

"CLEAR SKIES"



NEWSLETTER of the CHAMPAIGN-URBANA ASTRONOMICAL SOCIETY, Inc.
An affiliate of the Champaign Park District

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CUAS OFFICERS MESSAGE

Our December meeting was a success as we got to spend time getting to know some of the members of the club over delicious Christmas munchies. John Stone brought some amazing photos of astronomical objects, he had learned from his wife Nicole that Walgreens does an excellent job of printing digital photos whether wedding or astronomical for a reasonable price, \$1.00 I think was the amount. Hopefully he will share them with us when the Hubble photo is unveiled at the Planetarium. Others talked about things they observed during the year as well as events that have taken place during their lives.

This year we celebrate looking up with the aid of a telescope for 400 years. Think of this if you lived 450 years ago you could see a lot more visual stars and ... because of less, if any light pollution, but you were limited to the study of 7 planets including our own, the moon, stars and a few other objects and oh yes time to wonder while we tended flocks, herds and keeping evil away. These special objects were a real wonder as to what they were, like that faint visual object we now know as the Andromeda Galaxy, faint 'fuzzies' like the Orion nebula and objects we now know as globular clusters. Think of it a man took pieces of 'lens' shaped glass put them in a row holding them in position with a tube and over time looked up at objects and noticed that there were now more objects to look at. This tube now named a telescope was about as powerful as a good pair of binoculars but of course optically less clear. Since that time man's constant questioning mind kept asking, Why? What is it? What else is out there? Why???? And of course how did it get there? This is not the limit as to what has driven man in his quest for answers, but is a good start. This drive to what, why, where, when has driven us to many theories as to "life the universe and everything" and of course the answer in The Hitchhiker's Guide to the Galaxy is 42. Fiction is one thing but fact is another and we are still figuring things out as we find that our planet, Earth, is a very small part of something very big.

This year we also celebrate 200 years of the birth of a man in Shrewsbury, England who later on came up with a theory of life and wrote a book called On the Origin of Species by Natural Selection, or the



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Preservation of Favoured Races in the Struggle for Life published in 1859 which was later shortened for convenience among other things to The Origin of Species. You might ask what does this have to do with astronomy, well on the point is that drive for an explainable 'Origin' has lead some to the belief in the theory that life came from 'Out there' and we must continue to follow the trail 'Out there'. Ok this drive has yielded many other theories and questions. Come to our observation sessions at the dome and other places we as a club look up at and during times when the seeing is not good express your thoughts, theories and maybe even answers. There is yet another man born in 1809 in an obscure place in a country trying to make a name for itself, yes might have guessed a territory later called Kentucky, United States of America, he later came to our very own state of Illinois, His name of course was Abraham Lincoln. This man who was labeled a failure politically went on a journey to a foreign land, for him, Washington, DC as fill in US representative and spent that year learning the meaning of "all men are created equal" in the Declaration of Independence from one of the authors, John Adams. Again what does this have to do with astronomy? This man Lincoln was instrumental in saving the Union, the United States, about the same time as that Englishman published his theory, which over time has stimulated the advancement of all branches of science either directly or indirectly. Think about it without that victory the land that this country occupies would probably have become at best a second rate country or again a colony of England and or Spain. If you use your imagination and it does not take rocket science, without the stimulation caused by competition and a place of refuge and the potential of improving your own conditions, things on this planet would be different. Please think about it and give me your thoughts.

Remember that later this year we as amateur astronomers are celebrating the International Year of Astronomy by sharing our time and telescopes with the public in our area Parks with the goal to help provide the opportunity for everyone to look up at the night sky. The final planning of what we as a club want to share or if we want to try to keep each session somewhat similar will be part of our February meeting.

Guy

LOOKING UP THIS MONTH

Happy New Year, everyone! Welcome to the International Year of Astronomy and the 400th anniversary of the telescope. Be sure to check out the web site for all of the events for the year, plus the dates of our park tour. That begins at the end of March.

As we begin a new year, we have the wonderful sight of Venus in the southwest. Venus will be with us until mid-March, but this month it reaches its greatest separation from the Sun on January 14th at 47 degrees. On this date, Venus does not set until about 9pm. Through a telescope, Venus appear just about exactly half lit, but that will be changing as we progress through the year. On January 22, Venus passes just 1.2 degrees northwest of the planet Uranus! Though you can see Uranus in binoculars in a dark sky, this one will involve a telescope. Uranus is 30 times farther away and over 17,000 times fainter than Venus!

Late in the month, the Moon pays Venus a visit. Start looking low in the southwest right after sunset on the 27th. The next three nights the Moon will be higher, being below and to the right of Venus on the 29th and then above Venus on the 30th.

Also early in the month, we'll have Mercury and Jupiter with Venus in the southwest. On New Year's Day, the pair are separated by a bit more than a degree, but Mercury gets higher as Jupiter gets

lower. After January 9th, Mercury begins to fade in brightness, so look early. On January 4, Mercury sets just before 6:30pm. But Mercury and Jupiter blend into the glare of the Sun during the third week of the month.

With Mars creeping slowly out of the morning twilight late in January, the other telescopic target to discuss is Saturn. On New Year's Day the planet rises 10:30am, but this gets earlier until it is just past 8am late in the month. Of course, Saturn is best seen when it is highest in the sky and you're looking through thinner air. The planet transits the meridian around 3:30am. True, the air temperatures are frigid, but it's worth a look. The rings are now only tilted about a degree, meaning they'll look more like a line segment than a ring system! A waning crescent Moon appears to the right of Saturn during the morning of the 14th.

As mentioned in the "A Look at 2009" article, we'll be shut out for eclipses this year, but an annular eclipse of the Sun occurs on January 26th. The eclipse track barely touches land as it begins to the south of the African continent and then sweeps into the Indian Ocean. If you've got the cash, it may be cruise time, eh?

-DCL

Moon Phases

1 st quarter	January 4	February 2
Full	January 10	February 9
Last quarter	January 17	February 16
New	January 26	February 24

Waning Gibbous Moon



CUAS NEWS

REMEMBER TO RENEW YOUR DUES! It's that time of the year! Use the handy form on the last page and send in your renewals today or bring them to the January meeting. Don't miss all of the IYA activities in 2009!! This is also a good time to pay your dome key fee (if you have a key) and any magazine renewals . . . and maybe a 2009 calendar . . .with one check!

The Staerkel Planetarium has been named one of five planetarium in Illinois to participate in **Hubble Space Telescope "Great Observatories" project**. The planetarium will be sent two never-before-seen Hubble prints, one being 3x3 feet and the other being 3x6 feet. The latter will be a multi-wavelength view involving both the Spitzer and Chandra space observatories. The unveiling event will be Tuesday, February 17 from 4:30 to 6:30pm and you are all invited! Hopefully the media will also attend and refreshments will be served. The planetarium dome will be open but there will be no shows because we'd like for people to come and go as they please. If it's a clear night, we could do some observing (the planetarium has some 10-inch Dobs we could pull out) and . . . we could even tab this as the kick-off for the IYA.

Since it is now **winter weather season**, keep a few things in mind. First, for the club meetings, if you hear of Parkland closing due to the weather, the meeting is automatically canceled. When the college closes, they stop plowing the perimeter drive and you don't want to be here! At the observatory, be aware that 700E is NOT the first road plowed or salted, plus, if the observing field is sloppy, don't get stuck! Park and evaluate the area before pulling into the lot. It's good to have a cell phone with you, too.

Light Pollution news did you know there was an "Illinois Coalition for Responsible Outdoor Lighting?" There is, and their web page is: www.illinoislighting.org. There's a lot of good information on here. Dave has already emailed them to get on their mailing list. Early in December, the coalition staffed an informative booth at The Illinois Green Governments Coordinating Council's [2008 Sustainable Government Symposium](#) in Springfield. They also met with Lt. Governor Pat Quinn's senior policy advisor in November.

International Year of Astronomy update At the December meeting, Dave Leake distributed a draft of a club IYA three-panel brochure. Your feedback is requested! For those that took one, email Dave your comments and hopefully we'll approve a version at the January meeting. We can print in black & white or in-color. Dave will try to bring some cost estimates to the meeting, too.

For sale Meade LXD55 SN 10" scope – like new – been to Astrofest once. All the original accessories are included plus a dew shield, Orion 12-volt dew zapper, 25' 12-volt power cord, and Coleman 12-volt powermate. The optics have never been cleaned and have been covered since purchased, there are no dents or scratches. Everything was in good working order when last used. The only thing wrong with it is that on one of the counter balances the threads are stripped. Asking \$800. Contact Vic Bennett at 217-840-7905.

The planetarium has an IYA web site now, which can be viewed by pointing our browser to www.parkland.edu/planetarium and clicking in "International Year of Astronomy." Comments are welcome! When the club gets a page up and running, that planetarium will link to the CUAS page.

Remember the dates for the **park tour!** We need your help! If everyone volunteers for two dates, then we can spread around the work.

Mon	Mar. 30	8-10pm	Douglass, C
Thu	Apr. 2	8-10pm	Crestview, U
Mon	Apr. 6	8-10pm	Prairie, U
Tue	Apr. 21	8:30-10:30	Eisner, C
Tue	Apr.28	8:30-10:30	Blair Park, U
Thu	Apr. 30	8:30-10:30	Robeson, C
Mon	May 4	8:30-10:30	Morrissey, C
Sun	May 17	8:30-10:30	Hessel Park, C
Tues	May 26	8:30-10:30	Cherry Hills, C
Thu	May 28	8:30-10:30	Meadowbrook, U

Wed	Aug. 26	8:30-10:30	Anita Purves, U
Thu	Aug. 27	8:30-10:30	Lohmann, U
Tue	Sep. 22	8-10pm	Clark, C
Thu	Sep. 24	8-10pm	Garden Hills, C
Mon	Sep. 28	8-10pm	Centennial, C

* Daylight Savings Time

The **2009 calendars** are in! Thanks to Willard Brinegar, they will be available at the meetings for \$10 (members) and \$12 (non-members). We also still have **T-shirts** that we get out at the meetings. They are \$10 each. We have a Mars shirt, Stephen Hawking, and several other designs.

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.

TREASURERS REPORT

Will appear next month . . .

OBSERVATORY NEWS

Small projects list 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.



We'll also need someone to drain the remaining gasoline out of the mowers in the shed.

A LOOK AT 2009

Welcome to the International Year of Astronomy (IYA) and the 400th anniversary of the first astronomical observations made with this instrument then called the “Optik Tube” and we now call the telescope. Strap on your seatbelt as there isn’t a lack of things to do astronomically this year. Here’s a quick look!

First, eclipses. This is an easy one. Basically there aren’t any! For us, anyway. We’ll have two solar and four lunar in 2009, but the paths of the two solars won’t come close to us. The “big one” is a total solar that crosses India, China and the South Pacific on July 22. The Annular eclipse is early (January 26) but the path is in the Indian Ocean. The partial lunar eclipse in December is visible in the eastern hemisphere and three penumbral lunar eclipses aren’t worth mentioned as they occur at either Moonrise or Moonset for us! Oh well! The next biggie is July 11, 2010 . . .and we won’t see that one either.

On to planets . . . Mercury is a tough rascal to corral since it’s so close to the Sun, so you have to catch it on one side or the other. There are four views of Mercury in the evening sky and three in the morning sky in 2009. We start the year with a decent view of the planet but by mid-January, it’s too low to see in the west. The best evening view occurs from about April 5 to May 15. On April 25, Mercury sets at 9:40pm CDT. From mid-July to early September is another decent view and a better one from mid-November to the end of the year. On December 20, you’ll have an hour of darkness to spy Mercury in the west. For the morning-minded, there are two favorable times, one being from the end of May to early July and another from the end of September to the end of October. In early October, Mercury rises near 5:30am.

Venus begins the year placed magnificently in our evening sky where it will stay until Marcy 26. Greatest separation from the Sun occurs on January 14 when it sets near 9pm. By the end of February, it makes a rapid trek towards the Sun’s glare. Venus passes between the Sun and Earth on March 27 but it’s 4° above the ecliptic, so technically you can see it both in the evening and the morning sky! After March 23 it makes a slow ascent in the morning sky. By mid-July, Venus is rising at 3am CDT and brightening the morning skies.

Mars rises as the morning twilight begins from New Year’s Day to the end of April! Yes, it rises earlier, but the sunrise time is also earlier! It will eventually make it’s way into the evening sky later in the year. By the end of December it will rise at 7:30pm CST. The rovers celebrate five Earth years on Mars in 2009.

Jupiter disappears behind the Sun early in January to reappear in the morning sky by mid-February. It will rise at midnight CDT on June 15. Opposition for Jupiter (when it is usually closest and rises at sunset) occurs on August 14.

Saturn will be a spring object near the stars of Leo. It’s opposition is March 8 so we’ll have a good view! In late August, Saturn will set in the evening twilight to eventually reappear in the morning sky by early October.

Oppositions for both Uranus and Neptune occur on September 16 and August 17 respectively.

As far as notable planetary gatherings go, Mercury and Saturn are close for several weeks near August 23 in the evening sky. In the morning sky, Mercury is 0.7° below Jupiter on February 24, and Mars is 2° to the upper left of Venus on June 21. Saturn is 0.5° to the left of Venus during the morning of October 13.

The Moon will “occlude” (or pass in front of) some brighter objects this year including Venus on April 22 (around 8am), the star Antares on June 6, and the Pleiades star cluster on August 14 during the morning hours.

Meteor showers are fun to observe if you have a dark, Moonless sky. It’s usually best to observe “shooting stars” before dawn, during the early morning hours. This year, the Lyrids (April 21-23) occur just before New Moon, the Eta Aquarids (May 5-7) are drowned out by a waxing gibbous Moon, and the Delta Aquarids will be better as the first quarter Moon will set around midnight. The

potent Perseid shower (August 11-13) happen at third quarter Moon, which rises around midnight – that’s not good, but you’ll still see the brighter meteors. The Orionids (October 22) occur four days before new Moon, the Leonids (November 17) are at new Moon and the Geminids (December 14) occur three days before new Moon, so all three of these are favorable, though it’s naturally chillier!

As far as the club goes, our meetings are on the second Thursday of the month at the Staerkel Planetarium at Parkland at 7pm. We also meet at our observatory for “Family Skywatch” open house events on the Saturday closet to the first quarter Moon. In 2009, these dates are Jan. 31, Feb. 28, Apr. 4, May 2, May 30, June 27, July 25, Aug. 29, Sept. 26, Oct. 24 and Nov. 21. Note that, due to how the calendar worked out, there is not a Skywatch in March. Usually the Saturday before these dates, we have our member’s only, New Moon sessions at the dome. But we’ll meet at the Middlefork Forest Preserve near Penfield for some dark sky viewing on April 18, August 15 and October 10, all at 8pm.

The planetarium will have girl scout workshops in early April followed by boy scout merit badge workshops in early May. See the planetarium web site for more info. They’ll also open a show called “Bad Astronomy” sometime in May. Be *sure* to see this one!

The IYA has many events this year with further info available on the web. The Hubble print unveiling will be at the planetarium on February 17 from 4:30 to 6:30 and you’re invited to stop by. The dates for our “park tour” of sidewalk observing is on both the club web site and the planetarium web site – *please* plan to come to some of those! The “Globe at Night” project is March 16-28, and “100 Hours of Astronomy” is April 2-5. More information about these events will appear in upcoming newsletters. A two-part “Quest for Infinity” NOVA special will be shown on PBS April 7 and 14. World Space Week is October 4-10 followed by the Great Worldwide Star Count from October 11-23. The 40th anniversary of the first Moon landing will occur on July 20th.

We owe all this activity to Galileo, who celebrates a birthday on February 15. He’ll be 445 years old. On August 25 this year, we’ll have the 400th anniversary of Galileo using his telescope to show a group of Venetian lawmakers a few things in the skythus completing the “first astronomical outreach activity involving a telescope” ever! *Let us continue the 400 year tradition!*

-Dave Leake



LOOKING AHEAD

- | | | | |
|--|----------------------|----------|----------------------|
| January 8 | CUAS Club Meeting | 7-8:30pm | Staerkel Planetarium |
| Our first meeting of the year usually has us using the Zeiss projector to look at the sky phenomena for the year. This will especially be important in planning on what to observing (and where to set-up) in the parks for IYA. | | | |
| January 16 | “The Planets” opens | 8pm | Staerkel Planetarium |
| See a brand new show originally written by the Southeastern Planetarium Association. Take an updated visual tour of the planets in our own solar system before examining the diversity of extra-solar planets. | | | |
| January 24 | New Moon Observing | 7pm - ? | Observatory |
| For the die-hards and people who don’t know the meaning of “cold!” | | | |
| January 31 | CUAS Family Skywatch | 7-9pm | Observatory |
| Our first open house of the year. Join us! Be careful of the ground at the observatory – we don’t want anyone to slide off the roads or get stuck in the field. This is our last open house for the year. Take I-57 | | | |

to the south of Champaign to the Monticello Exit. Take the exit and then turn right (west) on the Monticello Road. Go 1.4 miles and then turn left on County Road 700E. The Observatory will be 0.8 miles south on this road, on your left. All viewing sessions are weather permitting.

February 6 “World of Science” lecture 7pm Staerkel Planetarium
Dr. Tim Lindsey, manager of the Illinois Sustainable Technology Center, will be in the dome to discuss “Recovering Energy from Wastes” – a topic that affects us all! Admission is \$1 at the door.

February 12 CUAS Club Meeting 7pm Staerkel Planetarium
This is our annual night where we help people operate that telescope they may have received for the holidays. Bring your collimating tools if you have them and join us for this “telescope user’s seminar. In the past we have sat and waited to see who shows up. This year, the event is again free to telescope owners, but we have asked them to RSVP for a headcount. That information will be put in the club list the day before the meeting.

February 17 Hubble Event 4:30 – 6:30pm Staerkel Planetarium
Come, have a cookie, and see the unveiling of a new and spectacular Hubble photo. The event is free and kids are welcome. See the “Club News” section for the details.

February 21 New Moon Observing 7-?pm Observatory
For those who can’t feel cold! All observing sessions are weather permitting.

February 28 CUAS Family Skywatch 7-9pm Observatory

February 28 Science Olympiad Regionals (am) Franklin Middle School

March 6 “World of Science” talk 7pm Staerkel Planetarium
State Climatologist Jim Angel will discuss “Climate Extremes” in Illinois.

March 7 Science Fair 8:30-11 am Parkland College
Contact Dave if you’re interested in being a Science Fair judge! The student projects are fascinating and lunch is provided.

March 12 CUAS Club Meeting 7-8:30pm Staerkel Planetarium
Program to be announced. We’ll also go over the park tour for IYA.

March 20 “Spring Prairie Skies” opens 7pm Staerkel Planetarium
Our traditional backyard skywatching star show switches from the winter to the spring constellations. Call 351-2446 for a full schedule.

March 30 IYA Park Tour 8-10pm Douglass Park
If you can, join us for the first of about a dozen observing sessions in the park. We’ll hand out brochures and maybe do a little recruiting of new members. Bring a telescope if you have one, too. All observing is weather permitting.

April 2 Moonwalk 2009 kick-off 5-7pm Staerkel Planetarium
Again, we’ll try to beat Rockford and Peoria by logging our miles walking. Lets see if we can walk to the Moon and back twice! Form a team and participate! More info will be available as we get closer to the event.

April 2 IYA Park Tour 8-10pm Crestview Park

Night #2 takes us to Crestview Park in Urbana. Join us if you can (weather permitting, of course). A full IYA schedule appears on the web site.

April 3 "World of Science" talk 7pm Staerkel Planetarium
Can plants make you healthy? What information is supported by good science? Dr. Donald Briskin will show us some useful "Medicinal Plants." Admission is \$1 at the door.



Astronomy Club Resources

Well, it looks like the Phoenix lander is dead. The Mars winter has taken its toll. Phoenix shut down and is not expected to revive. A silent moment for the Phoenix, please.

On another note; Astronomers have discovered what causes the shimmering of the Northern Lights. Researchers have discovered that an explosion of magnetic energy a third of the way to the moon powers substorms, which causes the Northern Lights to shimmer. It appears that magnetic field lines suddenly "snap" to a new shape throughout the universe.

Substorms can often accompany intense space storms that can cause radio communications and global positioning system signals to go bonkers. To read more on the Northern and Southern lights, go to NASA's website. There is a really informative article and some very nice pictures also. (sorry, I can't include them in the newsletter, they don't show up very well.)

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

-WM-

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>

