

"CLEAR SKIES"



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

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NOVEMBER 2009

CUAS OFFICERS MESSAGE

BY GUY HAMPEL

The fall star parties have come and gone. This year's events were well attended. The Okie-Tex star party had many famous equipment makers there including Al Nagler and the owners of Obsession and Starmaster all to share what is new and to see our very own Mike Lockwood and his short focal length mirrors. Maybe this is a topic for an up and coming program. The new moon weekend in the first part of October provide some not the best viewing at Illinois Dark Skies again maybe these people would care to share with the group. Come this month and listen to our esteemed guest from Bloomington-Normal, see David Leakes article for more information.

Our October meeting was to have officers for next year nominated, however time seemed to get away from us and with the low turnout for the meeting I felt that we should be fair to all those who were not there to approve or reject the idea of being an officer I talked to the present officers to see if they would run again. The present candidates for officers are 5th director Mike Lockwood, Treasurer Willard Brinegar, Secretary, David Leake, Vice President, John Stone, and President, Guy Hampel. Please come to the meeting with any other nominees and be ready to vote in a very short business meeting prior to our speakers presentation.

One item of business that was resolved at our last meeting was that if a member of our group is going to take a large group or the U of I group is going out to the dome for a viewing session it was established that notifying the officers using the Yahoo list serve or even using old technology and calling one of use is now required. This action was brought on by the U of I club showing up before their sponsor Stuart arrived and the use of the sight as well as U of I properties warranted the notification of the Police, so to protect our guests the notification idea was passed.

Hey we have had a busy month in astronomy with the attack of the moon, large and smaller planets being found, Hubble producing more of those fantastic pictures of distant and closer objects, a sun that is disappointing observers with a lack of activity and many others. Please bring a thought, observation or and opinion and if we have time we will explore and discuss what is new.

The first of the last month at Friends Creek, the Decatur group along with Macon County Regional Park put on a really good event. The Decatur Jamboree provided: marshmallows to roast, a fire to keep warm, a good program by their president and our own Dave Leake as guest speaker, 5 minutes of viewing Jupiter and another 5 minutes for seeing the full moon occurring during Dave's talk, many door prizes and a grand prize of nice new small telescope. The few that endured the cool damp weather had a good time.



CUAS DIRECTORY:

Guy Hampel, President	352-3690
John Stone, Vice-Prez	337-1893
To be Named, Secretary	
Willard Brinegar, Treasurer	356-5929
Mike Lockwood, 5 th Director	398-9778
Phil Wall	352-5442
Bill Marble	621-7882

The IYA events for the year are now in the past. The Boy Scout viewing session is Friday the 9th at the dome was surprise, surprise an indoor event at the dome; for those that signed up to help thank you for volunteering maybe next time. The next night we had a scheduled viewing out at Middlefork Bird Sanctuary which was fun and the presentation at the park pavilion is by our own Bob R. whom we greatly thank for finding us this site and putting in much time and effort keeping it available. We now need a CUAS member

LOOKING UP THIS MONTH

BY DAVID LEAKE

Happy November, everyone. It was a chillier than usual summer . . . will November be just as cold? Ah, but amateur astronomers are a tough crowd, braving the chill for a peek at some planets, right?

We begin with Jupiter in the south at dusk. All month, Jupiter is on the meridian (north-south line) as the twilight is fading, not setting until about 11pm. So you'll have plenty of time to spy the planet's disk and the moons. But don't wait until Jupiter gets too low in the southwest. A lovely thick crescent Moon will appear just above Jupiter on November 23rd.

Late in the month is a good time to start looking for Mercury in the evening sky. Look low in the southwest starting at about Thanksgiving, when Mercury will set at about 5:15pm in the evening twilight. Mercury will show best next month when it won't set until 6pm, 30 minutes after the twilight ends.

Mars reenters the picture this month as it rises just after 10pm in the east-northeast at mid-month. Mars is heading towards a January opposition when it will be relatively close to the Earth and, of course, anything close will look large through a telescope and brighter. Its magnitude will brighten from +0.4 to -0.1 this month. If you look early enough in November you can catch Mars near the Beehive Star Cluster amongst the dim stars of Cancer. It's a good time to start looking for a polar ice cap, but wait until the planet is higher in the sky so you're looking through less air. Note that Mars rises just about 30 minutes before Jupiter sets.

After Mars you have to wait a bit for the morning planets to emerge. Saturn rises just before 2:30am at mid-month, just about due east. Did you hear about Saturn's new HUGE ring? It was detected in the infrared by the Spitzer Space Telescope and it starts at 3.7 million miles from the planet and goes to about 7.4 million miles away from Saturn, the ring is very tenuous, consisting of dispersed ice and dust particles at -318°F. In our sky it would span the width of two full Moons!

Venus is getting tougher and tougher to see as we approach the end of the year. It gets lower and lower at sunrise. But the end of November, it's rising at 6:15am, after morning twilight has already begun. We'll catch up to Venus after it swings around behind the Sun into the evening sky, which happens next year.

Let us not forget the famous Leonid meteor shower, which peaks on the morning of November 17. The Moon will be a day past new and won't interfere with any meteor observing. The Leonids are spectacular every 33 years and this is not the 33rd year. So normally we may see a dozen meteors or so per hour. But

last year scientists observed a mini-maximum when the Earth hit a thin filament of meteoroid material. The rates shot up to 100 per hour! This mini-maximum is predicted to occur this year again but it occurs in daylight for us. Still, IF they're even a bit off . . . who knows? Meteor rates usually pick up before dawn. Have fun!

MOON PHASES

Waning Gibbous Moon



1 st quarter	October 25	November 24
Full	October 4	November 2
Last quarter	October 11	November 9
New	October 18	November 16

MOON FACTS

- When a month has two full moons, the second full moon is called a [blue moon](#). Another definition of a blue moon is the third full moon in any season (quarter of year) containing 4 total full moons.
- From Earth, we always see the same side of the moon; the other side is always hidden.
- The dark spots we see on the moon that create the image of the man in the moon are actually craters filled with basalt, which is a very dense material.

CUAS NEWS

BY DAVID LEAKE

Though we have a special speaker for the next meeting (see below), we also need to conduct **officer nominations** for 2010. The club elects five officers and then two more positions are appointed. The five are . . .

- President – runs meetings and acts as club spokesperson
- Vice-president – steps in for the president when needed and handles club publicity.
- Secretary – takes meeting minutes and handles club correspondence
- Treasurer – handles club financial transactions, including membership dues and magazine subscriptions.
- Fifth director – is a voting member of the board and does other duties as assigned.

The appointed positions are newsletter editor and observatory director. PLEASE consider running for an office and get more involved in *your* astronomy club!!

Thanks to Willard Brinegar, we now have 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!

For your calendars . . . Savannah Hampson from the **Champaign County Forest Preserve District** attended our October meeting and invited us again out to the Middle Fork Forest Preserve to do some dark-sky viewing. We already have one date planned (April 10, 2010) but we've now added August 7 at 8pm and October 2 at 8pm. Savannah also told us that we may now be able to utilize the grounds at Homer Lake. In the past, the park closed at dusk, preventing any dark sky viewing. But special arrangements can be made, though there is still no camping on-site. So jot down the dates, but the location may switch from Middle Fork for one of these. We'll also need a volunteer to conduct a short 15-20 minute presentation for each of these. Check www.ccfpd.org for park locations.

Also for your calendar . . . 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. 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.

And if you really want to go into the future . . . the Staerkel Planetarium is submitting a letter of interest to host the **Great Lakes Planetarium Association (GLPA)** in 2011. If successful, Staerkel would host from 120-150 planetarians from the Big Ten states. The dates planned are October 19-22, 2011. The club voted at the October meeting to participate in some way. In the past, GLPA has offered a free Thursday night with optional activities. It was suggested that CUAS could offer viewing from their observatory site that night, weather permitting, of course.

International Year of Astronomy update . . . we have a new toolbox with an odd title . . . it's called "The Black Hole Survival Toolbox." And no, you don't hear sucking sounds when you open the box! We'll demo this at an upcoming meeting when time permits.

Light pollution update . . . Dr. Jim Kaler has talked on our behalf to the good people at the Department of Electrical & Computer Engineering regarding the new mercury vapor light fixture northeast of the observatory. ECE won't dismantle the fixture but have agreed to have the light shielded, provided we pay and install the shield. The International Dark Sky Association has given their seal of approval to several shields. These can be found at <http://store.starrynightlights.com/lightshades.html>, one for \$30 and the other for \$90, but it is unclear, at press time, which is more appropriate. Another, including the "Hubble Sky Cap," can be found at <http://www.greeneearthlighting.com/products.asp?cat=10>.

Also, a recent IDA press release states that the blue light emanating from mercury vapor streetlights affects people and nocturnal animals. For the full story, see either http://www.enn.com/press_releases/3112/print or <http://www.ledsmagazine.com/news/6/10/8>. Also the US Department of Energy has now decreed that to receive an "energystar" label, lighting must be shielded. This also applies to any sort of antique lighting.

The light at the field station site to the northeast makes it all but impossible to use this site for sky watching, thus stripping the **University of Illinois Astronomical Society** of a dark sky site. It was discussed at the October meeting to allow UIAS members to use the club site, but it was suggested that a

written agreement be drawn up. How much access do we allow? Current Stuart Levy is an active member of both groups but if he's not there, we may need something to fall back on.

Looking ahead to the **November meeting**, we'll have a very special guest as a speaker. Dr. Carl J. Wenning has spent his entire professional career in the Physics Department of Illinois State University. Carl started at ISU in 1978 as planetarium director - a position he held until 2001. In 1994 he became director of the Department's physics teacher education program that is today recognized as one of this



nations biggest and best. He retired from ISU in 2008, but continues to work part time for the Physics Department.

Carl is an accomplished amateur astronomer, and a member of the Twin City Amateur Astronomers. He is probably most well known for his writings on the moon illusion. He has observed total solar eclipses from Bolivia and off the coast of Crete, and recently returned from a trip to Chile where he completed the Southern Sky Binocular and Telescope Club observing programs. He is a Astronomical League Master Observer, having complete ten of the association's observing programs. Carl received NCRAL's 2007 Region Award recognizing him as an amateur astronomer who "demonstrates extraordinary skill, generosity, and devotion to promoting amateur astronomy and support of the NCRAL events and goals." Carl is chairman of the NCRAL 2010 meeting that will be held in Bloomington-Normal

April 16-17. His talk on November 12 is entitled "The Life and Times of Galileo." Few people have an understanding of the complex milieu surrounding Galileo's trial before the Holy Office of the Catholic Church in 1633. In this presentation, our speaker will provide text and context of the work and trial that thrust Galileo Galilei into the international limelight and the pages of history.

The club is in need of a sponsor for its "**Clear Sky Clock**"

(<http://cleardarksky.com/c/ChampUrbILkey.html>). The clock makes predictions regarding the transparency of the sky overhead and is pretty accurate. See the web site for details.

Telescope for sale: 10" f/9.3 Newtonian reflector. Many of the components were purchases, and others were fabricated, that make up this scope assembly. The scope was permanently mounted in an observatory on a German equatorial mount. There is a 6" Cassegrain guide scope that would be an optional part of the scope assembly. Everything from the concrete pier up through the eyepiece holder is for sale... with the following exceptions . . .the seller is going to use the RA shaft-bearing assembly in a new scope setup.

He also wants to keep the finder scope, filters, and eyepieces. Other than the standard Newtonian scope components, here is a list of items that are included:

- welded steel pier
- Dec shaft assembly including counterweights
- RA and Dec drive gears with stepper motors (the Dec ring gear is a segment)
- 4" vent fan mounted behind the mirror (12 VDC)
- 2" focuser that has been reworked to accept a dc motor for focusing (knob works, too)

The primary mirror is from a kit ground in the 1960's. It was finished and coated professionally. Also included is a 120 VAC synchronous motor that came with the RA gear set which could be plugged into the wall for immediate operation. Someone who has access to machine tools, some electronics, and free time could have a pretty good setup.

Asking \$800 for all that is mentioned above; \$1000 if you include the 6" guide scope with gimble mounting hardware. Contact Dwight Elliot at dkliott@hotmail.com.

NOTE: TO SEE THE PHOTOS, GO TO OUR WEB SITE.

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.

We also have a **club library** that is stored at the planetarium. Any club member in good standing can check out materials. Thanks to Jim Licquia for his donation of the book, "The Next Step: Finding and Viewing Messier's Objects" by Ken Graun (2005). Remind Dave at the meeting to get out the books and any member would be welcome to check them out. Thank you, Jim!

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 and look for "email listserver" link on the navigation bar on the left.

Remember you can catch **NASA programming** daily from 7-9am, Monday through Friday from 3-5pm and Saturday and Sunday from 8-10pm on the Parkland College channel, PCTV. Club funds helped, in part, to bring NASA TV back!

The Staerkel Planetarium has acquired a **32-inch flat panel television** that will ultimately be mounted in the lobby. The hope is to bring the Hubble Space Telescope program "ViewSpace" to the Staerkel lobby. For more information, see: <http://hubblesource.stsci.edu/exhibits/self-update/viewspace/>

CUAS has been sent a new tool kit from the **Night Sky Network**, this one dealing with glass and mirrors. In fact, the kit includes what amounts to an optical bench! It's a good way to show how telescopes work to the lay public.

TREASURERS REPORT

BY WILLARD BRINEGAR, TREASURER

As of 10/31/09:

Assets*

\$4320.73 Checking account

\$4320.73 Total Assets

Income*

\$30.00 Renewal Dues

\$5.00 New membership

\$10.00 Key fee

\$15.00 Donation

\$70.00 Seven calendars sold

\$140.00 Total Income

Expenses*

\$ 0.00

*Note: Magazine subscription funds are not reflected in Income and Outgo since they are simply sent on to the respective publishers. As of 10/31/09, all received subscription payments have been sent on, so they are not reflected in the Assets category either.

OBSERVATORY NEWS

BY DAVID LEAKE



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. Evidently no one showed up at our work day . . . do we schedule another one?

President Guy Hampel has looked at the dome with a person who is an expert on paint and a course of action is being planned for next spring. Stay tuned!

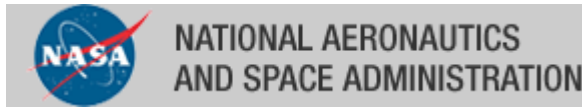


LOOKING AHEAD

BY DAVID LEAKE

- | | | | |
|--|-----------------------------|----------|----------------------|
| November 3 | “World of Science” talk | 7pm | Staerkel Planetarium |
| Our buddy Ed Kieser, WILL meteorologist, will be at the planetarium with some awesome tornado video! | | | |
| November 7 | “Santa’s Secret Star” opens | 7pm | Staerkel Planetarium |
| November 12 | CUAS Club Meeting | 7-8:30pm | Staerkel Planetarium |
| November 14 | New Moon Observing | 7pm - ? | Observatory |
| November 21 | CUAS Family Skywatch | 7-9pm | Observatory |
| Note: This will be our last official open house of the calendar year. | | | |
| November 27 | “Rites of the Season” opens | 8pm | Staerkel Planetarium |
| Given the new digital system that will (hopefully) be in place next year, dare we say this is “last rites?” | | | |
| December 4 | “World of Science” talk | 7pm | Staerkel Planetarium |
| The planetarium welcomes back astronomer Jim Kaler to talk about the Sun. Learn what the big deal is concerning the recent lack of sunspots. Admission is \$1 at the door. | | | |
| December 10 | CUAS Club Meeting | 7-8:30pm | Staerkel Planetarium |
| We’ll engage in officer elections, reflect on the past year, and talk about what to do in the upcoming year. In the past we’ve had refreshments and munchies at this meeting . . .do we want to continue that tradition? | | | |

December 12 New Moon Observing 7pm - ? Observatory
This is a club event . . .note that there is no scheduled observatory open house in December or January.



Astronomy Club Resources

BY BILL MARBLE EDITOR

Space Shuttle Atlantis to launch November 16

On launch pad 39A at Kennedy Space Center in Florida, technicians are loading mass memory storage units into the shuttles bay. They are getting the shuttle ready for the November 16 launch to the ISS to re-supply the space station. This is an eleven day mission will be commanded by Charles Hobaugh and piloted by Barry Wilmore. Mission specialists are Robert Satcher, Mike Foreman, Randy Bresnik, and Leland Melvin. This will be Satcher and Melvins first trip into space. They will deliver two control moment gyroscopes, and EXPRESS logistics carrier 1 and 2. There will also be three spacewalks. The Atlantis will return astronaut Nicole Stott and this is supposed to be the last crew rotation flight. The shuttle Atlantis and future shuttle flights will be carrying spare parts to the ISS. This will allow more time for the space station to operate. Since there are only half a dozen flights left for the shuttles and they are the only space ships large enough to carry big pieces of equipment, these last flights are going to be dedicated to carrying these huge pieces.

So my question is, what happens if all these spare parts are on the ISS and something breaks, and a spare cannot be found, what do we do? Will there be some way to get a spare part to the station? Are we doing the right thing by retiring the space shuttles? I believe that we should not abandon our commitment to go back to the moon and that we should explore viable ways to get to Mars and beyond before the end of this century. Will that happen? We who are on Earth today probably won't know.

EXCERPTS FROM THE PLANETARY SOCIETY.

BY BILL MARBLE, EDITOR

MERCURY FLYBY AND NEW DISCOVERY

As it turns out Mercury is full of lead. Figuratively speaking. On Messengers third flyby there was a glitch in the communications between Messenger and the Earth. It seems the computers detected something in the electronics and interrupted the science project it was working on and instead found something very interesting on Mercury. Just before the shut down the computers discovered that Mercury is unusually rich in iron and titanium. This probably will force scientists to rewrite everything they know about Mercury. How it was formed and how it evolved. Images of the inner most planet revealed the "most spectacular" volcanic vent feature yet seen on the planet, as well as evidence for geologic activity on Mercury as recently as a billion years ago." "After Mariner 10, it was thought that internal volcanic activity on Mercury ended earlier than on any other planet," MESSENGER imaging team member Brett Denevi said. "Now we're realizing that's not the case."

The dearth of iron-bearing silicate minerals on Mercury is documented using infrared spectroscopy. Before MESSENGER's flybys, there had been no direct test of the elemental composition (as opposed to the mineral composition) of Mercury's surface. As MESSENGER flew past Mercury, it pointed its neutron spectrometer at the surface, providing the first direct test of the exact abundance of iron and titanium in Mercury's rocks.

Lawrence explained how the measurement works. "Traveling throughout the galaxy are particles called galactic cosmic rays, which are very high-velocity protons. All objects in the solar system are constantly bombarded by these cosmic rays. When the cosmic rays hit a planetary surface, the atoms in that surface are blasted apart, producing high-energy neutrons that bounce around [within] the surface and slow down, and then escape the surface. Neutrons that have significantly slowed down from their initial high energy we call 'thermal neutrons.' It turns out that iron and titanium, these elements that we're interested in measuring, are very efficient absorbers of thermal neutrons. As a consequence, we can measure iron and titanium on Mercury's surface by measuring these thermal neutrons, such that if you [detect] a *large* number of thermal neutrons, this would indicate a *low* iron and titanium content. Conversely, a *low* number of thermal neutrons would indicate a *high* iron and titanium content."

For more information and to read the rest of the story go to the Planetary Society website.

<http://www.planetary.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 & 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

CHECK OUT ALL CLUB EVENTS ON THE CUAS HOME PAGE:

<http://www.prairienet.org/cuas> or
<http://www.cuas.org>

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The Champaign-Urbana Astronomical Society is an affiliate group of the **Champaign Park**

District. <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>



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