



# Observations

A Monthly Publication Of The  
CHESTER COUNTY ASTRONOMICAL SOCIETY

Vol. 20, No. 1

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

January 2012

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## Membership Renewals Due

01/2012	Labroli Smith
02/2012	Kalinowski & Family La Para
03/2012	End LaFrance
04/2012	Baker Imburgia Popovich Swearingen

## Happy New Year 2012!



Photo Source: Wikipedia Public Domain

## Important January 2012 Dates

- 1st** • First Quarter Moon, 1:15 a.m.
- 4th** • Quadrantid Meteor Shower Peaks in the early morning hours.
- 9th** • Full Moon, 2:30 a.m.
- 16th** • Last Quarter Moon, 4:08 a.m.
- 21st** • Winter Solstice, 12:30 a.m.
- 22nd** • New Moon, 2:39 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, February 24, 2012** - CCAS Monthly Observing Session, Myrick Conservancy Center, BVA (inclement weather date Saturday, February 25th).
- ✦ **Saturday, March 24, 2012** - Night Out at Hoopes Park, West Chester. The free public event is co-hosted with the West Chester Recreation Department. The observing session starts at sunset.

## Winter 2012 Society Events

### January 2012

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

**10th** • CCAS Monthly Meeting, Room 113, Merion Science Center (former Boucher Building), West Chester University. Meet & Greet over coffee and refreshments for members and non-members alike from 7:00 p. m. to 7:30 p.m. The meeting starts immediately after at 7:30 p.m. CCAS Member Speaker: Gaston Baudat, "Astrophotography: On-Axis Guiding." (See last month's article by Gaston for a preview of his presentation.)

**20th** • West Chester University Planetarium Show, "Once in a Blue Moon," in the Schmucker Science Building. The show starts at 7 p.m. and runs approximately one hour. For more information and reservations, visit the planetarium's [webpage](#).

**20th** • Open call for articles and photographs for the February 2012 edition of *Observations*.

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

### February 2012

**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.

**14th** • CCAS Monthly Meeting, Room 113, Merion Science Center (former Boucher Building), West Chester University. Meet & Greet over coffee and refreshments for members and non-members alike from 7:00 p. m. to 7:30 p.m. The meeting starts immediately after at 7:30 p.m. Guest Speaker: TBA.

**17th** • West Chester University Planetarium Show, "Closest to the Sun," in the Schmucker Science Building. The show starts at 7 p.m. and runs approximately one hour. For more information and reservations, visit the planetarium's [webpage](#).

**20th** • Open call for articles and photographs for the February 2012 edition of *Observations*.

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

## Minutes from the December 13, 2011 CCAS Monthly Meeting

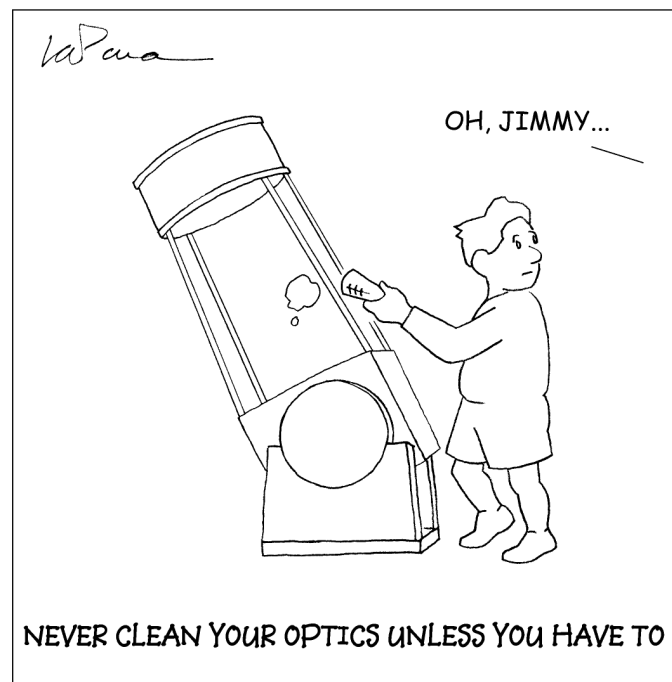
by Ann Miller, CCAS Secretary

- In place of our regular monthly meeting, CCAS members & their families gathered for the annual holiday party at the Four Dogs Tavern.



## Nicholas's Humor Corner

by Nicholas La Para



## January 2012 Speaker & General Business

by Dave Hockenberry, CCAS Program Chair

Our meeting this month is on January 10, 2012, starting at 7:30 p.m. The meeting will be held in Room 113, Merion Science Center (former Boucher Building), West Chester University. CCAS member Gaston Baudat will present "Astrophotography: On-Axis Guiding System." For a preview of his presentation, check out his article in December's newsletter.

We've made several noteworthy changes to our schedule and activities: First, we have tabled the videos presented immediately before the monthly meeting. Instead, we will have a half-hour meet & greet session for new members and the general public to socialize over coffee and other refreshments.

Secondly, because of the adverse weather conditions, we will no longer hold observing sessions in the months of December and January. Too often we end of having to cancel them.

Please note that inclement weather or changes in speakers' schedules may affect the program. In the event there is a change, CCAS members will be notified via e-mail with as much advance notice as possible.

We are looking for presenters for the rest of the 2012 season. If you are interested in presenting, please contact me at [programs@ccas.us](mailto:programs@ccas.us).

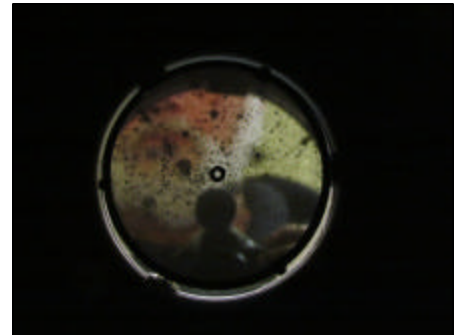
## CCAS 8-inch Reflector in Need of Restoration & Caretaking

by Don Knabb, CCAS Treasurer & Observing Chair



CCAS has several telescopes available for lending. One of these telescopes needs some restoration and caretaking. This telescope is an 8 inch reflector mounted on an equatorial mount with a 110 volt "clock drive". The mount was purchased and the mirror was ground by a West Chester University professor in the mid 90s. It was bought by an astronomy student who eventually donated it to the club. Some years ago Pete LaFrance refinished the tube of the scope, and it looks great.

However, the mirror appears to



be in dire need of recoating, the electrical cord needs repaired and the tube needs to be cleaned of a few cobwebs. If anyone would like to "adopt" this club telescope you will have the use of it for at least several months, or until another member expresses interest in borrowing it, possibly several years in the future. The club will pay for the recoating of the mirror, but the caretaker will need to remove the mirror and ship it to a recoating facility. Ed Lurcott has several mirrors to be recoated, so the caretaker could coordinate the recoating with Ed and a price reduction is quite probable. I was given an estimate of \$110 to recoat the primary mirror and secondary mirror at a facility in New Jersey.

If you are interested in refurbishing this telescope please send me an e-mail at [observing@ccas.us](mailto:observing@ccas.us).

## Equipment For Sale

by John Kovacs

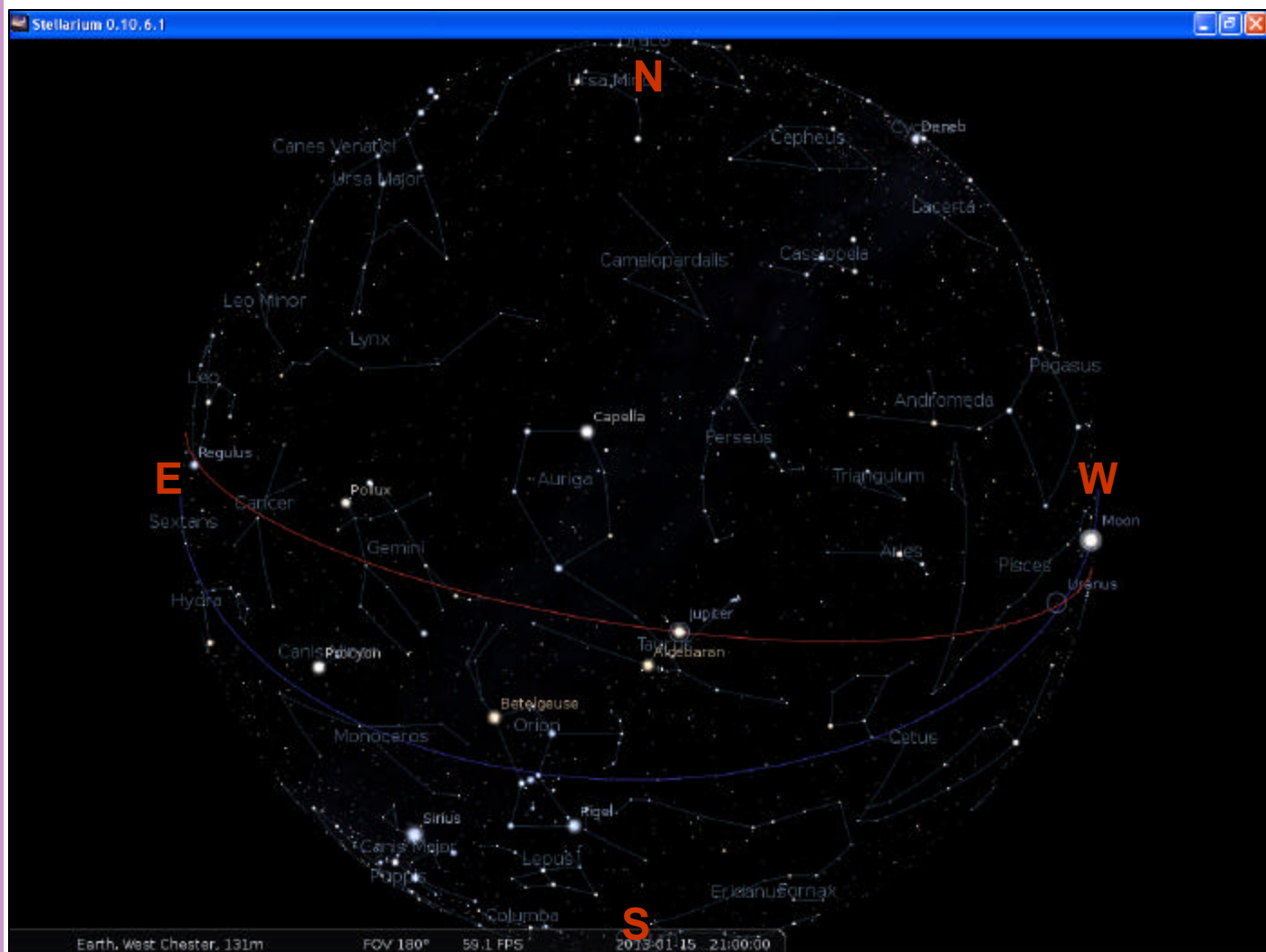
I'm selling a Meade 8" LX90 Schmidt-Cassegrain computerized "Go To" telescope with Ultra High Transmission Coating (UHTC). Also, an 8 piece set of

Super Plossi eyepieces from 6.4mm to 40mm with aluminum carrying case. Contact me at (610) 431-1057 for pricing and more details.

# The Sky Over Chester County

January 15, 2012 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](http://www.stellarium.org).



Date	Civil Twilight Begins	Sunrise	Sunset	Civil Twilight Ends	Length of Day
01/01/2012	6:52 a.m. EST	7:22 a.m. EST	4:46 p.m. EST	5:16 p.m. EST	9h 23m 32s
01/15/2012	6:51 a.m. EST	7:21 a.m. EST	4:59 p.m. EST	5:29 p.m. EST	9h 38m 45s
01/31/2012	6:42 a.m. EST	7:10 a.m. EST	5:18 p.m. EST	5:47 p.m. EST	10h 07m 39s

Moon Phases					
First Quarter	01/01/2012	1:15 a.m. EST	Last Quarter	01/16/2012	4:08 a.m. EST
Full Moon	01/09/2012	2:30 a.m. EST	New Moon	01/22/2012	2:39 a.m. EST

## January 2012 Observing Highlights

by Don Knabb, CCAS Treasurer & Observing Chair

January 1	First-quarter Moon, 1:15 a.m.
January 2	Jupiter is near the Moon.
January 4	The Quadrantid meteor shower peaks before dawn.
January 4-5	The Moon is near the Pleiades.
January 9	Full Moon, 2:30 a.m.
January 16	Last Quarter Moon, 4:08 a.m.
January 22	New Moon, 2:39 a.m.
January 25-26	Look for a thin crescent Moon near bright Venus just after sunset.
January 30	First-quarter Moon, 11:10 p.m. The Lunar X is visible.
January 31	The Lunar Straight Wall is visible.

**The best sights this month:** The Jupiter and Venus show continues into January with these bright planets lighting up the evening sky. The bright winter constellations are at center stage, so dress warmly and stare into the cold, dark and beautiful long nights of January.

**Mercury:** Mercury is only visible during the dawn hours during January.

**Venus:** Our sister planet reaches magnitude -4.0 during January and shines brightly in the southwest as the sky darkens. Venus will rise higher into the sky as January progresses and will not set until 3 hours after the Sun by month's end.

**Mars:** Mars rises after 10 p.m. at the beginning of January but as early as 8:30 by the end of the month as we catch up to the red planet in our race around the Sun.

**Jupiter:** Jupiter does not shine as bright as Venus, but it is a much more interesting telescopic object. Throughout the month Jupiter and Venus grow closer each evening until March when they will cross paths.

**Saturn:** The ringed planet is still an early morning

object for a few months, rising around midnight during January.

**Uranus and Neptune:** Both gas giants are slowly sinking toward the west, so although they are still visible you'll be looking through a lot of atmosphere to see them. Uranus is about halfway between Venus and Jupiter, while Neptune is much closer to Venus. Seek out these planets just after it gets dark when they are highest in the sky. You can find sky maps for both planets at <http://www.skyandtelescope.com>.

**The Moon:** Full moon is on January 9<sup>th</sup>. According to Native Americans, this is the Full Wolf Moon. Amid the cold and deep snows of midwinter, the wolf packs howled hungrily outside Indian villages, so it was named the Full Wolf Moon. Sometimes it was also referred to as the Old Moon, or the Moon after Yule. Some called it the Full Snow Moon, but most tribes applied that name to the next Moon.

**Constellations:** Just after it gets dark you can still catch the Summer Triangle as it dives below the horizon for its yearly vacation. Cassiopeia is high in the sky with the Pleiades and Taurus the Bull taking the center position in the southern sky. Just a bit later Orion the Hunter, followed by his dog Canis Major, becomes the highlight of the clear winter sky. A bit later yet Leo the Lion jumps out of the eastern horizon. Dress warmly and sit in your lounge chair and see how many constellations you can record toward the Constellation Hunter's club.

**Messier/deep sky:** Although there are many wonderful sights in the sky, if I could see only one I would pick M42, the Great Orion Nebula. Set up your telescope and just stare at this, the brightest nebula in the sky. If you don't have a telescope M42 is still a nice sight in binoculars, but instead find the Beehive Cluster, M44, in the constellation Cancer. The stars of the Beehive will fill your eyepieces!

**Comets:** Comet seekers have real treat in store for them in January as Comet P/2006 (Levy) should

*(Continued on page 12)*

## Kepler Mission Discovers First Earth-size Planets Beyond Our Solar System

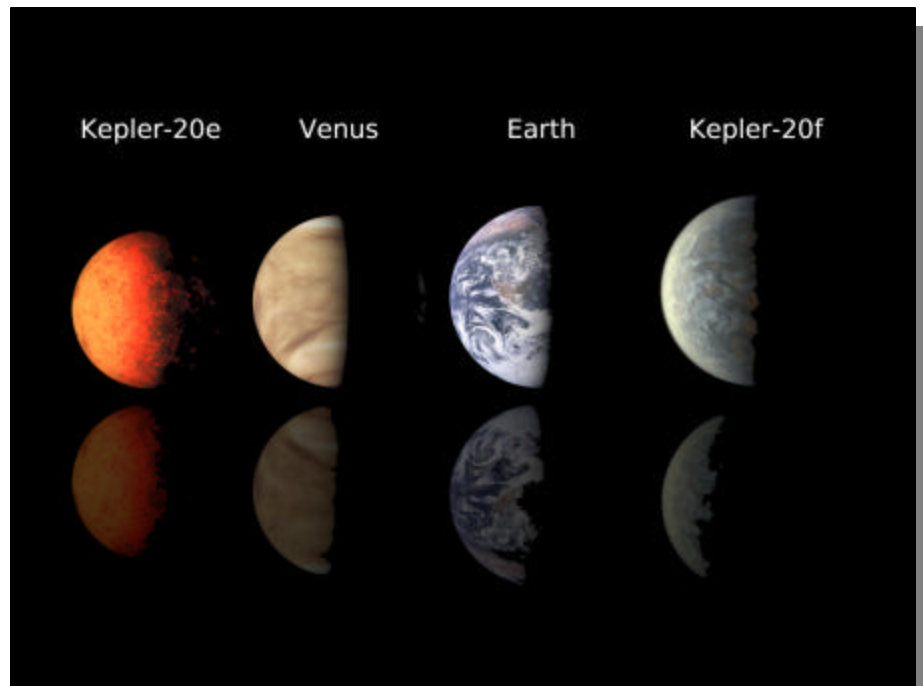
by Michele Johnson, NASA Ames Research Center

NASA's Kepler mission has discovered the first Earth-size planets orbiting a sun-like star outside our solar system. The planets, called Kepler-20e and Kepler-20f, are too close to their star to be in the so-called habitable zone where liquid water could exist on a planet's surface, but they are the smallest exoplanets ever confirmed around a star like our sun.

The discovery marks the next important milestone in the ultimate search for planets like Earth. The new planets are thought to be rocky. Kepler-20e is slightly smaller than Venus, measuring 0.87 times the radius of Earth. Kepler-20f is a bit larger than Earth, measuring 1.03 times its radius. Both planets reside in a five-planet system called Kepler-20, approximately 1,000 light-years away in the constellation Lyra.

Kepler-20e orbits its parent star every 6.1 days and Kepler-20f every 19.6 days. These short orbital periods mean very hot, inhospitable worlds. Kepler-20f, at 800 degrees Fahrenheit, is similar to an average day on the planet Mercury. The surface temperature of Kepler-20e, at more than 1,400 degrees Fahrenheit, would melt glass.

"The primary goal of the Kepler mission is to find Earth-sized planets in the habitable zone," said Francois Fressin of the Harvard-Smithsonian Center for Astrophysics in Cambridge,



This chart compares the first Earth-size planets found around a sun-like star to planets in our own solar system, Earth and Venus. NASA's Kepler mission discovered the new found planets, called Kepler-20e and Kepler-20f. Kepler-20e is slightly smaller than Venus with a radius .87 times that of Earth. Kepler-20f is a bit larger than Earth at 1.03 times the radius of Earth. Venus is very similar in size to Earth, with a radius of .95 times that our planet. Both Kepler-20e and Kepler-20f circle in close to their star, called Kepler-20, with orbital periods of 6.1 and 19.6 days, respectively. Astronomers say the two little planets are rocky like Earth but with scorching temperatures. Image credit: NASA/Ames/JPL-Caltech

Mass., lead author of a new study published in the journal Nature. "This discovery demonstrates for the first time that Earth-size planets exist around other stars, and that we are able to detect them."

The Kepler-20 system includes three other planets that are larger than Earth but smaller than Neptune. Kepler-20b, the closest planet, Kepler-20c, the third planet, and Kepler-20d, the fifth planet, orbit their star every 3.7, 10.9 and 77.6 days. All five planets have orbits lying roughly within Mercury's orbit in our so-

lar system. The host star belongs to the same G-type class as our sun, although it is slightly smaller and cooler.

The system has an unexpected arrangement. In our solar system, small, rocky worlds orbit close to the sun and large, gaseous worlds orbit farther out. In comparison, the planets of Kepler-20 are organized in alternating size: large, small, large, small and large.

"The Kepler data are showing us some planetary systems have

*(Continued on page 7)*

## Kepler (Cont'd)

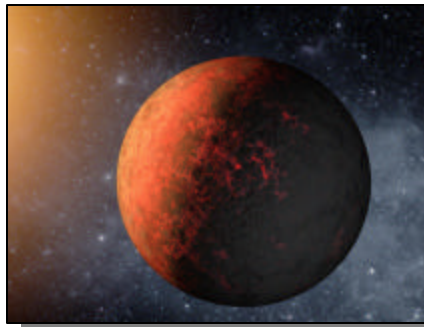
*(Continued from page 6)*

arrangements of planets very different from that seen in our solar system," said Jack Lisauer, planetary scientist and Kepler science team member at NASA's Ames Research Center in Moffett Field, Calif. "The analysis of Kepler data continues to reveal new insights about the diversity of planets and planetary systems within our galaxy."

Scientists are not certain how the system evolved but they do not think the planets formed in their existing locations. They theorize the planets formed farther from their star and then migrated inward, likely through interactions with the disk of material from which they originated. This allowed the worlds to maintain their regular spacing despite alternating sizes.

The Kepler space telescope detects planets and planet candidates by measuring dips in the brightness of more than 150,000 stars to search for planets crossing in front, or transiting, their stars. The Kepler science team requires at least three transits to verify a signal as a planet.

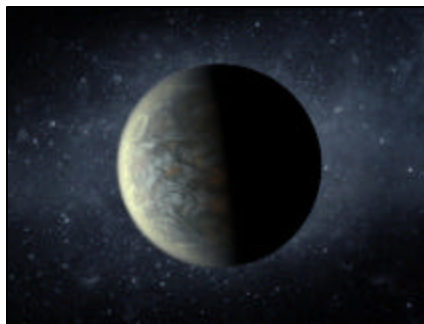
The Kepler science team uses ground-based telescopes and the Spitzer Space Telescope to review observations on planet candidates the spacecraft finds. The star field Kepler observes in the constellations Cygnus and Lyra can be seen only from ground-based observatories in spring through early fall. The data from



Kepler-20e is the first planet smaller than the Earth discovered to orbit a star other than the sun. A year on Kepler-20e only lasts 6 days, as it is much closer to its host star than the Earth is to the sun. The temperature at the surface of the planet, around 1400 degrees Fahrenheit, is much too hot to support life, as we know it.

Kepler-20e is likely to be entirely rocky and without an atmosphere. The planet is tidally locked, always showing the same side to its host star, as the moon to the Earth, and could have large temperature differences between its permanent night and day sides.

Kepler-20e is likely to be entirely rocky and without an atmosphere. The planet is tidally locked, always showing the same side to its host star, as the moon to the Earth, and could have large temperature differences between its permanent night and day sides. Image credit: NASA/Ames/JPL-Caltech



Kepler-20f is the closest object to the Earth in terms of size ever discovered. With an orbital period of 20 days and a surface temperature of 800 degrees Fahrenheit, it is too hot to host life, as we know it. Image credit: NASA/Ames/JPL-Caltech

these other observations help determine which candidates can be validated as planets.

To validate Kepler-20e and Kepler-20f, astronomers used a computer program called Blender, which runs simulations to help rule out other astrophysical phenomena masquerading as a planet.

On Dec. 5 the team announced the discovery of Kepler-22b in the habitable zone of its parent star. It is likely to be too large to have a rocky surface. While Kepler-20e and Kepler-20f are Earth-size, they are too close to their parent star to have liquid water on the surface.

"In the cosmic game of hide and seek, finding planets with just the right size and just the right temperature seems only a matter of time," said Natalie Batalha, Kepler deputy science team lead and professor of astronomy and physics at San Jose State University. "We are on the edge of our seats knowing that Kepler's most anticipated discoveries are still to come."

NASA's Ames Research Center in Moffett Field, Calif., manages Kepler's ground system development, mission operations and science data analysis. JPL managed the Kepler mission's development.

Ball Aerospace and Technologies Corp. in Boulder, Colo., developed the Kepler flight system

*(Continued on page 11)*

## Through the Eyepiece: The Pac Man Nebula, NGC 281

by Don Knabb, CCAS Treasurer & Observing Chair

High overhead, just a bit to the north of the zenith, is the constellation Cassiopeia. I remember finding this constellation when I was a Boy Scout, the distinctive “W” shape being easily identified in the night sky. When we gaze at Cassiopeia we are looking into the outer reaches of the Milky Way galaxy and this area of the night sky is full of interesting objects. One of these objects is NGC 281, an emission nebula with the nickname The Pac Man Nebula. This name is derived because the nebula resembles the main character of the early video game Pac Man.

NGC 281 is an area of star formation with several prominent features including the nebula, a small open cluster, lanes of obscuring dust and gas, and dense knots of dust in which stars may be forming. The open cluster of stars is IC 1590 which has formed during the last few million years and the light from these young stars helps ionize the nebula’s gas, causing the red glow. All these features, including the dark Bok globules that stand out in the center of the image against the nebula, are easily seen in Dave Hockenberry’s image (at right).

Bok globules are dark clouds of dense dust and gas in which star formation sometimes takes place. They contain molecular hydrogen, carbon oxides and helium, and around 1% (by mass) of silicate dust.

*(Continued on page 9)*



*Image credit: <http://www.providingnews.com>*



*Image credit: David Hockenberry, CCAS Program Chair*



## Through the Eyepiece (cont'd)

(Continued from page 8)

The nebula was discovered in August 1883 by E. E. Barnard, who described it as "a large faint nebula, very diffuse." The nebula is visible in amateur telescopes from dark sky locations. In his book *Deep Sky Wonders*, Walter Scott Houston describes the appearance of the nebula in small telescopes: "There was a faint glow in the immediate vicinity of the multiple star, with an occasional impression of a much larger nebulosity...Its surface brightness was much less

than that of M33 in Triangulum or NGC 205, the distant companion of the Andromeda galaxy."

I was unable to find a good star chart that pinpoints the location of the Pac Man Nebula, but the screen capture from the free planetarium program Stellarium will help you locate this object. NGC 281 is in the center of the square on Cassiopeia's left arm, above and to the right of the bright star Shedir. Or you can do as I do, set up your "go to" telescope, enter NGC 281 and let the

electronics do the work!

So dress warmly and seek out the video game star of the night sky, the Pac Man Nebula!

Information sources:

<http://apod.nasa.gov/apod/ap050823.html>  
[http://en.wikipedia.org/wiki/NGC\\_281](http://en.wikipedia.org/wiki/NGC_281)  
[http://www.mtrilling.com/mtrilling.com/NGC\\_281\\_Pacman\\_Nebula\\_Info.html](http://www.mtrilling.com/mtrilling.com/NGC_281_Pacman_Nebula_Info.html)  
[http://en.wikipedia.org/wiki/Cassiopeia\\_constellation](http://en.wikipedia.org/wiki/Cassiopeia_constellation)



Image credit: Stellarium planetarium software

Dave Hockenberry's image was shot 11/18/11 and 12/3/11 with QSI 583 wsg camera, through AstroTech AT8RC at 1625 mm FL, on AP 1200 mount. 120 minutes Luminance (12 x 10 minute Lum), 25 minutes each (5 x 5-minute each) Red, Green Blue AstroDon filters. Autoguided and image capture with Maxim DL5. Calibrated, hot pixel removal, stacked and Lum deconvolve, RGB creation in CCDStack. L-RGB merge, finish processing in Photoshop CS3, smoothing with PS HiPass filter and Noise Ninja. FITS Liberator courtesy of ESA.

## Dawn Takes a Closer Look

by Dr. Marc Rayman

Dawn is the first space mission with an itinerary that includes orbiting two separate solar system destinations. It is also the only spacecraft ever to orbit an object in the main asteroid belt between Mars and Jupiter. The spacecraft accomplishes this feat using ion propulsion, a technology first proven in space on the highly successful Deep Space 1 mission, part of NASA's New Millennium program.

Launched in September 2007, Dawn arrived at protoplanet Vesta in July 2011. It will orbit and study Vesta until July 2012, when it will leave orbit for dwarf planet Ceres, also in the asteroid belt.

Dawn can maneuver to the orbit best suited for conducting each of its scientific observations. After months mapping this alien world from higher altitudes, Dawn spiraled closer to Vesta to attain a low altitude orbit, the better to study Vesta's composition and map its complicated gravity field.

Changing and refining Dawn's orbit of this massive, irregular, heterogeneous body is one of the most complicated parts of the mission. In addition, to meet all the scientific objectives, the orientation of this orbit needs to change.

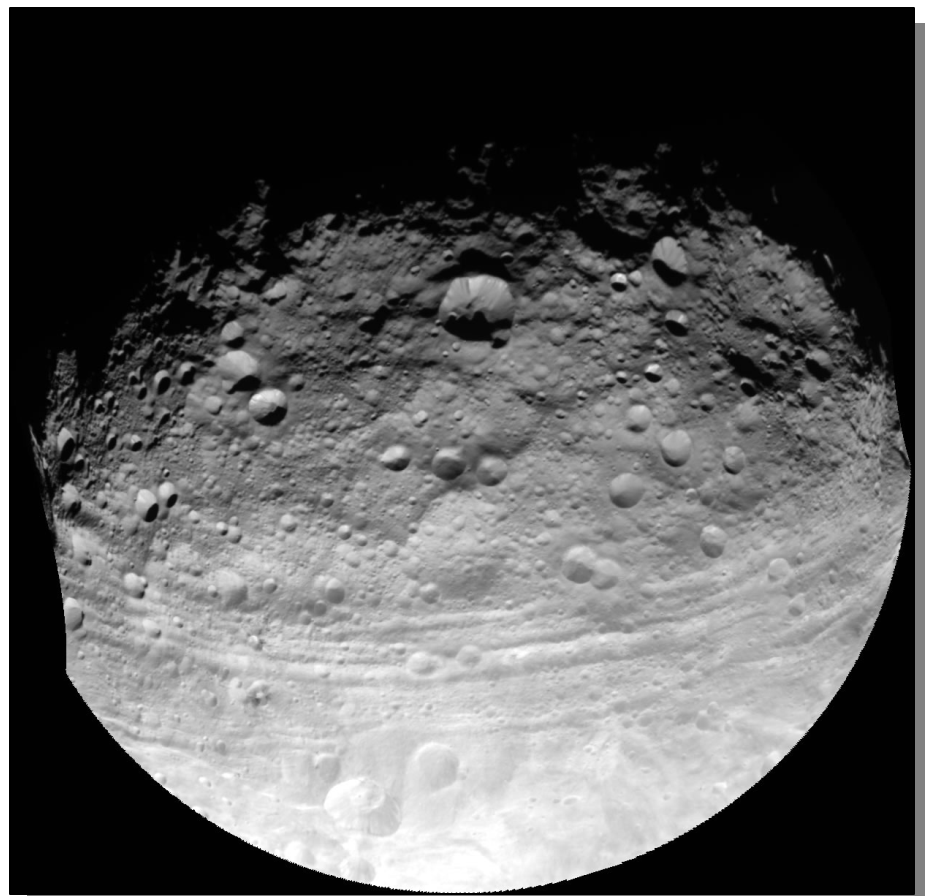
These differing orientations are a crucial element of the strategy for gathering the most scientifically valuable data on Vesta. It



generally requires a great deal of maneuvering to change the plane of a spacecraft's orbit. The ion propulsion system allows the probe to fly from one orbit to another without the penalty of carrying a massive supply of propellant. Indeed, one of the reasons that traveling from Earth to Vesta (and later Ceres) requires ion propulsion is the challenge of tilting the orbit around the sun.

Although the ion propulsion system accomplishes the majority of the orbit change, Dawn's navigators are enlisting Vesta itself. Some of the ion thrusting was designed in part to put the spacecraft in certain locations from which Vesta would twist its orbit toward the target angle for the low-altitude orbit. As Dawn rotates and the world underneath it revolves, the spacecraft feels a

*(Continued on page 11)*



*This full view of the giant asteroid Vesta was taken by NASA's Dawn spacecraft, as part of a rotation characterization sequence on July 24, 2011, at a distance of 5,200 kilometers (3,200 miles). Credit: NASA/JPL-Caltech/UCLA/MPS/DLR/IDA*

## Space Place (Cont'd)

(Continued from page 10)

changing pull. There is always a tug downward, but because of Vesta's heterogeneous interior structure, sometimes there is also a slight force to one side or another. With their knowledge of the gravity field, the mission team plotted a course that took advantage of these variations to get a free ride.

The flight plan is a complex affair of carefully timed thrusting and coasting. Very far from home, the spacecraft is making excellent progress in its expedition at a fascinating world that, until a few months ago, had never seen a probe from Earth.

Keep up with Dawn's progress by following the Chief Engineer's (yours truly's) journal at <http://dawn.jpl.nasa.gov/mission/journal.asp>. And check out the illustrated story in verse of "Professor Starr's Dream Trip: Or, how a little technology goes a long way," at <http://spaceplace.nasa.gov/story-prof-starr>.

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

## Kepler (Cont'd)

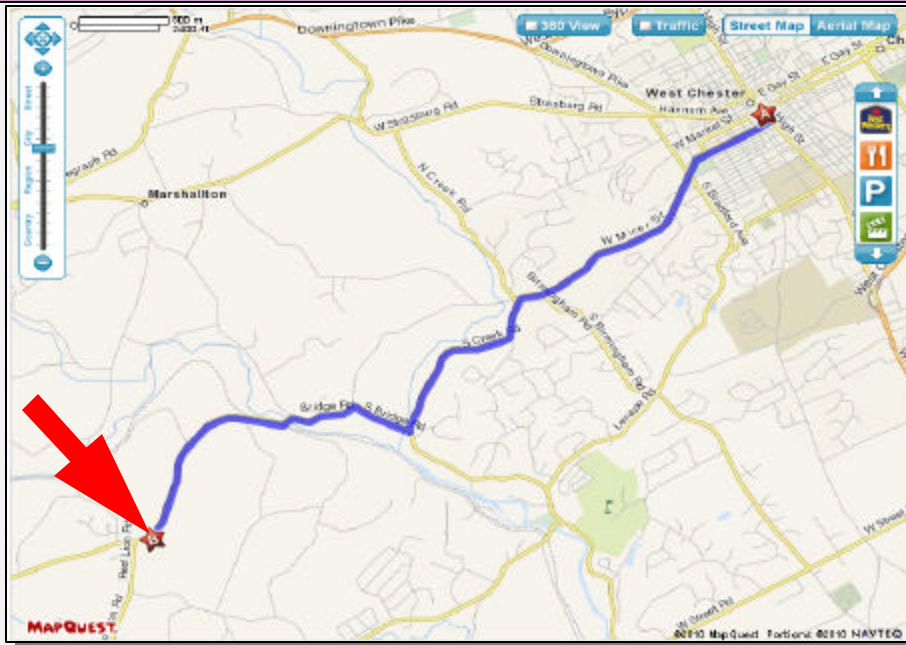
(Continued from page 7)

and supports mission operations with the Laboratory for Atmospheric and Space Physics at the University of Colorado in Boulder.

The Space Telescope Science Institute in Baltimore archives, hosts and distributes Kepler science data. Kepler is NASA's 10th Discovery Mission and is funded by NASA's Science Mission Directorate at the agency's headquarters in Washington.

For more information about the Kepler mission and to view the digital press kit, visit: <http://www.nasa.gov/kepler>

## 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)

reach magnitude 7 or 8 as it passes about 10 degrees west of Jupiter in mid-January. A finder chart is printed in the January issue of [Astronomy magazine](#).

**Meteor showers:** The Quadrantid meteor shower peaks in the early morning hours of January 4th. This is the briefest meteor shower of the year, so if you want to see these shooting stars you need to go out after midnight and watch the skies. If you are lucky enough to catch the peak of this shower you can see anywhere from 60 to 200 meteors per hour!

### CCAS Membership Information and Society Financials

#### Treasurer's Report

by Don Knabb

#### Dec 2011 Financial Summary

Beginning Balance	\$1,422
Deposits	\$215
Disbursements	\$174
Ending Balance	\$1,463

#### New Member Welcome!

Welcome new CCAS members Jeana Franchi, Dennis O'Leary, Rajan Ramasamy, and Gary Zibinski from West Chester, PA, and Sharon Hicks from Coatesville, PA. We're glad you decided to join us 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:

**Don Knabb**  
**988 Meadowview Lane**  
**West Chester PA 19382**

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](mailto: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 organization. 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](mailto: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](mailto:newsletter@ccas.us).

## CCAS Website

John Hepler is the Society's Webmaster. You can check out 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 at (724) 801-8789 or e-mail to [webmaster@ccas.us](mailto: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:

<b>President:</b>	Roger Taylor 610-430-7768
<b>Vice President:</b>	Liz Smith 610-842-1719
<b>ALCor, Observing, and Treasurer:</b>	Don Knabb 610-436-5702
<b>Secretary:</b>	Ann Miller 610-558-4248
<b>Librarian:</b>	Barb Knabb 610-436-5702
<b>Program:</b>	Dave Hockenberry 610-558-4248
<b>Education:</b>	Kathy Buczynski 610-436-0821
<b>Webmaster and Newsletter:</b>	John Hepler 724-801-8789
<b>Public Relations:</b>	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:

**Don Knabb**  
988 Meadowview Lane  
West Chester PA 19382-2178

Phone: **610-436-5702**  
e-mail: [treasurer@ccas.us](mailto: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 Don Knabb.

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 Don first at 610-436-5702.

## 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 Don Knabb**.