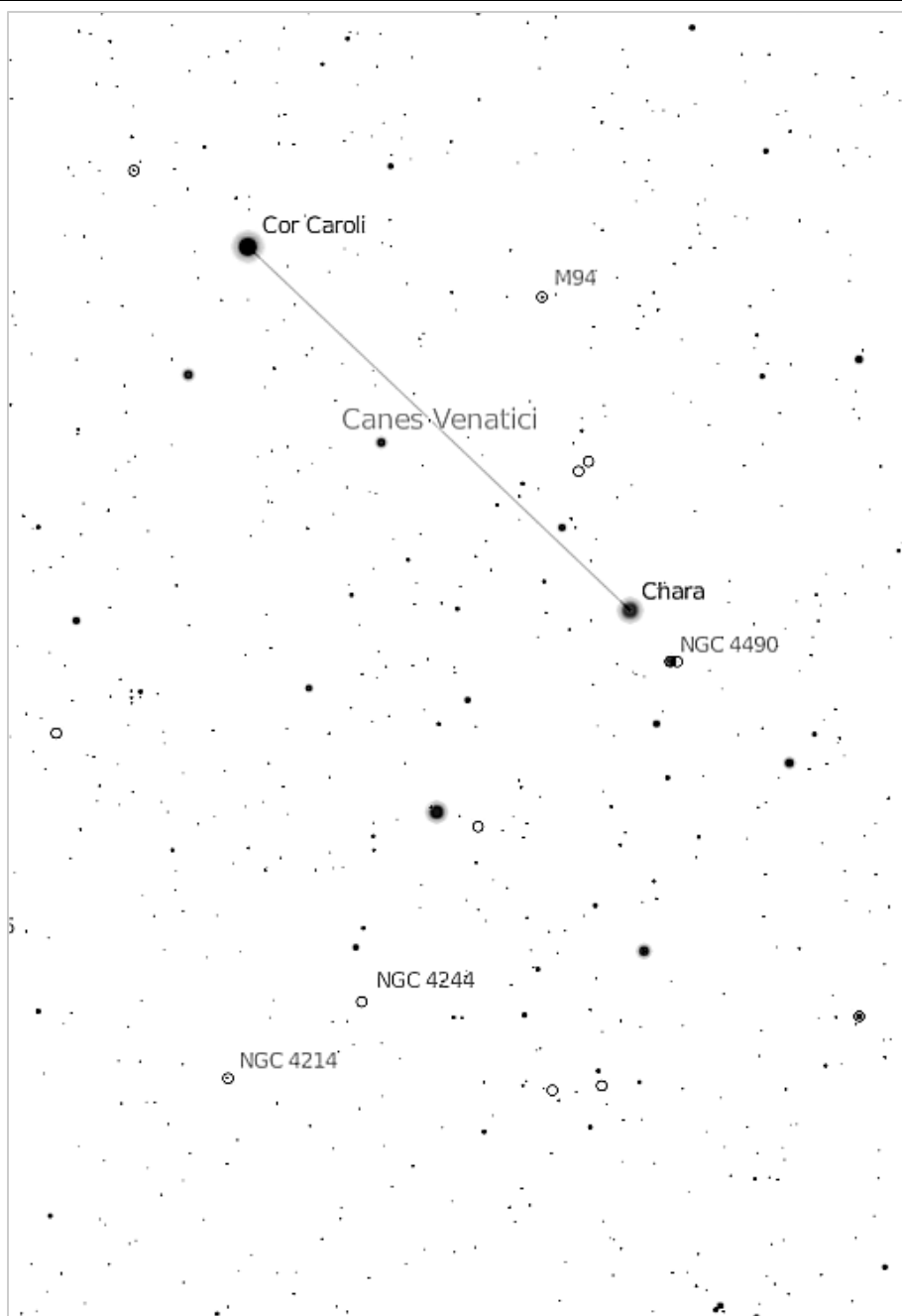
by Don Knabb, CCAS Secretary & Observing Chair

It is still galaxy season, so before we enter the globular cluster days of summer, here is one more galaxy that you can search for in the late spring sky. And a real search it might be, but don't be discouraged, using good star charts you will be able to find this thin ghostly streak, which is a nice change from the usual round fuzzy objects we so often seek out.

This month's target is NGC 4244, also known as the Silver Needle Galaxy and Caldwell 26, in the constellation Canes Venatici. Have you ever wondered what a Caldwell object is? Well, we are all pretty familiar with Messier objects, that list of interesting deep sky objects that Charles Messier published in 1771 to help comet searchers by identifying fuzzy objects in the night sky that are not comets. The Caldwell catalogue was compiled by Sir Patrick Caldwell-Moore, better known as Patrick Moore, the famous British amateur astronomer.

Moore compiled a list of 109 objects (the original number of objects in Messier's list) and published it in *Sky and Telescope* magazine in December 1995. It is considered a natural progression for amateur astronomers to first seek out the Messier catalogue, then the Caldwell catalogue, and then the Herschel 400 catalogue.

The Silver Needle galaxy shines, if you can use that term for a



The star chart above was generated using Stellarium planetarium software.

faint object such as this, at magnitude 10.7. When we see the thin streak that comes to a point at either end we are looking at a spiral galaxy edge-on. At the center of the galaxy is a bright core.

The constellation Canes Venatici doesn't look like much on a star chart and it is represented by just two stars with a straight line between them. Canes Venatici is Latin for *Hunting Dogs*, and the constellation is often depicted in

*(Continued on page 7)*

## Silver Needle Galaxy (cont'd)

*(Continued from page 6)*

illustrations as representing the dogs of Boötes the Herdsman, a neighboring constellation. The western most star of Canes Venatici is the beta star of the constellation and it is named Chara. Using the star chart on page 8 you should be able to “star hop” to the Silver Needle galaxy. You should have dark skies and a telescope with at least a 6 inch mirror size.

Although we are more accustomed to seeing spiral galaxies face-on so that we can see the

beautiful spiral arms reaching out to the depths of interstellar space, observing the Silver Needle galaxy is a nice change and it is an interesting object. Why not use Caldwell 26 as your starting point in going down the list of 109 Caldwell objects?

Information credits:

[http://en.wikipedia.org/wiki/NGC\\_4244](http://en.wikipedia.org/wiki/NGC_4244)

<http://www.noao.edu/outreach/aop/observers/n4244.html>

[http://observing.skyhound.com/archives/apr/NGC\\_4244.html](http://observing.skyhound.com/archives/apr/NGC_4244.html)

[http://en.wikipedia.org/wiki/Spiral\\_galaxy](http://en.wikipedia.org/wiki/Spiral_galaxy)

[http://en.wikipedia.org/wiki/Caldwell\\_catalogue](http://en.wikipedia.org/wiki/Caldwell_catalogue)

Photo details: NGC 4244 (or Caldwell 26), the Silver Needle Galaxy. Shot 5/5/11 by Dave Hockenberry through an Astro-Tech AT8RC scope at FL 1625 mm with a QSI 583 wsg camera, off-axis guided with a SX Lodestar camera and a MaxIm DL4, Losmandy G11 GEM. 150 minutes Luminance, 25 minutes each RGB with AstroDon filters. Calibrated, stacked, deconvolved and RGB creation in CCDStack. Finish processing in Photoshop CS3 including LRGB merge. FITS Liberator courtesy of ESA.



*Photo credit: David Hockenberry, astrophotographer.*

## Milky Way Safari

by Dauna Coulter & Dr. Tony Phillips

Safari, anyone? Citizen scientists are invited to join a hunt through the galaxy. As a volunteer for Zooniverse's Milky Way Project, you'll track down exotic creatures like mysterious gas bubbles, twisted green knots of dust and gas, and the notorious "red fuzzies."

"The project began about four months ago," says astrophysicist Robert Simpson of Oxford University. "Already, more than 18,000 people are scouting the Milky Way for these quarry."

The volunteers have been scrutinizing infrared images of the Milky Way's inner regions gath-



ered by NASA's Spitzer Space Telescope. Spitzer's high resolution in infrared helps it pierce the cloaking haze of interstellar gas and dust, revealing strange and beautiful structures invisible to conventional telescopes. The Milky Way Project is helping astronomers catalogue these intriguing features, map our galaxy, and plan future research.

"Participants use drawing tools to flag the objects," explains Simpson. "So far they've made over a million drawings and classified over 300,000 images."

Scientists are especially interested in bubble-like objects believed to represent areas of active star formation. "Every bubble signifies hundreds to thousands of young, hot stars. Our volunteers have circled almost 300,000 bubble candidates, and counting," he says.

Humans are better at this than computers. Computer searches turn up only the objects precisely defined in a program, missing the ones that don't fit a specified mold. A computer would, for example, overlook partial bub-

*(Continued on page 9)*

**THE MILKY WAY PROJECT**

HOME TAKE PART ABOUT TUTORIAL LOG IN GALACTOMETER™

FOLLOW US ON TWITTER VISIT THE BLOG MILKY WAY TALK

**IMAGES SERVED**  
**242,766**

Time	Images Served
8 Days Ago	1053
7 Days Ago	1362
6 Days Ago	1321
5 Days Ago	1574
4 Days Ago	1956
3 Days Ago	1883
2 Days Ago	1444
Yesterday	2020
Today	2436

**GALACTOMETER™**

The response to the Milky Way Project has been fantastic! Now we've created the Galactometer™! Here you can find the current total image count as well as a graph of the recent daily count of images served up by the project.

Each classification on the site can be made up of many individual drawings. The MWP community has now drawn an incredible

**1,224,579**

objects! These could be bubbles, galaxies, star cluster or others. If you want to be part of this amazing project, [CLICK HERE!](#)

*Volunteers study infrared images of our galaxy from the Spitzer Space Telescope, identifying interesting features using the special tools of the Milky Way Project, part of the Citizen Science Alliance Zooniverse web site.*



## Space Place (Cont'd)

(Continued from page 8)

bubbles and those that are skewed into unusual shapes.

“People are more flexible. They tend to pick out patterns computers don't pick up and find things that just look interesting. They're less precise, but very complementary to computer searches, making it less likely we'll miss structures that deserve a closer look. And just the sheer numbers of eyes on the prize mean more comprehensive coverage.”

Along the way the project scientists distill the volunteers' data to eliminate repetitive finds (such as different people spotting the

same bubbles) and other distortions.

The project's main site (<http://www.milkywayproject.org>) includes links to a blog and a site called Milky Way Talk. Here “hunters” can post comments, chat about images they've found, tag the ones they consider especially intriguing, vote for their favorite images (see the winners at <http://talk.milkywayproject.org/collections/CMWS00002u>), and more.

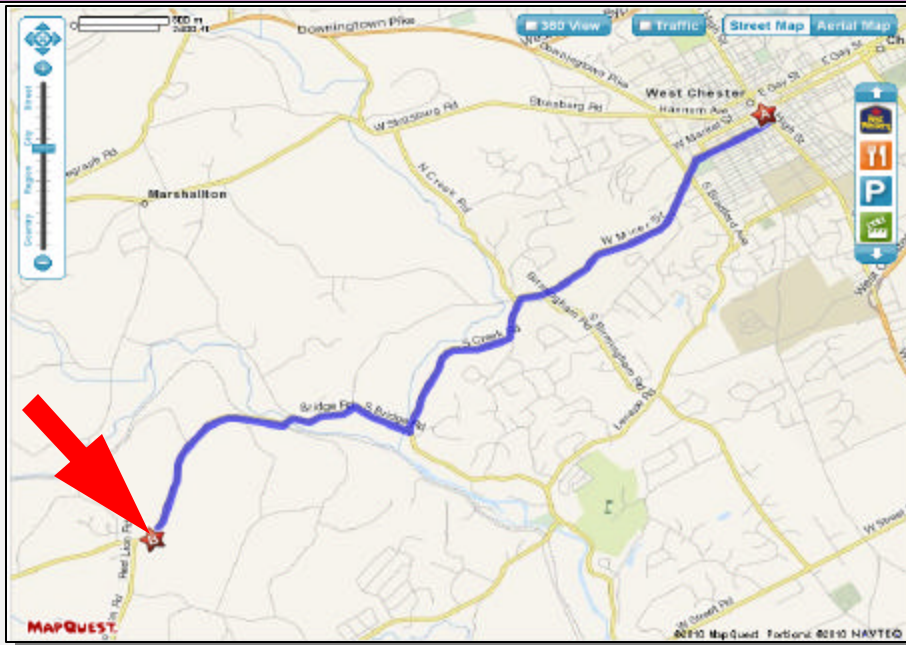
Zooniverse invites public participation in science missions both to garner interest in science and to help scientists achieve their goals. More than 400,000 volun-

teers are involved in their projects at the moment. If you want to help with the Milky Way Project, visit the site, take the tutorial, and ... happy hunting!

You can get a preview some of the bubbles at Spitzer's own web site, <http://www.spitzer.caltech.edu/>. Kids will enjoy looking for bubbles in space pictures while playing the Spitzer concentration game at <http://spaceplace.nasa.gov/spitzer-concentration/>.

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

## CCAS Directions



### Brandywine Valley Association

1760 Unionville Wawaset Rd  
West Chester, PA 19382  
(610) 793-1090  
<http://brandywinewatershed.org/>

BVA was founded in 1945 and is committed to promoting and protecting the natural resources of the Brandywine Valley through educational programs and demonstrations for all ages.

### Brandywine Valley Association

The monthly observing sessions (held year-round) are held at the Myrick Conservation Center of the Brandywine Valley Association.

To get to the Myrick Conservation Center 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 left 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 left through the gate and drive up the farm lane about 800 feet to the top of the hill. The observing area is on the right.

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).

## CCAS Directions

### West Chester University Campus

The monthly meetings (September through May) are held in Room 113 in Merion Science Center (formerly the Boucher Building), attached to the Schmucker Science Center. The Schmucker Science Center is located at the corner of S. Church St & W. Rosedale Ave. Parking is generally available across Rosedale in the Sykes Student Union parking lot (Lot K).



### Simulations (cont'd)

(Continued from page 3)

Astronomical Instruments; Sun & Solar Energy; Stellar Properties; Binary & Variable Stars; Cosmology; Planetary Orbit Simulator; Hertzsprung-Russell Diagram Explorer; and Circumstellar Habitable Zones.

I found this site exceptionally helpful for people such as myself, who are visual thinkers/learners. If you were to explain some of this in principal, I would not be able to follow it, however put it in motion and you have the "Ah HA, so that's what they meant!!!" reaction!

### CCAS Membership Information and Society Financials

#### Treasurer's Report by Bob Popovich

##### April 2011 Financial Summary

Beginning Balance	\$1,456
Deposits	\$60
Disbursements	\$310
Ending Balance	\$1,206

#### New Member Welcome!

Welcome new CCAS member Dmitry Znamensky of West Chester, PA.

We're glad you decided to join us under the stars! Clear Skies to you!

#### 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*. Consult the table of contents for the directory's page number in this month's edition of the newsletter.

## 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

Phone: 520-293-3198  
Fax: 520-293-3192  
E-mail: [ida@darksky.org](mailto:ida@darksky.org)

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

<http://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 <http://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:

<http://www.POLCouncil.org>

## 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:

<http://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"!

## CCAS Event Information

We've set up a special phone number you can dial to find out if our monthly observing session and other scheduled events will be held or postponed. Call **610-436-0829** after 5 PM ET to hear a recording to find out the latest news.

## Good Outdoor Lighting Websites

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? Check out these sites and pass this information on to others. Help reclaim the stars! And save energy at the same time!



Light pollution from poor quality outdoor lighting wastes billions of dollars and vast quantities of valuable natural resources annually. It also robs us of our heritage of star-filled skies. Starry Night Lights is committed to fighting light pollution. The company offers the widest selection of ordinance compliant, night sky friendly and neighbor friendly outdoor lighting for your home or business. Starry Night Lights is located in Park City, Utah.

Phone: 877-604-7377  
Fax: 877-313-2889

<http://www.starrynightlights.com>



Green Earth Lighting is a dedicated lifetime corporate member of the International Dark-Sky Association. GEL's products are designed to reduce or eliminate the negative effects outdoor lighting can have while still providing the light you need at night.

Green Earth Lighting LLC  
620 Onion Creek Ranch Rd  
Driftwood, Texas 78619

Phone: 512-944-7354

<http://www.greeneearthlighting.com>

## Local Astronomy-Related Stores

Listing retail sites in this newsletter does not imply endorsement of any kind by our society. This information is provided as a service to our members and the public only.



Skies Unlimited is a retailer of telescopes, binoculars, eyepieces and telescope accessories from Meade, Celestron, Televue, Orion, Stellarvue, Takahashi, Vixen, Losmandy and more.

**Skies Unlimited**  
**Suburbia Shopping Center**  
**52 Glocker Way**  
**Pottstown, PA 19465**

Phone: 610-327-3500 or 888-947-2673  
Fax: 610-327-3553

<http://www.skiesunlimited.net>



Located in Manayunk, Spectrum Scientifics educates and entertains customers with an array of telescopes, microscopes, binoculars, science toys, magnets, labware, scales, science instruments, chemistry sets, and much more.

**4403 Main Street**  
**Philadelphia, PA 19127**

Phone: 215-667-8309  
Fax: 215-965-1524

## Hours:

Tuesday thru Saturday: 10AM to 6PM  
Sunday and Monday: 11AM to 5PM

<http://www.spectrum-scientifics.com>

# CCAS Information Directory

## CCAS Lending Telescopes

Contact Don Knabb 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. Don's phone number is 610-436-5702.

## CCAS Lending Library

Contact our Librarian, Barb Knabb, 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. Barb's phone number is 610-436-5702.

## 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](mailto:newsletter@ccas.us)

Or mail the contribution, typed or handwritten, to:

**John Hepler**  
2115 Lazor St.  
Apt. 227  
Indiana, PA 15701

## 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](mailto: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 copyrighted material! Give your contributions to John Hepler (724-801-8789) or e-mail to [webmaster@ccas.us](mailto: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 "nights out" for school, scout, and other civic groups.

## CCAS Executive Committee

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

<b>President:</b>	Roger Taylor 610-430-7768
<b>Vice Pres:</b>	Kathy Buczynski 610-436-0821
<b>ALCor and Treasurer:</b>	Bob Popovich 484-467-5562
<b>Secretary and Observing:</b>	Don Knabb 610-436-5702
<b>Librarian:</b>	Barb Knabb 610-436-5702
<b>Program:</b>	Dave Hockenberry 610-558-4248
<b>Education:</b>	Kathy Buczynski 610-436-0821
<b>Webmaster and Newsletter:</b>	John Hepler 724-801-8789
<b>Public Relations:</b>	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: 484-467-5562**  
**e-mail: [B2N2@verizon.net](mailto: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 at **484-467-5562**.

## 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**.