



Observations

A Monthly Publication Of The
CHESTER COUNTY ASTRONOMICAL SOCIETY

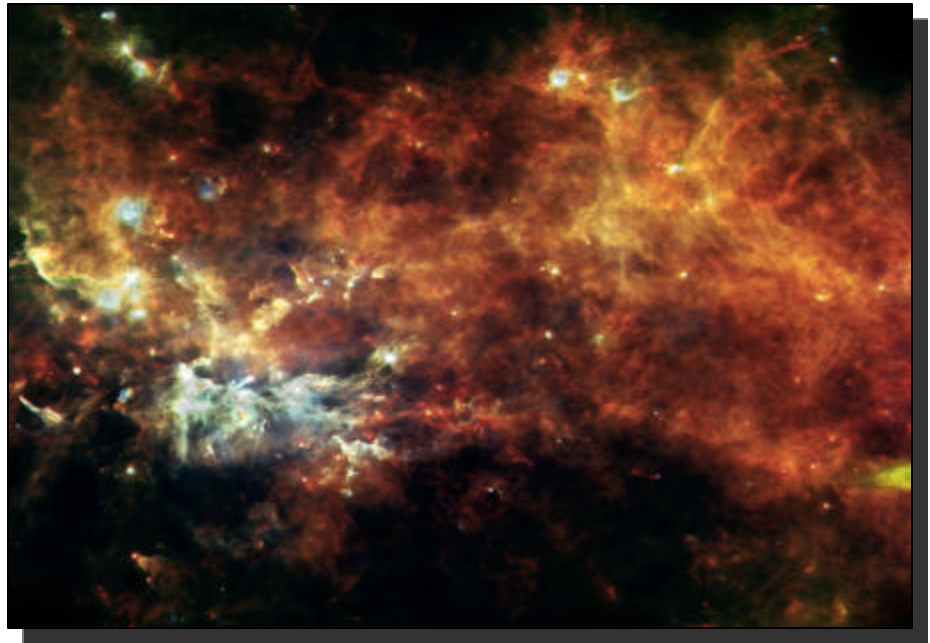
Vol. 18, No. 5

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

May 2010

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The constellation Vulpecula is a veritable entire assembly line of newborn stars. The diffuse glow reveals the wide-spread cold reservoir of raw material that our Milky Way galaxy has in stock for building stars. Photo: NASA

Important May 2010 Dates

- 6th** • Last Quarter Moon 12:15 a.m.
- 13th** • New Moon 9:04 p.m.
- 15th-16th** • The Moon is very near Venus at dusk
- 20th** • First Quarter Moon 7:43 p.m.
- 21st** • The star cluster M 34 is very near Venus
- 27th** • Full Moon 7:07 p.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, May 14, 2010 - Monthly observing session at Brandywine Valley Association.
- ✕ Saturday, May 15, 2010 - CCAS Private Night Out: Girl Scout Camporee at Hibernia Park. This event will have 100 scouts, we need help for this star party.
- ✕ Saturday, May 22, 2010 - Night Out in Anson Nixon Park, Kennett Square.

Membership Renewals Due

05/2010	Kutta Long Welch
06/2010	Hebding Siskind
07/2010	Baci Duffy Goldader & Family Hockenberry & Family Joniec Rybski

Spring/Summer 2010 Society Events

May 2010

6th • PA Outdoor Lighting Council monthly meeting, Bucktown Branch of National Penn Bank, starting at 7:30 p.m. Meetings are open to the public. For more information and directions, visit the PA Outdoor Lighting Council website (<http://www.polcouncil.org/>).

7th • West Chester University Planetarium Show: "Venus: The Evening Star", Schmucker Science Building, Show starts at 7 p.m. and is free of charge. For more information and reservations, please contact Dr. Karen Vanlandingham, Planetarium Director, via e-mail or visit the planetarium's webpage.

11th • DVD Lecture Series: "Enigmatic Gamma-Ray Bursts", half-hour video presentation of a lecture by Professor Alex Filippenko, UC Berkeley, Room 113, Merion Science Center, West Chester University. The presentation immediately precedes the monthly meeting and starts at 7:00 p.m.

11th • CCAS Monthly Meeting, Room 113, Merion Science Center, West Chester University. The meeting starts at 7:30 p.m. Guest Speaker, Dr. Beth William, PhD, Haverford College: "On (Nearly) Invisible Galaxies". Constellation of the Month: Sextans.

14th • CCAS Monthly Observing Session, Myrick Conservancy Center, BVA (inclement weather date May 15th). The observing session starts at sunset.

15th • CCAS Private Night Out: Girl Scout Camporee at Hibernia Park.

20th • Open call for articles and photographs for the June 2010 edition of *Observations*.

22nd • CCAS Spring Star Party at Anson Nixon Park in Kennett Square. The event is open to the public and starts at sunset.

26th • Deadline for newsletter submissions for the June 2010 edition of *Observations*.

June 2010

2nd • PA Outdoor Lighting Council monthly meeting, Bucktown Branch of National Penn Bank, starting at 7:30 p.m. Meetings are open to the public. For more information and directions, visit the PA Outdoor Lighting Council website (<http://www.polcouncil.org/>).

11th • CCAS Monthly Observing Session, Myrick Conservancy Center, BVA (inclement weather June May 12th). The observing session starts at sunset.

20th • Open call for articles and photographs for the July 2010 edition of *Observations*.

26th • Deadline for newsletter submissions for the July 2010 edition of *Observations*.

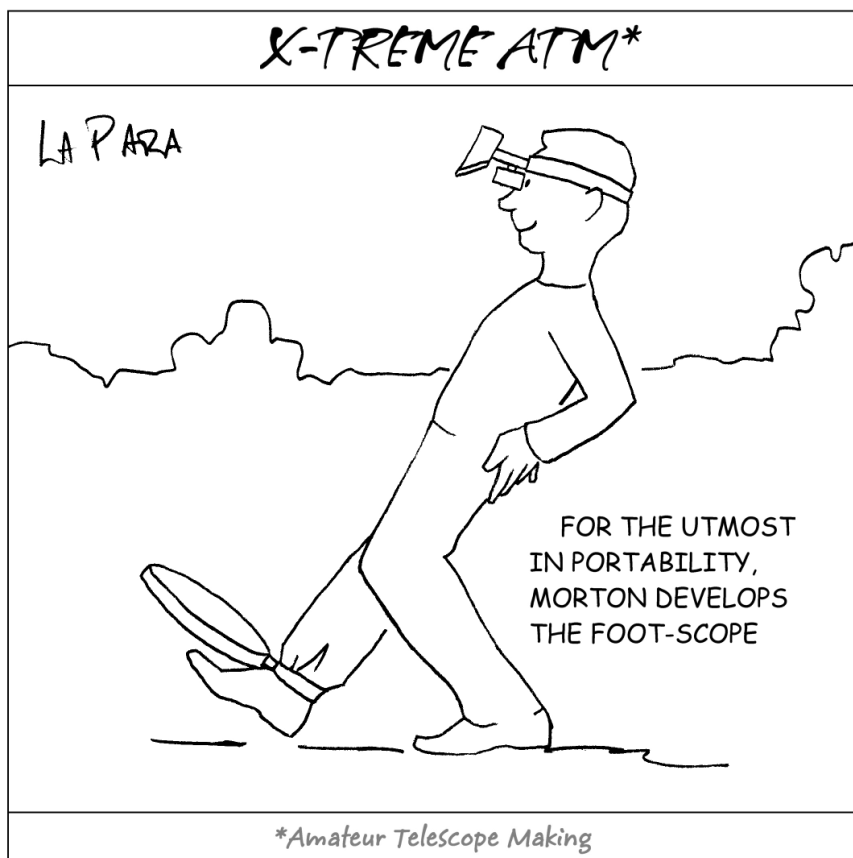
Minutes from the April 2010 Monthly CCAS Meeting

by Don Knabb, CCAS Secretary & Observing Chair

- Approximately 20 members were in attendance.
- Video presentation: *Quantum Physics and Black Hole Evaporation* DVD was shown.
- Program – Mike Turco, "Interpreting Environmental Information: The Global Warming Issue, an Engineer and Amateur Astronomer Point of View".
- No committee reports were presented at the meeting due to the length of the presentation and the discussion after the presentation.
- The Constellation of the Month presentation, "Sextans", by Dave Hockenberry, has been rescheduled for the April meeting.

Nicholas's Cartoon Corner

by Nicholas La Para



This Month's Guest Speaker

by Dave Hockenberry, CCAS Program Chair



Dr. Beth Willman

This month Dr. Beth Willman is our guest speaker. Her topic is "On (Nearly) Invisible Galaxies."

Dr. Willman is a professor of Physics and Astronomy at [Haverford College](http://www.haverford.edu). She received her B.A. in astrophysics at Co-

lumbia University and a Ph.D. in astronomy at the University of Washington. She has been a James Arthur Fellow at the Center for Cosmology and Particle Physics, and a Clay Fellow at the Harvard-Smithsonian Center for Astrophysics.

The focus of her research is to use comparisons between theory and observations of the local universe to learn about dark matter and galaxy formation. In particular, she investigates whether observations of the Milky Way and the ultra-faint galaxies orbiting it are consistent with the Cold Dark Matter model of the Universe.

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 main presentation speakers for our Fall 2010 season. If you have any suggestions for future speakers, or are interested in being a speaker yourself, please contact Dave Hockenberry at programs@ccas.us.

We are also looking for Constellation of the Month (COM) presenters for our Fall 2010 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 for a COM template to fill out.

Blast! Documentary to Air on WHY? on May 11, 2010

by Deb Goldader, CCAS Public Relations Chairperson

BLAST! is astrophysics, Indiana Jones style, a spectacular and suspenseful story of space exploration! Five-time Emmy winner, Paul Devlin, follows his brother, Mark Devlin, to five continents, from the Arctic to the Antarctic to launch a revolutionary new telescope on a NASA high-altitude balloon.

They hope to look back in time to reveal a hidden Universe of never before-seen starburst galaxies. From catastrophic failure to transcendent triumph, their adventure reveals the surprising

real life of scientists.

The Reese W. Flower Professor of Astronomy and Astrophysics, at the University of Pennsylvania, Mark Devlin is an experimental cosmologist. He designs and constructs the devices that collect the data that help us understand our universe. Rather than working out theories on a chalkboard, he's more likely to be found crawling inside the frame of a car-sized telescope, soldering gun in hand, or standing on the windswept ice of Antarctica preparing to send that

high-tech appliance to the very edge of space on a NASA balloon.

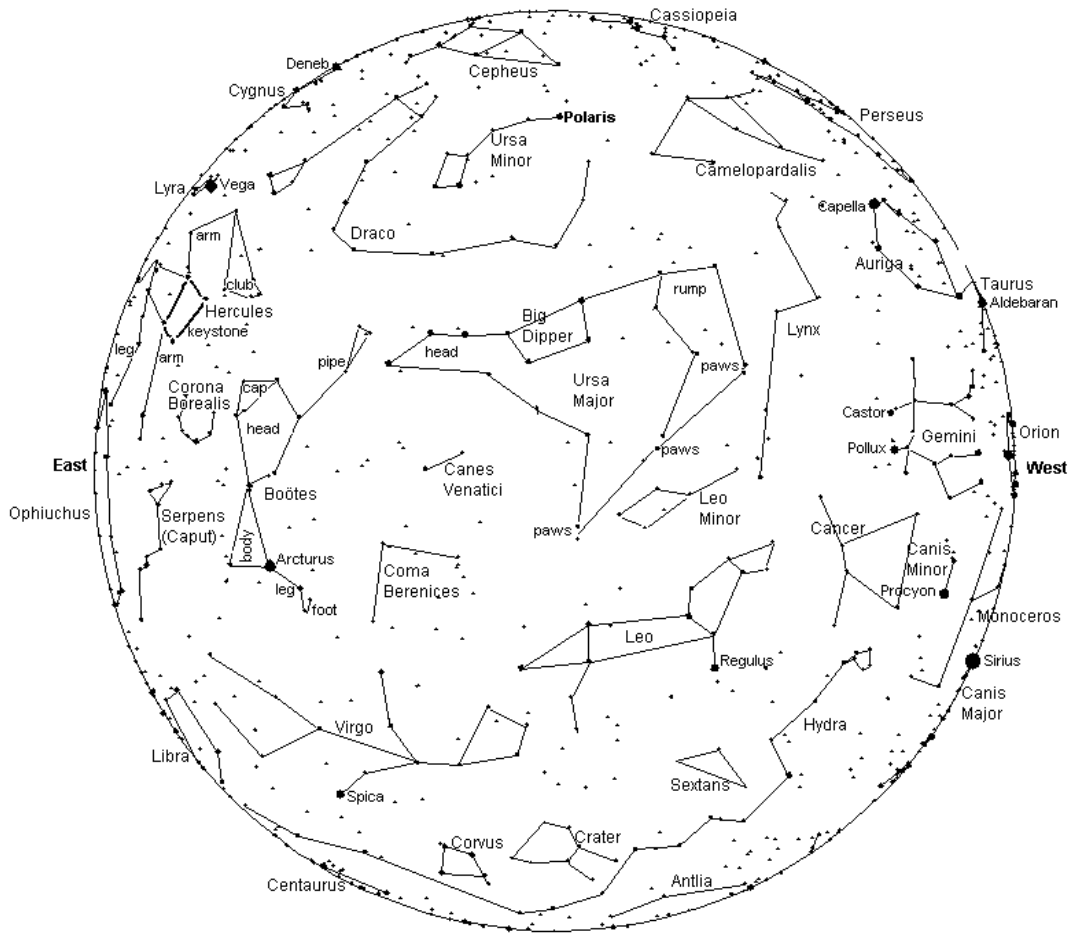
Documentary filmmaker Paul Devlin provides a rare glimpse into the minds and lives of scientists searching for an answer to the ultimate question: how did humankind come to be? A team of astrophysicists investigates the origins of the universe.

Set your DVR to record this broadcast. Blast! is scheduled to air at 9:00 PM EDT, on May 11th, 2010 on [WHYY](http://www.whyy.org).

The Sky Over Chester County

May 15, 2010 at 9:00 p.m. EST

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.



This chart was produced using *Guide 8.0* sky mapping software by Project Pluto, Bowdoinham, Maine

The faintest stars shown on this chart are fifth magnitude.

Date	Sunrise	Sunset	Moon Phases	
05/01/2010	6:10 a.m. EDT	7:55 p.m. EDT	First Quarter	05/20/2010 7:43 p.m. EDT
05/15/2010	5:45 a.m. EDT	8:09 p.m. EDT	Full Moon	05/27/2010 7:07 p.m. EDT
05/31/2010	5:34 a.m. EDT	8:23 p.m. EDT	Last Quarter	05/06/2010 12:15 a.m. EDT
			New Moon	05/13/2010 9:04 p.m. EDT

May 2010 Observing Highlights

by Don Knabb, CCAS Secretary & Observing Chair

May 6	Last-quarter Moon, 12:15 a.m.
May 13	New Moon, 9:04 p.m.
May 15-16	The Moon is very near Venus at dusk
May 20	First-quarter Moon, 7:43 p.m.
May 21	The star cluster M 35 is very near Venus
May 27	Full Moon, 7:07 p.m.

The Best Sights This Month: Take a friend out during the evening hours of May and point out Venus, Mars and Saturn. What a great show in the night sky! And if you include Pollux, Regulus and Spica you have a nice string of bright objects near the ecliptic.

Mercury: May is not a good month to observe Mercury with your unaided eyes.

Venus: Our sister planet is shining brightly in the evening sky all month. On May 14th Venus is directly between the two stars that mark the ends of Taurus the Bull's horns and on May 21st Venus is very close to the star cluster M35.

Mars: We continue to pull ahead of Mars in our race around the Sun, so the red planet is fading in brightness and is a small object in a telescope. But it is still fun to gaze at that "red star" in the evening sky and point out the planet to friends and neighbors as you enjoy the late evenings of May.

Jupiter: Jupiter is an early morning object, rising just before the Sun at the start of the month and around 3:00 a.m. at month's end. I plan to wait a few months for Jupiter to move into our evening skies before I set my telescope on the king of the planets.

Saturn: The ringed beauty is about as bright as Spica, and this is as dim as Saturn ever gets because the rings are very close to being edge-on to us. Saturn will be high in the sky during the evening hours, so be sure to look at the rings that appear to be thin spikes reaching out from the planet.

Uranus and Neptune: Both of these gas giants are

visible in the early morning skies. Wait a few months for better viewing opportunities as they get higher into the sky.

The Moon: Full Moon is on May 27th. Native Americans called this the Full Flower Moon. In most areas, flowers are abundant everywhere during this time, thus, the name of this Moon. Other names include the Full Corn Planting Moon, or the Milk Moon.

Constellations: If you are out late enough in May the summer constellations will be rising. Boötes and Hercules are well placed for viewing by the time it is really dark and an hour or two later the summer triangle is rising in the east. And if we have a good dark sky the Milky Way can be seen in Cygnus. Aim your telescope there and feast on the eyepiece full of stars!

Messier/Deep Sky: Would you like to see 500,000 stars at one time? Look nearly overhead during May, to the northwest and not far from Arcturus and find M3, the third object cataloged by Charles Messier. This globular cluster is one of the largest and brightest. Then look about twice as far the other direction from Arcturus and find M5, another fine globular cluster. Under extremely good conditions it is said that both these clusters can be detected with the naked eye. Unfortunately, that will not be possible in the skies of Chester County.

Comets: During May your best chance to find a comet is to get up early and seek out Comet C/2009 R1, which will be around 8th magnitude. There is a finder chart in the May issue of Astronomy magazine. Or you can wait until June when there is a good chance that this comet will brighten to magnitude 5 and there is a chance to see it naked eye at a dark sky observing location.

Meteor Showers: The Eta Aquarid meteor shower peaks on May 6th. This is not expected to be a good show for Northern Hemisphere observers, but unexpected outbursts can happen with any meteor shower, so why not take a look? These meteors are dust left behind by Halley's Comet!

Looking Up: The Three Leaps of the Gazelle

by Don Knabb, CCAS Secretary & Observing Chair

This month we'll step away from the eyepiece of our telescope and do a little naked eye stargazing. We'll head outside just as it has become fully dark and find one of the lesser known asterisms in the spring sky. An asterism is not an official constellation but is a group of stars that make a distinctive shape. Two of the most famous asterisms in the sky are The Big Dipper and the Sickle, which is more commonly called the Backwards Question Mark.

Step outside when all of the light from the sunset has faded and look to the southwest and then

lean back and look straight overhead. This is best done in a lounge chair if you have one handy. Overhead you'll see the Big Dipper, which is part of the constellation Ursa Major, the Big Bear.

Now look down from the zenith, the point in the sky that is directly overhead, and a little to the right and you will find The Sickle, or the Backwards Question Mark. This is the head of Leo the Lion. For the young among our readers, a sickle is a hand tool that was used to harvest wheat, or in my case it is what I used to trim weeds before

the invention of the modern miracle, the gas powered string trimmer.

Between the top of the Sickle and the bottom of the bowl of the Big Dipper you will find three pairs of stars widely spaced from one another. The pairs are about the same distance apart from each other and the stars are around the same magnitude of brightness.

These pairs of stars form the asterism known as The Three Leaps of the Gazelle. The three star pairs are all within the con-

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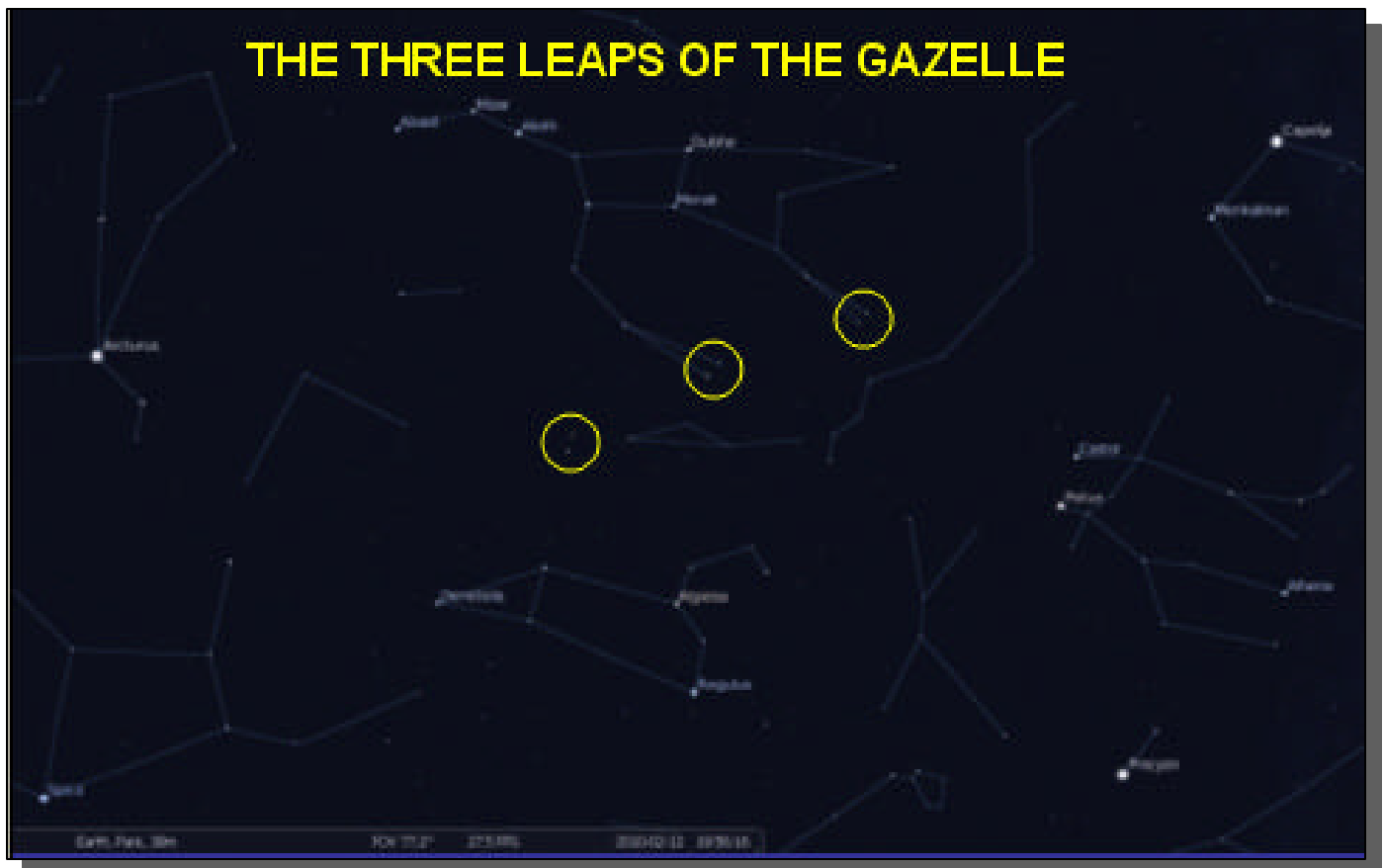


Image created using Stellarium software, a free planetarium software package available at <http://sourceforge.net/projects/stellarium/files/>

A Rock Hound is Born

submitted by Jet Propulsion Laboratory

It's tough to be a geologist when you can't tell one rock from another. Is that a meteorite or a chunk of lava? A river rock or an impact fragment? Houston, we have a problem!

It's a problem Spirit and Opportunity have been dealing with for the past six years. The two rovers are on a mission to explore the geology of the Red Planet, yet for the longest time they couldn't recognize interesting rocks without help from humans back on Earth.

Fortunately, it is possible to teach old rovers new tricks. All you have to do is change their programming—and that's just what NASA has done.

"During the winter, we uploaded new software to Opportunity," says Tara Estlin, a rover driver, senior member of JPL's Artificial Intelligence Group, and the lead developer of AEGIS, short for Autonomous Exploration for Gathering Increased Science. "AEGIS allows the rover to make some decisions on its own."

Estlin and her team have been working for several years to develop and upload increasingly sophisticated software to the rovers. As a result, the twins have learned to avoid obstacles, identify dust devils, and calculate the distance to reach their arms to a rock.



With the latest upgrade, a rock hound is born.

Now, Opportunity's computer can examine images that the rover takes using its wide-angle navigation camera (NavCam) and pick out rocks with interesting colors or shapes. It can then center its narrower-angle panoramic camera (PanCam) on targets of interest for close-up shots through various color filters. All this happens without human intervention.

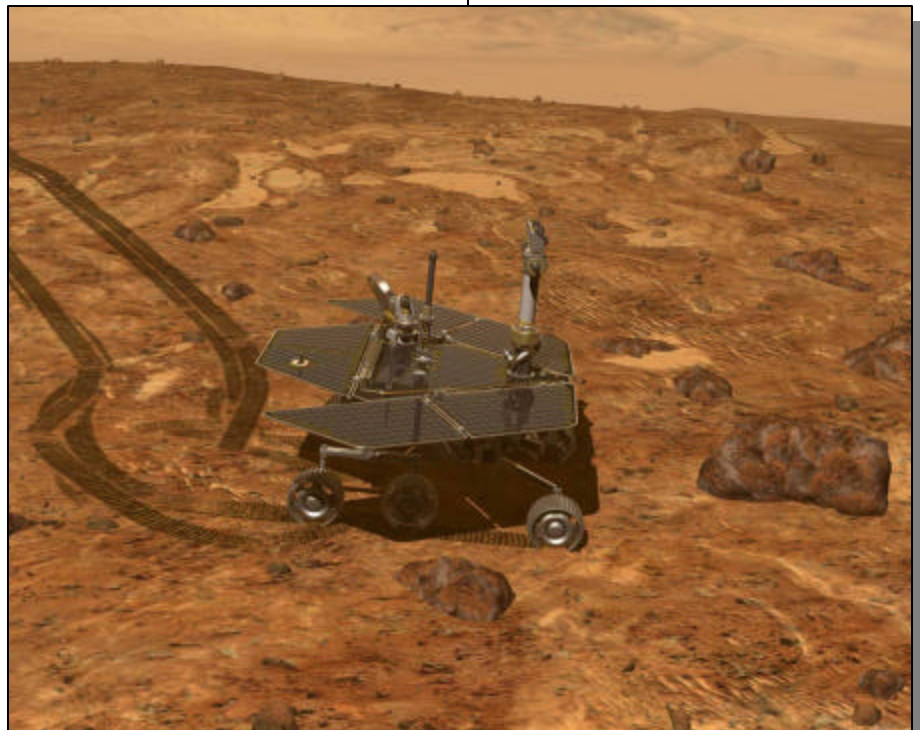
The system was recently put to the test; Opportunity performed splendidly.

At the end of a drive on March 4th, the rover settled in for a bit of rock hunting. Opportunity surveyed the landscape and decided that one particular rock, out of more than 50 in the NavCam photo, best met criteria that researchers had set for a target of interest: large and dark.

"It found exactly the target we would want it to find," Estlin says. "It appears to be one of the rocks tossed outward onto the surface when an impact dug a nearby crater."

The new software doesn't make humans obsolete. On the contrary, humans are very much "in

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Opportunity spots a rock with its NavCam that its AEGIS software says meets all the criteria for further investigation.

Rock Hound (cont'd)

(Continued from page 7)

the loop,” setting criteria for what’s interesting and evaluating Opportunity’s discoveries. The main effect of the new software is to strengthen the rover-human partnership and boost their combined exploring prowess.

Mindful that Opportunity was only supposed to last about six months after it landed in 2004, Estlin says “it is amazing to see Opportunity performing a brand new autonomous activity six years later.”

What will the rock hounds of Mars be up to six years from now? Stay tuned for future uploads!

Learn more about how the AEGIS software works at <http://scienceandtechnology.jpl.nasa.gov/newsandevents/newsdetails/?NewsID=677>.

If you work with middle- or high-school kids, you’ll find a fun way to explore another kind of robot software—the kind that enables “fuzzy thinking”—at http://spaceplace.nasa.gov/en/educators/teachers_page2.shtml#fuzzy.

Did You Know?

Names of asteroids were originally taken from Gods and Goddesses, but these ran out long ago. Now there are asteroids called Lennon, McCartney, Edna, Bertha, Geranium, Petunia, Chicago, Granule, Gogol, Laputa, Mark Twain, Karl Marx, NORC, Libya, Atlantis, Utopia, Transylvania, Paradise, Rumpelstilz, Evita, Fanatica, Fanny, Piccolo, Requiem, Lucifer, Tolkein, Echo, Dali, Retsina, Zulu, Limpopo, Bach, Chaucher, Nemo, Smiley, Mr Spock, and Cleopatra.

Source: (mainly) [First Light](#), by Richard Preston.

Looking Up (Cont'd)

(Continued from page 6)

stellation Ursa Major the Big Bear, and they mark three of the bear’s paws.

I’ve included a diagram on the previous page of The Three Leaps of the Gazelle that I made using [Stellarium](#), a free planetarium software package.

Ancient Arabic star lore relates that the gazelle was startled by the lash of the lion’s tail when it sprang from “the Pond,” what we know as the Coma Star Cluster in the constellation Coma Berenices. The Pond can be seen with the naked eye from a dark site. It looks like a large, bright patch just off Leo’s tail. I wrote an article about the Coma Cluster in the June 2008 issue of Observations.

If you look at some of the old constellation drawings such as

the one below you can see that the three pairs of hoof prints belong to Ursa Major.

According to the legend, when the gazelle ran from Leo the Lion it leapt across the sky from east to west (left to right), leaving impressions in the mud like deer hooves.

So step outside on a warm May night and look at the zoo in the sky and the prints left by The Three Leaps of the Gazelle!

Information credits:

<http://www.areavoices.com/astrobob/?blog=75624>

<http://whassupinthemilkyway.blogspot.com/2009/05/three-leaps-of-gazelle.html>

<http://my.execpc.com/60/B3/culp/astromy/Winter/Bears.html>

<http://www.theskyscrapers.org/content2097.html>

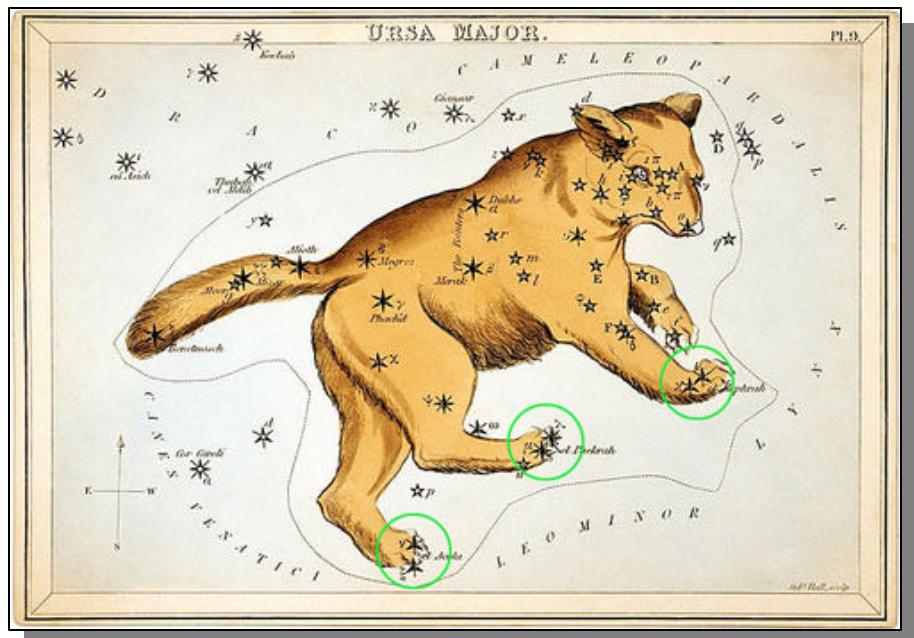


Image credit: *Urania's Mirror*/William Jamieson from Bob King's article "How to track a frightened gazelle" from the Astro Bob website: <http://www.areavoices.com/astrobob/?blog=75624>

Astrophotography Review - Starlight Xpress SXVR M25C Color CCD Camera

by Dave Hockenberry, CCAS Program Chair

Astrophotographers may be the “lone wolves” of the amateur astronomy world, plying their craft and coaxing their gear and computers to capture the steadiest and cleanest images possible. But they also share many attributes with the rest of the Astro community. So what do we all want from our gear? The simple answer is MORE! More aperture, more resolving power, more convenience, more color accuracy, more value..... Well, we can all generate a pretty long list. Even the astro Luddites out there in their unguarded moments will admit admiring those bigger, longer focal length binoculars.

So we all want more. And astrophotography from the earliest days of CCD imaging has been pushing for cameras and chips that rival the image size of 35 mm film. The earliest chips were small, very expensive, and only covered a fraction of the imaging area of film. But technology doesn't rest, and in recent years CCD chip size HAS caught up to 35 mm film. And better yet, computers have kept pace with the demands for processing power that these large chips and images require.

This month we examine one of the latest releases from Starlight Xpress, the SXVR M25C. This is a “one shot” color CCD camera utilizing a standard RGB color Bayer array. SX made this available last fall, along with several other large-format CCD

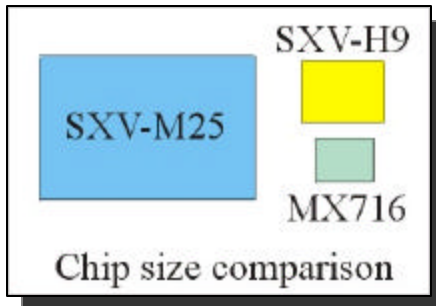


Starlight Xpress SXVR M25C Color CCD Camera

chips in black/white or color, using Sony or Kodak CCD chips. The new arrays offer chip sizes more than 3 times their previous largest chips, and this new generation of SX cameras match and in some cases exceed the area of 35 mm film. The M25C camera utilizes a Sony ICX453AQ SuperHAD CCD chip, which at 23.4mm X 15.6 mm is comparable to APS film.

This chip boasts a pixel size of 7.8 X 7.8 micrometers with an image format of an astounding 3024 X 2016 pixels. This yields an image size of over 6 mega pixels at full resolution.

Like all SX products this is a Grade 1 scientific grade chip, with very low readout noise and exquisite well sensitivity. Unlike its predecessors this camera is not only electronically cooled, but it has a built-in cooling fan *and* has user-controlled temperature set points down to -40°C according to the manufacturer. Yet despite all this the camera is smaller than the prior H9C in both mass (about 500 grams!) and housing size. The new line also includes an upgraded USB 2 connection for



Sony ICX453AQ SuperHAD CCD chip in comparison to other microchips

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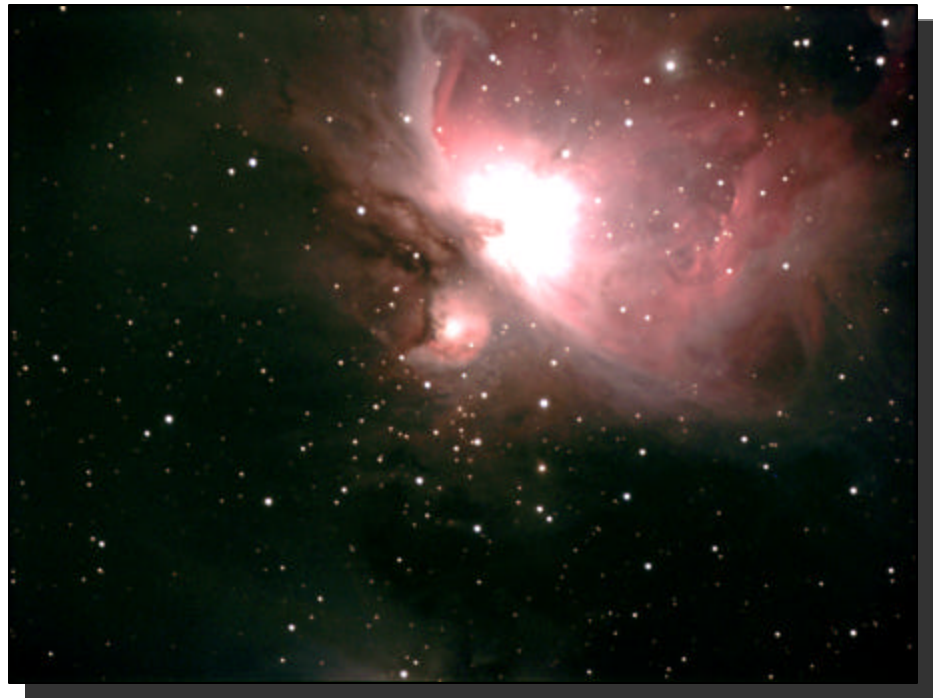
Astrophotography (Cont'd)

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downloads that take, at full resolution, about 4-5 seconds. With 2 X2 binning those times are cut down to about 1.5 seconds.

The M25C requires a supplied external power source for AC to DC conversion, much smaller and lighter than prior models and this time includes a standard U.S. wall socket plug. On prior models shipped to the U.S. the buyer had to purchase and attach a standard three-prong grounded socket and wire them to the power supply themselves before the unit could be used, so this aspect of the M25C is a great improvement. The camera also comes with a generously long 6-foot USB cable to link the camera to your computer, a longer power cable to connect the camera to the power supply, and an equally long but somewhat cheaply made auto-guider cable. The auto-guider cable can, if the user wishes, connect the camera to an auto-guider camera directly, allowing complete control of both through the provided SX software control program (also provided on CD). The unit comes with a very convenient and durable padded plastic case. Unlike some other new SX cameras this unit does NOT include a built in shutter, so you still have to cover your telescope to shoot dark and bias frames.

It took about 8 weeks from the time the camera was ordered through my local distributor ([Skies Unlimited](#) in Pottstown) until it arrived, fairly typical for



Picture #1: The Orion Nebula taken with the SXVF H9C camera (through TeleVue NP101is, without filters or reducers, a stack of 14 images)



Picture #2: The same target using the same setup and focal length telescope, but this is a single unguided 2-minute image with the SXVR M25C

imports of this type. I was somewhat excited when it arrived, as I have enjoyed using other SX cameras, especially the SXVF H9C and the Lodestar auto guiding camera (see prior

reviews already posted in Observations). The software loaded very easily and didn't even need to have a COM port assigned by the user – the camera assigns

(Continued on page 11)

Astrophotography (Cont'd)



Picture #3: The Rosette Nebula was shot with the same telescope and setup as Orion, again without filters or reducers, using the H9C camera



Picture #4: The same target shot through the same rig and setup, a stack of twelve 5-minute images through the M25C camera

(Continued from page 10)

itself one on plugging into a USB port through the Windows Hardware Wizard. Like all SX software, you have to manually set up a Desktop shortcut, but

this is a minor inconvenience. Users of other SX products will find the camera control interface to be almost identical to prior releases, with the exception of the new Temperature Control

panel. This camera, with its large CCD chip size, uses a 2 inch nose adapter, and thus will require 2 inch extender tubes and diagonals if the user wants to utilize these. Despite the shorter, lighter camera housing, I found that prime focus needed longer extension tubes than the H9C, significantly longer on my TeleVue refractor; so be ready to experiment with various tube extenders so that prime focus can be readily achieved.

For my first test images, I used the native SX software for computer interface and image capture. I slewed the rig to Sirius, as this star is so bright that it still shows up on a computer screen even if the scope is badly out of focus. The first downloaded image was a shock. Through all my prior cameras, Sirius shows up as at least a very bright disc – almost 3/8 of an inch wide. Through the incredible FOV the M25C it looks like a bright star among a huge star field, not the “searchlight in your face” I was used to from this target. The FOV is in degrees – yes, degrees not arcminutes, and the initial impression is breathtaking. If there were any doubts in the back of my mind about CCD cameras catching up to APS film, they were immediately put to rest. Film is now truly obsolete, in every way.

I then turned my attention to one of my favorite deep space ob-

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Astrophotography (Cont'd)

(Continued from page 11)

jects, the Rosette Nebula and open star cluster. This time I switched over to MaxIm DL5, my usual telescope/camera control software. After carefully framing the image and starting my Lodestar guiding camera, I set up MaxIm for the M25C and shot a 2-minute test image. Download time was about 4 seconds. And the image was... nothing but noise.

The histogram looked completely wrong. I blinked, scratched my head, and went back to MaxIm to be sure I had the software and camera interface set up properly. I had. I shot another image. Same noise. Now I was starting to get upset. Leaving MaxIm on to guide the rig, I went back to the native SX software (cumbersome and annoying compared to MaxIm), set up and shot another 2 minute image. The results were again breathtaking; not only a crystal clear image of the Rosette, but the star field in the background was so rich my jaw almost hit the deck of my observatory.

Now I was really puzzled, as MaxIm hasn't let me down before. I went over everything I possibly could, including the temperature control settings, but still the same result – nothing but noise through MaxIm, beautiful images through the SX camera control.

Needless to say, the next day I was feverishly e-mailing Terry Platt at Starlight Xpress. He



Starlight Xpress Company Logo

looked at the images, and was as baffled as I was. After a few days he e-mailed back and thought that there might be a problem with the “CCD Flush” routine in MaxIm (by which the CCD chip “flushes” out the prior image after download in order to acquire the next image). I promptly inquired if a “flush” routine was the problem, would “jiggling the handle” help, but Terry Platt, being a proper British gentleman, was not amused and referred me to MaxIm for help.

That was over 2 months ago, and the technicians at MaxIm are still working on the problem. I even contacted Alan Chen, a well-known astrophotographer and a beta tester for SX for help, since he has posted some incredible images with the M25C on the SX web site. He says he uses an older version of MaxIm (which does not support the cooler, by the way). He thinks the problem must be in the latest release of MaxIm.

So I have been using MaxIm for auto-guiding and SX software for image capture with this camera. I find it not only annoying, but also frustrating as images captured through MaxIm and stacked/processed through MaxIm are cleaner and have less noise/bloom/hot pixels that those captured through SX and then

stacked with MaxIm or AIP for Windows® (my other image processing program). This is not only an issue of convenience: it affects the overall quality of the final image and how difficult it is to process. The technician at MaxIm, although tired of my inquiries, has been doggedly trying to get to the bottom of the issue, and if a solution is found I will certainly post the results in this publication.

Ultimately, I have mixed feelings about the M25C. The field of view this camera affords is nothing short of stupendous. Compare the image of the [Orion Nebula](#) (photo #1) taken with the SXVF H9C camera (through TeleVue NP101is, without filters or reducers, a stack of 14 images) to the same target using the same setup and focal length telescope, but this is a single unguided 2 minute image with the SXVR M25C (picture #2). The detail and sensitivity of this camera is quite evident. Note also the Running Man Nebula also easily seen in the picture.

Again, let's compare another target, the [Rosette Nebula](#). Picture #3 was shot with the same telescope and setup as Orion, again without filters or reducers, using the H9C camera. The same target in Picture #4 was shot through the same rig and setup, a stack of twelve 5-minute images through the M25C camera. The difference

(Continued on page 13)

Astrophotography (Cont'd)

(Continued from page 12)

is again astounding, but using MaxIm to stack and a Median filter, I had a *lot* of hot pixels to get rid of in order to clean up the image.

As far as I'm concerned, the jury is still out on the SXVR M25C camera. It has allowed me to finally catch up with every aspect of film, and has the potential for incredible images of very large deep space nebulas and open star clusters. It *is* an expensive unit; be prepared to part with almost 4,000 George Washingtons if you want to own this camera. But there are some problems with MaxIm compatibility that need to be solved before the cost is completely justi-

fied. In all fairness, what the manufacturer provides works very well, but serious astrophotographers almost always use other software for dome/telescope/camera control and image capture. This is not a problem that can be ignored. But the field of view afforded through medium focal length telescopes (580 mm, in the case of my TeleVue) is so seductive that I do not regret having a camera with this capability.

Stay tuned...

More info available at www.starlight-xpress.co.uk.

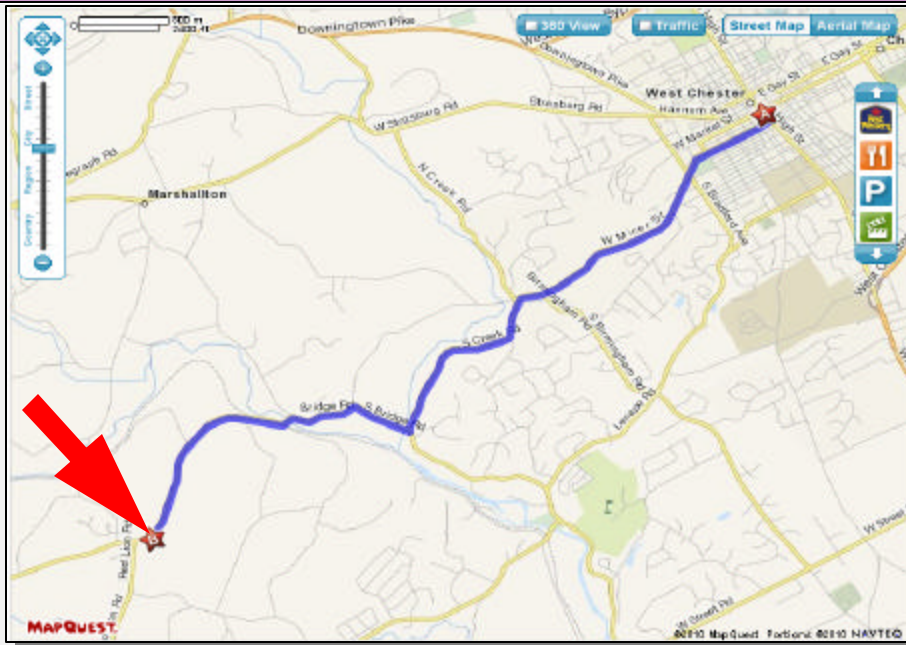
A New Life for SciJinks!

submitted by Laura J. Lincoln, Jet Propulsion Laboratories

If you think you've seen the SciJinks Weather Laboratory at SciJinks.gov, look again. It's got a whole new persona to make its exciting content, games and multimedia more accessible than ever. SciJinks still has its Picture and Cool Fact of the day. It has "Wild Weather Adventure," "Bad Weather Joke Machine," and other fun and games.

SciJinks explains the reasons for the seasons, the tides, and other mysteries in colorful "now I get it!" pages. There are more images than ever and now videos too, and lots of help for teachers. Looking for information on hurricanes? SciJinks also shows you its content by topic: clouds, tides, oceans, atmosphere, seasons, satellites—you name it. Visit or revisit SciJinks.gov and discover the treasures you missed before.

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).



September 2010 Guest Speaker

by Dave Hockenberry

First, a special thanks to Mike Turco for “pinch hitting” last month when our scheduled speaker, Dr. Dave Klassen, was serving on jury duty. We appreciate Mike’s effort to re-arrange his schedule and “save the day”, or night, more accurately.

Dr. Klassen will be our guest speaker for our September monthly meeting. We look forward to learning more about his research on water on Mars and its implications for the future.

CCAS Membership Information and Society Financials

Treasurer’s Report

by Bob Popovich

March 2010 Financial Summary

Beginning Balance	\$1,523
Deposits	\$0
Disbursements	\$0
Ending Balance	\$1,523

Mark Your Calendars!

Save the date! The CCAS Summer Picnic will be held on the evening of Saturday July 17, 2010.

This is a picnic for members and their families only. Details and directions will be sent in a future "CCAS members" e-mail.

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

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 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

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 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:	Roger Taylor 610-430-7768
Vice Pres:	Kathy Buczynski 610-436-0821
ALCor and Treasurer:	Bob Popovich 484-467-5562
Secretary and Observing:	Don Knabb 610-436-5702
Librarian:	Barb Knabb 610-436-5702
Program:	Dave Hockenberry 610-558-4248
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: 484-467-5562
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 at **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**.