



Observations

A Monthly Publication Of The
CHESTER COUNTY ASTRONOMICAL SOCIETY

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

March 2010

In This Issue

CCAS Winter-Spring 2010 Events.....	2
February 2010 Meeting Notes	2
CCAS Member Original	
Astrophotography	2, 13, 15
March 2010 Meeting	
Guest Speaker.....	3
NASA Gives Kids Their Own	
Guide to Climate Change	3
The Sky Over Chester County:	
March 2010	4
March 2010 Observing	
Highlights.....	5
Through the Eyepiece:	
The Horsehead Nebula	6
Nicholas's Humor Corner.....	7
New IMAX® 3D Film on the	
Hubble Space Telescope.....	7
NASA Space Place	8
Project ASTRO WCU Needs You!.....	9
Web Application Review:	
SLOOH SpaceCamera™	10
CCAS Directions: Brandywine	
Valley Association.....	15
Membership Renewals	16
New Member Welcome.....	16
CCAS Directions: WCU Map	16
Treasurer's Report	16
CCAS Information Directory	17-18



Photo from last year's Project ASTRO Workshop: Bob Popovich & colleagues map the surface of Venus. To learn how you can participate in the coming school year, see page 9.

Important March 2010 Dates

- 7th** • Last Quarter Moon 10:42 a.m.
- 14th** • Daylight Savings Time begins at 2:00 a.m.
- 15th** • New Moon 5:01 p.m.
- 29th** • Spring begins at 1:32 p.m.
- 23rd** • First Quarter Moon 7:00 a.m.
- 29th** • Full Moon 10:29 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, March 19, 2010 - Greenwood Elementary School, near Longwood Gardens.
- ✧ Saturday, April 17, 2010 - Night Out in Hoopes Park, West Chester. The event is cohosted with the West Chester Department of Recreation.
- ✧ Saturday, May 22, 2010 - Night Out in Anson Nixon Park, Kennett Square.

Membership Renewals Due

03/2010	Cini LaFrance Piehl
04/2010	Baker Baudat Bower Imburgia Kania & Family Popovich Richter
05/2010	Kutta Long Welch

Winter 2010 Society Events

March 2010

3rd • 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/>).

9th • DVD Lecture Series: "Wormholes, Gateways to the Other Universes?", halfhour video presentation of a lecture by Professor Alex Filippenko, UC Berkeley. Room 113, Merion Science Center (the former Boucher Building), WCU. The presentation immediately precedes the monthly meeting and starts at 7:00 p.m.

9th • CCAS Monthly Meeting, Room 113, Merion Science Center (former Boucher Building), West Chester University. The meeting starts at 7:30 p.m. Guest Speaker: "Uncle" Rod Mollise: "The Past, Present, and Future of the Schmidt Cassegrain Telescope". Constellation of the Month: T B A .

12th • CCAS Monthly Observing Session, Myrick Conservancy Center, BVA (inclement weather date March 13th). The observing session starts at sunset .

19th • West Chester University Planetarium Show: "Walking on the Moon", 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 email or visit the planetarium's webpage.

19th • Reservations start for the April 9th planetarium show at the WCU Planetarium. For more information, please contact Dr. Karen Vanlandingham, Planetarium Director, via email or visit the planetarium's webpage .

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

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

April 2010

7th • 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/>).

9th • West Chester University Planetarium Show: "The Angry Red Planet", 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 email or visit the planetarium's webpage.

13th • DVD Lecture Series: "Wormholes, Gateways to the Other Universes?", halfhour 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 pre-
(Continued on page 16)

Minutes from the February 2010 Monthly CCAS Meeting

by Don Knabb, CCAS Secretary & Observing Chair

- Due to inclement weather, the February meeting was canceled.
- Our guest speaker, former CCAS president Mike Turco, has been asked back to present at our September meeting.
- The DVD lecture scheduled for the pre-meeting session, "Wormholes, Gateways to the Other Universes?", has been re-scheduled for the March meeting.
- The Constellation of the Month presentation, "Sextans", by Dave Hockenberry, has been rescheduled for the March meeting.

CCAS Original Astrophotography: NGC 2244

by Dave Hockenberry



NGC 2244 is an open star cluster in Monoceros. Surrounding the cluster is the Rosette nebula, part of which is seen here. NGC 2244 lies approximately 5,200 light-years away, and the cluster plus the surrounding nebula have an estimated diameter of about 130 light years. This is a stellar nursery, with VERY hot young stars providing the energy to make the surrounding nebula glow as an emission nebula. Shot with Starlight Xpress SXVF H9C color camera 2/19/10, through TeleVue NP101is, stack of 14 300-second images. Autoguided and median stacked with MaxIM DL5. Occasional hot pixel removal and slight blue/green color balance adjustment with Photoshop Cs3. Guided with SX Lodestar camera and Meade LX200R.

This Month's Guest Speaker

by John Hepler, CCAS Webmaster & Newsletter Editor



"Uncle" Rod Mollise

This month Rod Mollise, better known as "Uncle Rod", is our guest speaker. His presentation is entitled "The Past, Present, and Future of the Schmidt Cassegrain Telescope."

"Uncle" Rod Mollise is familiar to amateur astronomers as the author of numerous books and magazine articles on every aspect of astronomy, amateur and professional. He is most well-known, however, for his books on Schmidt Cassegrain Telescopes, SCTs, especially his latest one, Choosing and Using a New CAT (Springer), which has become the standard reference for these popular instruments.

You will find "Uncle" Rod on numerous online forums, too, especially his popular blog, *Uncle Rod's Astro Blog*. He is also one of the editors of the acclaimed online double star magazine, The University of South Alabama's *The Journal of Double Star Observations*.

Don't miss our upcoming meetings! Dr. Dave Klassen, from Rowan University, is our guest speaker in April. He is a professor of Physics and Astronomy at Rowan University where he teaches introductory physics and a course on our solar system. He'll be talking about the discoveries of water on Mars, and how scientists made the discoveries.

Our final presentation for the 2009-2010 season is by Dr. Beth Willman, from Haverford College. She studies the least luminous galaxies in 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 still looking for Constellation of the Month (COM) presenters for April and May. 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.

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

NASA Gives Kids Their Own Guide to Climate Change

submitted by Laura K. Lincoln, JPL Space Place Coordinator

A blinking red-eyed tree frog and flitting butterfly greet visitors to the new NASA Climate Kids website. Targeting grades 4 – 6, this kid-friendly guide demystifies one of the most important science issues of our time.

The site answers the "Big Questions" about global climate change using simple illustrations, humor, interactivity, and age-appropriate language. For example, one interactive feature is the Climate Time Machine, which reveals how global changes have affected or will affect our planet over time. "Climate Tales" has animal cartoon characters coping—more or less good humoredly—with the effects humans are having on their habitats.

A collection of Earth-science-related games offers such experiences as "Wild Weather Adventure" and "Missions to Planet Earth." A Green Careers section profiles real people doing jobs that help slow climate change. Visit Climate Kids at climate.nasa.gov/kids.

Did You Know?

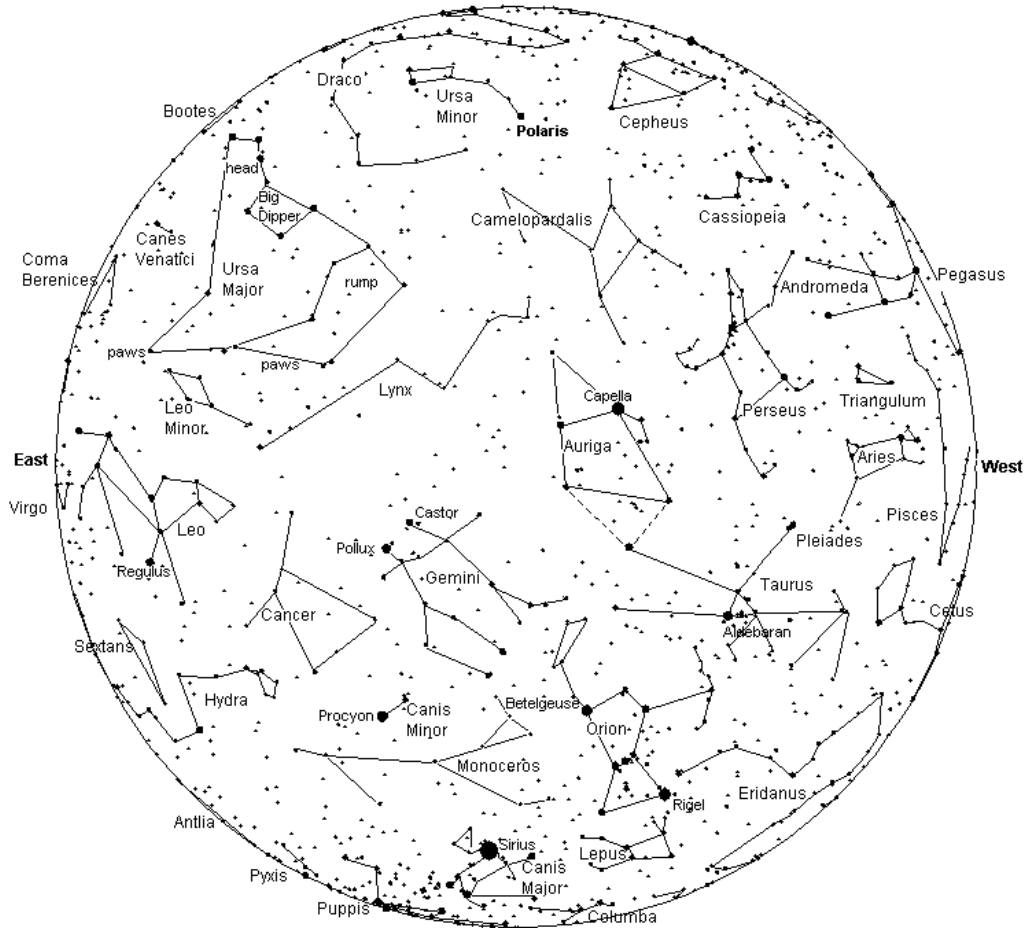
Christian Huygens attempted to measure the distance to Sirius by looking at the Sun through a pinhole, until it looked as bright as Sirius. As the hole admitted 1/27664 of the Sun's light, he concluded that if it was the same brightness as the Sun it was 27,664 times further away. (This is a twenty-fold under estimate - Sirius is considerably brighter than the Sun).

Source: Coming of age in the Milky Way, Tim Ferris

The Sky This Month

The Sky Over Chester County
 March 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		
03/01/2010	6:34 a.m. EST	5:52 p.m. EST	First Quarter	03/23/2010	11:00 a.m. EDT
03/15/2010	7:12 a.m. EDT	7:07 p.m. EDT	Full Moon	03/30/2010	2:25 a.m. EDT
03/31/2010	6:46 a.m. EDT	7:24 p.m. EDT	Last Quarter	03/07/2010	3:42 p.m. EDT
			New Moon	03/15/2010	9:01 p.m. EDT

March 2010 Observing Highlights

by Don Knabb, CCAS Secretary & Observing Chair

March 7	Last Quarter Moon, 10:42 a.m.
March 14	Daylight Savings Time begins at 2:00 a.m.
March 15	New Moon, 5:01 p.m.
March 16-17	A thin crescent Moon is near Venus a half hour after sunset.
March 20	Spring begins at 1:32 p.m.
March 20	A crescent Moon is very near the Pleiades around 9 p.m.
March 21-22	Saturn is at opposition and is visible all night.
March 23	First quarter Moon, 7:00 a.m.
March 29	Full Moon, 10:25 p.m.
March 30	Tonight is a good opportunity to see Mercury just after sunset

The Best Sights This Month: Saturn is the main event for March, with the ringed beauty reaching opposition on March 21st when it is opposite the Sun in our night sky. Mars continues to shine brightly as a beautiful red “star” in the southern sky. And on March 20th look for a waxing crescent Moon very close to the “Seven Sisters”, the Pleiades star cluster.

Mercury: Mercury is visible at the end of the month in the evening sky, about a half hour after sunset. On March 31st Mercury is within 4° of Venus.

Venus: The “Evening Star” is still quite close to the Sun during March but will climb higher into the evening sky by the end of the month, shining at nearly -4 magnitude.

Mars: The red planet continues to give us a fine show during March, but is falling behind Earth in our race around that big ball of hydrogen and helium at the center of the solar system, so take this opportunity to gaze for a long time at our beautiful neighbor planet. H. G. Wells wrote in The War of

the Worlds that Mars was the home of the invaders who came to Earth. If that is true then they should be landing any day now.

Jupiter: Jupiter is lost behind the Sun for most of March.

Saturn: Saturn rises around sunset during March, but wait a few hours for it to get clear of the horizon for a clear view in a telescope. The ringed beauty is at opposition on March 21st and is therefore at maximum size and brightness.

Uranus and Neptune: The gas giants are too close to the Sun for observation during March.

The Moon: The Moon is full this month on March 29th. This is the Full Worm Moon according to Native Americans. As the temperature begins to warm and the ground begins to thaw, earthworm casts appear (an earthworm cast is a nice word for worm poop), heralding the return of the robins. This full moon is also called the Full Crow Moon, the Full Crust Moon and the Full Sap Moon.

Constellations: As we switch to Daylight Savings Time we have an extra hour to enjoy the winter constellations before they disappear, so take a last look at Auriga, Orion and Taurus. If you stay up late look to the east to see the spring constellations rising, led by Boötes, Corona Borealis and Hercules.

Messier/Deep Sky: Take a few more gazes at the Orion Nebula before it settles into the west as spring marches on. The Big Dipper is high in the sky so take this opportunity to look for galaxies M81 and M82. With a low power eyepiece in your telescope they might be in the same field of view depending on your equipment. For more of a challenge, look for the 10th magnitude galaxies M65 and M66 in Leo.

Comets: During March the 10th magnitude comet C/2007 Q3 (Siding Spring) passes near the galaxy M102 in Draco. A chart to find this fuzball is in the March issue of Astronomy magazine.

Meteor Showers: There are no major meteor showers during March.

Through the Eyepiece: The Horsehead Nebula, IC 434

by Don Knabb, CCAS Secretary & Observing Chair

While the winter constellations are still in our night sky we have a chance to glimpse a famous dark nebula that is a favorite target for astrophotographers. This is the Horsehead Nebula, which is also known as IC 434 and Barnard 33.

The Horsehead Nebula is located in the constellation Orion. The nebula is located just below (to the south of) Alnitak (Zeta Orionis), the star farthest left on Orion's Belt, and is part of the much larger Orion Molecular Cloud Complex. It is one of the most identifiable nebulae because of the shape of its swirling cloud of dark dust and gases, which is similar to that of a horse's head. The shape was first noticed in 1888 on a photographic plate taken at the Harvard College Observatory.

The red glow originates from hydrogen gas predominantly behind the nebula, ionized by the nearby bright star Sigma Orionis. The darkness of the Horsehead is caused mostly by thick dust, although the lower part of the Horsehead's neck casts a shadow to the left. Streams of gas leaving the nebula are funneled by a strong magnetic field. Bright spots in the Horsehead Nebula's base are young stars just in the process of forming. Light takes about 1500 years to reach us from the Horsehead Nebula.

Here is a picture from the Hubble Heritage Collection:

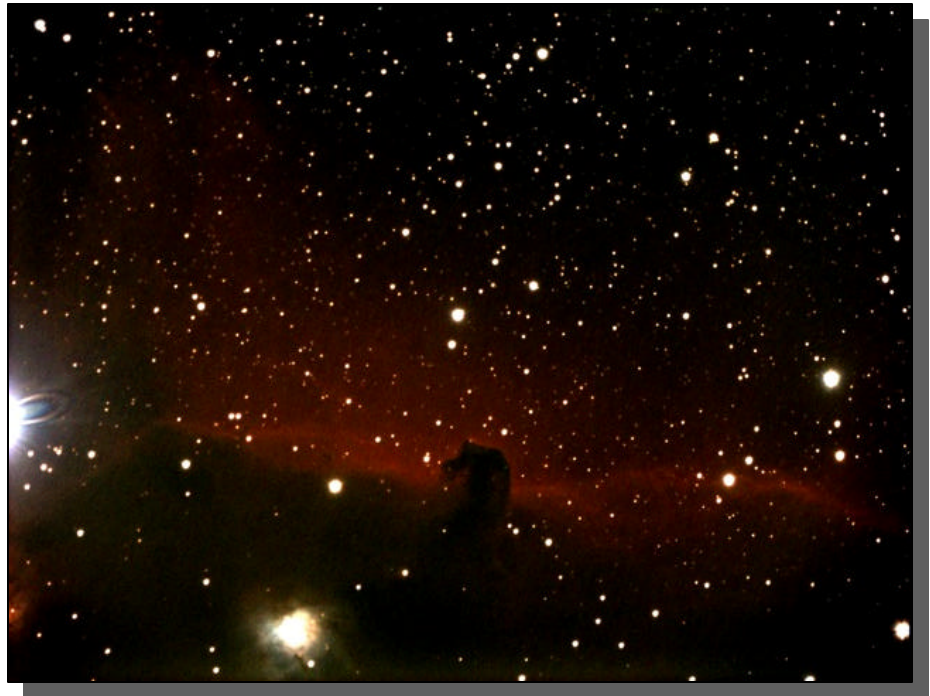


Photo courtesy of CCAS member Dave Hockenberry

To find the Horsehead Nebula aim your telescope toward the bright star Zeta Orionis, which is easily visible to the unaided eye

as the left-hand star in the line of three that form Orion's Belt. Then pan down and a bit to the

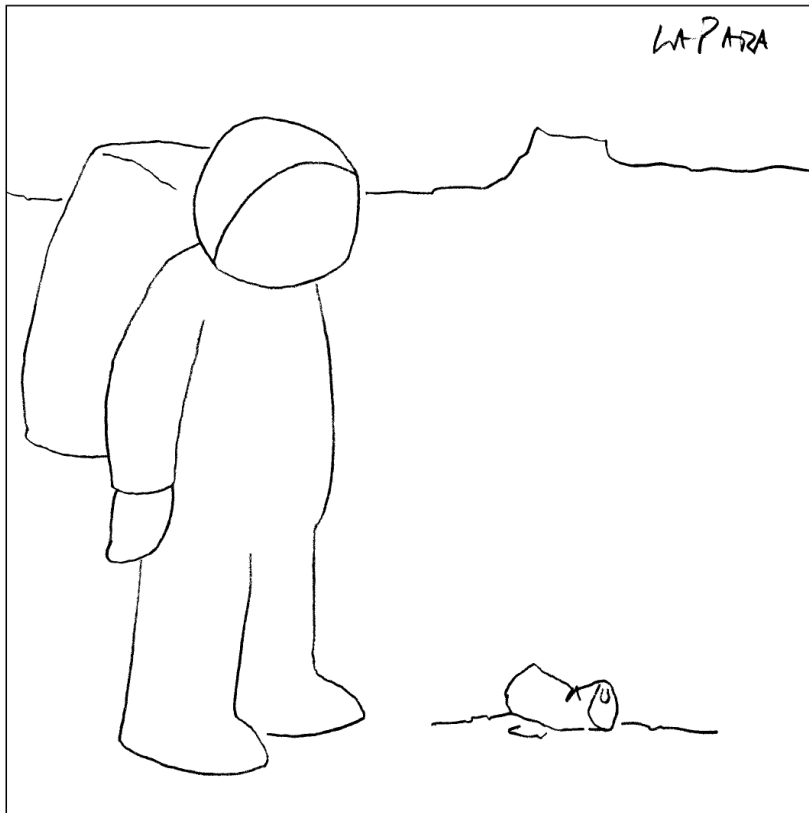
(Continued on page 7)



Photo courtesy of the Hubble Heritage Collection

Nicholas's Cartoon Corner

by Nicholas La Para



EVIDENCE THAT THERE WAS LIFE ON MARS

New IMAX® 3D Film on the Hubble Space Telescope

submitted by NASA & Warner Bros.

Through the power of IMAX® 3D, “Hubble 3D,” takes moviegoers on an unprecedented voyage through distant galaxies to explore the grandeur and mystery of our celestial surroundings.

In May 2009, the crew of the Space Shuttle Atlantis launched a mission to make vital repairs and upgrades to the Hubble Space Telescope. On board was an IMAX 3D camera, operated by the shuttle astronauts. It captured stunning sequences of the five intricate spacewalks required to make those repairs, as well as close-up images of the effort to grasp the orbiting telescope with the shuttle’s mechanical arm at 17,500 mph, and one unexpected problem that threatened to sabotage the entire mission.

“Hubble 3D” combines this breathtaking IMAX footage with images taken by the telescope during the nearly 20 years it has been our window into space. Through advanced computer visualization, Hubble’s detailed data becomes a series of scientifically realistic flights that unfold on screen like a guided tour of the universe, through time and space.

Exclusive IMAX engagements of “Hubble 3D” will begin March 19th, 2010. It is rated G by the MPAA. To learn more about the film, visit:

www.imax.com/hubble

Through the Eyepiece (Cont'd)

(Continued from page 6)

left. You will need as big a telescope as you can find and a dark observing sight and a night without the Moon brightening the sky. Amateur astronomers often use the Horsehead Nebula as a test of their observing skills because it is known as one of the more difficult objects to see visually in an amateur-sized telescope.

I have not seen this nebula through a telescope, but I will look for it if I can ever dig the snow away from my observing location.

This popular celestial target was the clear winner among more than 5,000 Internet voters who were asked to select an astronomical target for the Hubble telescope to observe. The voters included students, teachers, and professional and amateur astronomers.

Information credits:

http://en.wikipedia.org/wiki/Horsehead_Nebula

<http://seds.org/messier/xtra/ngc/b33.html>

<http://antwrp.gsfc.nasa.gov/apod/ap070527.html>

<http://hubblesite.org/newscenter/archive/releases/2001/12/image/a>

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Flipping the Lights on Cosmic Darkness

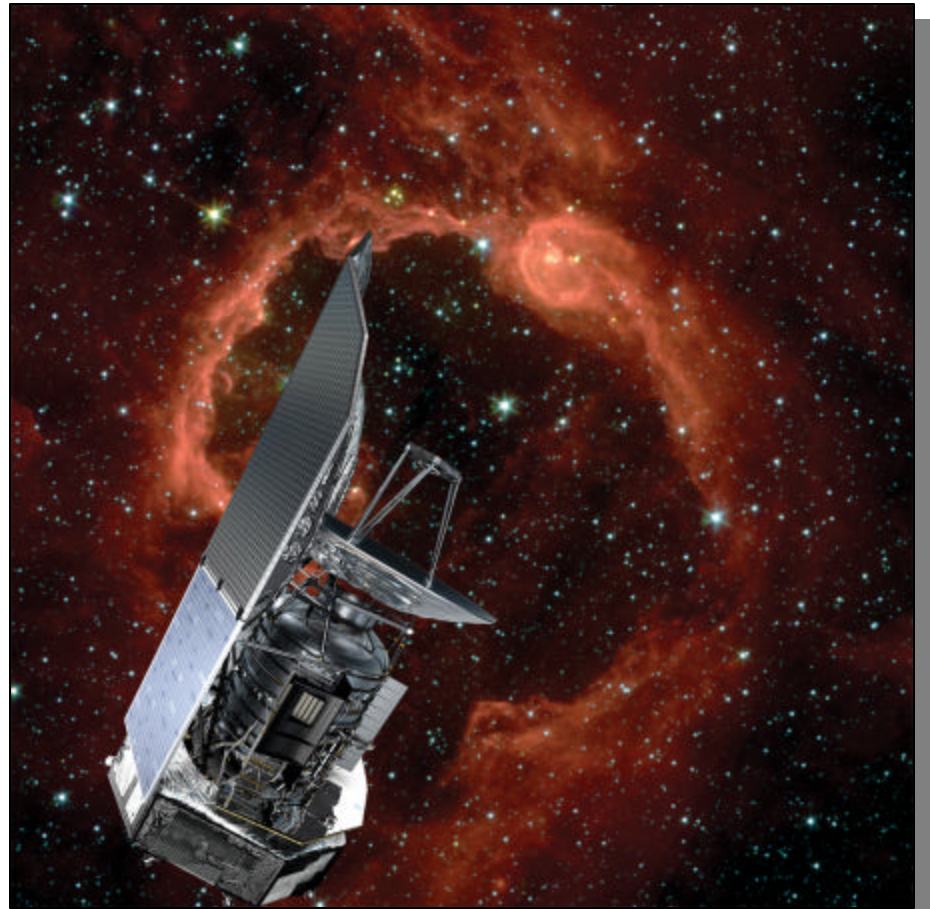
submitted by Jet Propulsion Lab

Exploring the universe is a bit like groping around a dark room. Aside from the occasional pinprick of starlight, most objects lurk in pitch darkness. But with the recent launch of the largest-ever infrared space telescope, it's like someone walked into the room and flipped on the lights.

Suddenly, those dark spaces between stars don't appear quite so empty. Reflected in the Herschel Space Observatory's 3.5-meter primary mirror, astronomers can now see colder, darker celestial objects than ever before—from the faint outer arms of distant galaxies to the stealthy "dark asteroids" of our own solar system.

Many celestial objects are too cold to emit visible light, but they do shine at much longer infrared wavelengths. And Herschel can observe much longer infrared wavelengths than any space telescope before (up to 672 microns). Herschel also has 16 times the collecting area, and hence 16 times better resolution, than previous infrared space telescopes. That lets it resolve details with unprecedented clarity. Together, these abilities open a new window onto the universe.

"The sky looks much more crowded when you look in infrared wavelengths," says George Helou, director of the NASA Herschel Science Center at Caltech. "We can't observe the in-



The Herschel Space Observatory has 3.5-meter primary mirror, allowing astronomers to see colder, darker celestial objects than ever before.

frared universe from the ground because our atmosphere blocks infrared light, and emits infrared itself. Once you get above the atmosphere, all of this goes away and suddenly you can look without obstruction."

Herschel launched in May from the Guiana Space Centre in French Guiana aboard a European Space Agency Ariane 5 rocket. Since then, it has expanded the number of distant galaxies observed at far infrared

wavelengths from a few hundred to more than 28,000. And with the instrument testing and system check-out phases finally completed, the discoveries are only now beginning.

Beyond simply imaging these dark objects, Herschel can identify the presence of chemicals such as carbon monoxide and water based on their spectral fingerprints. "We will be able to decipher the chemistry of what's

(Continued on page 9)

Herschel (cont'd)

(Continued from page 8)

going on during the beginnings of star formation, in the discs of dust and gas that form planets, and in the lingering aftermath of stellar explosions,” Helou says.

And those are just the expected things. Who knows what *unexpected* discoveries may come from “flipping on the lights?” Helou says “we can't wait to find out.”

Herschel is a European Space Agency mission, with science instruments provided by a consortium of European-led institutes and with important participation by NASA.

See the ESA Herschel site at sci.esa.int/science-e/www/area/index.cfm?fareaid=16. Also, see the NASA sites at herschel.jpl.nasa.gov, www.herschel.caltech.edu, and www.nasa.gov/mission_pages/herschel.

Kids can learn about infrared light by browsing through the Infrared Photo Album at The Space Place, spaceplace.nasa.gov/en/kids/sirtf1/sirtf_action.shtml.

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

Project ASTRO WCU Needs You!

by Dr. Karen Vanlandingham, Ph.D., West Chester University

Each school year, Project ASTRO WCU pairs K-12 teachers with volunteer astronomers. Astronomers commit to making at least four visits to the same one or two classrooms. During these visits astronomers answer students' questions and lead or assist the teacher with astronomy activities.

Examples of activities include:

- Stargazing
- Exploring the Constellations
- the Reason for Seasons
- Modeling the Phases of the Moon
- Making a Scale Model of our Solar System
- Making a Comet

The teacher-astronomer partnerships are established at a two-day workshop. During the workshop, partners develop a strategy for working together, in and out of the classroom, and start planning their astronomy lessons and the first astronomer's visit. Our next training workshop will be on *August 20-21, 2010* (Friday and Saturday) at West Chester University.



Photo from last year's Project ASTRO workshop: An activity demonstrating the phases of the moon

Astronomers who are interested in participating should fill out an Astronomer Volunteer Form. On this form, astronomers will be asked for areas of astronomy that are of special interest to them, which grades/ages they prefer to work with, and what geographical areas are acceptable.

Based on the answers, astronomers will be matched with compatible teachers or youth leaders. Each partnership will receive a wide variety of materials and resources for use in their visits, including: The Astronomical Society of the Pacific's "*The Universe at Your Fingertips*" activity and resource notebook, resource lists, access to audio-visual materials, tips on working with schools/groups and students, tips on addressing and working with preconceptions and learning styles, and more.

Astronomer Volunteer Forms and more information can also be obtained from our website at http://geology.wcupa.edu/project_astro or from:

Project ASTRO WCU
Dept. of Geology & Astronomy
750 S. Church St.
West Chester, PA 19383

Phone: (610) 436-2788,
Fax: (610) 436-3063
E-mail: kvanlandingham@wcupa.edu

Web Application Review: SLOOH SpaceCamera™

by John Hepler, CCAS Webmaster & Newsletter Editor

Growing up the youngest of four sons (and an “accident” to boot!), sibling rivalry was a constant factor in my childhood home. My older brother Mark gave me a particularly hard time, to the point of sitting on my bed, telling me what food of mine he ate when I was sick. Harsh. Thirty years later, we all share a laugh over stories like this, even if some subjects still bring out the old rivalries between us.

But sometimes, I end up with a really nice surprise. My brother Mark has developed an interest in astronomy over the past decade, and for this past Christmas, he gave me a gift of membership in [SLOOH SpaceCamera™](#).

What is SLOOH? It is the largest live astronomy community on the Internet. SLOOH was launched in 2003 and has over 50,000 members in 70 countries. Members have gone on over 317,000 missions, and taken over 1 million pictures. SLOOH features a patented technology that makes celestial objects in the telescope appear automatically like a Polaroid over the course of a five minute mission.

Where does the term "SLOOH" come from? When you move a telescope from one object to another, you are slewing the scope. SLOOH's editors changed the spelling to reflect their belief that they put the "ooh!!" in slew.

(Continued on page 11)

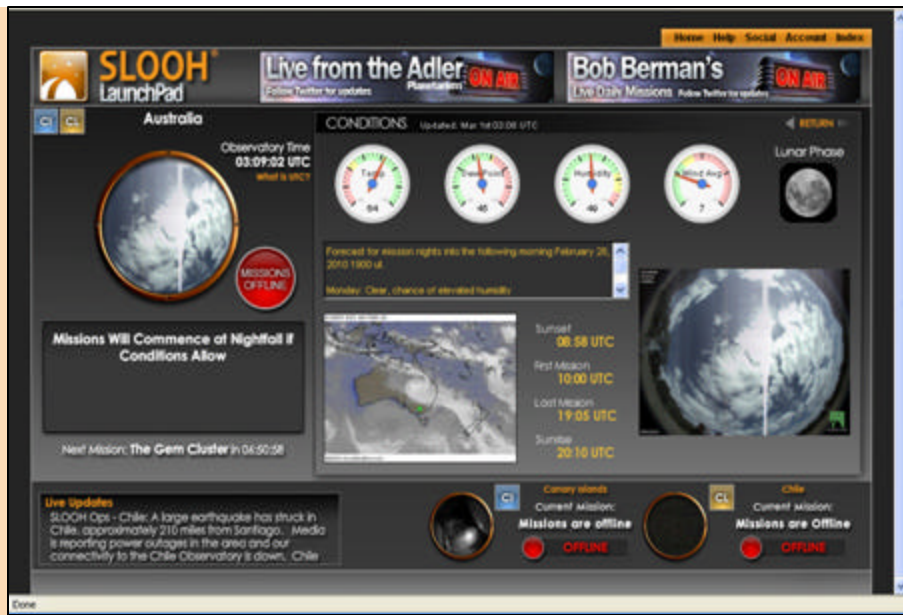


Here's a screenshot of the SLOOH homepage. In the top middle, the date and time of the next guided mission is displayed, along with the total number of member photos taken since program launch in 2003. Three links in the banner across the bottom of the screen invite the visitor to explore the site, highlight the educational programming done for children, and offer retail versions in the form of gift cards. Links in the footer give background information on SLOOH and contact information.



After creating a member ID and password, the user logs in and is taken to the Launch Pad. One of the three observatories is featured in the upper left, with the other two's statuses displayed in the lower right. A live update feature in the lower left, informs on weather conditions and any hardware/software issues at the telescopes. Clicking on the 'Conditions' link in the upper left, will display the current weather conditions at the telescope site. Clicking on the 'Reservations' link in the upper right will display the interface used to schedule time on the telescope.

SpaceCamera (Cont'd)



Here's a screenshot of the 'Conditions' page for the observatory in Australia. Weather conditions including temperature, dew point, humidity, and wind speed are reported. A live weather map along with sunrise, sunset, and scheduled missions for the day. The fisheye displays a live shot at the site. To switch to one of the other telescopes, click on the lower right to select one of the other telescopes. Note the live update, I grabbed the screenshot just the other night; the update was reporting on the conditions at the observatory in Chile after Saturday's earthquake.



Here's a screenshot of Otto, the night watch dog. Otto's job is to teach new members how to use the application. As members complete each mission pack, they earn achievement badges. The 'Basic Training' mission pack focuses on mastering the application; the others were written to educate novices to astronomy. Additional mission packs unlock as the members move up the ranks. There are special mission packs available in the version of SLOOH created for the classroom. In addition to the regular features of SLOOH, progress reports are generated to track student performance. Visit <http://schools.slooh.com> to learn more about SLOOH for Schools and how teachers can integrate it into their curriculum.

(Continued from page 10)

The goal of SLOOH's editors is to show the best and brightest of outer space, at specific times that are the most ideal to view each object. For example, when Mars passes close to Earth every 26 months, the editors emphasize missions to Mars. Every night members visit popular objects like the Moon, Saturn, Mars, and Jupiter, as well as the most beautiful galaxies, nebulae and globular clusters, including the Orion Nebula, the Andromeda Galaxy, the Crab Nebula, the Whirlpool Galaxy, the Pleiades and the Hercules cluster.

SLOOH members have captured hundreds of thousands of images of spectacular space objects, and many are available for viewing in the SLOOH Member Gallery. On the mission interface, there is a Camera button that allows the user to capture up to three images per mission.

These images show up in the member's Mission Log once the event is complete. Members can then print their photos, download them to their computer desktops or storage devices, or add them to the Member Gallery. The SLOOH Camera device also records the date, time and observing conditions for each photo.

The SLOOH experience has been designed to introduce people of all ages to space exploration.

(Continued on page 12)

SpaceCamera (Cont'd)

(Continued from page 11)

tion. While rookie stargazers are encouraged to start with the missions hosted by Otto the night watchdog, SLOOH's editors expect even the most advanced members to appreciate SLOOH Master. They promise to continue to add new and advanced features to hold everyone's burgeoning interest.

SLOOH is an active community, full of self-starters of every age, so once members have made themselves familiar with the site, they are encouraged to join the member forums to talk about features they'd like to see in future refinements to the system.

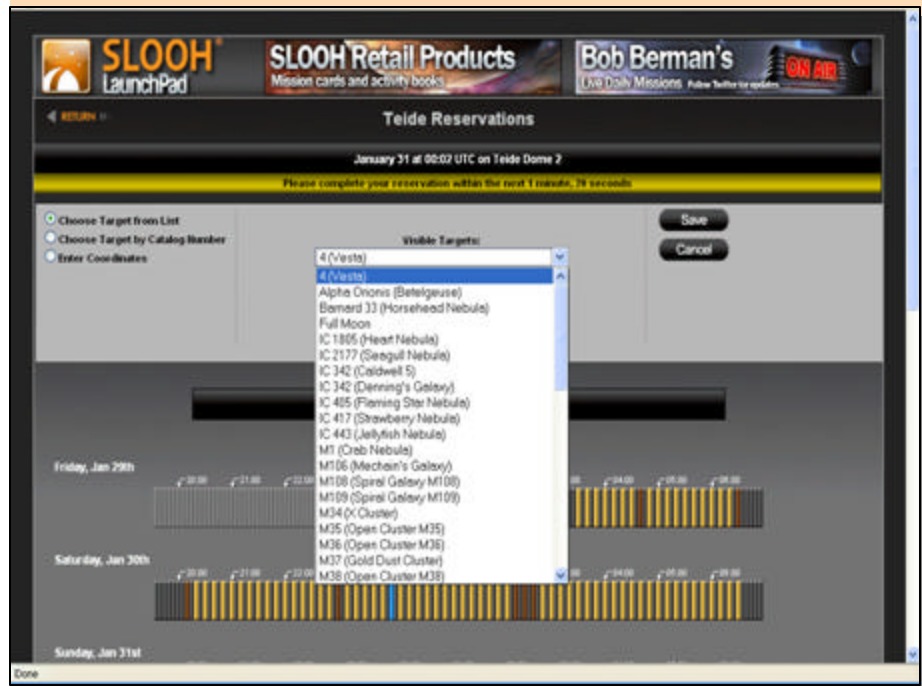
Otto leads new members on every mission. Written by Bob Berman, one of America's most popular and distinguished astronomy authors, his storyteller segments help new members grasp the scale and beauty of the universe, in addition to illuminating man's attempts throughout the ages to understand it.

The Advanced Mission Interface is best suited for those who have completed their apprenticeship with Otto. Missions run every five minutes (weather permitting) in two separate modes: Editor and Member. Editor Missions are programmed by the SLOOH staff and can be viewed by all members. Member Missions are programmed by advanced members, but can be viewed by all. Members make mission reservations on a first-come, first-served

(Continued on page 13)



Here's a screenshot of the reservations page for the observatory in the Canary Islands (Spain). Days are displayed (up to 7 days in advance) and the hours of nighttime viewing appear, broken into 5 minute increments. Reserved times appear in brown, free are in yellow. To reserve time, click on the increment desired.



Here's a screenshot of the what happens after selecting a reservation time. Members have the option of selecting a target from a list of well-known astronomical subjects, including Messier Objects, catalog numbers, common names, etc. Two other ways to select a viewing target include by catalog number (including Messier, Collinder, IC, NGC, and the Arp Catalog of Peculiar Galaxies, among others). After selecting the target, the member clicks the 'Save' button. The reservation time appears in blue, and the reservation information appears at the top of the page with a review of the reservation, including the target, reservation time, a countdown to the reservation, the observatory, and the option to cancel the reservation.

SpaceCamera (Cont'd)

(Continued from page 12)

basis. They can make them up to seven nights in advance. Members can make up to 5 reservations in the previous 7 days. Our most avid members have confirmed several supernova discoveries; in fact, SLOOH recently co-authored supernova research with leading universities, including Cal Tech.

In addition to the images, there is live audio programming on SLOOH. Most days astronomers come on SLOOH radio to talk about all things space. Members should be sure to subscribe to the SLOOH Twitter feed.

How much does a SLOOH membership cost? There are three membership programs:

- \$5.95 / Month
- \$29.95 / Six Months *(save 15%)*
- \$49.95 / 12 months *(save 30%)*

SLOOH Kids mission packs cost \$4.95. Each mission pack includes 7 unique live missions to space hosted by Otto. These mission packs, narrated by Otto, have been prepared by educators and astronomers and are optimized for kids aged 6-16.

There is also a version of SLOOH for schools, with special mission packs, including Moon missions, and the Lifecycle of Stars. Students are given special access codes, so they can use SLOOH both inside and outside the classroom.

(Continued on page 14)

CCAS Original Astrophotography: The Pleiades & The Moon

by Dave Hockenberry



M45 shot 10/20/09, through TeleVue NP101is, with Starlight Xpress SXVF H9C color camera, stack of 6 80-second exposures. Median stacked in MaxIm DL5, image stretched and color balanced in Photoshop CS3. No filters. Autoguided with SX Lodestar and Meade LX200R. This image doesn't include the entire cluster, but does show some of the glowing surrounding gases that have condensed into these very young stars.



Lunar Landscape, shot 6/5/07 through Meade LX200R 10" scope with Meade LPI webcam imager, stack of 12 0.04 second images autoprocessed with Envisage software. Image sharpened with Gaussian curve in Photoshop CS3. Unusually clear and steady air allowed good definition on this imaging run.

SpaceCamera (Cont'd)

(Continued from page 13)

Want to check it out first without committing? SLOOH also offers a Free Membership option. No credit card is required to sign up and a free membership never expires. A free member can:

- Go on live missions to space and use the SLOOH world-wide telescope network
- Listen to a nationally renowned astronomer's presentation
- Take and share a photo
- Go on two missions in the SLOOH Kids Mission Packs

What computer specifications does SLOOH require? The program was designed to function on either PC or Mac computers. A web browser and broadband Internet Access are the only requirements. SLOOH is supported by a group of volunteer members who have been instrumental to the successful operation of SLOOH since 2003.

SLOOH has been recognized for its innovative and creative use of Java technology by Sun Microsystems' CEO Scott McNealy and Java inventor James Gosling. SLOOH is the proud recipient of the 2006 Parents' Choice Gold Award, the National Parenting Publications Awards (NAPPA) Honor Award, and was the winner of the 2004 Duke's Choice Award.

So sometimes big brothers end up being pretty cool. I'm looking forward to seeing what he comes up with next.

SLOOH Details

Locations

Canary Islands, Spain

Instituto de Astrofísica de Canarias (IAC)

Mt Teide, Canary Islands

Latitude: N28° 17' 58.92"

Longitude: W16° 30' 29.74"

2,359m | 7,739ft

UTC 0

Two 12ft diameter Clamshell

Domes. Premier World class observatory site.

La Dehesa, Chile

Pontificia Universidad Católica de Chile (PUC) Observatory Facility Chile

Latitude: S33° 16' 08.83"

Longitude: W070° 32' 03.64"

1,449.7m | 4,756.2ft

UTC -4

One 16ft diameter Clamshell

Dome. High in the mountains outside Santiago.

Macedon Ranges Observatory, Australia

Southern Galactic Macedon Facility (MRO)

Australia

Latitude: S37° 12' 44.1"

Longitude: E144° 37' 39.2"

610m | 2,001.3ft

UTC +10

Hosted roll-off roof building. High in the Macedon Mountain Range.

Specifications

Mt Teide, Canary Islands, Spain

Dome 1 *Dome is not operational.*

Installation dates not yet announced.

Primary Instrument: 0.5 meter f/6.8

Corrected Dall-Kirkham

Field of View: 37 × 37 arc-minutes

Camera Resolution: 3,056 × 3,056

pixels

Widefield Instrument: 77mm f/4.3
Apochromatic Refractor
Field of View: 2.65 × 2.65 degrees
Camera Resolution: 2,048 × 2,048
pixels

Dome 2

Primary Instrument: 0.35 meter

f/11 Schmidt-Cassegrain

Field of View: 13.1 × 8.8 arc-minutes

Camera Resolution: 2,184 × 1,472
pixels

Widefield Instrument: 85mm f/5.6
Apochromatic Refractor
Field of View: 1.4 × 1.1 degrees
Camera Resolution: 1,600 × 1,200
pixels

La Dehesa, Chile

Primary Instrument: 0.35 meter

f/5.95 Schmidt-Cassegrain

Field of View: 24.6 × 24.6 arc-minutes

Camera Resolution: 2,048 × 2,048
pixels

Widefield Instrument: 90mm f/5.56
Apochromatic Refractor
Field of View: 1.4 × 1.0 degrees
Camera Resolution: 1,600 × 1,200
pixels

Macedon Ranges Observatory, Australia

Primary Instrument: 0.35 meter

f/5.95 Schmidt-Cassegrain

Field of View: 26.2 × 17.6 arc-minutes

Camera Resolution: 2,184 × 1,472
pixels

Widefield Instrument: 77mm f/4.3
Apochromatic Refractor
Field of View: 2.65 × 2.65 degrees
Camera Resolution: 2,048 × 2,048
pixels

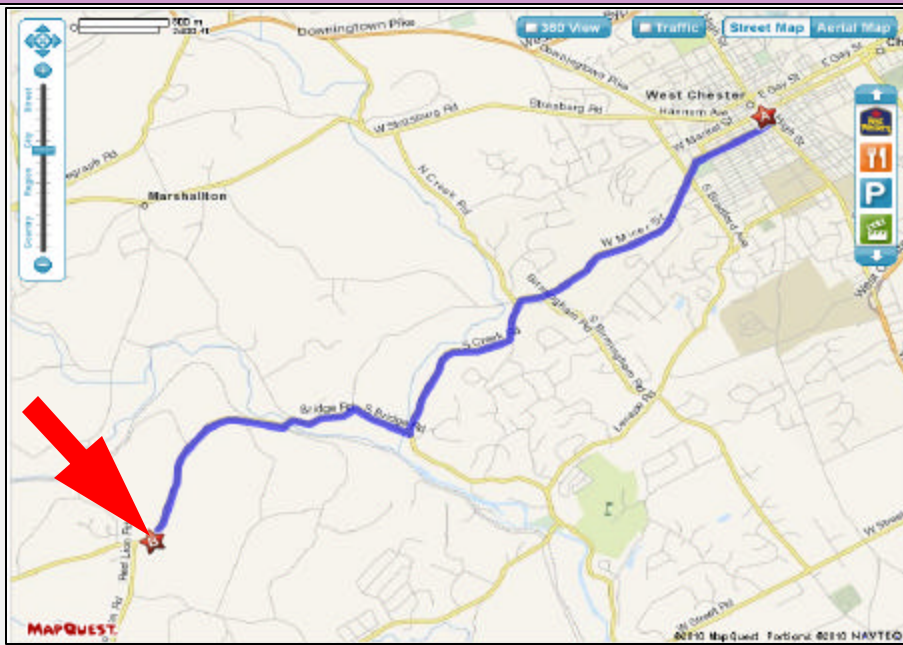
CCAS Original Astrophotography: Hickson 44

by Dave Hockenberry



Hickson 44 is a group of faint galaxies located in Leo's mane. 5 are seen here, NGC3193 (left uppermost), NGC 3190 (central), 3187 (curlicue right up from center), and NGC 3185 (with the ears at lower right). Two other faint galaxies complete the picture. Shot with Starlight Xpress SXVF H9C color camera through TeleVue NP 101is, stack of 14 5-minute images, stacked using SD Mask in Maxim DL5, hot pixel removal and color balanced in Photoshop CS3. Autoguided with SX Lodestar and Meade LX200R, with MaxIm guiding software. Shot 2/19/10.

CCAS Directions



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.

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.

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).



Tripod (Cont'd)

(Continued from page 2)

cedes the monthly meeting and starts at 7:00 p.m.

13th • CCAS Monthly Meeting, Room 113, Merion Science Center (former Boucher Building), West Chester University. The meeting starts at 7:30 p.m. Guest Speaker: Dr. Dave Klassen, PhD, Rowan University: "Mars & the Martian Atmosphere". Constellation of the Month: T B A .

16th • Reservations start for the May 7th planetarium show at the WCU Planetarium. For more information, please contact Dr. Karen Vanlandingham, Planetarium Director, via e-mail or visit the planetarium's webpage.

16th • CCAS Monthly Observing Session, Myrick Conservancy Center, BVA (inclement weather date April 17th). The observing session starts at sunset.

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

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

CCAS Membership Information and Society Financials

Treasurer's Report by Bob Popovich

January 2010 Financial Summary

Beginning Balance	\$2,044
Deposits	\$45
Disbursements	\$426
Ending Balance	\$1,663

Welcome New Members!

This month we welcome Don DiSands of West Chester.

We're glad you decided to join us again 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

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:	OPEN POSITION
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**.