

# "CLEAR SKIES"



NEWSLETTER OF THE CHAMPAIGN-URBANA ASTRONOMICAL SOCIETY, INC.  
AN AFFILIATE OF THE CHAMPAIGN PARK DISTRICT

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## **CUAS OFFICERS MESSAGE**

**BY GUY HAMPEL**

Clear skies lately? Maybe it must be full moon again. It seems like a long time since we have had a good night for viewing. Spring is coming soon and maybe we will have some good weather and clear nights. I guess for now we have to settle for quick and short viewing sessions from our backyards as we look through the clouds.

This month's topic is where have all the good viewing sites gone! This will be presented by our own Mike Lockwood as he shares about his trips to exotic sites like Oklahoma, Hawaii, Florida and his new backyard in rural Philo. This should be interesting and will include stories of good seeing, new equipment and interesting people. Come and enjoy.

Mike Lockwood's new home, workshop and mirror grinding facility is a nice field trip. I expect to see his mirror business to produce even better quality than before. I hope that he restarts the telescope making club as we can now view the sky from just out the back door.

I read an article not too long ago stating that our sun is a variable star, could this be and on what basis? Yes the sun has a normal sun spot cycle of 11 years and then sometimes this cycle stops or goes on for years. Does this qualify? From the article I found out that someone calculated that the sun is .1% brighter at maximum than at the minimum and this probably affects the weather. Of course we are still studying this and the exact effect is not yet in, maybe the newly launched Solar Dynamics Observatory will help us with this question.

Last month we got to watch Dave change planet light bulbs in the planetarium in order to show us the year's planetary events. Well that was not resolved that night, oops. Maybe we need to schedule a work day at the dome to prepare for this year's public viewing sessions as the dome in its present condition is little more than a warehouse.



### **CUAS DIRECTORY:**

Guy Hampel, President	352-3690
John Stone, Vice-Prez	337-1893
Dave Leake, Secretary	
Willard Brineger, Treasurer	356-5929
Mike Lockwood, 5 <sup>th</sup> Director	684-2170
Phil Wall, web master	352-5442
Bill Marble, newsletter editor	621-7882

## **LOOKING UP THIS MONTH**

**BY DAVID LEAKE**

Around about the end of the third week of March, begin looking westward for the appearance of Mercury. It will rise from the glare of the Sun around the 15<sup>th</sup> and its set time will increase, until, by the 21<sup>st</sup>, it is setting at the same time evening twilight ends. It will be below and to the right of Venus. Look nearly due west roughly 30 minutes after the Sun sets. Venus should be getting easier and easier to see as it creeps higher in the sky. In early April the two planets will be three degrees apart! Then Mercury swan dives back towards the Sun. Begin looking for the pair, though, this month! Venus sets at about 8:30pm on the 20<sup>th</sup>. A telescope will show a nearly full face as Venus comes out from behind the Sun's glare.

On the 16<sup>th</sup>, look for a very thin crescent Moon to the right and a bit below Venus. The next night, the Moon is over the top of Venus. The Moon will get higher to occult part of the Pleiades star cluster on the 20<sup>th</sup>. Be sure to check out this Pleiades occultation with binoculars!

Mars is near the Beehive Star Cluster this month. It stops its retrograde (east to west) motion and resumes its prograde (west to east) motion on March 11<sup>th</sup>. Mars is very high in the sky around 8-9pm and within range of amateur telescopes. It's definitely worth a look, but know that the distance to Mars increases from nearly 72 million miles to 93.5 million miles this month as the Earth pulls away from it in its faster orbit. Thus, the apparent disk of Mars will seem to shrink from 12" to 9."

Saturn reaches opposition this month the day after the vernal equinox. Saturn is relative close on this date and thus looks larger through a telescope. Being opposite the Sun, Saturn will rise as the Sun sets, nearly due east. A near-full Moon can be your guide on March 1<sup>st</sup>.

Jupiter is too near the Sun this month to have a good look at it.

The Spring (Vernal) Equinox occurs on the 20<sup>th</sup> of this month at 12:32pm CDT. At this time the Sun is directly over the Earth's equator and we have roughly the same number of daylight hours as night time hours. If you check the paper, you'll see this isn't entirely true give the fact the atmosphere refracts some of the Sunlight. The "equal daylight hours" thing comes from a theoretical Sun without consideration of the atmosphere. And Daylight Savings Time beings on the 14<sup>th</sup>. Lets see . . . it's "spring forward" and hour, right?

## **MOON PHASES**

*Waning Gibbous Moon*



1 <sup>st</sup> quarter	March 23	April 21
Full	March 30	April 28
Last quarter	March 7	April 6
New	March 15	April 14

## **MOON FACTS**

**BY BILL MARBLE**

A harvest moon occurs at a specific time of the year. The moon officially turns full when it reaches the spot opposite to the sun. The harvest moon happens on 13:59 Greenwich time on the Saturday nearest to the fall equinox, which is September 23rd. Once in every three years we get the same full moon in October, but the one in September is called the harvest moon because farmers can continue their harvest late into the night

by the light of the full moon. The same moon appears three days in succession, but the one that appears on Saturday is the one that receives this name.

Other names for this moon are the Wine Moon, the Elk Call Moon and the Singing Moon. It received the name of harvest moon because it appears in the Northern Hemisphere at the time of the year that coincides with the harvesting of crops.

During a harvest moon there are other advantages for the bird lovers of our planet. This is the perfect time to watch the birds migrate past the light that emits from the moon. Some studies have proven that birds rely on the Harvest moon to migrate from one area to another. They have also proven that the birds wait for this moon to begin their migration.

The moon during the year rises about 50 minutes later each day, but near autumn equinox the time shortens to 30 minutes. Some years there is an extra treat for moon watchers when they do their gazing between dusk and dawn. Wildfires in North America and dust storms in Africa sometimes fill our air with aerosols. A low hanging harvest moon can give an array of colors that is not usually seen. There is also an added treat to watching a harvest moon. This is called moon illusion because the rising or setting moon looks bigger than when it does high in the sky.

## ***CUAS NEWS***

*BY DAVID LEAKE*

Remember to **renew your dues** as to not miss any of the action! Use the form at the end of this newsletter and send your check into the club treasurer! All dues are prorated to January 1.

Would the club like to sponsor **Hubble Space Telescope's "Viewspace"** in the planetarium lobby? The planetarium currently has a new Sony flat panel television in the lobby to show NASA television and other programming. The self-updating program "Viewspace" (<http://hubblesource.stsci.edu/exhibits/self-update/viewspace/>) can be personalized with local information, thus CUAS events (meetings and observing sessions) can be put on the screen for public audiences and kids (and parents) on field trips to see. The planetarium would cover the annual fee for the service, but it would be possible to assist them with the initial set-up fee of \$800. Could the club go, say, half?

Join thousands of teachers, students and families around the globe March 3-16, 2010, in a hunt for stars in the **"GLOBE at Night Project."** Take part in this international event to observe the nighttime sky and learn more about light pollution around the world. "GLOBE at Night" is an easy observation and reporting activity that takes approximately 15-30 minutes to complete. Global Learning and Observations to Benefit the Environment, also known as GLOBE, is a worldwide, hands-on science and education program for primary and secondary schools. For more information about the event, visit <http://www.globe.gov/GaN/>  
Announcing a local gathering on the light pollution issue:

The Illinois Coalition for Responsible Outdoor Lighting and Lewis University present

# MANMADE LIGHT AT NIGHT:

Perils and Promises

a Public Symposium -- Thursday, March 11, 2010  
Lewis University's Romeoville, Illinois campus

**Illinois' first symposium on the costs of excess outdoor illumination  
-Health, Environment, Energy, Sustainability-**

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## **Scheduled Presentations:**

### ***Light at Night and Human Health***

Steven Lockley, PhD., Division of Sleep Medicine, Harvard Medical School

### ***"The Environmental Consequences of Contemporary Lighting Practices"***

Pete Strasser, Managing Director of the International Dark-Sky Association

### ***Light At Night's Impact on Science and Culture***

Mark Hammergren, PhD., Astronomer, and Director of the Astro-Science Workshop,  
Adler Planetarium and Astronomy Museum

### ***"The Road to Sustainable Lighting Practices"***

Drew Carhart, Executive Board Member, Illinois Coalition for Responsible Outdoor Lighting

### ***Municipal Solutions for Fiscal and Environmental Responsibility***

City of Santa Rosa, California -- Rick Moshier, Director of Public Works

Village of Homer Glen, Illinois --

Margaret Sabo, Village Trustee, and Edmond Cage, Community Development Director

### ***Closing Remarks***

Kate Tomford, Director of Sustainability, Office of Illinois Governor Pat Quinn

For registration materials, see <http://www.illinoislighting.org/registration.htm>

There has been a request from the Prairielands Boy Scout Association for some astronomy to be done at the “**100 Years of Scouting**” celebration at Kennekuk Cove Park, west of Danville. The dates are April 30 – May 2, though they are looking for someone to either do a program on constellations or do some observing (or both) on that Saturday night. The contact is Cliff Federmeier at [cfederme1@yahoo.com](mailto:cfederme1@yahoo.com). More information on the event can be found at [http://www.prairielandsbsa.org/page.php?page\\_id=3618](http://www.prairielandsbsa.org/page.php?page_id=3618). Might anyone be interested in participating?

We still have a few 2010 “**Deep Space Mysteries**” calendars from Astronomy magazine. They will be on sale at the club meetings for \$10 for members and \$12 for non-members. Get em while they last!

The Twin City Amateur Astronomers of Bloomington-Normal will be hosting the **North Central Region of the Astronomical League (NCRAL)** on April 16-17, 2010. The theme is “Generations: Past, Present and Future of the Telescope.” TCAA, who will be celebrating 50 years as an astronomy club, are planning observing at the Sugar Grove Nature Center, programs at both the ISU Planetarium and at the Challenger Learning Center, and a tour of historic sites in the B-N area, including movies at the historic Normal Theater. Speakers currently include Dr. Carl Wenning (see below), Dr. Daniel Holland (ISU), Michael Bakich (Astronomy magazine), possibly astronaut Scott Altman (who participated in the last Hubble repair mission) and someone from the James Webb Space Telescope group. There is also a special video tribute to Clyde Tombaugh being planned. For more information, see [www.ncral2010.org](http://www.ncral2010.org). We’re told that you need not be a member of the Astronomical League to participate. The cost is \$75 per person (before April 1) that includes a Saturday evening banquet. You can register online at the web site. You are welcome to attend even if you’re not an AL member.

**Light pollution update** . . . . the new RAB light shields (two of them) have arrived! Dave is in the process of working with the ECE department to get one of them installed on the light at the UI field station. There's more news from the National Parks and their dark skies at: <http://www.nationalparkstraveler.com/2010/02/dark-side-national-park-visits5346>. If you think that lighting deters crime, you may want to think again. See this interesting story from England: <http://www.henleystandard.co.uk/news/news.php?id=712230>. And if you'd like to do something about the lighting issue, here are some easy hints from the Denver area: <http://evstudio.info/2010/02/13/keep-our-night-skies-dark-how-to-take-action-in-the-community/>

**Planetarium update** . . . . all of the contracts are in place now. The planetarium will close for the Memorial Day weekend in May. The following week workers from F&G Lighting and Sound (Urbana) and East Coast Control Systems (Bigler, PA) will be on hand to work on the 5.1 surround audio system and programmable LED lighting system. The Digistar 4 digital projection system will arrive June 14. Our meeting in June is the 10<sup>th</sup> and will most probably be able to be held in the dome, though we may want to make a contingency in case the dome is not available.

Consider taking your **CUAS newsletter** by email only and save the club some money. By your request, we can email you a pdf file monthly instead of spending money on stamps.

Also remember that the club offers magazine discounts for both *Astronomy* and *Sky & Telescope*. If you are interested, contact treasurer Willard Brinegar.

Join the **club listserv** and get viewing information in advance! *NOTE . . . this is not the same list as before!!!!* We had to dump the cuas-l on prairienet since prairienet went belly-up. This is a yahoo group that you have to join. See the web site [www.cuas.org](http://www.cuas.org) and look for "email listserver" link on the navigation bar on the left.

## **TREASURERS REPORT**

*BY WILLARD BRINEGAR, TREASURER*

As of 2/28/09

Assets\*

\$4261.21 checking account

\$4261.21 Total Assets

Income\*

\$60.00 four membership renewals @ \$15

\$30.00 three key fees @ \$10

\$5.00 Donations

\$95.00 Total Income

Expenses\*

\$66.14 For two RAB Aluminum Light shields

\*Note: Magazine subscription funds are not reflected in Income and Outgo since they are simply sent on to the respective publishers.

As of 2/28/2010, all received subscription payments have been sent on, so they are not reflected in the Assets category either.

## **OBSERVATORY NEWS**

*BY DAVID LEAKE*



As this issue goes to press, the shed at the observatory is still in need of repair but Scott Hough will fix it when the weather permits. There was discussion at the January meeting on how to prevent further occurrences of vandalism. Options include installing a camera to monitor the area (a 30-50 watt, motion-activated unit) or installing posts or ties to prevent cars from entering, either around the entire lot (100 x 200) or maybe around the buildings (roughly 50 x 50). Dave Leake will check with the park district on costs. Any digging must be approved by the university. Williard Brinegar will check into the insurance. There was also a mention of ringing the area with new trees that could be purchased at a low cost from the government.

This spring, the club should paint the dome, both inside and outside. The telescope should be removed so that mechanical strippers could be used inside, then masonry paint could be used. The current epoxy paint should not have been applied as it does not allow the moisture to flow through. A discussion began at the January meeting as to whether to spend money on the dome or not. How many people use the telescope? It was pointed out that many members have telescopes that are larger and the 16-inch Cassegrain. But people are drawn to the dome. We do need an improved polar axis (which sticks). It could be made into an altitude/azimuth mount but at considerable expense. Is the telescope an antique? It was decided that the shed needed to be completed first, including the purchase of a pre-hung door. The budget for this project was approved at a previous meeting. Williard purchased a new tarp for the dome instrument (thank you, Williard!). There was a motion to table the work on the 16-inch Cassegrain (motion by John, second by Guy, motion carried) and a motion to purchase Sky Commander setting circles (motion by John, second by Phil, motion carried). Guy will supervise the installation of the setting circles to allow the observer to more easily find things through the dome slit.

Small projects list for warmer weather . . . . we probably need to **scrape paint** again, both inside and outside. The inside looks pretty bad in the daylight! Thank goodness it's used in the dark! Also, new **tarp** for the 16-inch (no paper or plastic), cooling **fans** in the telescope, and a **vent** for the shed. If you're returning the 8-inch red Dobsonian telescopes to the dome, remember to try to store them horizontally to help protect the mirror coatings. We also need to strip the paint on the inside but, given the dust that would be created, it might be best to wait until the telescope is removed. Guy brought a paint expert out to the dome and has a paint solution.



***LOOKING AHEAD***  
*BY DAVID LEAKE*

March 3-16            “Globe at Night” project  
 Participate with your family or, better yet, encourage your kid’s class to participate and count the stars in Orion. The result will be a world-wide light pollution map! See <http://www.globeatnight.org/> for more info. Should we take the lead in this project locally? See the club news for details.

March 11            CUAS Club Meeting            7-8:30pm            Staerkel Planetarium

March 13            New Moon Observing            Observatory

March 20            CUAS Family Skywatch            7-9pm            Observatory

April 2            “World of Science” talk            7pm            Staerkel Planetarium  
 Parkland’s own Julie Angel will talk about “Exploring Caves and Karst” in Illinois. This is one for your closet spelunkers out there! Admission is \$1 at the door.

April 8            CUAS Club Meeting            7-8:30pm            Staerkel Planetarium

April 10            Middle Fork Observing            8pm            Forest Preserve  
 We’ll set up telescopes at the water fowl area for some nice dark skies. Weather permitting.

April 16-17            NCRAL meeting            Bloomington-Normal  
 See [www.ncral2010.org](http://www.ncral2010.org) for details. This is open to CUAS members.

April 13 & 21            Girl Scout Merit Badge            7pm            Staerkel Planetarium  
 Two workshops to assist the young ladies in acquiring their Sky Search merit badge. See the planetarium web site for details (under special events). The cost is \$4 per scout and you must pre-register.

April 20            Unit #4 Schools observing            7pm            Parkland College

May 1            GLPA State Planetarium meeting            Aurora, IL

May 4 & 12            Boy Scout Merit Badge wksp            Staerkel Planetarium

Boy scouts can get help with their Astronomy Merit Badge in one of these two workshops. The cost is \$5 per scout and you must pre-register. See the planetarium web site for details.

May 13	CUAS Club meeting	7-8:30pm	Staerkel Planetarium
May 15	New Moon Observing	7pm - ??	Observatory
May 22	CUAS Family Skywatch	7-8:30pm	Observatory



### *Astronomy Club Resources*

#### **BY BILL MARBLE EDITOR**

On March 3<sup>rd</sup> the ESA Mars Express made a fly by of Mars moon, Phobos. At just 67 km, this was the closest observance yet of a manmade object approaching Mars moon. But, it seems like something is not right with Phobos. It appears to be solid, but recent flybys have shown it is not dense enough to be solid. It seems like it is 25% to 35% porous.

This has led planetary scientists to believe that it is little more than a ‘rubble pile’ circling Mars. Such a rubble pile would be composed of blocks both large and small resting together, with possibly large spaces between them where they do not fit easily together.

The Flyby was close enough to give scientists their most exquisite data yet about the gravitational field of Phobos. Mars Express locked onto the radio signal from Earth at around 21:20 CET (20:20 UT). The radio frequency oscillators on the ground are 100 000 times more stable than those on the spacecraft, so for this experiment, which required the best precision possible, the signal was sent up to Mars Express and then returned by the spacecraft to the ground.

For more information about the Mars Express, visit ESA website.

CHECK OUT ALL CLUB EVENTS ON THE CUAS HOME PAGE: <http://www.prairienet.org/cuas>  
or <http://www.cuas.org>

## MEMBERSHIP FORM

- Enroll me as a new member!  
 Membership renewal [attach mailing label]  
 Change of address only

Name \_\_\_\_\_  
Address \_\_\_\_\_  
Phone # \_\_\_\_\_  
Email address: \_\_\_\_\_

Make all checks payable to:  
"Champaign-Urbana Astronomical Society"

Circle all that apply:

Basic membership	\$15
Observatory key fee	\$10
<i>Astronomy</i> magazine renewal*	\$34
<i>Sky &amp; Telescope</i> renewal*	\$33
Donation	\$ _____
Total Enclosed	\$ _____

\*enclose mailing label

Detach and mail to:

C.U.A.S. Treasurer  
c/o Staerkel Planetarium/Parkland College  
2400 West Bradley Avenue  
Champaign, IL 61821

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<http://www.champaignparkdistrict.com>

**William M. Staerkel Planetarium** has public shows on Friday evenings in August. Call 217/351-2446 for more information.

<http://www.parkland.edu/coned/pla>



**Champaign-Urbana Astronomical Society  
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