



Observations

A Monthly Publication Of The
CHESTER COUNTY ASTRONOMICAL SOCIETY

Vol. 23, No. 7

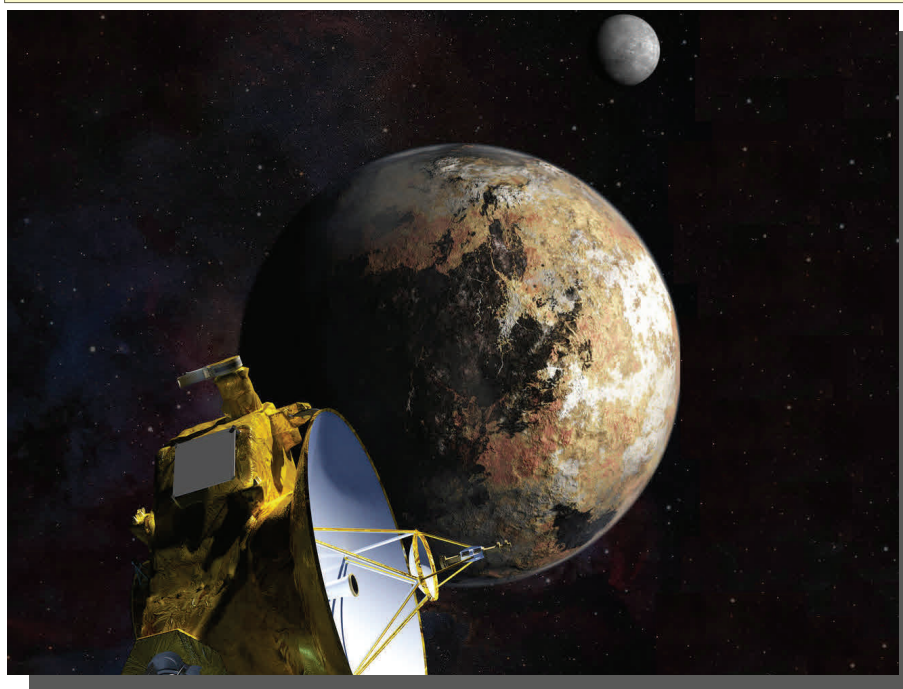
Two-Time Winner of the Astronomical League's Mabel Sterns Award ☼ 2006 & 2009

July 2015

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New Horizons at Pluto — At Last!



After a 9-year journey, on July 14, 2015, at 7:49:57 A.M. EDT, NASA's New Horizons makes its closest approach to the dwarf planet Pluto. Image Credit: NASA. See pg. 3.

Important July 2015 Dates

- 1st** • Full Moon, 10:19 p.m.
- 8th** • Last Quarter Moon, 4:24 p.m.
- 15th** • New Moon, 9:24 p.m.
- 24th** • First Quarter Moon, 12:04 a.m.
- 31st** • Full Moon, Blue Moon, 6:42 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.

- ☼ **Monday, July 20, 2015.** CCAS Special Observing Session for West Chester Recreation Space Exploration Day.
- ☼ **Saturday, August 8, 2015.** CCAS Special Observing Session at Bucktoe Creek Preserve. The observing session is scheduled for 8:30 to 10:00 PM.
- ☼ **Saturday, August 8, 2015.** CCAS Special Observing Session at Hickory Run State Park.

Membership Renewals Due

07/2015	Hockenberry & Miller Hunsinger Piehl
08/2015	Buki Knabb Family Lurcott, L.
09/2015	Catalano-Johnson & Family Lurcott, E.

Summer 2015 Society Events

July 2015

1st • PA Outdoor Lighting Council monthly meeting, 1438 Shaner Drive, Pottstown, PA 19465, starting at 7:30 p.m. For more information and directions, visit the [PA Outdoor Lighting Council](#) website.

10th • CCAS Monthly Observing Session, Myrick Conservancy Center, BVA. The observing session starts at sunset.

14th • [New Horizons](#) spacecraft closest approach to Pluto system at 7:49:57 A.M. EDT.

16th-17th • The von Kármán Lecture Series: [Discovery at Mars](#), at the Jet Propulsion Laboratory, Jet Propulsion Laboratory, Pasadena, California. Live stream of free lecture presented by NASA & Caltech.

20th • Open call for articles and photographs for the August 2015 edition of [Observations](#).

20th • West Chester Recreation Space Exploration Day.

25th • CCAS Summer Party at Barb & Don Knabb's home in West Chester, PA. The party is for CCAS members and their families starting at 6:00 p.m. See page 3 for more details about the party and for directions to Barb & Don's home.

26th • Deadline for newsletter submissions for the August 2015 edition of [Observations](#).

28th-29th • Delta-Aquarid Meteor Shower Peaks.

August 2015

5th • PA Outdoor Lighting Council monthly meeting, 1438 Shaner Drive, Pottstown, PA 19465, starting at 7:30 p.m. For more information and directions, visit the [PA Outdoor Lighting Council](#) website.

7th • CCAS Monthly Observing Session, Myrick Conservancy Center, BVA. The observing session starts at sunset.

13th • Perseid Meteor Shower Peaks.

13th-14th • The von Kármán Lecture Series: [Drought, Are We In or Out?](#), at the Jet Propulsion Laboratory, Jet Propulsion Laboratory, Pasadena, California. Live stream of free lecture presented by NASA & Caltech.

20th • Open call for articles and photographs for the September 2015 edition of [Observations](#).

26th • Deadline for newsletter submissions for the September 2015 edition of [Observations](#).

Anson Nixon Star Party a Success!

by Don Knabb, CCAS Treasurer & Observing Chair



(l. to r. Roger Taylor, Kathy Buczynski, Harriert Rosenblatt, Barb Knabb & Ann Miller.) We had a great night under the stars and clouds at Anson Nixon Park outside of Kennett Square on June 6, 2015. The crowd was small but enthusiastic, with many folks staying for the entire event. We dodged clouds most of the evening, but still saw Venus, Jupiter and Saturn, along with quite a few deep sky objects. See page 9 for another photo from the event. Our next special event is a special observing session for West Chester Recreation Space Exploration Day on July 20, 2015.

(Continued on page 9)

September 2015 CCAS Meeting Agenda

by Dave Hockenberry, CCAS Program Chair

Our next meeting will be held on September 8, 2015, starting at 7:30 p.m. The meeting will be held in Room 112, Merion Science Center (former Boucher Building), West Chester University. CCAS President Roger Taylor will welcome members and the general public to the first meeting in our 2015-2016 season.

At this time we have not finalized the speaker for the meeting, but will notify members and the general public with updated information on the [CCAS](#) website

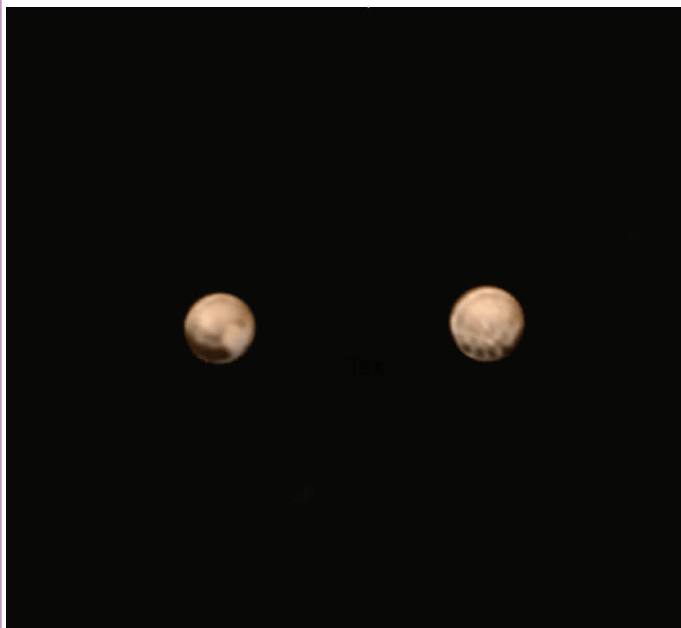
and in future editions of the [Observations newsletter](#).

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 future meetings in our 2015-2016 season. If you are interested in presenting, or know someone who would like to participate, please contact me at programs@ccas.us.

New Horizons Approaches Historic Encounter with Pluto

by John C. Hepler (additional material courtesy of NASA)



New color images from NASA's New Horizons spacecraft show two very different faces of the mysterious dwarf planet, one with a series of intriguing spots along the equator that are evenly spaced.

I don't know about the rest of you, but I am feeling both excited and nostalgic as the countdown to the Pluto flyby fast approaches. I remember well the Voyager missions and this same excited feeling, waiting to see these "new worlds" beamed back to Earth from millions of miles across the solar system. It

seems like it's only been a few years instead of decades since Voyager 2's final flyby at Neptune in 1989, and even that was a subdued experience after the disappointment at Uranus. I'm also a little sad to think that when New Horizons completes its flyby on July 14th, this will be our "last"

world to discover, at least in the sense of the traditional solar system model of my childhood.

Perhaps that's where Pluto belongs—in our collective childhood. After all, it was 11 year old Venetia Burney Phair who suggested naming Tombaugh's mysterious new planet "Pluto". She would later take umbrage at the idea that she named him after Mickey Mouse's dog who first appear in 1930; it was not true. Walt Disney didn't name the character until the following year. Nevertheless, for many children, Pluto the planet and Pluto the dog have an emotional connection. That's probably why Neil DeGrasse Tyson received the most heat from children on the decision to "demote" Pluto by the IAU back

in 2006—astronomers were also "demoting" Pluto the puppy dog. But I digress....

As of July 1st, New Horizons is less than 9.5 million miles (15 million kilometers) from the Pluto system. According to mission specialists, the spacecraft is healthy and all systems are operating normally. The Johns Hopkins University Applied Physics Laboratory in Laurel, Maryland, designed, built, and operates the New Horizons spacecraft, and manages the mission for NASA's Science Mission Directorate. The Southwest Research Institute, based in San Antonio, leads the science team, payload operations and encounter science planning. New Horizons is part of the New Frontiers Program managed by NASA's Marshall Space Flight Center in Huntsville, Alabama.



11 year-old Venetia Burney Phair

To view images from New Horizons and learn more about the mission visit: <http://www.nasa.gov/newhorizons> and <http://pluto.jhuapl.edu>. Follow the New Horizons mission on social media, and use the hashtag #PlutoFlyby to join the conversation. The mission's official NASA Twitter account is @NASANewHorizons. Live updates are available on Facebook at: <https://www.facebook.com/new.horizons1>



Courtesy Disney Studios

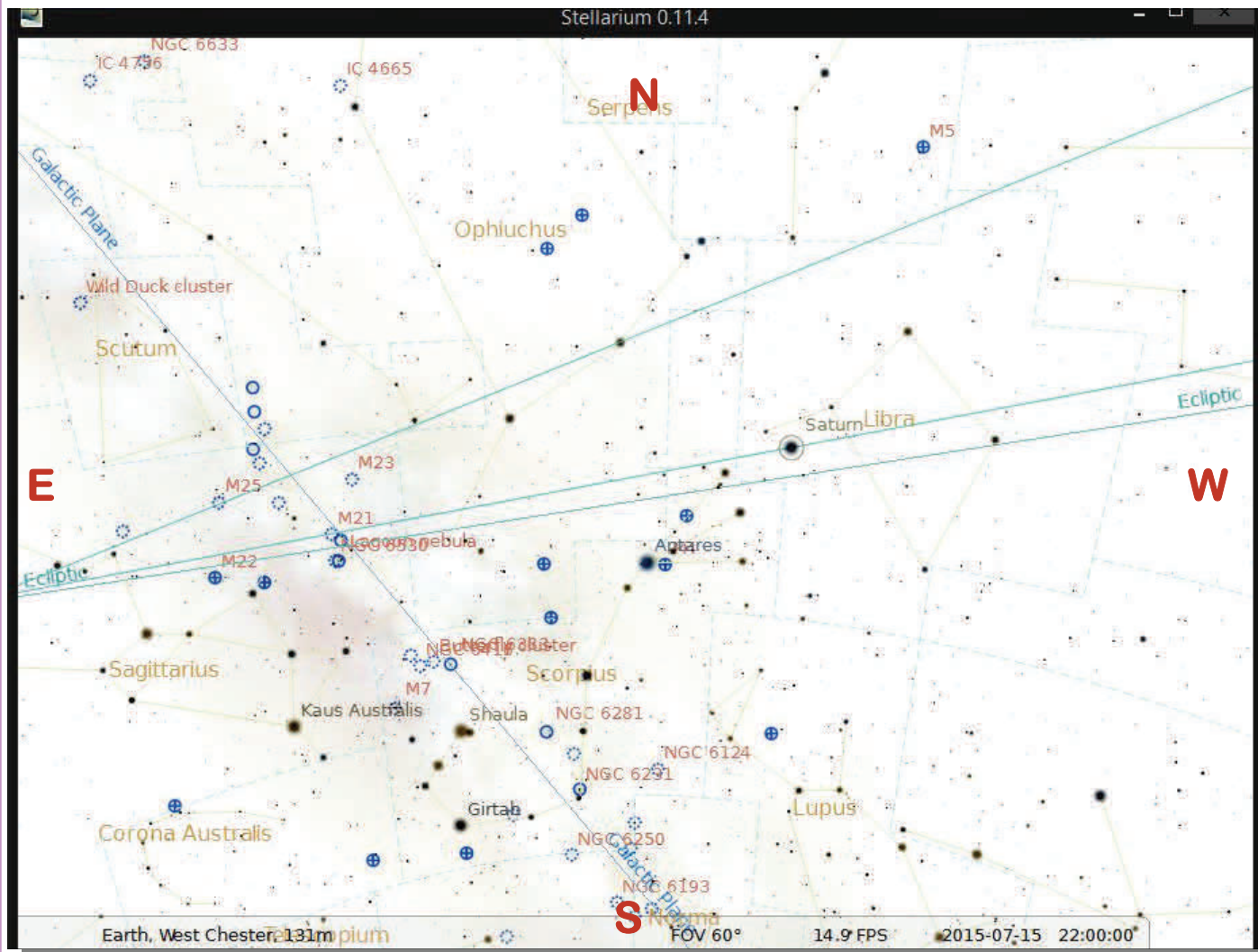
Save the Date! CCAS Summer Picnic This Month

Barb and Don Knabb have again graciously offered to host the annual CCAS summer picnic at their home on Saturday, July 25th, at 6:00 p.m. Their address is 988 Meadowview Lane and their phone number is 610-436-5702. A Google Maps search will provide good directions to their house. Their home is at the end of a cul-de-sac and 988 is on the mailbox. They have a long driveway and the house has a garage facing the street. Please RSVP to dknabb00@comcast.net if you plan to attend.

The Sky Over Chester County

July 15, 2015 at 10:00 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
7/01/2015	5:03 a.m. EDT	5:36 a.m. EDT	8:33 p.m. EDT	9:06 p.m. EDT	14h 57m 39s
7/15/2015	5:13 a.m. EDT	5:44 a.m. EDT	8:28 p.m. EDT	9:00 p.m. EDT	14h 44m 01s
7/31/2015	5:28 a.m. EDT	5:58 a.m. EDT	8:16 p.m. EDT	8:46 p.m. EDT	14h 17m 30s
Moon Phases					
Full Moon	7/01/2015	10:19 p.m. EDT	Last Quarter	7/08/2015	4:24 p.m. EDT
New Moon	7/15/2015	9:24 p.m. EDT	First Quarter	7/24/2015	12:04 a.m. EDT
Full Moon	7/31/2015	6:42 a.m. EDT			

July 2015 Observing Highlights

by Don Knabb, CCAS Treasurer & Observing Chair

1	Full Moon, the Buck Moon or Thunder Moon
1	Venus and Jupiter are very close in the evening sky
8	Last Quarter Moon
9	Venus reaches maximum brightness for 2015
15	New Moon
24	First Quarter Moon
24	The Lunar Straight Wall is visible
30	The Southern Delta Aquariid meteor shower peaks
31	Full Moon, a Blue Moon

The best sights this month: Venus and Jupiter start the month less than a half a degree apart in the western sky. Also look for Saturn, which is well positioned for viewing during the evening hours. And although we'll view it on our television or computer screen, NASA's [New Horizons](#) space craft visits Pluto of July 14th, giving us our first close up look at this distant dwarf planet.

Mercury: July is not a good month for viewing Mercury unless one gets up before dawn.

Venus: The Independence Day fireworks start a few days early when our sister planet and Jupiter are less than a half a degree apart on July 1st! Then on July 9th Venus reaches its maximum brightness for 2015. Throughout July we can watch Venus, Jupiter and Regulus in the constellation Leo the Lion create an ever-changing triangle in the western sky just after sunset. And on July 18th a thin crescent Moon joins in the fun. Sounds like a great photo opportunity!

Mars: Mars is lost in the glow of the Sun during July.

Jupiter: Jupiter dances with Venus in the evening sky as it falls behind us in our race around the Sun. View Jupiter just after the sky darkens for the best view of the king of the planets before it dips into the thick atmosphere near the horizon.

Saturn: Saturn is about 30 degrees above the southern horizon as darkness falls and is in good position for viewing during the evening hours. Try to see the Cassini division, the slim black gap between the two brightest rings.

Uranus and Neptune: Neither gas giant is in good position for viewing for the next several months.

The Moon: We have our first "Blue Moon" since 2012 in July with Full Moon on the 1st and 31st. The first Full Moon on July 1st was called the Full Buck Moon by Native Americans because July is normally the month when the new antlers of buck deer push out of their foreheads with coatings of velvety fur. It was also often called the Full Thunder Moon, since thunderstorms are most frequent during this time of year. The 2nd Full Moon on the 31st is just called the Blue Moon.

Constellations: Fireflies, warm nights and the hazy stars of summer; this is July! This is one of the few months of the year when you can lay a blanket down on the lawn and not be cold, so enjoy it even if it is hot and humid during the day. Regulus will be setting in the west with Venus and Jupiter, and the Summer Triangle will be nearly at the zenith. If you sit up for a bit and look to the south you will see the big bug of summer, Scorpius. Then grab your binoculars and scan from Scorpius up the Milky Way through Sagittarius, on to Aquila and Cygnus and beyond!

Messier/deep sky: Globular clusters and nebula rule the summer sky for anyone with a telescope or binoculars. Sagittarius is full of Messier objects such as the Trifid nebula and the Lagoon nebula. In Scorpius is M4, a globular cluster that is easy to find using Antares as a guide. If you have a low western horizon look for NGC 6231 where the tail of Scorpius turns to the east. This open cluster is called the Northern Jewel Box.

Comets: There are no bright comets in the sky during July.

Meteor showers: The Delta Aquariids reach their peak on the night of July 30/31. Unfortunately this shower will be washed out by the bright moon that is full on July 31st.

Through the Eyepiece: The Lagoon and Trifid Nebulas in Sagittarius

by Don Knabb, CCAS Treasurer & Observing Chair

We only have a few months to enjoy the deep southern sky with Sagittarius and Scorpius spending their brief time near the horizon. Without fail, the first two objects I look for when I pick up my binoculars or set up my telescope are the Lagoon Nebula (Messier 8) and the Trifid Nebula (Messier 20). These giant clouds of glowing gas are within one field of view in binoculars.

To find them look to the northwest of the "teapot" of Sagittarius. I usually find the two stars that define the top of the spout of the teapot and scan upward until I find the two bright fuzzy spots that are M8 and M20.

My favorite object in this area is Messier 8, the Lagoon Nebula. For me, this is the summer equivalent of the Orion Nebula. This object is vastly larger than our solar system, but is more than 5,000 light years away. It is an emission nebula, which is a vast cloud of gas that is glowing like a neon tube due to ultraviolet radiation from hot, young stars within.

The name Lagoon Nebula is derived from the dark channel, the "lagoon", that seems to divide the object in two. In binoculars, the Lagoon is a distinct oval cloud-like patch with a definite core, like a pale celestial flower. The nebula has a fragile star cluster superimposed on it, making this one of the leading celestial sights of summer night skies.

From a very dark site, the Lagoon Nebula is said to be visible to the unaided eye but I have not been able to see it without binoc-



Image credit: Stellarium.org

ulars. The Lagoon nebula is a beautiful sight in any size telescope.

The Lagoon Nebula is a magnificent object for the amateur astrophotographer. A picture from Brent Crabb of Southern California is on page 7.

Just above the Lagoon Nebula is a smaller fuzzy grey area. This is the Trifid Nebula, M20. The nebula's name means "divided

into three lobes". The object is a remarkable collection of open cluster, emission nebula (the lower, red portion), reflection nebula (the upper, blue portion) and dark nebula (the separation within the emission nebula). A striking photo of M20, again from Brent Crabb of Southern California, appears on page 7.

The energetic processes of star formation create not only the

(Continued on page 7)

Eyepiece (Cont'd)



Lagoon Nebula. Photo credit: Brent Crabb, Astrophotographer, Orange County, California.



Trifid Nebula. Photo credit: Brent Crabb, Astrophotographer, Orange County, California

(Continued from page 6)

colors but the chaos in this beautiful deep sky object. The red-glowing gas results from high-energy starlight striking interstellar hydrogen gas. The dark dust filaments that lace M20 were created in the atmospheres of cool giant stars and in the debris from supernovae explosions. Which bright young stars light up the blue reflection nebula is still being investigated. The light from M20 we see today left perhaps 3000 years ago, although the exact distance to the nebula remains unknown.

The sources I researched for this article vary in their opinion of who discovered the Trifid Nebula. One source says it was discovered by the French astronomer Legentil de La Galaisière before 1750 and named by the English astronomer Sir John Herschel for the three dark rifts that seem to divide the nebula and join at its center. Other articles state that Charles Messier discovered this object on June 5, 1764, and described it as a cluster of stars of 8th to 9th magnitude, enveloped in nebulosity.

So grab your binoculars or set up your telescope and enjoy these and the numerous other deep sky objects in Sagittarius!

Information credits:

Pasachoff, Jay M. 2000. A Field Guide to the Stars and Planets. New York, NY. Houghton Mifflin.
Dickinson, Terence 2006. Nightwatch: a practical guide to viewing the universe. Buffalo, NY. Firefly Books
2008 Skywatch. Sky and Telescope magazine
<http://www.seds.org/messier/m/m008.html>
http://www.astropix.com/HTML/D_SUM_S/M8.HTM
<http://www.britannica.com/EBchecked/topic/605155/Trifid-Nebula>
<http://www.seds.org/messier/m/m020.html>

No Surprise! Earth's Strongest Gravity Lies Atop The Highest Mountains

by Dr. Ethan Siegel

Put more mass beneath your feet and feel the downward acceleration due to gravity increase. Newton's law of universal gravitation may have been superseded by Einstein's, but it still describes the gravitational force and acceleration here on Earth to remarkable precision. The acceleration you experience is directly proportional to the amount of mass you "see," but inversely proportional to the distance from you to that mass squared.

The denser the mass beneath your feet, the stronger the gravitational force, and when you are closer to such a mass, the force is even greater. At higher elevations or even higher altitudes, you'd expect your gravitational



force to drop as you move farther from Earth's center. You'd probably also expect that downward acceleration to be greater if you stood atop a large mountain than if you flew tens of thousands of feet above a flat ocean, with nothing but ultra-light air and liquid water beneath you for all those miles. In fact this is true, but not just due to the mountain's extra mass!

Earth is built like a layer-cake, with the less dense atmosphere, ocean, and crust floating atop the denser mantle, which in turn floats atop the outer and inner cores of our planet. An iceberg's buoyancy is enough to lift only about one tenth of it above the sea, with the other nine tenths below the surface. Similarly, each and every mountain range has a corresponding "invisible mountain" that dips deep into the mantle. Beneath the ocean floor, Earth's crust might be only three to six miles thick, but it can exceed 40 miles in thickness around major mountain ranges like the Himalayas and the Andes. It's where one of Earth's tectonic plates subducts beneath

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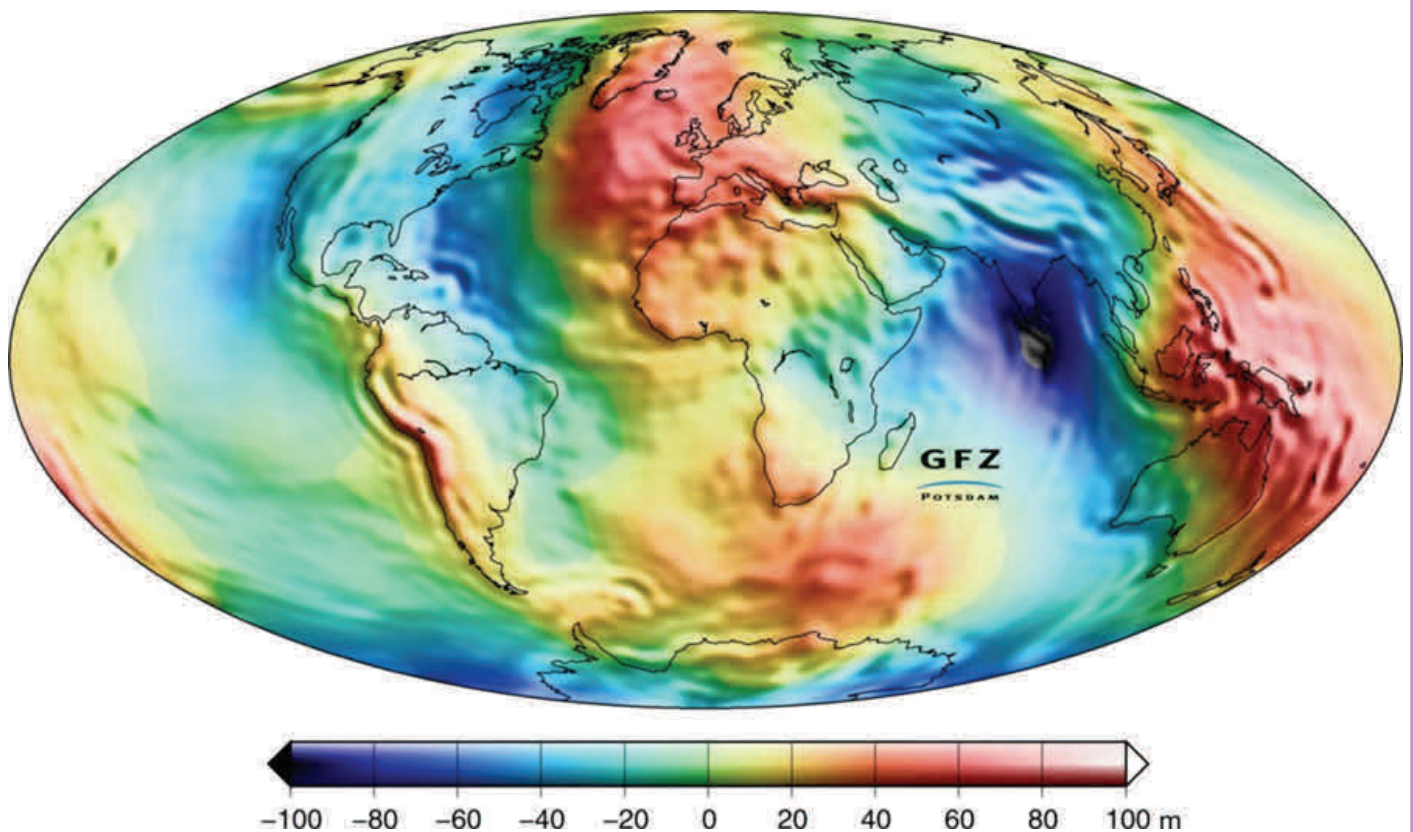


Image credit: NASA / GRACE mission / Christoph Reigber, et al. (2005):

An Earth gravity field model complete to degree and order 150 from GRACE: EIGEN-GRACE02S, *Journal of Geodynamics* 39(1), 1–10. Reds indicate greater gravitational anomalies; blues are smaller ones.

Space Place (Cont'd)

(Continued from page 8)

another that we see the largest gravitational anomalies: another confirmation of the theory of continental drift.

A combination of instruments aboard NASA's Gravity Recovery and Climate Experiment (GRACE) satellites, including the SuperSTAR accelerometer, the K-band ranging system and the onboard GPS receiver, have enabled the construction of the most accurate map of Earth's gravitational field ever: to accelerations of nanometers per second squared. While the mountaintops may be farther from Earth's center than any other point, the extra mass of the

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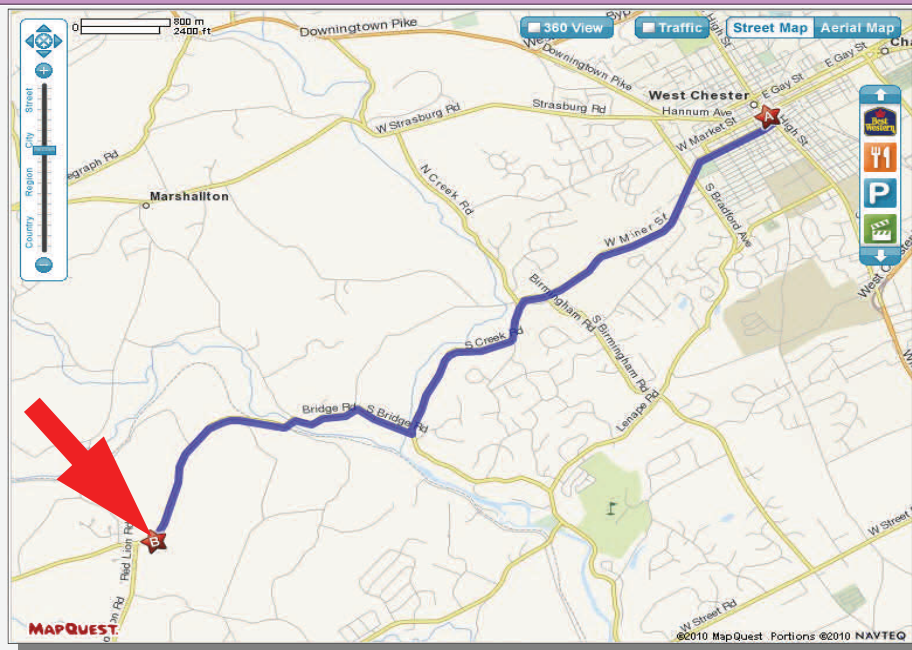
Scorpius (Cont'd)



(Continued from page 2)

Please contact our Observing Chair, Don Knabb, at observing@ccas.us if you are able to participate.

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 February through November) are held at the Myrick Conservation Center of the Brandywine Valley Association.

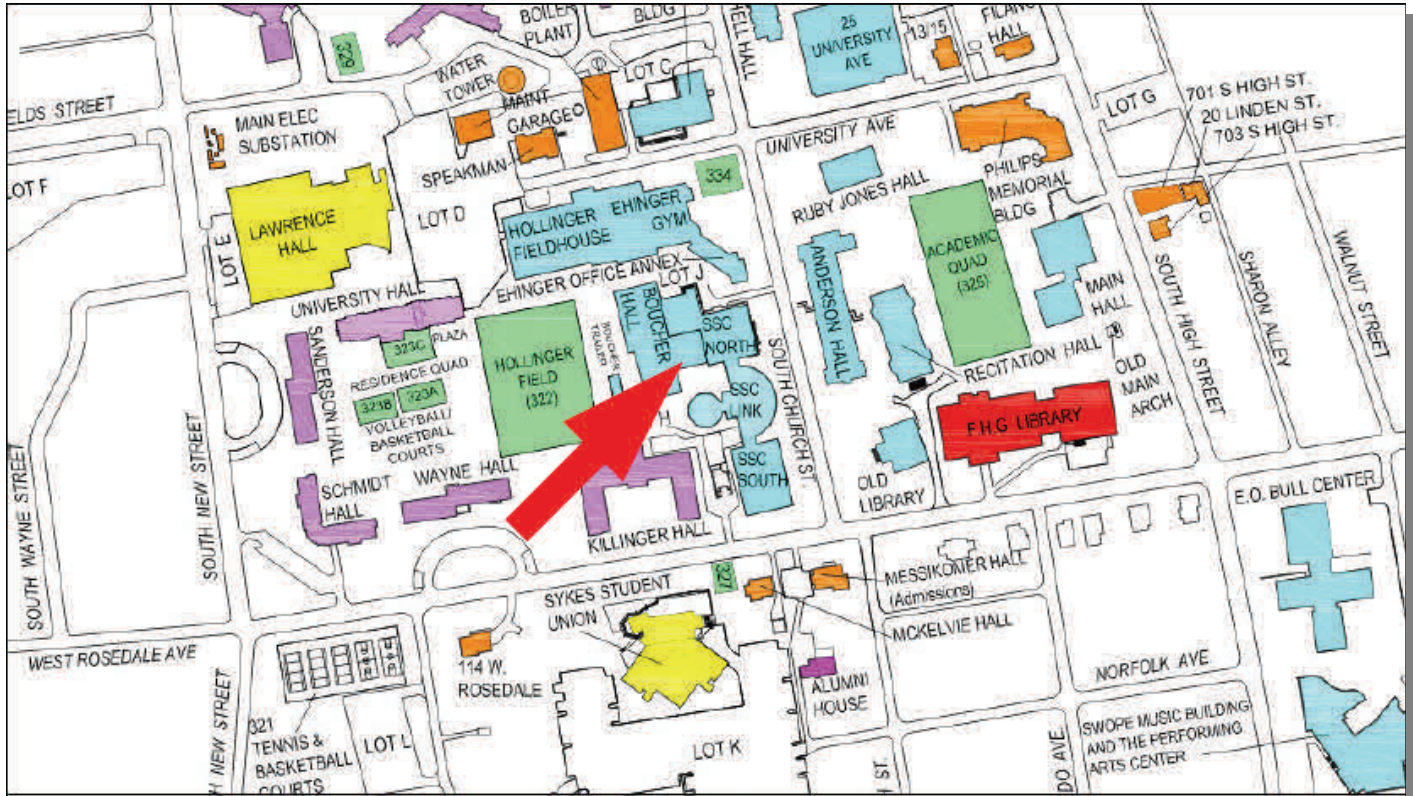
To get to the Myrick Conservation Center from West Chester, go south on High Street in West Chester past the Courthouse. At the next traffic light, turn right on Miner Street, which is also PA Rt. 842. Follow Rt. 842 for about 6 miles. To get to the observing site at the BVA property, turn left off Route 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 112 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).



Space Place (Cont'd)

(Continued from page 9)

mountains and their roots – minus the mass of the displaced mantle – accounts for the true gravitational accelerations we actually see. It's only by the grace of these satellites that we can measure this to such accuracy and confirm what was first conjectured in the 1800s: that the full layer-cake structure of Earth must be accounted for to explain the gravity we experience on our world!

CCAS Membership Information and Society Financials

Treasurer's Report by Don Knabb

June 2015 Financial Summary

Beginning Balance	\$2,526
Deposits	\$103
Disbursements	\$418
Ending Balance	\$2,211

New Member Welcome!

Welcome new CCAS member Navjot Hanspal from West Chester, 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

For more information, including links to helpful information sheets, visit the IDA web site at:

<http://www.darksky.org>

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"!

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>



Lighthouse Outdoor Lighting is a dedicated lifetime corporate member of the International Dark-Sky Association. Lighthouse's products are designed to reduce or eliminate the negative effects outdoor lighting can have while still providing the light you need at night.

Phone: 484-291-1084

<https://www.lighthouse-lights.com/landscape-lighting-design/pa-west-chester/>

Local Astronomy-Related Stores

Listing retail sites in this newsletter does not imply endorsement of any kind by our organization. This information is provided only as a service to our members and the general public.



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
313 S. Queen St.
Chestertown, MD 21620

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 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 (443) 282-0619 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:	Liz Smith 610-842-1719
ALCor, Observing, and Treasurer:	Don Knabb 610-436-5702
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 443-282-0619
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
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