Observations

A Monthly Publication Of The
CHESTER COUNTY ASTRONOMICAL SOCIETY

Vol. 17, No. 5 *May 2009*

In This Issue

CCAS Spring Events 2
CCAS Meeting Minutes: April 2009 2
CCAS Member Original Astrophotography 2
The Sky Over Chester County: May 2009 3
May Observing Highlights 4
Through the Eyepiece: Rupes Recta 5
CCAS Directions: WCU Map 6
New Meeting Location? 6
Membership Renewals 6
Treasurer's Report 6
CCAS Field Trip: Spitz, Inc. 7
NASA Space Place 8
CCAS Directions: Brandywine Valley Association 9
CCAS Member Original Astrophotography 10
Nicholas's Humor Corner 10
CCAS Information Directory 13-14

CCAS Upcoming Nights Out

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

- Saturday, May 2nd, as part of National Astronomy Day, we are hosting a night out at Anson Nixon Park in Kennett Square.
- Saturday, June 13th, we are hosting the Nottingham County Park Star Party in southern Chester county.
- Saturday, August 22nd, we are hosting a star party at Ridley Creek State Park (tentative—awaiting confirmation). Ridley Creek State Park is located in Delaware county between Newtown Square and Media.
- Saturday, September 19th, we are hosting a night out at Anson Nixon Park in Kennett Square.
- Saturday, October 19th, we are co-hosting (with the West Chester Recreation Dept.) a night out at Hoopes Park, West Chester.

Membership Renewals Due

05/2009	Armore Devoe Fletcher Kutta Long, Jr. Welch
06/2009	Bickel Churchman Hebding Hooper Leiden Siskind
07/2009	Goldader & Family Hockenberry & Family Rybski Tobery

Important May 2009 Dates

1st • First Quarter Moon at 4:44 p.m.

6th • Eta Aquarid meteor shower peaks. Unfortunately the light of the Full Moon will block the majority of the meteors from view.

9th • Full Moon at 12:01 a.m.

17th • Last Quarter Moon at 3:26 a.m.

24th • New Moon at 8:11 a.m.

Spring 2009 Society Events

May 2009

2nd • CCAS hosts a "night out" at Anson Nixon Park in Kennett Square.

5th • Introductory Astronomy Class: The Stars on Your Computer, Room 113, Boucher Building, West Chester University. The class starts at 7:00 p.m.

6th • PA Outdoor Lighting Council monthly meeting, Bucktown Branch of National Penn Bank, 1111 Ridge Rd, (Rt. 23 just west of Rt. 100) in South Coventry Township, PA, starting at 7:30 p.m.

8th • West Chester University Planetarium Show: "The Final Frontier", Schmucker Science Building.

12th • DVD Lecture Series: "Stars: Distant Suns", 7:00 p.m. Room 113, Boucher Building, West Chester University.

12th • CCAS Monthly Meeting, Room 113, Boucher Building, West Chester University. The meeting starts at 7:30 p.m. Guest Speaker, Dr. Fronefield Crawford: Stellar Death. Constellation of the Month: Virgo by Dave Hockenberry.

15th • CCAS Monthly Observing Session, Myrick Conservancy Center, BVA (inclement weather date May 16th). The observing session starts at sunset.

19th • Introductory Astronomy Class: Beyond Naked Eye: Binoculars, Telescopes & Mounts, Room 113, Boucher Building, West Chester University. The class starts at 7:00 p.m.

19th • Hercules Observing Cluster meets in West Goshen Township, weather permitting. Contact Kathy Buczynski for directions and details.

27th • Hercules Observing Cluster meets in West Goshen Township, weather permitting. Contact Kathy Buczynski for directions and details.

June 2009

2nd • Hercules Observing Cluster meets in West Goshen Township, weather permitting. Contact Kathy Buczynski for directions and details.

3rd • PA Outdoor Lighting Council monthly meeting, Bucktown Branch of National Penn Bank, 1111 Ridge Rd, (Rt. 23 just west of Rt. 100) in South Coventry Township, PA, starting at 7:30 p.m.

9th • Hercules Observing Cluster meets in West Goshen Township, weather permitting. Contact Kathy Buczynski for directions and details.

16th • Hercules Observing Cluster meets in West Goshen Township, weather permitting. Contact Kathy Buczynski for directions and details.

23rd • Hercules Observing Cluster meets in West Goshen Township, weather permitting. Contact Kathy Buczynski for directions and details.

26th • CCAS Monthly Observing Session, Myrick Conservancy Center, BVA (inclement weather date June 27th). The observing session starts at sunset.

26th • Deadline for newsletter submissions for the July 2009 edition of Observations.

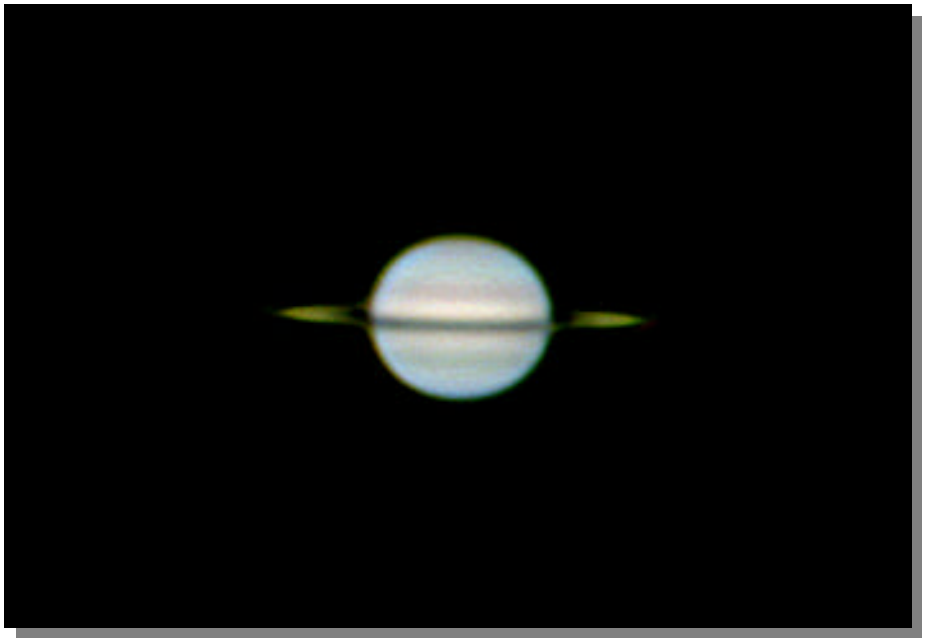
30th • Hercules Observing Cluster meets in West Goshen Township, weather permitting. Contact Kathy Buczynski for directions and details.

Minutes of the April 14, 2009 meeting of the CCAS

Our regular monthly meeting was replaced by a “field trip” to Spitz, Inc., located in Chadds Ford, PA. CCAS members were treated to a private tour of the facility and a demonstration of the company’s SciDome planetarium. See the article on page 7 for more photographs and details of our visit. A special thanks to Joyce & Scott at Spitz, Inc., for their time and hospitality.

CCAS members were given a guided tour of the manufacturing facility by Spitz’s Director of Marketing , Scott Huggins (background right).

CCAS Astrophotography: Saturn, by Vic Long, Jr.

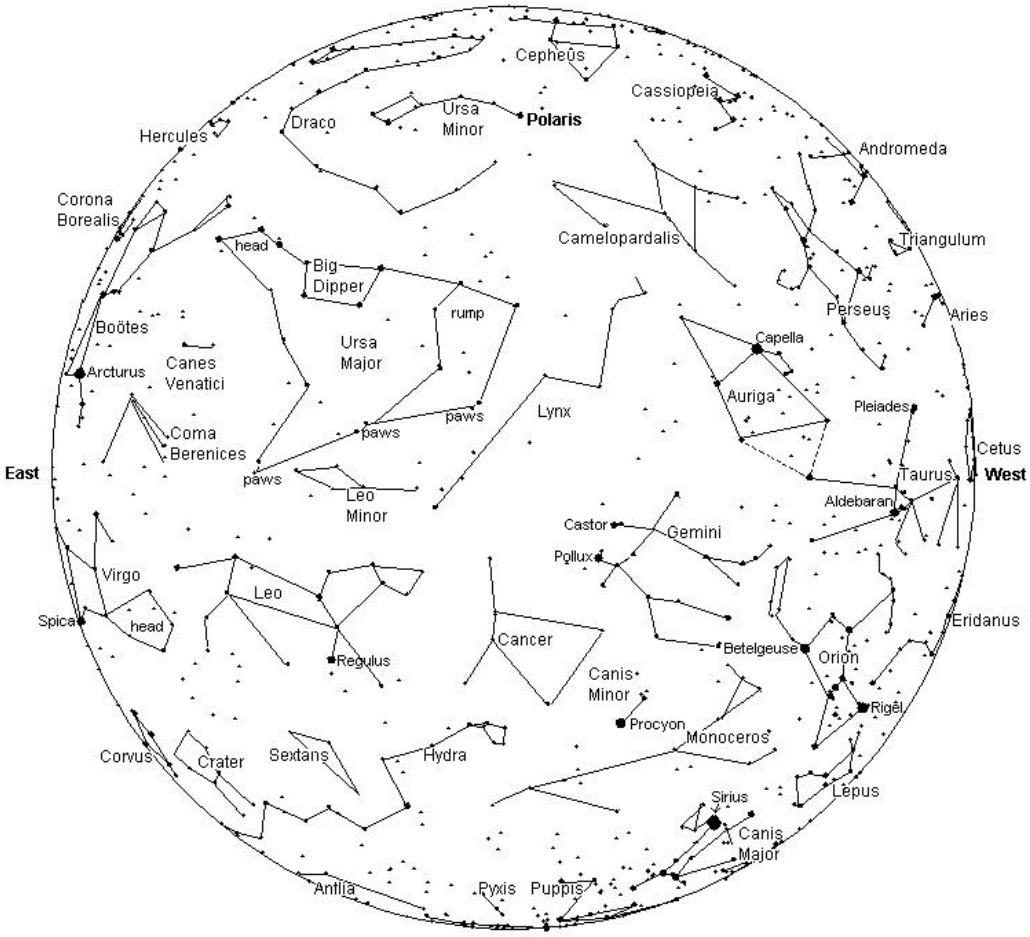


I didn’t think I’d like a nearly edge-on view of the rings, but it’s nice to be able to see belts in both hemispheres. Photo was taken at 10PM April 27 using a Nexiimage webcam, UV/IR cut filter, 8 inch Vixen VMC200L telescope and a 2.5X Barlow lens (equivalent focal length of 4875mm).

The Sky Over Chester County

May 15, 2009 at 9:00 p.m. EDT

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



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

The faintest stars shown on this chart are fifth magnitude.

Date	Sunrise	Sunset	Moon Phases		
05/01/2009	6:00 a.m. EDT	7:56 p.m. EDT	First Quarter	05/01/2009	4:44 p.m. EDT
05/15/2009	5:45 a.m. EDT	8:09 p.m. EDT	Full Moon	05/09/2009	12:01 a.m. EDT
05/31/2009	5:34 a.m. EDT	8:23 p.m. EDT	Last Quarter	05/17/2009	3:26 a.m. EDT
			New Moon	05/24/2009	8:11 a.m. EDT

May 2009 Observing Highlights

by Don Knabb, CCAS Observing Chair

May 1	Mercury is less than 2° from the center of the Pleiades in the sunset sky.
May 1	First quarter Moon, 4:44 p.m.
May 2	Venus is near its brightest in the morning sky.
May 6	The Eta Aquarid meteor shower peaks this morning.
May 9	Full Moon, 12:01 a.m.
May 17	Last quarter Moon, 3:26 a.m.
May 24	New Moon, 8:11 a.m.

The Planets: The ringed beauty Saturn continues to be our main event of the evening during May. During the first week of May you can also see Mercury just after sunset. To see any other planets you need to get up before dawn and this time of year that is getting to be pretty early!

Mercury: To see the planet nearest the Sun you need to look during the first week of May, low in the fading glow of the sunset. During the 2nd week of May Mercury is too low to find unless you have a very low horizon. After that it is lost in the glow of the Sun as it passes through inferior conjunction on the 18th.

Venus: If you get up early you won't miss bright Venus in the east. Our sister planet is rising about 2 hours before the Sun. It outshines every other object except the Sun and the Moon.

Mars: The red planet is a challenge to see during May. It shines at only magnitude 1.2 and is in the bright dawn sky. Mars will be a much better sight late in the year.

Jupiter: The king of the planets is rising around 3 a.m. at the start of May and at 1 a.m. at the end of the month. Wait until late summer for fine views of the king of the planets.

Saturn: Leo the Lion continues to step on Saturn with his back paw! Recently the ringed planet has been looking unusual in a telescope because the rings are essentially a straight line. But during May they open slightly, before they start closing again and eventually they are completely edgewise to the Earth on September 4th.

Uranus: Early in the month Uranus is very difficult to see, but by the end of the month the green planet is 20° above the east-southeastern horizon an hour and a half before sunrise. Finder charts for Uranus and Neptune can be found on the Sky and Telescope website at: http://www.skyandtelescope.com/observing/highlights/41561382.html

Neptune: Jupiter and Neptune are less than 1/2° apart around dawn on May 27th. You'll need a telescope and the Sky and Telescope finder charts to find this tiny blue dot.

Pluto: Pluto is in Sagittarius before dawn and is, of course, very dim. You'll need at least an 8 or 10 inch telescope and good charts to find this tiny speck of an ex-planet.

The Moon: Full Moon is on May 9th at 12:01 a.m. 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: This is a great time of year to look high overhead at the Big Dipper and find all of Ursa Major, the Big Bear. Leo the Lion is still high in the sky as darkness falls, but he seems to be running away from Hercules as he is rising in the east. And bright Arcturus in Boötes shines like a beacon in the southeast.

Messier/Deep Sky: It is globular cluster time! M3 is high overhead during May. Take a look at the glow of 500,000 stars in your eyepiece! And stay up a bit later as M13, the Great Globular Cluster in Hercules rises in the east. M13 contains several hundred thousand stars, perhaps a million!

Comets: If you want to go comet hunting, look in the May issue of Astronomy for the finder chart for Comet Cardinal. This 9th magnitude fuzzy spot is in the constellation Gemini during May.

Meteor Showers: The Eta Aquarid meteor shower peaks during the early morning hours of May 6th. Unfortunately the nearly full Moon will wash out most of the 30 or so meteors per hour that you would be able to see in a dark sky.

Through the Eyepiece: Rupes Recta, the Straight Wall on the Moon

by Don Knabb, CCAS Observing Chair

On Astronomy Day, May 2nd, we have an opportunity to look for an interesting feature on the moon, Rupes Recta, also knows as the Straight Wall. This feature appears 8 days after New Moon and is the most well known "fault" on the moon.

Around 3 billion years ago the flow of molten lava that formed the lunar seas, or maria, dwindled and the Moon entered a much quieter phase during which impact events and global crustal adjustments began to form the lunar surface we see today. Faults appeared when tension and compression forces exceeded the strength of the lunar crust as the moon cooled and began to reach a state of equilibrium.

"Normal" faults are those where tension forces have pulled the crust apart and gravity pulls down one side of the fault exposing a fault-scarp, or rupes. Rupes Recta, the Straight Wall, is the best example of a normal fault on the Moon.

Rupes Recta is not far from the famous Lunar X feature that many of our club members have seen and photographed. It is in the southeastern part of Mare Nubium.

When the sun illuminates the "Straight Wall" at an oblique angle at about day 8 of the Moon's cycle the fault casts a wide shadow that gives it the appearance of a steep cliff. The fault has a length of 110 km, a typical width of 2–3 km, and a height of 240–300 m. Although it appears to be a vertical cliff in the lunar surface, in actuality the grade of the slope is relatively shallow.

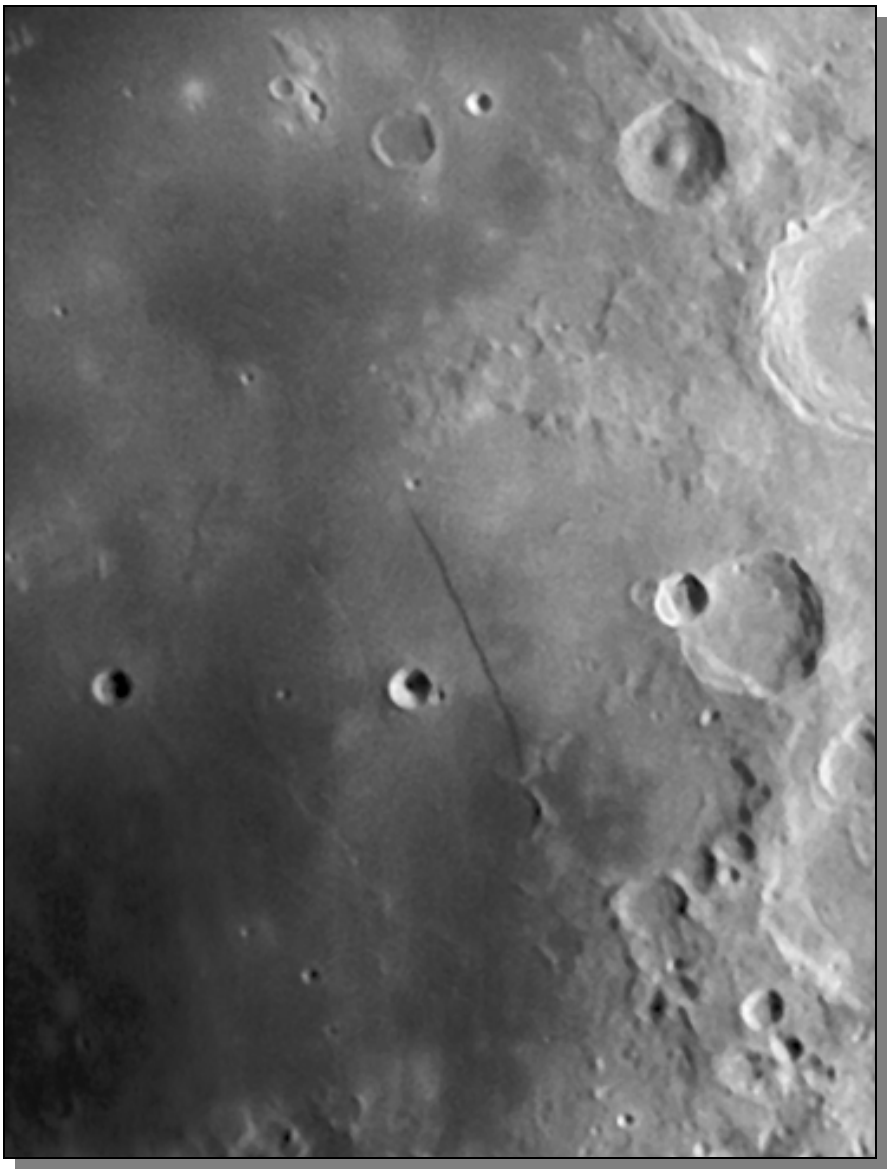


Photo copyright by Frank Barrett, used with permission. Visit his website at: http://celestialwonders.com/

To the west of this escarpment is the crater Birt, which is about 17 km in diameter. Also to the west is the Rima Birt rille. A rille is a groove, as opposed to a rupes which is a cliff. Rima Birt rille is visible in the photograph as a faint curving line to the upper left of Birt. This rille is not the product of faulting but was cut by erosive forces of lava around 3 billion years ago.

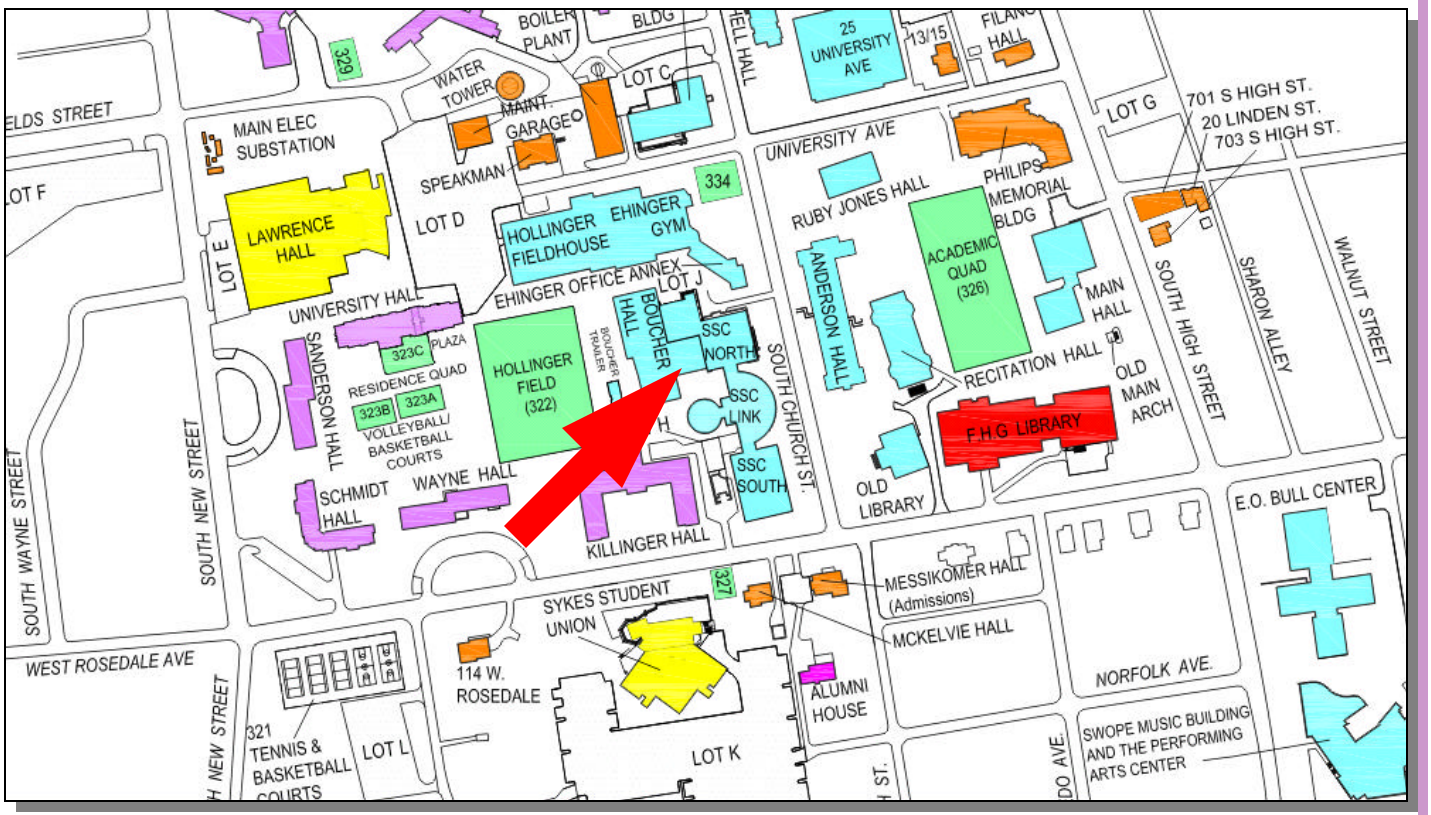
At the southern end of Rupes Recta is a group of hills often called the "Stag's-Horn Mountains", although this name is not officially recognized by the IAU.

(Continued on page 6)

CCAS Directions

West Chester University Campus

The monthly meetings (September through May) are held in Room 113 in Merion Science Center, 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).



Rupes Recta

(Continued from page 5)

As the sun rises higher, the shadows are lost, but the feature will re-appear sixteen days later on moon day 24, as the sun strikes the face of the wall, this time transforming it into a gleaming white scarp.

So if you can please join us at Anson Nixon Park in Kennett Square at 8 p.m. on Saturday May 2nd, Astronomy Day. If the sky is clear there are many wonderful sights in the night sky and Rupes Recta is just one of them!

Information credits:
Grego, Peter. 2004. Moon Observer's Guide. Buffalo, NY. Firefly Books
http://en.wikipedia.org/wiki/Rupes_Recta
http://www.astro-nut.com/lunar-03feb09.html

CCAS Membership Information and Society Financials

Treasurer's Report

by Bob Popovich

Mar. 2009 Financial Summary

Beginning Balance	$1,711
Deposits	$130
Disbursements	$0
Ending Balance	$1,841

New Meeting Location?

No, CCAS hasn't moved, the WCU building where we meet just has been renamed. On Friday, April 24th, 2009, West Chester University's Boucher Hall became the Merion Science Center, named to honor **Retired Army Brigadier General Richard D. Merion**, class of '59.

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.

CCAS Field Trip: Tour of Spitz, Inc.

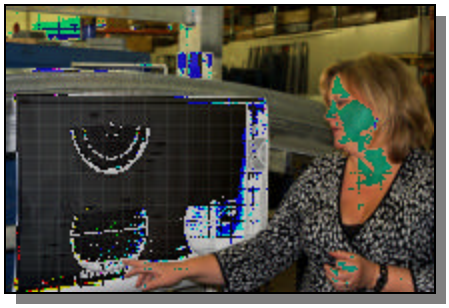
Text & photos by John Hepler, CCAS Webmaster & Newsletter Editor

On April 14th, CCAS members were treated to a private tour of the facilities of Spitz, Inc., the world's leading projection dome supplier. Located in Chadds Ford, PA, the 47,000 square-foot facility is home to over 60 full-time employees.

Joyce Towne, Customer Accounts Director, and Scott Huggins, Director of Marketing, were on hand to greet us and act as our tour guides. The private tour started at 7:00 p.m. and was approximately 2 hours long. Upon arrival, we were treated to coffee and soft drinks plus a variety of doughnuts and other dessert pastries. We started with a tour of the plant (unfortunately after hours, so we did not have the benefit of watching the employees work). Then we went into one of the theaters to learn about what Spitz, Inc. is doing these days (domes, projects, trends, and Starry Night™ software in particular).

A Spitz "A-1" projector and photo of Dr. Spitz in the lobby of the company lobby.

Founded in 1945 by Dr. Armand Spitz, the company began as a provider of affordable optical planetarium projectors for schools and small educational institutions. Since then, Spitz has grown to become the largest supplier of planetariums and domes with over 1,200 installations bcated around the world. Today,



Joyce Towne explaining dome production using an engineering schematic.

Spitz projection domes are found in Disney, Universal Studios, Volkswagen, Griffith Observatory and the Forum Shops at Caesar's Palace.

The expertise of Spitz's talented team covers all aspects of dome theater design, implementation and use, including engineering services, manufacturing, installation and show production. No other company provides such comprehensive theater development services.

As a complete integrator of planetarium and spherical projection theaters, Spitz provides display systems, automation, lighting, audio and design/engineering services. The company's architectural services include design, fabrication, and installation of some of the most innovative structures in the world.

CCAS member Sarah Cooperman holding the original Spitz planetarium projector.

With five decades of experience, Spitz delivers a projection surface unmatched by any other dome provider. The company's proprietary surface coating is uniform in color and reflectivity. The epoxy powder-coat surface is extremely durable and remains perfect after numerous cleanings, providing longer life than painted screens.

Spitz dome engineering includes

(Continued on page 10)

The Swiss Army Knife of Weather Satellites

by Jet Propulsion Laboratory

Spotting volcanic eruptions, monitoring the health of crops, pinpointing distress signals for search and rescue teams.

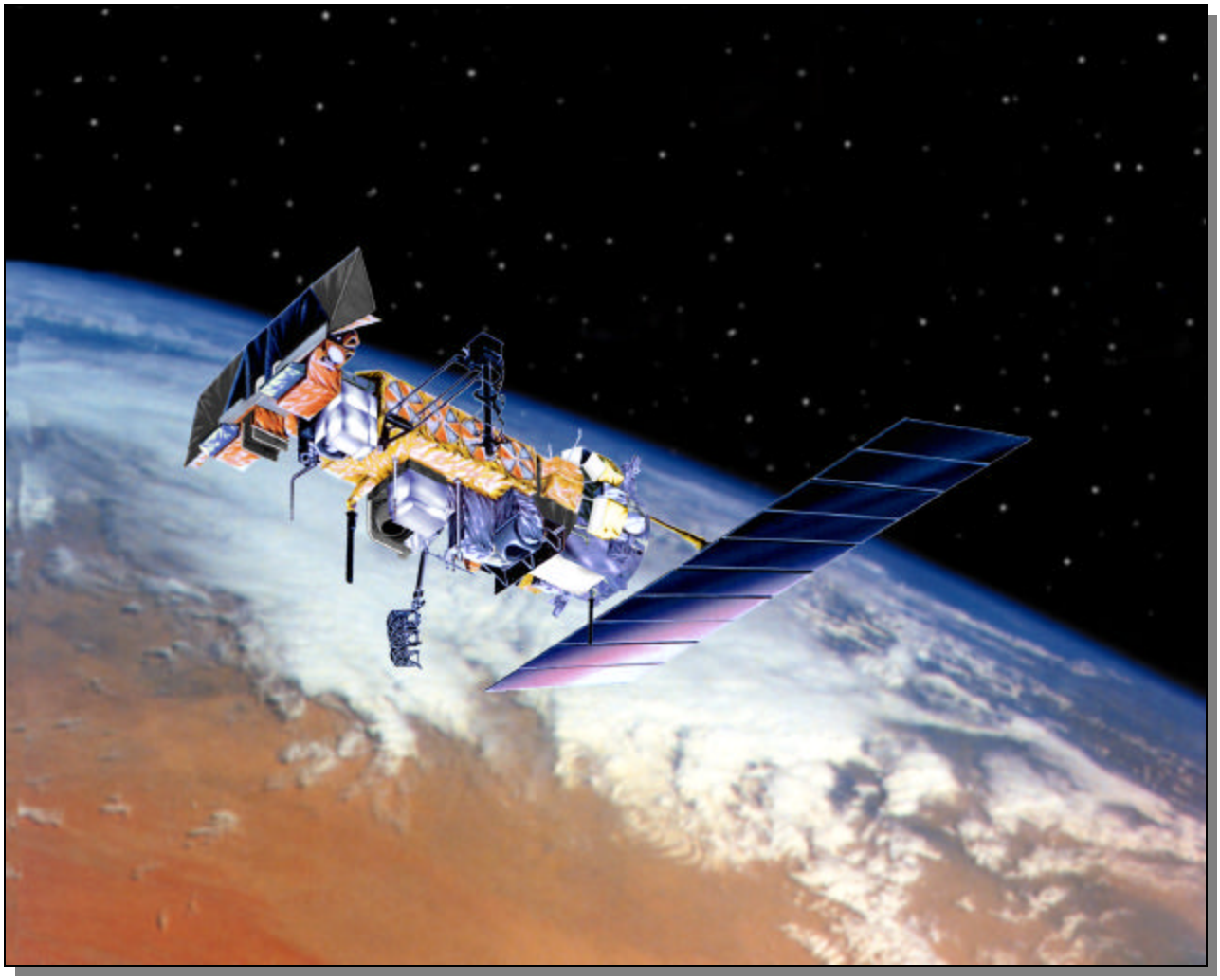
It's not what you might expect from a weather satellite. But these are just a few of the abilities of NOAA's newest polar-orbiting weather satellite, launched by NASA on February 6 and turned over to NOAA for full-time operations on February 26.

Formerly called NOAA-N Prime and now renamed NOAA-19, it is the last in its line of weather satellites that stretches back almost 50 years to the dawn of the Space Age. Over the decades, the abilities of these Television Infrared Observation Satellites (TIROS) have gradually improved and expanded, starting from the grainy, black-and-white images of Earth's cloud cover taken by TIROS-1 and culminating in NOAA-19's amazing array of capabilities.

"This TIROS series has become quite the Swiss army knife of weather satellites, and NOAA-19 is the most capable one yet," says Tom Wrublewski, NOAA-19 Satellite Acquisition Manager at NASA's Goddard Space Flight Center in Greenbelt, Maryland.

The evolution of TIROS began in 1998 with NOAA-K. The satellites have carried microwave

(Continued on page 9)



The new NOAA-19 is the last and most capable in the long line of Television Infrared Observation Satellites (TIROS).

Weather Satellite

(Continued from page 8)

sensors that can measure temperature variations as small as 1 degree Celsius between Earth's surface and an altitude of 40 kilometers—even through clouds. Other missions have added the ability to track large icebergs for cargo ships, monitor sea surface temperatures to aid climate change research, measure the amount of ozone in Earth's protective ozone layer, and even detect hazardous particles from solar flares that can affect communications and endanger satellites, astronauts in orbit, and city power grids.

NOAA-19 marks the end of the TIROS line, and for the next four years it will bridge the gap to a new series of satellites called the National Polar-orbiting Operational Environmental Satellite System. NPOESS will merge civilian and military weather satellites into a single system. Like NOAA-19, NPOESS satellites will orbit Earth from pole to pole, circling the planet roughly every 100 minutes and observing every location at least twice each day.

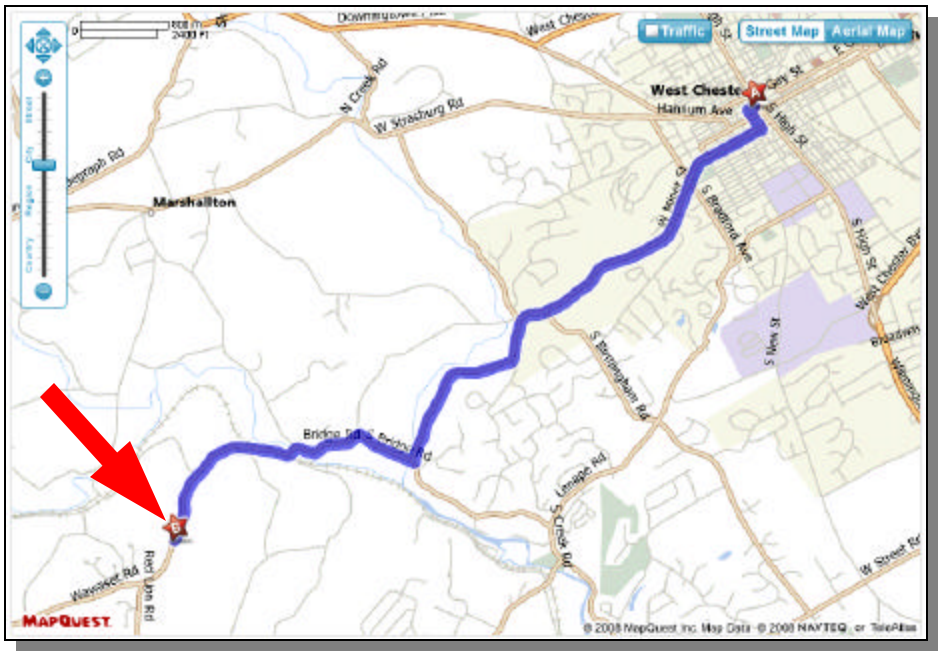
NPOESS will have yet more capabilities drawn from its military heritage. Dim-light sensors will improve observations of the Earth at night, and the satellites will better monitor winds over the ocean — important information for ships at sea and for weather and climate models.
"A lot more capability is going to come out of NPOESS, improving upon the 161 various environmental data products we already produce today," Wrublewski says.

Not even a Swiss army knife can do that many things, he points out.

For more on the NPOESS, check out http://www.npoess.noaa.gov. Kids can find out about another NOAA satellite capability—tracking endangered migrating species—and play a fun memory game at http://spaceplace.nasa.gov/en/kids/poes_tracking.

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

CCAS Directions



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

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

Brandywine Valley Association

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

To get to the Myrick Conservation Center from West Chester, go south on High Street in West Chester past the Courthouse. At the next traffic light, turn right on Miner Street, which is also PA Rt. 842. Follow Rt. 842 for about 6 miles. To get to the observing site at the BVA property, turn left off Route 842 into the parking lot by the office: look for the signs to the office along Route 842. From that parking lot, go left through the gate and drive up the farm lane about 800 feet to the top of the hill. The observing area is on the right.

If you arrive after dark, *please turn off your headlights and just use parking lights* as you come up the hill (so you don't ruin other observers' night vision).

Spitz, Inc.

Here's Sarah holding a sample of the epoxy powder-coated tiles used in dome construction.

(Continued from page 7)

design, manufacturing and installation of catwalks and rotating ladder systems. The company provides custom engineer-

(Continued on page 11)

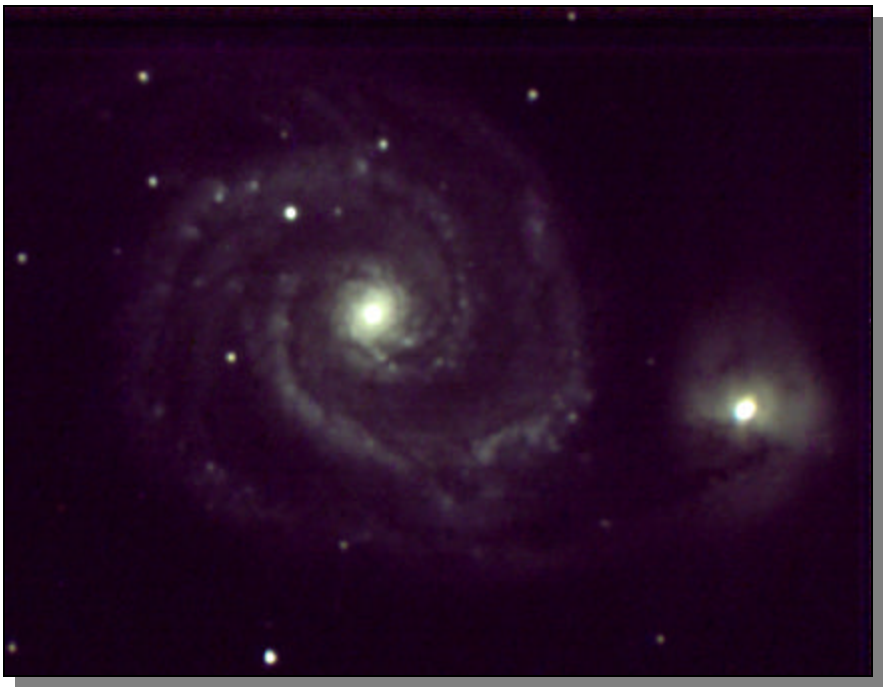
The cutting machine used to fabricate the panels for each unique dome project.

Nicholas's Cartoon Corner

by Nicholas La Para

LARSEN IMPROVES OBSERVING WITH PERSONAL ADAPTIVE OPTICS

CCAS Astrophotography: M51, by Dave Hockenberry



Taken early morning 4/26/09, Meade 10" LX200R, focal reduced f/6, in FITS, calibrated/stacked in AIP4Win and merged in Photoshop. Slightly color adjusted towards yellow. Shot with Meade DSI2color, stack of 24 2-minute images.

Spitz, Inc.

(Continued from page 10)

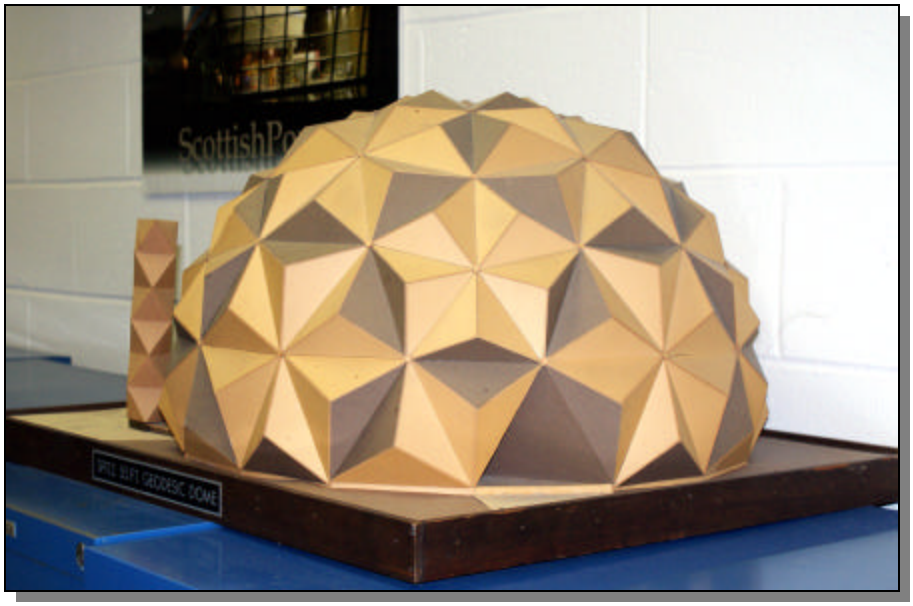
ing services. Spitz engineers work closely with planners, architects and contractors to assure quality in planning, design and construction. The Alexandria Library Planetarium in Alexandria, Egypt, boasts a Spitz dome.

Customer demand for a better projection surface led to the development of the Premium Seam™ Dome, the projection dome for discriminating planetariums. The Premium Seam Dome provides the following benefits: an absence of visible seams during projection; better aesthetic appearance with cove lighting illumination; and an improved overall surface image. A close-to-home example: The Franklin Institute in Philadelphia has a Premium Seam dome.

An example of the architectural domes that Spitz designs is in the Mohegan Sun Casino in Connecticut. Mohegan Sun's "Casino of the Sky" features an enormous suspended dome that acts as the sky above the gambling floor. Spitz designed the dome's 4,000-star night sky using fiber-optics placed at the dome's surface to create realistic constellations. The multipurpose dome serves as a projection surface for lighting effects, cloud projection and other multimedia projections. The 150-foot diameter sky is one of the largest projection domes in the world.

Following the discussion, we had a demonstration of one of the company's SciDome™

The Spitz manufacturing floor after hours. All dome components are designed and fabricated in the company's Chadds Ford facility, then shipped and assembled on site.



A model of one of Spitz's other specialty, architectural projects including dome enclosures and projection ceilings. Once such custom dome project is the open-frame sphere of the Tampa Port Authority.

planetariums, powered by Starry Night™ Dome software. CCAS participants were treated to presentations never before seen by the public, including an animation of the fuzzy shadows projected on the surface of Jupiter by several of its moons.

Scott demonstrated the SciDome fulldome video system, powered by Starry Night. Designed for comprehensive astronomy education, Scott explained that SciDome is sized for small to medium-sized planetariums. Based on his demonstration, it was obvious that SciDome was easy to use, flexible and very powerful.

(Continued on page 12)

Spitz, Inc.

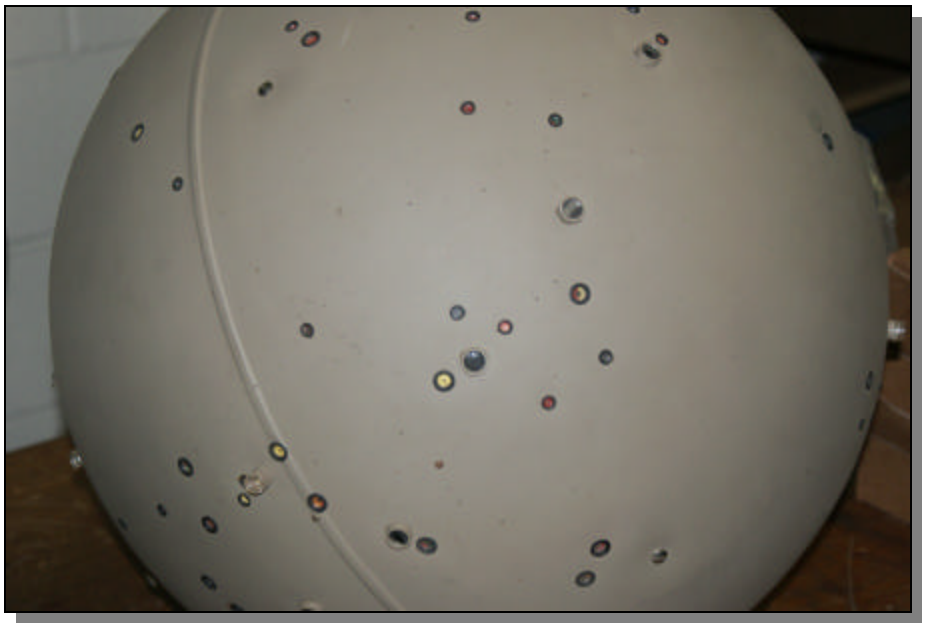
(Continued from page 11)

The company's multi-media projects range from custom sponsor logos and pre-shows, to photo-realistic astronomical visualizations, and cartoon-animated shows for kids and family audiences. Spitz also partners with companies such as Zula USA, creators of the hit TV series "The Zula Patrol"; and immersive, documentary style films on space science subjects and other themes.

Do you own a copy of Starry Night software, but don't know how to use it? Each summer, Spitz offers specialized training in its products at the Spitz Digital Institute. This year, courses cover a range of digital planetarium topics, from basic techniques to advanced lesson creation using Starry Night and Spitz production software. Presenters from Simulation Curriculum / Starry Night, Space Telescope Science Institute, and area planetariums are scheduled. The schedule includes: Starry Night Software basics; using Starry Night Dome; sample lessons and presentations; digital multimedia (PhotoShop, audio editing, creating panoramas); finding and using on-line resources, and much more.

The Institute will be held July 20th through the 24th, 2009. If you only want to learn about the Starry Night software, you have the option of enrolling for just the first two days of the session. Seating is limited; if you are interested in participating, contact Spitz, Inc. promptly at 610-459-5200 or via e-mail at spitz@spitzinc.com to register.

The manufacturing facility at Spitz, Inc. is a "cold facility", e.g. no heat is used in the fabrication of the dome components. All parts are shaped using "brute force".



An unfinished planetarium projection globe, Spitz planetariums today use a fisheye projection system. Can you identify the constellation in the middle of the photo?

If you are interested in learning more about Spitz, Inc. or in the company's summer institute, visit the company's website (http://www.spitzinc.com) for more detailed information and copies of the registration forms for the summer institute.

Many thanks to Joyce and Scott for spending an evening with us to show what makes Spitz, Inc. the world leader in projection dome production. CCAS appreciates your time.

CCAS Information Directory

Join the Fight for Dark Skies!

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

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

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:

www.darksky.org

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

Dark-Sky Website for PA

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

www.POLCouncil.org

Find out about Lyme Disease!

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

www.LymePA.org

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

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!

Starry Night Lights

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**

www.starrynightlights.com

★ ★ ★ ★ ★

Green Earth Lighting
Formerly
Outdoor Lighting Associates

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**

www.greenearthlighting.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

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**

www.skiesunlimited.net

★ ★ ★ ★ ★

Spectrum Scientifics
Quality Science Products for All Ages

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

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:

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:	Kathy Buczynski 610-436-0821
Vice Pres:	Jim Anderson 610-857-4751
ALCor and Treasurer:	Bob Popovich 484-467-5562
Secretary:	Don Knabb 610-436-5702
Librarian:	Linda Lurcott Fragale 610-269-1737
Observing:	Don Knabb 610-436-5702
Education:	Kathy Buczynski 610-436-0821
Webmaster and Newsletter:	John Hepler 484-266-0699
Public Relations:	Deb Goldader 610-304-5303

CCAS Membership Information

The present membership rates are as follows:

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

Membership Renewals

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

Bob Popovich
416 Fairfax Drive
Exton, PA 19341-1814

Phone: 484-467-5562
e-mail: B2N2@verizon.net

*Sky & Tele*scope 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.**