Observations

A Monthly Publication Of The
CHESTER COUNTY ASTRONOMICAL SOCIETY

Vol. 18, No. 4 *Two-Time Winner of the Astronomical League's Mabel Sterns Award ¤ 2006 & 2009* *April 2010*

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Membership Renewals Due

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Testing a Martian version of the Orlan spacesuit used in the Mars500 experiment. The suit has been modified for use in Earth gravity. Photo Credit: S. Corvaja, 2010 (ESA).
See page 10 to learn more about the experiment.

Important April 2010 Dates

6th • Last Quarter Moon 9:37 a.m.

14th • New Moon 12:29 p.m.

15th • The Moon is only 1.5 degrees from Mercury

21st • First Quarter Moon 6:20 p.m.

22nd • The Lyrid meteor shower peaks before dawn

28th • Full Moon 12:18 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, April 16, 2010 - Monthly observing session at Brandywine Valley Association.

¤ 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.

Spring 2010 Society Events

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 e-mail or visit the planetarium's webpage.

13th • DVD Lecture Series: "Wormholes, Gateways to the Other Universes?", half-hour video presentation of a lecture by Professor Alex Filippenko, UC Berkeley. Room 113, Merion Science Center , West Chester University. The presentation immediately precedes the monthly meeting and starts at 7:00 p.m.

13th • CCAS Monthly Meeting, Room 113, Merion Science Center, 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 (COM): "Sextans", presented by Dave Hockenberry .

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.

17th • Night Out in Hoopes Park, scheduled in cooperation with the West Chester Dept. of Recreation. The observing session starts at sunset.

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

24th • Spring National Astronomy Day.

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

May 2010

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

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

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

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

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

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

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

Minutes from the March 2010 Monthly CCAS Meeting

by Don Knabb, CCAS Secretary & Observing Chair

- The DVD "Wormhole, Gateways to the Other Universe" was shown.
- Our guest speaker was "Uncle Rod" Molise, whose presentation was entitled: "The Past, Present and Future of the Schmidt Cassegrain Telescope".
- The business meeting was not held due to the length of the program.
- The Constellation of the Month presentation, "Sextans", by Dave Hockenberry, has been rescheduled for the April meeting.

Photo from the March 2010 Monthly CCAS Meeting

by John Hepler, CCAS Webmaster & Newsletter Editor

March 2010 Guest Speaker "Uncle" Rod Mollise, flanked by Steve Leiden and his wife, Janice. Uncle Rod's presentation was "The Past, Present, and Future of the Schmidt-Cassegrain Telescope". Afterwards, Steve was presented with his Astronomical League Honorary Messier Club Award by CCAS VP Kathy Buczynski *(See page 13).*

Become a Fan of NASA's Space Place on Facebook & Twitter

by John Hepler, CCAS Webmaster & Newsletter Editor

Become a fan of NASA's Space Place on Facebook or a follower on Twitter. You'll find out what's new just as soon as it's available. On Twitter, you will also get the Space Place Fact of the Day. Go to http://facebook.com/nasaspaceplace or http://twitter.com/nasaspaceplace to register.

This Month's Guest Speaker

by John Hepler, CCAS Webmaster & Newsletter Editor

Dr. David Klassen

This month Dr. David Klassen is our guest speaker. His topic is "Discovering Water on Mars".

Dr. David Klassen is a professor of Physics and Astronomy at Rowan University where he teaches introductory physics and a course on our solar system. His research focuses on studying clouds on Mars in order to measure the amount of water stored in aerosol ices over time in order to help our understanding of the overall Mars water budget. He earned bachelor degrees in astrophysics and mathematics from the University of Minnesota and his PhD from the University of Wyoming where he honed his skills as a ground-based near-infrared observer.

He is currently working with images he took at the NASA Infrared Telescope Facility over several past oppositions as well as mapping data from the Mars Reconnaissance Orbiter CRISM.

instrument.

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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 May and our Fall 2010 season. COM is a great way to learn the night sky and a useful tool if you are pursuing one of the Astronomical League's observing club awards. Participating is easy! Contact Kathy Buczynski at vp@ccas.us for a COM template to fill out.

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

Did You Know?

If the galaxy were the size of a dime, the radius of the universe would be about 4 miles.

Source: Jim Gunn, quoted in First Light, by Richard Preston.

Steven Hawking was born on the 300th anniversary of Galileo's death.

Source: Lonely hearts of the Cosmos, Dennis Overbye

Opportunity Surpasses 20KM of Total Driving

submitted by Guy Webster, Jet Propulsion Laboratory

On March 24th, 2010, NASA's Mars Exploration Rover Opportunity surpassed 20 kilometers (12.43 miles) of total driving since it landed on Mars 74 months ago.

The drive taking the rover past that total covered 67 meters (220 feet) southward as part of the rover's long-term trek toward Endeavour Crater to the southeast. It was on the 2,191st Martian day, or sol, of the mission and brought Opportunity's total odometry to 20.0433 kilometers. To reach Endeavour, the healthy but aging rover will need to drive about 12 kilometers (7.5 miles) farther.

Opportunity's mission on Mars was originally planned to last for three months with a driving-distance goal of 600 meters (less than half a mile).

Since landing, Opportunity has examined a series of craters on the plain of Meridiani, and the journey so far has covered a portion of the plain with negligible tilt. Now, the rover is approaching a portion tilting slightly southward. Recent images toward the southwest show the rim of a crater named Bopolu, about 65 kilometers (40 miles) away.

Meanwhile, Spirit, Opportunity's twin, is continuing minimal operations due to declining solar energy with the approach of winter in Mars' southern hemi-

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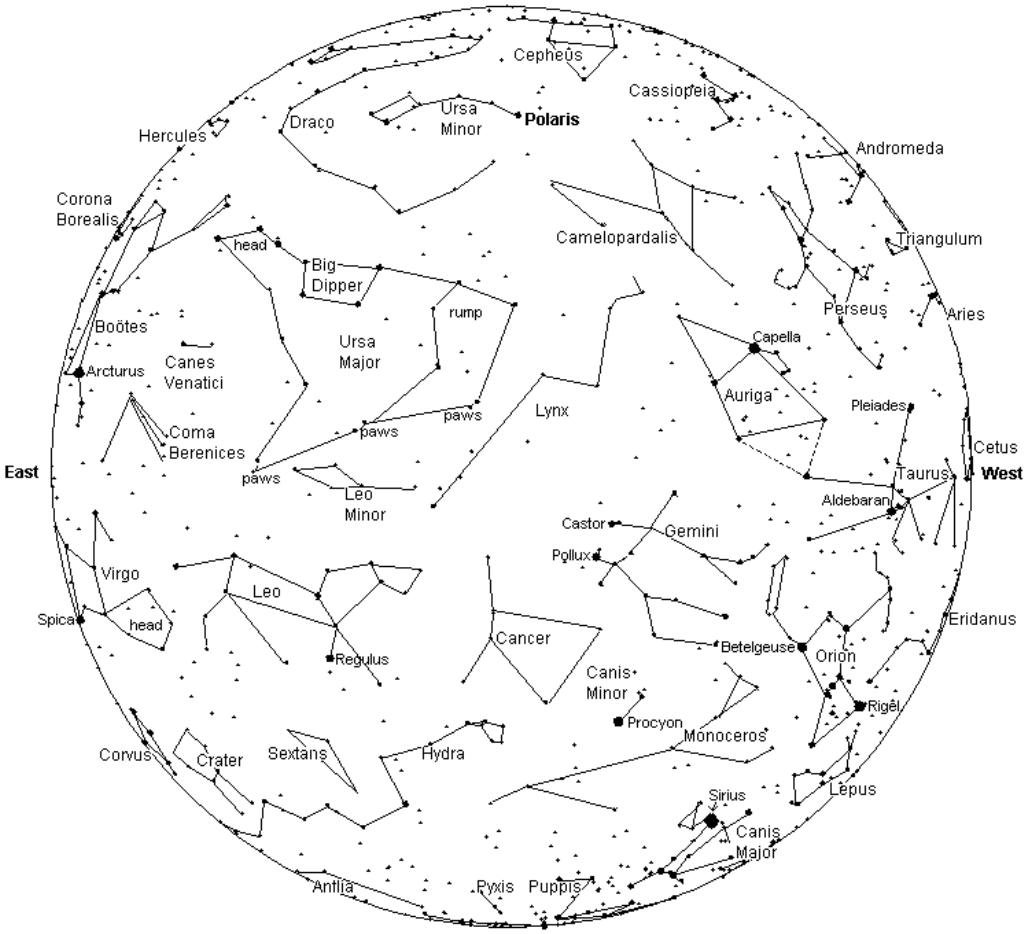
The Sky Over Chester County

April15, 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* skymapping software by Project Pluto, Bowdoinham, Maine

The faintest stars shown on this chart are fifth magnitude.

Date	Sunrise	Sunset	Moon Phases		
04/01/2010	6:45 a.m. EDT	7:25 p.m. EDT	First Quarter	04/21/2010	6:20 p.m. EDT
04/15/2010	6:23 a.m. EDT	7:39 p.m. EDT	Full Moon	04/28/2010	12:18 p.m. EDT
04/30/2010	6:02 a.m. EDT	7:54 p.m. EDT	Last Quarter	04/06/2010	9:37 a.m. EDT
			New Moon	04/14/2010	12:29 p.m. EDT

April 2010 Observing Highlights

by Don Knabb, CCAS Secretary & Observing Chair

April 6	Last quarter Moon, 5:37 a.m.
April 8	Mercury is at greatest elongation from the Sun
April 14	New Moon, 8:29 a.m.
April 15	The Moon is only 1.5 degrees from Mercury
April 21	First quarter Moon, 2:20 p.m.
April 22	The Lyrid meteor shower peaks before dawn
April 28	Full Moon, 8:18 a.m.

The best sights this month: April is the best month of 2010 to see elusive Mercury, so if you have not seen the first planet of the solar system this is a great opportunity. Another special event is when Mars passes near the Beehive Cluster, M44 from April 16th through April 18th. And of course Saturn is a highlight whenever it is in the sky!

Mercury: During the first half of April we have a chance to see Mercury in the evening sky as the glow of the Sun fades. Look for brilliant Venus low in the west and drop your gaze down and to the right to see the planet closest to the Sun. April 8th is the best night to see Mercury since that is when it is at greatest elongation from the Sun.

Venus: The "evening star" is shining bright at magnitude -3.9 in the fading glow of the Sun. On April 4th Venus and Mercury make a nice pair in the evening sky.

Mars: The red planet is nearly straight up just after the sky gets dark. But since we are winning the race around the Sun with Mars it is becoming a smaller telescopic object as every day passes, so aim your telescope high into the sky and enjoy Mars while it is still a reasonable size. From April 16th to April 18th Mars has a close encounter with M44, the Beehive Cluster. This will be beautiful in binoculars.

Jupiter: The king of the planets is still low in the glow of the Sun at daybreak.

Saturn: The ringed planet was at opposition during March so throughout April it is visible nearly all night. Saturn is nearly edgewise to Earth, so the rings are very thin in the eyepiece of a telescope.

Uranus and Neptune: Uranus is lost in the glow of the morning Sun and although Neptune is visible before morning twilight starts the view will be much better later this year.

The Moon: Full Moon is on April 28th. Native Americans called this the Full Pink Moon. This name came from the herb moss pink, or wild ground phlox, which is one of the earliest flowers of the spring. Other names for this full Moon are the Full Sprouting Grass Moon and among coastal tribes the Full Fish Moon because this was the time that the shad swam upstream to spawn.

Constellations: Goodbye Orion, hello Hercules! Ah, spring is here and the snow has melted. This is a great time of the year to stare at the bright points of light in the sky and wonder what early Man thought as he gazed into the sky. It's not too cold and the humidity of summer is not affecting our view of the sky. Mars helps us find the dim constellation Cancer the Crab with its beautiful Beehive Cluster. Leo the Lion fills our gaze around 9 p.m. and if you stay out a bit you'll see the Northern Crown, the constellation Corona Borealis rising with Hercules the Hunter not far behind.

Messier/Deep Sky: We can take one last look at the three open clusters in Auriga as they set in the west just after darkness falls. Then turn your telescope to the north and seek out M81 and M82, a pair of galaxies not far from the head of Ursa Major, the Big Bear. Then look to the south and find M44, the Beehive Cluster that is close to Mars from April 16th to April 18th. Just a bit to the south of M44 is M67, an open cluster known as the King Cobra Cluster, one of the oldest known open clusters.

Comets: There are no bright comets to see during April but if you really want to see a fuzzball you can seek out Comet C/2009 Catalina just after dark-

(Continued on page 14)

Through the Eyepiece: Markarian's Chain in the constellation Virgo

by Don Knabb, CCAS Secretary & Observing Chair

The spring night sky brings a parade of galaxies into center stage not long after the sky becomes completely dark. The skies are not full of the humidity of summer so they are quite dark when the Moon is absent. And you'll need a dark sky to enjoy these faint fuzzies, but they are worth seeking out. So grab the largest telescope you can carry and aim your light bucket toward the constellation Virgo.

As you find these denizens of the deep sky, remember that they are much more distant than the stars of our home galaxy the Milky Way and the photons that hit your retina and travel to your brain have had a long journey indeed. So keep that in mind if they are faint and fuzzy and are best seen with averted vision.

We start our search for galaxies by looking between Arcturus in Boötes and the tail of Leo the Lion, the star Denebola. In the upper right of the page is a sky map you can use to guide your search.

For an observer with a moderate to large telescope, targets abound. You'll need to have some good quality star charts to make a definitive conclusion about what objects you are looking at because there are just so many galaxies in this area of the sky.

One of the most interesting areas of this part of the sky is a group called *Markarian's Chain*.

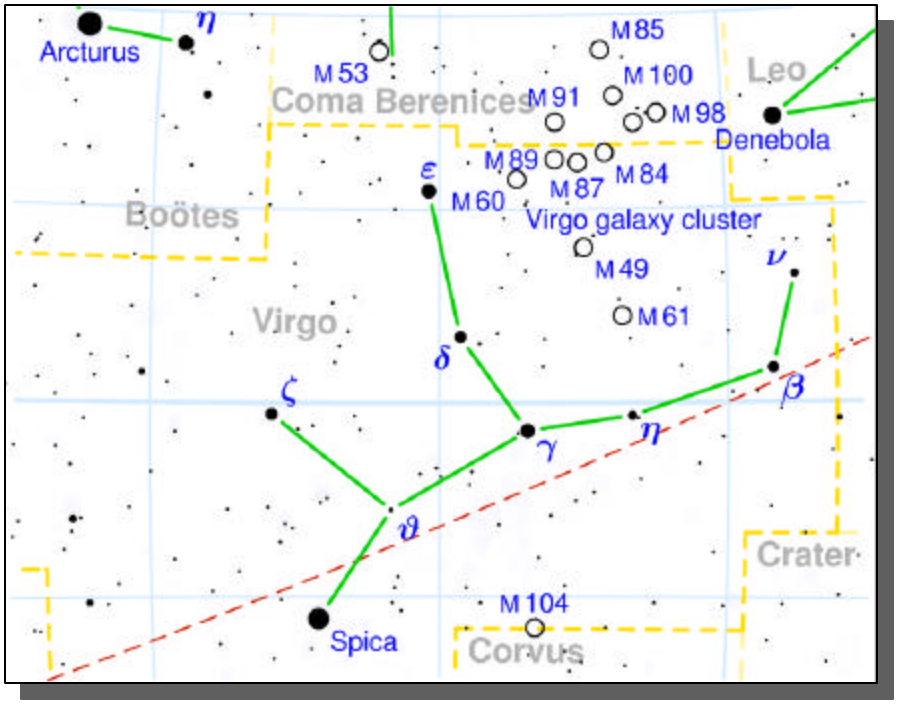


Image credit: http://astronomycentral.co.uk/wp-content/uploads/2010/01/Virgo_constellation_map.png

Markarian's Chain is a stretch of galaxies that forms part of the Virgo Cluster. It's called a "chain" because, when viewed from Earth, the galaxies lie along a smoothly curved line. It was named after the Armenian

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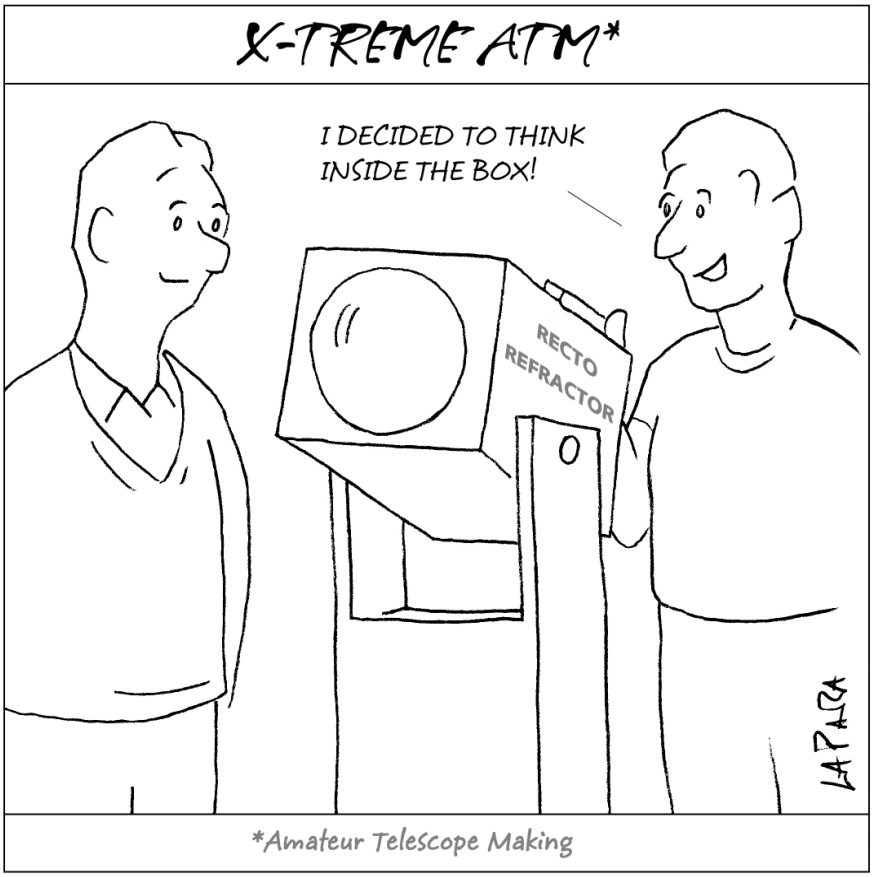
Photo courtesy of CCAS Member Dave Hockenberry

Nicholas's Cartoon Corner

by Nicholas La Para



2010 Space Ops Award

submitted by Guy Webster, Jet Propulsion Laboratory

The team that operates NASA's Mars rovers Spirit and Opportunity will receive the 2010 International Space Ops Award for Outstanding Achievement.

The citation for the award, to be presented April 29 in Huntsville, Ala., says, "For remarkable success in meeting unique and varied challenges of operating a rover on Mars and establishing a model for future in-situ operations."

SpaceOps was founded in 1990 to foster continuous technical interchange on all aspects of space mission operations and ground data systems, and to promote and maintain an international community of space operations experts.

Through the Eyepiece (Cont'd)

(Continued from page 6)

astrophysicist, B. E. Markarian, who discovered it in the mid 1970s. At least seven galaxies in the chain appear to move coherently, although others appear to be superposed by chance.

CCAS member Dave Hockenberry has been honing his astrophotography skills and his photo of Markarian's Chain is one of his recent efforts.

In the lower left corner of Dave's photo is M87. The two bright objects on the right, below center are M86 and M84, with M84 the one to the right. All these Messier objects are galaxies, as are most of the objects in the photograph. Very near center of the photo is a pair of galaxies called "The Eyes". These are the galaxies NGC 4435 and NGC 4438.

Markarian's Chain is part of the Virgo Cluster of galaxies. Our own Local Group of galaxies, the Milky Way, the large and small Magellenic Clouds, M31, M32, M100, M33, is currently receding from the Virgo Cluster at a rate of about 1000 km/second. However, it is anticipated that our Local Group will eventually stop receding from the Virgo Cluster and will ultimately accelerate towards this region because the gravity from the Virgo Cluster influences us even at distances of 70 million light years.

If we are lucky enough to have clear weather for our next BVA observing night we should convince whoever brings the largest telescope to seek out Markarian's Chain!

Information sources:

http://en.wikipedia.org/wiki/Markarian%27s_Chain
http://seds.org/messier/more/virgo.html
http://www.starrywonders.com/markarian.html
http://www.cloudynights.com/item.php?item_id=1779
http://www.allaboutastro.com/markarianchain.html

Deadly Planets

by Patrick L. Barry & Dr. Tony Phillips

About 900 light years from here is a rocky planet not much bigger than Earth. It goes around its star once every hundred days, a trifle fast, but not too different from a standard Earth-year. At least two and possibly three other planets circle the same star, forming a complete solar system.

Interested? Don't be. Going there would be the last thing you would ever do. The star is a pulsar, PSR 1257+12, the seething-hot core of a supernova that exploded millions of years ago. Its planets are bathed not in gentle, life-giving sunshine but instead a blistering torrent of X-rays and high-energy particles.

"It would be like trying to live next to Chernobyl," says Charles Beichman, a scientist at JPL and director of the Michelson Science Center at Caltech.

Our own Sun emits small amounts of pulsar-like X-rays and high energy particles, but the amount of such radiation coming from a pulsar is "orders of magnitude more," he says. Even for a planet orbiting as far out as the Earth, this radiation could blow away the planet's atmosphere, and even vaporize sand right off the planet's surface.

Astronomer Alex Wolszczan discovered planets around PSR 1257+12 in the 1990s using Puerto Rico's giant Arecibo radio telescope. At first, no one believed worlds could form around pulsars—it was too bizarre. Supernovas were supposed to destroy planets, not create them. Where did these worlds come from?

NASA's Spitzer Space Telescope may have found the solution. In 2005, a group of astronomers led by Deepto Chakrabarty of MIT pointed the infrared telescope toward pulsar 4U 0142+61. Data revealed a disk of gas and dust surrounding the central star, probably wreckage from the supernova. It was just the sort of disk that could coalesce to form planets!

As deadly as pulsar planets are, they might also be hauntingly beautiful. The vaporized matter rising from the planets' surfaces could be ionized by the incoming radiation, creating colorful auroras across the sky. And though the pulsar would only appear as a tiny dot in the sky (the pulsar itself is only 20-40 km across), it would be enshrouded in a hazy glow of light emitted by radiation particles as they curve in the pulsar's strong magnetic field.

Wasted beauty? Maybe. Beichman points out the positive: "It's an awful place to try and form planets, but if you can

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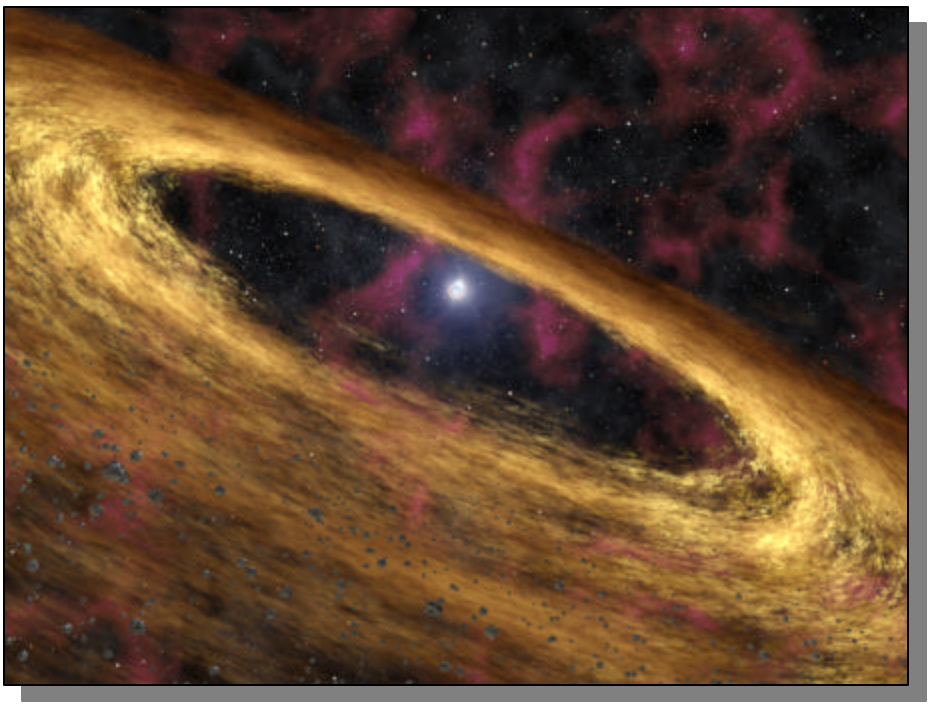

Artist's concept of a pulsar and surrounding disk of rubble called a "fallback" disk, out of which new planets could form.

Night Out: Greenwood Elementary School

by Don Knabb, CCAS Secretary & Observing Chair

On Friday evening, March 19th, we had a great Night Out under clear skies at Greenwood Elementary School in Kennett Square, PA.

Approximately 10 CCAS members with 7 pieces of equipment came out, along with two professors, several students and two telescopes from West Chester University, and a group of teachers and equipment from another local school district.

It's good we had all that help because between the elementary school's students, siblings and parents there were 120 people at the star party!

I don't think I ever heard so many "WOW"s and "Oh My God"s in one night as the kids and parents circulated among the equipment. Two additional treats were an Iridium flare and a bright pass by the International Space Station.

So thanks to everyone who helped out that night, it was a wonderful event!

Our next scheduled star gazing is on Friday, April 16th at Brandywine Valley Association, followed by a night out at Hoopes Park in West Chester the next evening, on Saturday, April 17th. For directions to Brandywine Valley Association, see page 19; for directions to Hoopes Park in West Chester, visit the Parks & Recreation website. I hope to see you at both events, under clear skies!

A collage of memories of our Night Out at Greenwood Elementary School on March 19th, 2010.
Photos courtesy of Dave Hockenberry & Don Knabb.

Starstuff April 2010: Mars Psych

by Roger Taylor, CCAS President

I have often wondered what it would be like to be an Astronaut. Ever since I was a child, I longed to be one of those intrepid explorers of the cosmos. Alas, God had his own plans for me since he blessed me with particularly poor eyesight, forever dashing my hopes for daring-do in space.

But, I thought, what would I truly be in for? The trip to Mars, by most accounts, would take about eighteen months to complete round trip. Call it about five hundred days. That's a long time away from home and familiar, comfortable surroundings. I looked into what research had been done on how people manage in long periods of isolation.

The truth is that there have been very few studies that would simulate effectively that kind of experience. The experience of being in relatively close quarters, with few people, for a very long time, has not happened very often for most people. Some of information that we do have comes from extended stays on the International Space station or from MIR cosmonauts. There has also been work done with military personal aboard submarines and over-wintering teams in the Antarctic. But even these kinds of conditions seldom combine the length of isolation, few personal contacts and limited space.

Hundreds of human beings have now participated in missions that required the occupancy of spacecraft or space stations for periods of up to several months, or in some cases a year or more, under generally adverse environmental and behavioral conditions. Living space is confined; food is restricted in quality and diversity; there is a lack of privacy; and facilities for personal hygiene are limited. The quality of the environment maintained by artificial life-support systems, compounded by high noise levels and unpleasant odors, is hardly comparable to that on Earth.

Mars500 European candidates (l. to r.): Jerome Clevers (Belgium); Romain Charles (France); Diego Urbina (Italy/Colombia); & Arc'hanmael Gaillard (France). Photo Credit: ESA - S. Corvaja, 2010

Weightlessness requires motor and perceptual readjustments under conditions in which disorientation and motion sickness are common, at least during the initial exposure to space. Social interactions are limited, and sexual activity is constrained. Only distant and remote communication with family and friends is possible. Workloads can be demanding and stressful, with the ever-present danger of a major life-threatening system failure. All of these restrictions occur under conditions that make no provision for escape, at least during missions beyond Earth orbit. I have discovered in my research that more than one space mission has been cut short for reasons at least partly psychological.

Recently, I read with interest about a joint venture project of the European Space Agency's (ESA) Directorate of Human Spaceflight and the Russian Institute for Biomedical Problems (IBMP). This venture has been tasked with gathering as much

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Starstuff (Cont'd)

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psychological information as possible from an extended and controlled study in an environment much as I described in the preceding paragraphs.

A team of eight volunteers have been put through a rigorous program of examination to take part in and isolation experiment. This experiment chose a "crew" of six men to live, sleep, eat, and interact in a sealed laboratory in Moscow that would simulate a Martian mission. This first "mission" will last one hundred and five days. The program was started in March of 2009. That was the precursor to the mission later on in the year that will last roughly the 520 days that a full Mars mission might take.

A crew of six, including two Europeans, will soon begin this simulated mission to Mars in a mockup that includes an interplanetary spaceship, a Mars lander and a Martian landscape. The Mars500 experiment, will be second to none as the ultimate test of human endurance.

Four ESA-selected Europeans, Belgian Jerome Clevers, Arc'hanmael Gaillard and Romain Charles from France and Colombian-Italian Diego Urbina, started training for the mission at the end of February with the other crew-members at the Russian Institute of Biomedical Problems (IBMP) in Moscow. Two of these four candidates will be selected as European participants in Mars500. This first full-duration simulated mission to Mars will start in a special human habitat at IBMP in Moscow in the summer.

The Mars500 name comes from the blueprint for a possible human Mars mission in the future using conventional propulsion: 250 days for the trip to Mars, 30 days on the Martian surface and 240 days for the return journey, totaling 520 days. This experiment would also assess the efficacy of certain medicines and vitamin supplements that might be used on a space mission. The researchers will also be monitoring mood, morale and hormone regulation.

All of a sudden this real life (not Star Trek) space program stuff might not be all its cracked up to be. 18 months can be an awfully long time for that short jaunt on Mars.

Deadly Planets (cont'd)

(Continued from page 8)

do it there, you can do it anywhere."

Find more news and images from Spitzer at http://www.spitzer.caltech.edu/ . In addition, The Space Place Web site features several games related to Spitzer and infrared astronomy, as well as a storybook about a girl who creamed of finding another Earth. Go to http://tiny.cc/lucy208.

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

A photo of the sealed laboratory in Moscow that is being used in a series of experiments to simulate a manned mission to Mars. The final mission will last 520 days. *Photo Credit: ESA - S. Corvaja*

Opportunity (Cont'd)

(Continued from page 3)

sphere. Spirit has been communicating on schedule once per week. It is expected to drop to a low-power hibernation mode soon that could prevent communications for weeks at a time during the next several months.

NASA's Jet Propulsion Laboratory, a division of the California Institute of Technology in Pasadena, manages the Mars Exploration Rover Project for the NASA Science Mission Directorate, Washington. For more information about the Mars rovers, visit http://www.nasa.gov/rovers.

Artist concept of Mars Exploration Rover

CCAS Has a New Librarian!

by John Hepler

Barbara Knabb, wife of CCAS Secretary and Observing Chair, has graciously volunteered to assume the responsibilities of CCAS Librarian.

The Knabbs expect to have the contents of the library transferred and in place by the end of April. Don't forget that to request a book or video materials, you can send an e-mail to librarian @ccas.us.

CCAS Original Astrophotography

by Dave Hockenberry, CCAS Program Chair

Another take at M81. My original photograph was boosted and cleaned up by Brent Crabb. The photograph was shot on 12/8/2009 through TeleVue NP 101is with SXVF H9C color camera, stack of 7 5-minute images. Median stacked and processed with MaxIm DL5, Color level adjusted and hot pixel removal in Photoshop CS3.

M48, an open cluster in Monoceros. Taken on 03/27/10. Stack of 14 3-minute images, shot with Starlight Xpress M25C camera, through TeleVue NP101is. Median stacked in MaxIm DL5, Color layer adjusted and occasional hot pixel removal in Photoshop CS3. Autoguided with SX Lodestar and MaxIm DL through Meade LX200R, through some high clouds earlier that night.

CCAS Member Earns Astronomical League Award

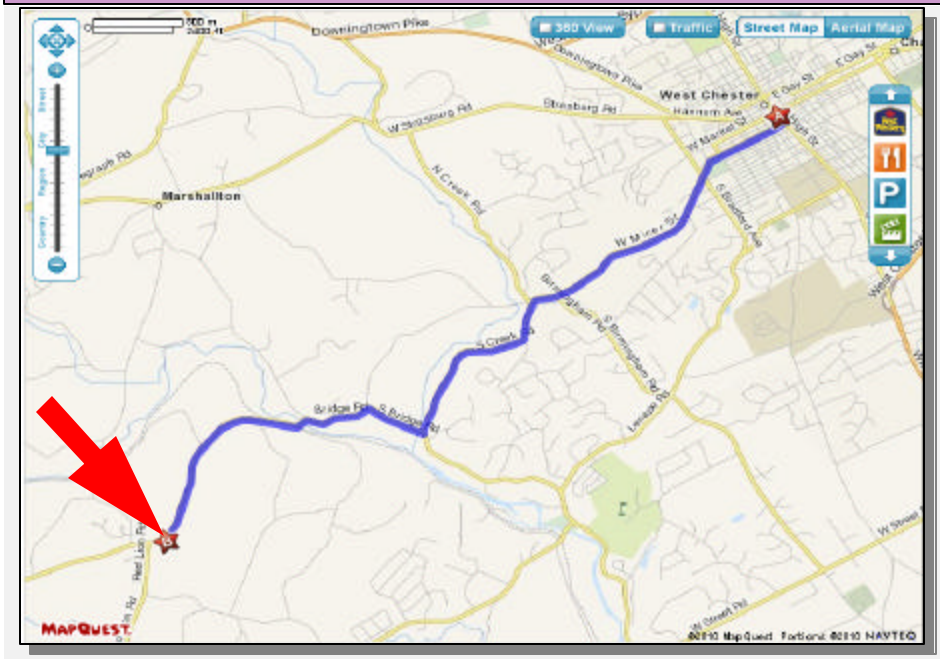
by Kathy Buczynski, CCAS Vice President & Education Chair

On March 9th, 2010, CCAS Vice President Kathy Buczyinski presented Steve Leiden with the Honorary Messier Club Award certificate and pin. Steve's award number is 2394 dated December 10, 2009.

You can earn The Messier Club Award by visually observing 70 Messier objects and keeping a record of your observations. An *Honorary* Messier Club award is earned by observing the balanced of the Messier Objects and resubmitting your records for verification.

Visit the Astronomical League's website to learn more about the Messier Club.

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.

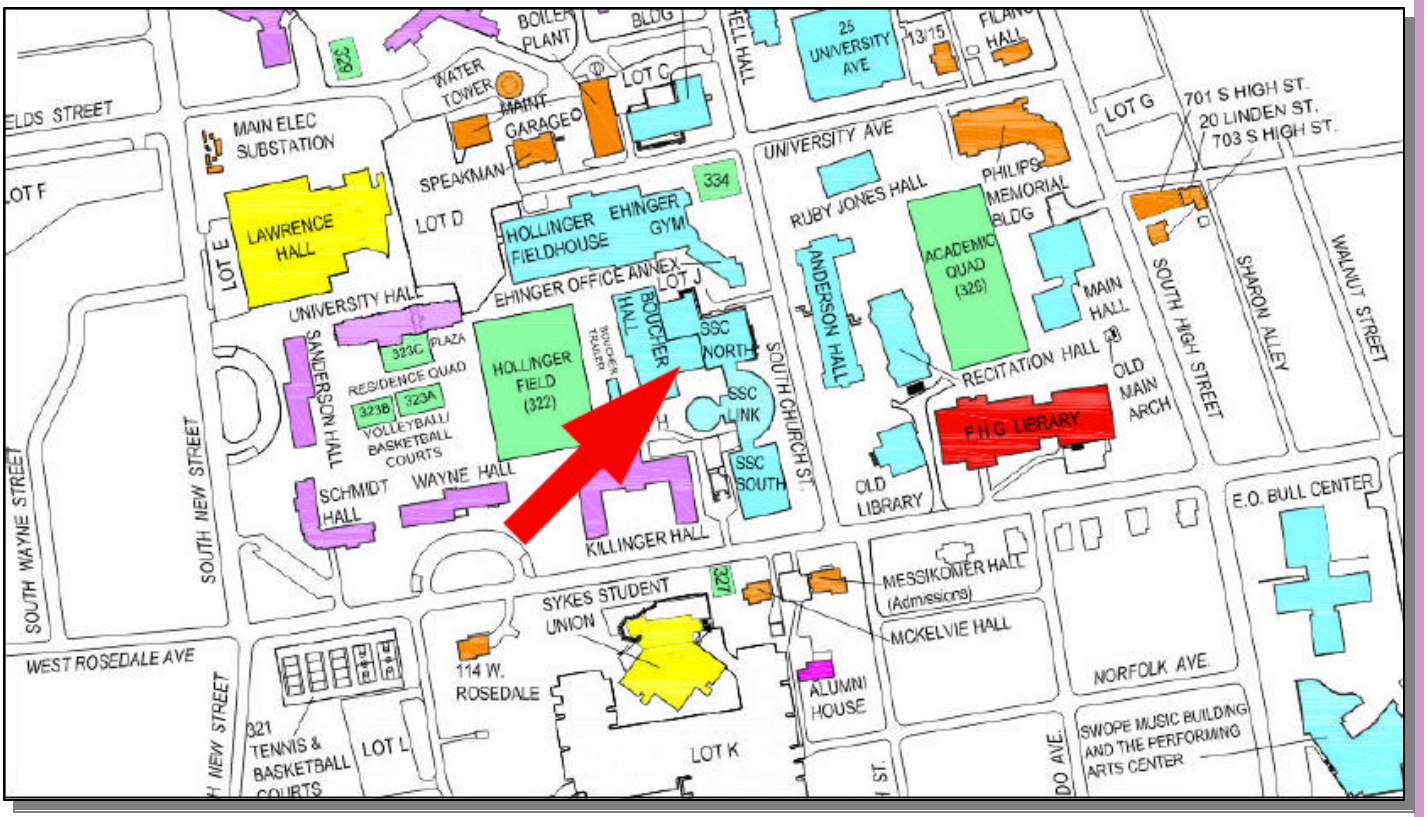
To get to the Myrick Conservation Center from West Chester, go south on High Street in West Chester past the Courthouse. At the next traffic light, turn right on Miner Street, which is also PA Rt. 842. Follow Rt. 842 for about 6 miles. To get to the observing site at the BVA property, turn left off Route 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 (Cont'd)

(Continued from page 5)

ness falls early in the month when the Moon is absent from the evening sky. There is a finder chart in the April issue of Astronomy.

Meteor showers: The Lyrid meteor shower is active from April 16th to the 25th. This is not an especially active shower with a maximum rate of between 15 and 25 meteors per hour. But, meteor showers are unpredictable so take a look during the predicted peak in the pre-dawn hours of April 22.

CCAS Membership Information and Society Financials

Treasurer's Report
by Bob Popovich

January 2010 Financial Summary

Beginning Balance	$1,663
Deposits	$180
Disbursements	$320
Ending Balance	$1,523

Welcome New Members!

This month we welcome Kelly Pearson & family and Brian Mulligan & family. Both families make their homes in 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.

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:

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!

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**

http://www.starrynightlights.com

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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**

http://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**

http://www.skiesunlimited.net

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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

http://www.spectrum-scientifics.com

CCAS Information Directory

CCAS Lending Telescopes

Contact Kathy Buczynski to make arrangements to borrow one of the Society's lending telescopes. CCAS members can borrow a lending telescope for a month at a time; longer if no one else wants to borrow it after you. Kathy's phone number is 610-436-0821.

CCAS Lending Library

Contact our Librarian, Linda Lurcott Fragale, to make arrangements to borrow one of the books in the CCAS lending library. Copies of the catalog are available at CCAS meetings, and on the CCAS website. Linda's phone number is 610-269-1737.

Contributing to *Observations*

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

Or mail the contribution, typed or handwritten, to:

John Hepler
500 W. Rosedale Ave.
Apt. A-3 Trinity Bldg.
West Chester, PA 19382

CCAS Newsletters via E-mail

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

CCAS Website

John Hepler is the Society's Webmaster. You can check our Website at:

http://www.ccas.us

John welcomes any additions to the site by Society members. The contributions can be of any astronomy subject or object, or can be related to space exploration. The only requirement is that it is your own work; no copyrighted material! Give your contributions to John Hepler (484-266-0699) or e-mail to webmaster@ccas.us.

CCAS Purpose

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

CCAS Executive Committee

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

President:	Roger Taylor 610-430-7768
Vice Pres:	Kathy Buczynski 610-436-0821
ALCor and Treasurer:	Bob Popovich 484-467-5562
Secretary and Observing:	Don Knabb 610-436-5702
Librarian:	Barb Knabb 610-436-5702
Program:	Dave Hockenberry 610-558-4248
Education:	Kathy Buczynski 610-436-0821
Webmaster and Newsletter:	John Hepler 484-266-0699
Public Relations:	Deb Goldader 610-304-5303

CCAS Membership Information

The present membership rates are as follows:

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

Membership Renewals

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

Bob Popovich
416 Fairfax Drive
Exton, PA 19341-1814

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

*Sky & 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.**