



Observations

A Monthly Publication Of The
CHESTER COUNTY ASTRONOMICAL SOCIETY

Vol. 19, No. 11 Two-Time Winner of the Astronomical League's Mabel Sterns Award # 2006 & 2009 November 2011

In This Issue

CCAS Fall/Winter 2011 Events2
 Nicholas's Humor Corner2
 October 2011 Meeting Minutes2
 November 2011 Meeting
 Member Speaker3
 Distinguished Speakers at
 Haverford College3
 CCAS Original Astrophotography3
 NPP Launch a Success3
 The Sky Over Chester County:
 November 20114
 November 2011 Observing
 Highlights5
 Looking Up: The Alpha Persei
 Cluster in Perseus6
 NASA Space Place8
 CCAS Directions: Brandywine
 Valley Association9
 Membership Renewals10
 Equipment for Sale10
 CCAS Directions: WCU Map10
 Treasurer's Report10
 CCAS Information Directory11-12

Visit to Mount Palomar Observatory



What to find out what is inside this dome that has grabbed Barb Knabb's attention? Come to the November meeting to hear Don Knabb's presentation about Barb and Don's visit to the Mount Palomar Observatory. Don will review the history of the 200 inch Hale Telescope and share photos taken by the telescope as well as photos from the tour of the facility.

Important November 2011 Dates

- 2nd** • First Quarter Moon, 12:38 p.m.
- 6th** • Daylight Savings Time Ends, 2:00 a.m.
- 10th** • Full Moon, 3:16 p.m.
- 18th** • Last Quarter Moon, 10:09 a.m.
- 18th** • Leonid Meteor Shower Peaks
- 25th** • New Moon, 1:10 a.m.

CCAS Upcoming Nights Out

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

- ✦ **Friday, November 25, 2011** - CCAS Monthly Observing Session, Myrick Conservancy Center, BVA (inclement weather date November 26th).
- ✦ **Friday, December 23, 2011** - CCAS Monthly Observing Session, Myrick Conservancy Center, BVA (inclement weather date December 24th).

Membership Renewals Due

11/2011	Buczynski Hepler Holenstein O'Hara
12/2011	Bogusch
01/2012	Labroli
02/2012	Kalinowski & Family La Para



Autumn/Winter 2011 Society Events

November 2011

5th • PA Outdoor Lighting Council monthly meeting starting at 7:30 p.m. Meetings are open to the public. For more information and directions, visit the PA Outdoor Lighting Council website.

8th • DVD Lecture Series: "The Sagittarius Star Cloud," a half-hour video presentation of a lecture by Dr. David M. Meyer, Northwestern University. Room 113, Merion Science Center (former Boucher Building), West Chester University. The presentation immediately precedes the monthly meeting and starts at 7:00 p.m.

8th • CCAS Monthly Meeting, Room 113, Merion Science Center (former Boucher Building), West Chester University. The meeting starts at 7:30 p.m. CCAS Member Speaker: Don Knabb, "Travelog on Trip to Palomar Telescope/Hale Observatory."

18th • West Chester University Planetarium Show, "Astronomy on the Internet: The Good, the Bad & the Ugly", in the Schmucker Science Building. The show starts at 7 p.m. Reservations are required. For more information and reservations, visit the planetarium's [webpage](#).

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

25th • CCAS Monthly Observing Session, Myrick Conservancy Center, BVA (inclement weather date October 22nd). The observing session starts at sunset.

25th • Reservations start for the December 16th planetarium show at the WCU Planetarium. For more information, visit the planetarium's [webpage](#).

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

December 2011

7th • 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. Meetings are open to the public. For more information and directions, visit the [PA Outdoor Lighting Council](#) website.

13th • CCAS Holiday Party in West Chester, PA. The party is for CCAS members and their families and starts at 6:30 p.m. See the December 2011 edition of [Observations](#) for location and directions.

16th • West Chester University Planetarium Show, "Our Amazing Sun," in the Schmucker Science Building. The show starts at 7 p.m. and runs approximately one hour in length. *Late arrivals will not be permitted to enter.* Reservations are required as the planetarium has limited seating. For more information and reservations, visit the planetarium's [webpage](#).

20th • Open call for articles and photographs for the January 2012 edition of [Observations](#).

23rd • CCAS Monthly Observing Session, Myrick Conservancy Center, BVA (inclement weather date December 24th).

26th • Deadline for newsletter submissions for the January 2012 edition of [Observations](#).

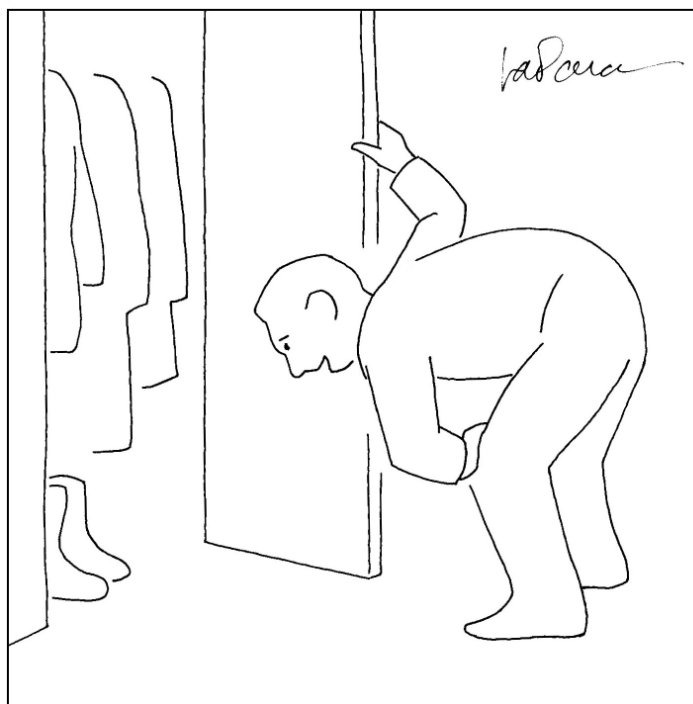
Minutes from the October 11, 2011 CCAS Monthly Meeting

by Ann Miller, CCAS Secretary

- We opened our October meeting with the second in the Hubble Space Telescope series, "Comet Shoemaker-Levy 9 and Jupiter," narrated by Dr. David Meyer of Northwestern University.
- President Roger Taylor then welcomed the 15 members in attendance.
- Program chairman David Hockenberry introduced our guest speaker, Scott Engle, PhD candidate from the Villanova University Astronomy program. Mr. Engle presented "The Tao of Cepheid Variables."
- Roger Taylor opened the business meeting with a reminder of our rescheduled club "picnic" on Saturday, November 5, 2011 at the Marshallton Inn. Club members and significant others are asked to RSVP Roger Taylor or Don Knabb if they are planning to attend.
- West Goshen Township has requested a photo exhibit of astronomy related pictures from CCAS members for an exhibit to be scheduled Spring 2012. Any astrophotographs of the sky, photos of astronomy related visits like observatories, star parties, astronomy equipment, or other related astronomy events would be greatly appreciated. We are hoping to have at least 30 pictures. Please contact David Hockenberry if you have any contributions or you need assistance in converting images to either photos or jpg images.
- The last item of business was presented by Kathy Buczynski.. We are exploring having T-shirts with the club logo printed and made available to club members. Any suggestion or comments welcome.

Nicholas's Humor Corner

by Nicholas La Para



"WELL, I'LL BE... LOOK WHAT'S IN THE BACK OF THE CLOSET. THE HIGGS BOSON!"

November 2011 Guest Speaker

by Dave Hockenberry, CCAS Program Chair

Our meeting this month is scheduled for November 8, 2011 starting at 7:30 p.m. The meeting will be held in Room 113, Merion Science Center (former Boucher Building), West Chester University. Our very own Don Knabb is presenting "Travelogue on My Trip to the Palomar Telescope/Hale Observatory."

Please note that inclement weather or changes in speakers' schedules may affect the pro-

gram. In the event there is a change to the program, CCAS members will be notified via e-mail with as much advance notice as possible.

We are looking for presenters for our winter/spring 2012 season. If you are interested in presenting or know someone who would be an interesting guest speaker, please contact our Program Chairperson Dave Hockenberry at programs@ccas.us.

CCAS Original Astrophotography

by Dave Hockenberry



NGC 7380, the Wizard Nebula in the constellation Cepheus. Shot 8/23/11 with QSI 583 wsg camera through AstroTech AT8RC telescope on AP 1200 GEM. Autoguided with SX Lodestar camera off axis and MaxIm DL5. Image capture with MaxIm. Calibrated, hot pixel removal, deconvolution, stacked and RGB creation in

CCDStack. L-RGB merge and further adjustments in Photoshop CS3. Image compilation of 90 minutes (10 minute exposures X 9) Luminance, 20 minutes (5 minute exposures X 4) each red, green, and blue through Astrodon RGB filters. FITS Liberator courtesy of ESA. The Wizard's hat points to the left in this image.

NPP Earth Observatory Launch a Success

courtesy of Emily Lakdawalla



Emily Lakdawalla of the Planetary Society with NPP's Delta 2 rocket at Vandenberg's Space Launch Complex 2., the last Delta 2 launch scheduled.

The NPP Earth observation satellite launched successfully on October 28, 2011, and I was with a chilled but thrilled crowd of a few hundred people to watch it at Vandenberg Air Force Base.

(Continued on page 7)

Distinguished Speakers at Haverford College

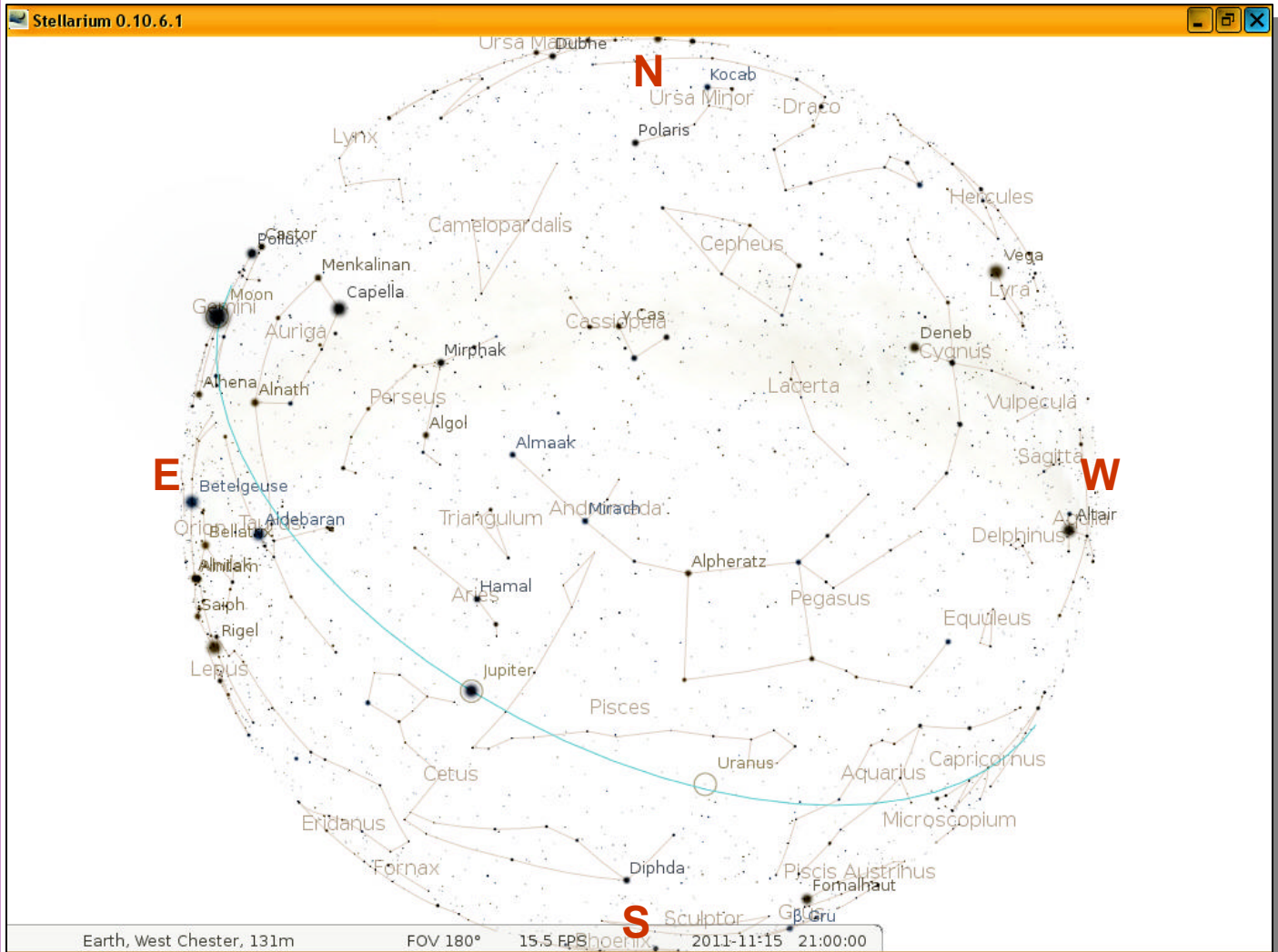
by Dr. Beth Willman

Dr. Margaret J. Geller and Dr. Scott J. Kenyon of the Smithsonian Astrophysical Observatory will present "Two Views of the Universe" on Wednesday, November 2, 2011, at 4:30 p.m. in Sharpless Auditorium, Haverford College. Their contributions in science range from the formation of the solar system (Dr. Kenyon) to discovery of the largest known patterns in the universe (Dr. Geller). For details, see the [Haverford website](http://www.haverford.edu).

The Sky Over Chester County

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

Note: This screen capture is taken from Stellarium, the free planetarium software available for download at www.stellarium.org.



Date	Civil Twilight Begins	Sunrise	Sunset	Civil Twilight Ends	Length of Day
11/01/2011	7:01 a.m. EDT	7:29 a.m. EDT	5:58 p.m. EDT	6:27 p.m. EDT	10h 29m 06s
11/15/2011	6:16 a.m. EST	6:45 a.m. EST	4:44 p.m. EST	5:13 p.m. EST	9h 59m 02s
11/30/2011	6:32 a.m. EST	7:00 a.m. EST	4:37 p.m. EST	5:06 p.m. EST	9h 34m 16s

Moon Phases					
First Quarter	11/02/2011	12:38 p.m. EDT	Last Quarter	11/18/2011	10:09 a.m. EST
Full Moon	11/10/2011	3:16 p.m. EST	New Moon	11/25/2011	1:10 a.m. EST

November 2011 Observing Highlights

by Don Knabb, CCAS Secretary & Observing Chair

November 2	First-quarter Moon, 12:38 p.m.
November 6	Daylight Saving time ends at 2:00 a.m.
November 9-10	Use binoculars to look for Mercury, Venus and Antares low in the west just after sunset
November 10	Full Moon, 3:16 p.m.
November 11	The Pleiades are above the bright Moon
November 18	The Leonid meteor shower peaks in the hours before dawn
November 18	Last Quarter Moon, 10:09 a.m.
November 25	New Moon, 1:10 a.m.
November 26	Look for Venus near a thin crescent Moon in the southwest just after sunset

The best sights this month: We have planets to enjoy on opposite sides of the sky during November with Venus in the west and Jupiter in the east. The Summer Triangle is still with us, the Great Square of Pegasus is high in the south and the constellations of winter rise later in the evening. Enjoy the starry sky before it gets really cold!

Mercury: Near the middle of November we should be able to see Mercury without optical aid, low in the west just after sunset before the sky fully darkens.

Venus: Our sister planet climbs higher into the sky each night during November with “Venus-set” one hour after sunset at the beginning of the month and two hours after sunset at the end of the month.

Mars: The red planet does not rise until 1 a.m. at the start of the month, but look for it peeking above the horizon at 11:30 p.m. (standard time) at month’s end. Mars is brightening and if you get up before dawn you can see it fairly high in the sky near Regulus in Leo in the southeast.

Jupiter: Jupiter reached opposition at the end of October, so November is prime viewing time for this incredible planet. Last month I enjoyed seeing

two very distinct bands of color across Jupiter’s disk as the Galilean moons lined up on both sides of the planet.

Saturn: Saturn rises around 4:00 a.m. late in the month, so you need to get up early to see the ringed beauty. I’ll wait until the spring to enjoy this planet!

Uranus and Neptune: Both gas giants can be seen during the first few hours after it becomes dark during November. You can find sky maps for both planets at <http://www.skyandtelescope.com>.

The Moon: Full Moon occurs on November 10th. This is the Full Beaver Moon. For Native Americans, the time of this full moon was the time to set beaver traps before the swamps froze, to ensure a supply of warm winter furs. It is sometimes also referred to as the Frosty Moon, but I don’t think they were referring to the snowman, even though the Moon kind of looks like the head of a snowman. On November 26th Venus is near a razor thin crescent Moon. This will be a beautiful sight, don’t miss it!

Constellations: During November the Great Square of Pegasus is now at “center stage”. To the left of the great square, sweeping up to the left is the constellation Andromeda. Use your binoculars to find our neighbor galaxy, which is also named Andromeda. It is a large fuzzy spot located between the constellation Andromeda and Cassiopeia. And by 9 p.m. the beautiful Pleiades, that really little dipper is rising in the east ahead of Taurus the Bull.

Messier/deep sky: I always look forward to autumn for viewing the Double Cluster between Cassiopeia and Perseus. This is a really nice binocular object. Rising behind Perseus is the constellation Auriga and its three star clusters M36, M37 and M38. If you stay up for late night observing you can get an early view of M42, the Great Orion Nebula.

Comets: Comet Garrard is in excellent viewing position in the constellation Hercules. A chart to help you find this faint fuzzy first-time visitor from the

(Continued on page 10)

Looking Up: The Alpha Persei Cluster in Perseus

by Don Knabb, CCAS Secretary & Observing Chair

The constellation Perseus rises in the northeast around sunset this month. By 9 p.m. Perseus is about half way up from the horizon, between Auriga and Cassiopeia. This constellation is part of the mythological soap opera involving Andromeda, Cassiopeia, Cepheus, Pegasus and Perseus. But that's a story for another time. Its brightest star, Alpha Persei, is a member of a large cluster of stars. This cluster is easily observed with the naked eye, but any pair of binoculars will show you many more members of the group.

The Alpha Persei Cluster, also known as Melotte 20 or Collinder 39, is an open cluster, although it is much larger than most of the objects we call open clusters, spanning about three degrees. It is also known as the Alpha Persei Moving Group. To the naked eye, the cluster consists of several blue spectral type B type stars. The most luminous member is the 2nd magnitude white-yellow supergiant Mirfak, also known as Alpha Persei.

To find the cluster, just look at Mirfak, the brightest star in Perseus. Most of the brighter stars are just south of Mirfak but there many pleasing patterns of stars winding around this bright star. More poetic stargazers refer to the stars as the "Attendants of Mirfak".

This star group is truly associated and moves through space together. The group is just 50

million years old, so most stars are still young and blue-white. In time, the stars will be pulled away by the gravity of other stars and dust clouds and they will disperse into the Perseus Arm of the Milky Way

The cluster is more than just a pretty sight, though. It may mark "ground zero" for a cataclysm that wracked our part of the galaxy 50 million years ago.

The Alpha Persei cluster is 600 light-years from Earth. That puts it near the center of an enormous ring of bright stars known as Gould's Belt, which encircles our position in the galaxy. At its widest, the belt is more than 2,000 light-years in diameter. It contains many of the brilliant stars in Orion, Scorpius, and many other constellations. Yet no one knows what caused it.

(Continued on page 7)



Image © T. Credner & S. Kohle, AlltheSky.com

Looking Up (cont'd)

(Continued from page 6)

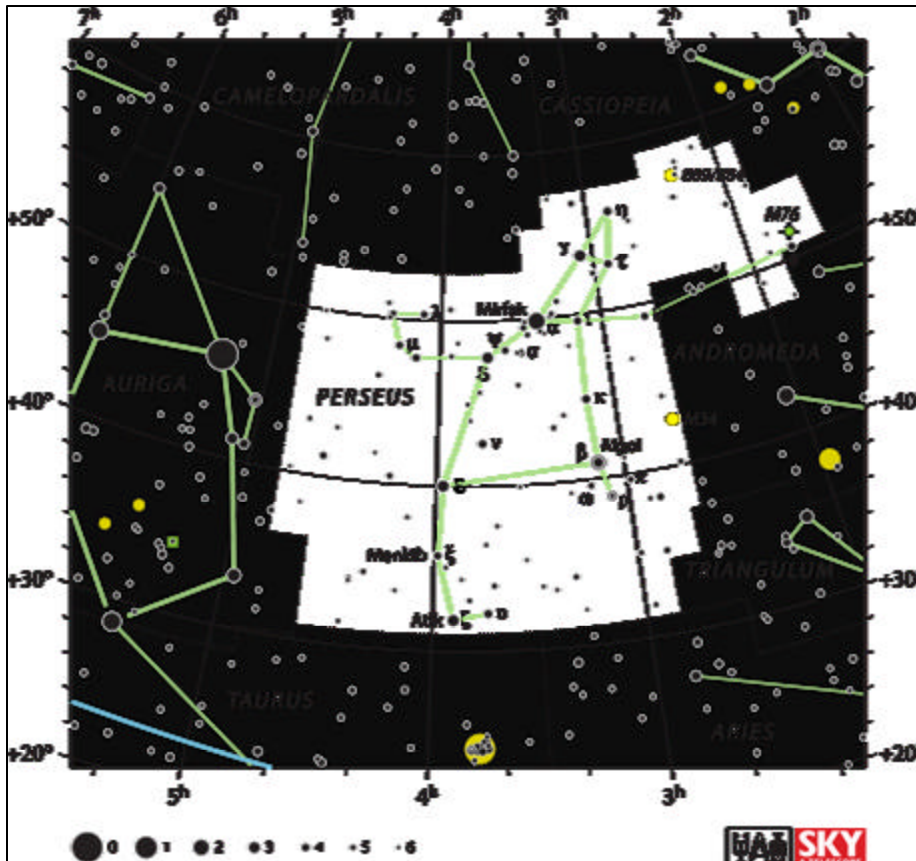
But astronomers do know that Gould's Belt is expanding. By tracing that expansion, they've deduced that it originated around the same time as the Alpha Persei cluster. Although this might be just a coincidence, it suggests that the two are related. Perhaps a giant gas cloud hit the Milky Way and caused the formation of the Alpha Persei cluster. Then supernova explosions in the cluster pushed away gas, triggering the birth of more stars in an expanding ring that we now see as Gould's Belt.

Other star clusters are more spectacular. But the Alpha Persei cluster may hold an important

clue to one of the biggest mysteries surrounding our part of the galaxy.

Information credits:

<http://www.oneminuteastronomer.com/4486/alpha-persei-cluster/>
<http://stardate.org/radio/program/alpha-persei-cluster>
iPad application Sky Safari Pro
http://en.wikipedia.org/wiki/Alpha_Persei_Cluster



Sky map credit: [http://en.wikipedia.org/wiki/Perseus_\(constellation\)](http://en.wikipedia.org/wiki/Perseus_(constellation))

NPP Launch (Cont'd)

(Continued from page 3)

I spent the previous day enjoying the rare privilege of a tour across the Vandenberg launch facilities. One of the highlights was being at Space Launch Complex 2 near sunset to witness the rollback of the tower that revealed the Delta 2 rocket, with the NPP spacecraft inside its tip.

After catching a few hours' sleep, Jason Davis and I drove out to the public viewing site on a low ridge to the east of Vandenberg. The weather was unbelievably clear and the site afforded an unobstructed view of the floodlit launch pad and rocket a few kilometers to the west. But there was an even better view overhead: thousands and thousands of stars. The Milky Way made a faint cloudy stripe across the sky. And Jupiter blazed so brightly that its bit of sky lacked the faint stars I could see elsewhere. I even saw three shooting stars. For this Los Angeles resident pinned to home at night by small children, such a night sky was also a rare privilege.

Launch occurred, officially, at 2:48:01.828 Pacific time. We all yelled as we saw the rocket ignite but I was unprepared for the incandescent brilliance of the rocket's flames; an afterimage dogged my view for the rest of the launch. Within about a second its wash of light had wiped all but a few stars, and of course, Jupiter, from view. As it

(Continued on page 9)

The Gray Cubicle You Want to Work In

by Dr. Tony Phillips

It's another day at the office. You're sitting in a gray cubicle, tap-tap-taping away on your keyboard, when suddenly your neighbor lets out a whoop of delight.

Over the top of the carpeted divider you see a star exploding on the computer screen. An unauthorized video game? No, this explosion is real. A massive star just went supernova in the Whirlpool Galaxy, and the first images from Hubble are popping up on your office-mate's screen.



It's another day at the office ... *at NASA.*

Just down the hall, another office-mate is analyzing global temperature trends. On the floor below, a team of engineers gathers to decode signals from a spaceship that entered "safe mode" when it was hit by a solar flare. And three floors above, a financial analyst snaps her pencil-tip as she tries to figure out

how to afford *just one more* sensor for a new robotic spacecraft.

These are just a few of the things going on every day at NASA headquarters in Washington DC and more than a dozen other NASA centers scattered around the country. The variety of NASA research and, moreover, the variety of NASA people required to carry it out often comes as a surprise. Consider the following:



Some of the employees of NASA's Science Mission Directorate may work in gray cubicles, but their jobs are anything but dull. They get to study Earth, the Sun, the Solar System, and the Universe!

NASA's Science Mission Directorate (SMD) supports research in four main areas: Earth Science, Heliophysics, Astrophysics, and Planetary Science. Read that list one more time. It includes everything in the cosmos from the ground beneath our feet to the Sun in the sky to the most distant galaxies at the edge of the Universe. Walking among the cubicles in NASA's science offices, you are likely to meet people working on climate change, extraterrestrial life, Earth-threatening asteroids, black holes or a hundred other things guaranteed to give a curious-minded person goose bumps. Truly, no other government agency has a bigger job description.

And it's not just scientists doing the work. NASA needs engi-

(Continued on page 9)

Space Place (Cont'd)

(Continued from page 8)

neers to design its observatories and build its spacecraft, mathematicians to analyze orbits and decipher signals, and financial wizards to manage the accounts and figure out how to pay for everything NASA dreamers want to do. Even writers and artists have a place in the NASA scheme of things. Someone has to explain it all to the general public.

Clearly, some cubicles are more interesting than others. For more information about the Science Mission Directorate, visit science.nasa.gov. And for another way to reach the Space Place, go to <http://science.nasa.gov/kids>.

NPP Launch (Cont'd)



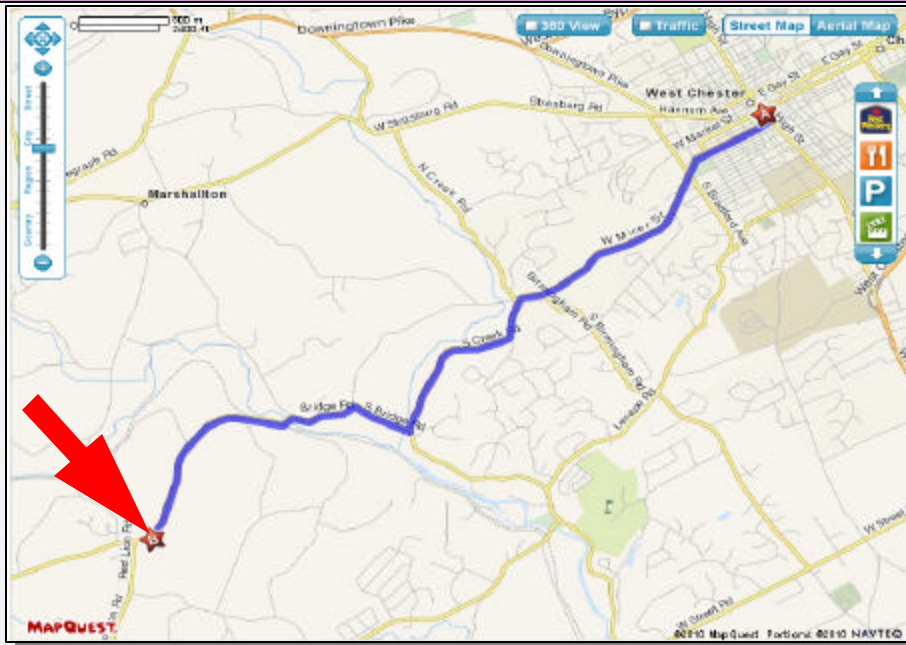
Benn Cooper took an amazing photo of the smoke curling around Jupiter.

(Continued from page 7)

lifted off, first straight up, then arcing to our left (to the south, and also incidentally toward

Jupiter), the increasing distance between the rocket and us allowed the stars to start twinkling back in to view.

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).



Observing Highlights (cont'd)

(Continued from page 5)

outer solar system is in the November issue of Astronomy magazine.

Meteor showers: The Leonid meteor shower peaks in the early morning hours of November 18th. It is very hard to predict meteor shower activity, and astronomers don't expect much of a show this year, but one never knows! At a dark sky site between 1:30 a.m. and dawn on November 18th we can hope to see at least 10 meteors per hour.

CCAS Membership Information and Society Financials

Treasurer's Report

by Liz Smith

August 2011 Financial Summary

Beginning Balance	\$1,856
Deposits	\$75
Disbursements	\$0
Ending Balance	\$1,931

Equipment For Sale

Meade 8" LX90 Schmidt-Cassegrain computerized "Go To" telescope with Ultra High Transmission Coating (UHTC). Also, an 8 piece set of Super Plossi eyepieces from 6.4mm to 40mm with aluminum carrying case.

Contact: John Kovacs (610) 431-1057.

Membership Renewals

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

Liz Smith
1567 Shadyside Rd.
West Chester PA 19380

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 Don Knabb to make arrangements to borrow one of the Society's lending telescopes. CCAS members can borrow a lending telescope for a month at a time; longer if no one else wants to borrow it after you. Don's phone number is 610-436-5702.

CCAS Lending Library

Contact our Librarian, Barb Knabb, to make arrangements to borrow one of the books in the CCAS lending library. Copies of the catalog are available at CCAS meetings, and on the CCAS website. Barb's phone number is 610-436-5702.

Contributing to *Observations*

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

Or mail the contribution, typed or handwritten, to:

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

CCAS Newsletters via E-mail

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

CCAS Website

John Hepler is the Society's Webmaster. You can check our Website at: <http://www.ccas.us>

John welcomes any additions to the site by Society members. The contributions can be of any astronomy subject or object, or can be related to space exploration. The only requirement is that it is your own work; no copyrighted material! Give your contributions to John Hepler (724-801-8789) or e-mail to webmaster@ccas.us.

CCAS Purpose

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

CCAS Executive Committee

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

President:	Roger Taylor 610-430-7768
Vice President and Observing:	Don Knabb 610-436-5702
ALCor and Treasurer:	Liz Smith 610-842-1719
Secretary:	Ann Miller 610-558-4248
Librarian:	Barb Knabb 610-436-5702
Program:	Dave Hockenberry 610-558-4248
Education:	Kathy Buczynski 610-436-0821
Webmaster and Newsletter:	John Hepler 724-801-8789
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 Membership Renewals on the front of 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:

Liz Smith
1567 Shadyside Rd.
West Chester PA 19380

Phone: 610-842-1719
e-mail: treasurer@ccas.us

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 Liz Smith.

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 Liz first at 610-842-1719.

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 Liz Smith**.